EDAMBA @ EUBA 2018

INTERNATIONAL SCIENTIFIC CONFERENCE
for Doctoral Students
and Post-Doctoral Scholars

CAPACITY AND RESOURCES FOR SUSTAINABLE DEVELOPMENT:
THE ROLE OF ECONOMICS, BUSINESS, MANAGEMENT AND RELATED DISCIPLINES

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Capacity and Resources for Sustainable Development:

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Management and Related Disciplines

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Foreword

The **University of Economics in Bratislava (EUBA)** represents a renowned Higher Education Institution with tradition, international engagement and specialisation in the area of economics, business and management.

Its multidisciplinary focus was further stretched to embrace international relations and applied languages, so project & innovation tandems and a number of specialised institutes – including the *Economics and Management Institute – constitute the University now.

Membership of the Slovak Republic in the European Union automatically places the University of Economics in Bratislava in a competitive environment of the *European Higher Education Area* and the *European Research Area*.

The University of Economics in Bratislava has been an active participant in the prestigious **European Doctoral Association in Management and Business Administration (EDAMBA)** network, seeking to provide a forum for exchanging state-of-the-art knowledge and findings of doctoral students and post-doctoral scholars in the era of science diplomacy and frontier research.

Thus, the **2015-2017 editions of the international scientific conference for doctoral students and post-doctoral scholars held at the University of Economics in Bratislava in terms of its EDAMBA membership focused on**:

"The Era of Science Diplomacy: Implications for Economics, Business, Management and Related Disciplines";

„Open Science & Open Innovation: Opportunities for Economics, Business, Management and Related Disciplines";

„Knowledge and skills for sustainable development: The role of Economics, Business, Management and Related Disciplines".

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Abstract
The article deals with the issues of implementing the modern investment policy of Slovakia in the market of educational services. The experience of providing higher education services to Ukrainian youth in Slovakia is explored. The benefits for Ukrainian youth from studying at Slovak universities are considered. The main motives for the future movement of Ukrainian youth to study in Slovakia are distinguished.

Keywords: *education, Slovakia, Ukrainian youth*
JEL classification: F16, I21

1. Introduction

Slovakia's investments into the education of Ukrainian youth are strategic importance for the formation of the individual, the assimilation of a person by the socially formed international experience, the relation to international relations, social norms, roles, functions; active use of European experience by the person from the point of view of his internal positions, the formation of his own worldview, the realization of the outlook in his own

experience of interaction with other people; participation and contribution of man to the further development of spiritual values.

To measure human progress, the Human Development Index (HDI) is used, which is a synthetic parameter. It is calculated on the basis of three indicators: life expectancy, education and real GDP per capita. According to the HDI, the states are divided into three groups: countries with high human development (0.800 and above); average (0,500-0,799); low (less than 0,500). Over the years of independence Ukraine has moved to the middle level. Now the HDI indicator of Ukraine continues to decline. In 2016, according to the HDI Ukraine was at 84th place among 188 countries and territories (in 2015, Ukraine was on the 81st place). Slovakia occupied a higher position (the country was on the 40th place).

The HDI takes into account three basic dimensions of human development: life expectancy at birth; average length of training and expected duration of training; gross national income per capita. In addition, data of social protection levels, indicators of health and cultural development of the population, crime status, environmental protection, participation of people in decision-making are additionally taken into account.

The HDI is closely linked to human capital. Human capital is a kind of stock of skills, skills, abilities and motivations created by investment and accumulation of a person. Its formation, like the accumulation of physical or financial capital, requires the withdrawal of funds from current consumption in order to receive additional income in the future. The most important types of human investments include education, training at enterprises, migration, information search, health care. It is a form of capital, because it is the source of future earnings, or future pleasures, or both. He is human, because he is a part of individual (Azhazha, 2007).

2. Discussion of the problem

Investment in education is the main component of the accumulation of human capital. Investments in education are given special attention in any society, combining the efforts of both those who wish to receive education and the investors of education. Knowledge is an integral part of the effective development of human capital, which is understood by knowledge, abilities, skills and motivation. This capital is constantly accumulated. Investments in education are the most significant types of investments in human capital. Each state is interested in educating people in it as much as possible.

Education is the only sphere that completely reproduces itself, affects all other spheres, defining trends and prospects for their development. The effectiveness of investment in education works for the future, dynamically reacting to changes in the external environment, adapting to the new needs of society and simultaneously actively influencing its condition, thus defining the needs themselves. As Voronkova (2008) notes, education as a component of the humanitarian sphere, on the one hand, contributes to the formation of the information economy, on the other – to a large extent depends on it.

Financing education in Europe is a priority area in the context of the Europe 2020 development strategy. Investing in education, vocational training, lifelong learning provide human capital development to increase employability, active citizenship and social cohesion, in particular, contribute to combating marginalization and unemployment among young people. We agree with the statement of Ostenda and Wierzbik-Strońska (2014) that investments in the education of foreign students are a prerequisite for raising the university's rating.

In general, in EU public funding for education is 90% of the total investment in education. It is under pressure due to the savings and budget consolidation processes that are being implemented throughout the process of coordinating economic governance in Europe. And expenditure on education financing in the EU countries is constantly increasing. For example, funding for education in the Slovak Republic grew by 8.5% in 2015 compared to 2014 (Investments in education have received a new impulse?, 2016).

Recently, Slovakia has seen an increase in production and an inflow of investment from abroad. In a short time, Slovakia was able to form a genuine market economy and take a course toward the western market. However, now in Slovakia there is a problem of lack of specialists. That is why the universities of Slovakia show a desire to see among their students enrolled students from neighboring Ukraine. Investments in education contribute not only to human, but also to the increase of social and cultural capital (Galanská – Krkošková, 2015).

Ukrainian youth perceives education in the EU countries as an investment in their own future, connected with the acquisition of the necessary knowledge, skills and experience of a successful person. Acquiring education in the EU countries, Ukrainian youth receive a world-class diploma, high-quality knowledge, fluency in a foreign language and career prospects.

Today Slovakia offers to Ukrainian youth the optimal investment option for higher education, characterized by a number of advantages:

- the mechanism of providing educational services is regulated by EU normative-legal acts;

- the process of providing educational services in different EU countries is almost identical, since it meets European and world standards of quality and criteria for assessing knowledge;

- the diplomas of Slovak higher educational institutions are recognized and do not require additional confirmation not only in all the states of the European Union, but also in the USA, Canada, Australia, New Zealand, and a number of other countries and is a serious advantage in further pursuit of work abroad;

- the great advantage of studying in Slovakia is the affinity and proximity of the Ukrainian language with Slovak one, which can significantly facilitate preparation for admission to the university, as well as the learning process itself. The Slovak language is simpler and closer to the Ukrainian language than Polish or Czech ones. Half a year of language courses is enough for Ukrainians to study with Slovak students;

- most of Slovak universities are members of the European Association of Universities and work closely with many universities in Europe. Slovak universities are actively involved in student exchange projects, which also provides additional opportunities for students – Ukrainian citizens;

- the accommodation and education in Slovakia are much cheaper compared to more developed European countries such as Austria, Germany, England, Switzerland. The average cost of living for a foreign student is 250 EUR per month (accommodation in a dormitory in a 2-room suite with a private bathroom, meals, visits to sports clubs, swimming pools, water parks, cinemas, theaters, mobile communication);

- public transport is free of charge for students (and for students – Ukrainian citizens);

- another attractive bonus will be a discount card (ISIC-card), which can be issued by any student. It allows all students (and students – Ukrainian citizens too) to get discounts up to

40% on travel while traveling around the world, as well as in some stores, catering establishments and entertainment centers;

- teaching in all higher educational institutions of Slovakia for Ukrainian youth in Slovak is free of charge;

- the costs of education in private universities are from 1500 to 7000 EUR per year (Education in Slovakia: All about education abroad, 2018);

- for foreign students studying in Slovakia, there is a real possibility to get a scholarship from 250 to 1000 EUR within the framework of the National Scholarship Program, This Program supports the exchange of students, postgraduates, university lecturers and academics exchanged between the Government of the Slovak Republic. The main condition for obtaining a scholarship is successful studying of students (National Scholarship Program of the Slovak Republic, 2018);

- Ukrainian students, postgraduate students and teachers can get scholarships for studying and internships in the universities of the Slovak Republic in accordance with Article 1 of the current Program of Cooperation between the Ministry of Education and Science of Ukraine and the Ministry of Education of the Slovak Republic in the field of education for 2005-2008, the Slovak side is ready to accept 5 students for partial studies in higher education (up to 10 months) and up to 5 trainees and doctoral students / postgraduate students (for the purpose of collecting materials for the study of scientific literature on the subject of research) from General notes period of stay up to 10 months. Slovakia offers free tuition, scholarships, residences in dormitories (Cooperation Program, 2005);

- foreign students have already been granted the right to official employment and residence in the territory of Slovakia from the moment they study at the preparatory courses, which allows them to cover their expenses;

- the process of obtaining a visa for studying in Slovakia is much easier (the government is interested in inflow of foreign students and does not create high barriers and obstacles). Loyal attitude towards foreign students makes it easy to obtain not only a visa, but also a residence permit;

- a foreign student in a Slovak higher education institution can count on studying for half a year or a year in European countries, thanks to the program of international exchange of students of ERASMUS+;

- Slovakia joined the Schengen agreement in 2008, which allows foreign students to travel freely in all the participating countries of the treaty;

- after obtaining a diploma from a Slovak university, Ukrainian youth have a very high chance of gaining a prestigious job and staying in Slovakia or any other country in the European Union;

- high security level. Slovakia is the country with the lowest level of crime among all the countries of the European Union. The small territory of the Slovak Republic and the relatively high national homogeneity (a large part of the population are ethnic Slovaks) are the cause of the absence of territorial, interethnic, religious conflicts;

- Slovakia can be reached quickly in any European country by road, air or high-speed rail. All transport communications within the country correspond to a high European level. For students of the Slovak universities the passage in the railway transport on the territory of Slovakia is free.

In April 2014, an Agreement between the Cabinet of Ministers of Ukraine and the Government of the Slovak Republic on the academic mutual recognition and equivalence of education documents issued in Ukraine and the Slovak Republic was signed. Ukraine and Slovakia are actively cooperating in the implementation of a number of programs and projects developed within the framework of the European Union, the Council of Europe, and other international organizations.

Ukraine actively cooperates with the International Visegrad Fund and participates in its projects on an ongoing basis. On January 29, 2014, in Budapest, heads of government of the Visegrad countries (Poland, Slovakia, Hungary, and the Czech Republic – V4) approved a joint statement on the readiness of the V4 countries to continue to mobilize the International Visegrad Fund to finance projects supporting the development of civil society in Ukraine, to facilitate contacts between people and offer study programs in the V4 countries for Ukrainian students . An agreement was also reached to increase funding for the "Visegrad 4 Eastern Partnership Program" (V4EaP) program launched in June 2011, both through attracting foreign donors, through increased own resources (Cultural-humanitarian cooperation, 2015).

The study of the main directions of investment of Slovakia in the provision of educational services to Ukrainian youth makes it possible to distinguish three main motives for the future movement of students.

1. Students, going to study abroad to get skills and knowledge, access to which is limited in Ukraine, are usually returned to Ukraine. In this case, state policy measures should aim at maximizing the use of human capital and the integration of reciprocal educational migrants in the labour market (the effect of brain inflow predominates).

2. Students, going to study abroad in order to stay for permanent residence, return to Ukraine only when the migration experience was unsuccessful, for example, due to an overly optimistic assessment of the benefits or psychological costs associated with migration. In this case, measures of state policy should be aimed at promoting the creation of quality jobs in Ukraine, informing students about the particularities of employment in host countries, working with the host countries to ensure the protection of the rights of Ukrainian students and building effective policies for interaction with highly skilled migrants (the effect of brain drain is potentially predominant).

3. Students who go to study abroad in order to be reunited with a family living abroad are likely to stay abroad. In this particular case that it is particularly important to understand whether they are guided by the possibility of future employment when choosing a specialty. If the horizons of planning such students are limited in the near future, then there is a likelihood that after graduation they will choose the professional path of their parents and will be employed in areas that do not require the education. On the other hand, in the event of an unsuccessful migration experience and a return to Ukraine, they may face the fact that their knowledge and skills are not demanded on the Ukrainian labour market (the effect of a waste drain is potentially predominant).

The difference in salaries in Ukraine and in Slovakia will affect the decision of young people from Ukraine who receive higher education in Slovakia. According to T.Nestorenko's study (2016), with the higher cost of studying in Slovakia and the more years of schooling, it seems less desirable for Ukrainian youth to come back to Ukraine, where salaries are several times lower than in the Slovak Republic.

3. Conclusions and policy implementation

The investments of Slovakia in the education of Ukrainian youth have a beneficial effect on the rates of economic growth and welfare of the population, but only under certain conditions. In this regard, the state needs to move to more effective forms of education and ensure that additional resources are attracted to this area from different sources. It is necessary the program that involves structural and organizational changes in the field of general and higher education. However, the rationalization of the state system of education is a necessary but rather lengthy process. In order to increase Slovakia's investments into the human capital of Ukrainians, in the coming years, first of all, an increase in the possibilities of individual choice, in addition to the comprehensive reorganization of the existing education system, there should be expansion of training abroad and the invitation of foreign specialists to Ukrainian universities.

Investments in education are justified, since they have a positive effect: countries with significant level of such investments are the leaders in terms of GDP. In other words, investments in education are paid for both for the country and for the individual, and the rates of return are different for different countries. It should be noted that the rate of return on investments in education is quite high both for the state and for the individual.

The Organization for Economic Cooperation and Development has defined the profitability rate for persons with higher education. According to these estimates, investment in education yields a return of 6% to 24%, depending on the country and age of graduates. In some cases, it exceeds the average rate of profit for manufacturing enterprises. This kind of investment is expedient in all aspects, as they always bring economic and social benefits.

It is necessary to take into account the link between education and investment in other sectors of the economy as an important point in terms of determining the size of investment in education, which in these particular conditions would provide optimal economic growth. The methodology for determining the effectiveness of educational services is of particular interest at the level of subjects of the educational market of colleges, universities, and universities.

The analysis of the links between the costs of education and investments in Slovakia in other sectors of the economy is important in terms of determining the size of investment in education, which in the given specific conditions would provide optimal growth of the economy.

In the short term, Slovakia's investments in education bring an increase in employment, which leads to the creation of new jobs in those sectors of the economy, which are designed to ensure the normal livelihoods of the student.

That is, the investments of Slovakia in the education of Ukrainian youth lead to a revival of economic activity in such areas as the purchase and rental of housing, trade in food products and manufactured goods, service (cooking, transport, communications, household services), banking services, etc. Growth in employment and job creation lead to the recapitalization of incomes from these jobs. Such a stimulus for the economy of the state and the region is similar to what can often be achieved through private investment, but the differences are significant, especially in terms of how such investments can benefit the largest number of citizens and society as a whole.

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Relationship between Stock Prices and Macroeconomic Variables in Emerging Markets

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Abstract
The relationship between stock prices and macroeconomic variables has been of interest to many researchers. But so far a definitive conclusion about this relationship has not yet been reached. This relationship varies from country to country due to the economic structure. The key objective of the present study is to investigate the impact of changes in selected macroeconomic variables namely inflation, interest rate and exchange rate on stock prices in five emerging countries including Mauritius, Brazil, India, Russia and Nigeria. A panel approach was employed in this research using monthly data from June 2008 to September 2014. The results obtained revealed a significant positive relationship between inflation and stock prices and a significant negative relationship between exchange rate and stock prices. However interest rate which was represented by the lending rate has an insignificant relationship with stock prices.

Keywords: *Stock Prices, Macroeconomic Variables, Emerging Markets*
JEL classification: E44, E47, F31

1. Introduction

The relationship between macro-economic variables and stock prices is a fundamental criteria for investment in emerging stock markets and has drawn the attention of economists, policy makers, and the investment community since a long time. It enables policy makers to forecast the effect of existing and future policies and regulations. Furthermore, investors would be able to consider more informed choice when they completely understand the relationship and thus reduce their exposure to risk. However most of the study on this topic are based on developed nations and the nature of the correlation between equity prices and macroeconomic variables in developed economies may be different from emerging countries. Hence the objective of this is to investigate empirically and examine the relationship of the stock prices in five emerging countries (Mauritius, Brazil, India, Russia and Nigeria) with three macroeconomic factors (Inflation, Interest Rate and Exchange Rate). For this study monthly data from June 2008 to September 2014 has been used. The results indicate a significant positive relationship between inflation and stock prices and a significant negative relationship between exchange rate and stock prices. However, an insignificant negative correlation has been found between interest rate and stock prices. The rest of the paper is organised as follows: Section 2 discusses briefly the related literature, while section 3 dwells into the model specification and estimation. It also discusses the findings. Section 4 concludes.

2. Related Literature

Theoretical Underpinnings

Inflation and stock prices

Many theories have explained the relationship between stock prices and inflation rate. This includes the theory of the Fisher (1930) which states that the nominal interest rate comprises of the expected real rate of interest and expected rate of inflation. Thus, nominal rate of equity returns affect the ex-ante real rate of equity returns and inflation rate. Thus, from the Fisher hypothesis, we can deduce that equities act as a hedge against inflation. In other words, stocks and prices must move positively with expected inflation in order to serve as a hedge against rising prices. In addition according to "proxy hypothesis" proposed by Fama (1981) the negative correlation between equity returns and inflation is based on the money-demand theory and the quantity theory of money. Fama affirms that growing inflation rates decrease real economic activity and demand for money. The Reverse Causality Hypothesis by, Geske and Roll (1983) propose that the requirement to finance the deficits in government budget is behind the inverse correlation among equity returns and inflation. Additionally the inflation illusion hypothesis proposed by Modigliani and Cohn (1979), shows that the real influence of inflation is generated by money illusion. In fact, inflation illusion propose that when expected inflation increases, bond yields duly increase, however since equity investors improperly discount real cash flows using nominal rates, the rise in nominal yields results in equity under-pricing and vice versa.

Interest rate and stock price

Interest rate is a further macroeconomic factor that affects stock prices. In fact, numerous studies found that interest rate has inverse impact on stock prices. For instance, Asprem (1989) had found that the interest rates affected stock prices negatively. Economic theory forecasted that short term and long term interest rates have an inverse effect on stock market returns. According to Humpe and Macmillan (2007), stock prices in United States and Japan is negatively related to long term interest rates. Maysami et al. (2004) stated that the association between short run and long run interest rate is discovered to be positive as well as negative respectively. This is so as long run interest rate is a good proxy for nominal risk free component. It is applied in the discount rate for stock valuation models and might also act as a proxy for anticipated inflation in the discount rate. On the other hand, French et al., (1987) recorded that the relationship between both short term and long term interest rate and stock returns was negative. Fama (1981) also explained the impact of interest rates on stock prices. According to him anticipated inflation is inversely associated with estimated real activity, which in turn is positively associated to stock returns. Conversely, the effect of the long-term interest rate on equity prices comes directly from the present value model through the effect of the long-term interest rate on the discount rate. Instead of using short-term or long-term interest rates, Campbell (1987) examined the linkage among the yield spread and equity returns. He stated that the similar variables that have been used to forecast surplus returns in the term structure also forecast excess stock returns, concluding that a simultaneous examination of the returns on bills, bonds and equity must be advantageous. Other than that, a linear correlation between stock price and interest rate and as well as stock price and alterations of interest rate was examined by Uddin and Alam (2007). On top of that, they also examined the linkage among alterations of stock price and interest rate and finally alterations of stock price and alterations of interest rate in Bangladesh. For all the circumstances, they discovered that interest rate has significant inverse association with stock price and alterations of interest rate also has significant inverse association with alterations of stock price.

Exchange rate and stock prices

Two main theories to determine the relationship between stock prices and exchange rates are the flow-oriented model (FOM) and stock-oriented models (SOM). According to Flow Oriented Models or the traditional approach, exchange rate is determined mainly by a nation's current account or trade balance performance. Dornbusch and Fisher (1980) claims that when exchange rates changes, this affects international competitiveness and trade balance, in that way influencing real economic variables like real income and output. Equity prices, generally defined as a present value of future cash flows of companies, must adjust to the economic perspectives. Thus, flow oriented models demonstrates a negative affiliation between stock prices and exchanges rates with direction of causation running from exchange rates to stock prices. On the other hand, stock oriented models or portfolio balance approach lays emphasis on capital account in the exchange rates determination. A rise in domestic stock prices causes domestic currency to appreciate via direct and indirect channel. When stock prices increase investors are encouraged to purchase more domestic assets, selling at the same time foreign assets to get domestic currency indispensable for purchasing new domestic stocks. The indirect channel grounds in the following causality chain. When home stocks prices increase, this leads to growth of wealth, which causes investors to raise their demand for money, which in turn increases home interest rates. High level of interest rates raises foreign capital inflow and initiates an increase in foreign demand for domestic currency and hence causing the currency to appreciate (Branson, 1983; Frankel, 1983). Thus, this shows a positive relationship with causality running from equity prices to exchange rate. Studies that support stock-oriented approach of exchange rates includes Soenen and Hennigar (1988), Aggarwal (1981), Kwona and Shinb (1999), Maysami and Koh (2000), and Tai (2007).

Empirical Review

Macroeconomic variables and stock prices

A Rafay, F Naz & S Rubab (2014) studied the causal relationship among KSE 100 index and interest rate, exchange rate, CPI, imports and exports for nineteen years. The Granger Causality test showed that there is a bi-directional correlation between interest rate and KSE 100 index. Exchange rate and imports had uni-directional linkage with KSE 100 index and no causal relationship existed between consumer price index, exports and KSE 100 index. However, M Mehrara (2014) studied the causal affiliation between equity prices and macroeconomic aggregates in Iran. He tested the relationships between the TEPIX Index and the three macroeconomic variables: money supply, value of trade balance, and industrial production using quarterly data for the period 1993:1 to 2010:4. But his analysis indicated unidirectional long run causality from macroeconomic variables to stock market. In addition, the vector error correction model was used by Nishat and Shaheen (2004) to study the long-term equilibrium affiliation between certain macroeconomic variables and the Karachi Stock Exchange Index.

The macroeconomic factors comprised of the industrial production index, the CPI, Ml, and the value of an investment earning the money market rate. Data was used for the period 1973:1 to 2004: 4. They also discovered that these five variables are cointegrated and two long-term equilibrium affiliations existed between these variables. Their outcomes indicated that a "causal" relationship exist between the stock market and the economy. It was discovered that industrial production was the major positive determinant of Pakistani equity prices, whilst inflation was found to be the major negative determinant of equity prices in Pakistan. They discovered that while macroeconomic variables caused equity price movements, the reverse causality was observed just in the case of industrial production and

equity prices. Naik and Padhi (2012) investigated the correlation between the Indian stock market index and five macroeconomic factors that comprises of industrial production index, wholesale price index, money supply, treasury bills rates as well as exchange rates. Then a co-integration was found between macroeconomic variables and stock market index. Thus, a long-run equilibrium affiliation existed between the dependent and independent variables. It was also discovered that equity price had a positive relationship with money supply and industrial production but it was inversely linked to inflation. These outcomes are consistent with the results found by Nishat and Shaheen (2004). In addition it was even observed that the exchange rate and the short-term interest rate are not significant variables to determine stock prices. According to the granger causality test, macroeconomic variable causes the stock prices only in the long-run and not in the short-run. Furthermore, Hosseini et al. (2011) studied the association between stock market indices and four macroeconomics variables namely; crude oil price, money supply, industrial production and inflation rate in two countries, China and India. The research was carried out during the time span of January 1999 to January 2009. The use of Johansen-Juselius (1990) Multivariate Cointegration and Vector Error Correction Model method demonstrated both long and short run correlation between macroeconomic variable and stock market index in the two countries. Conversely, M Gençtürk et al. (2012) examined the causal correlation between Istanbul Stock Exchange (ISE) stock prices, dollar rate, CPI, interest rates and industrial production in the period January 2005 to July 2011. Their results indicated that there is no long-run linkage between ISE stock prices and macroeconomic variables including interest rates, exchange rate and consumer price index. It was discovered that the long-run relationship is merely between ISE and industrial production. The recent investigation on the linkage between stock prices and macroeconomic variables was done by Fard et al. (2015). They investigated the affiliation between the Stock Price Index and macroeconomic variables which included the GDP, the oil price, the cash and the foreign exchange rate. The relationship was explored by using seasonal data from 2001 to 2014. The analysis of prediction error variance indicated that the unofficial foreign exchange rate had the most long term effect on the Stock Price Index and the effect of the other variables declined with time**.**

Inflation and stock prices

Various researchers have investigated the correlation of stock price and inflation. There are also different kinds of results obtained by previous researches by using different kind of statistic methods. Various studies like Fama and Schwert (1977), Kaul and Seyhun (1990) and Subhani et al. (2010) found that stock price and inflation has negative relationship. For instance, Chidothi and Sheefeni (2013) examined the correlation between inflation and equity prices for Zambia, during the period 1999–2011, using monthly data. The outcomes showed inverse correlation between inflation and equity prices. Besides, Mahmood et al. (2014) studied the relationship among inflation and stock prices in Pakistan. In this study VAR model was employed to find affiliation among stock prices and inflation and the result again showed that inflation affects stock prices negatively. However, there are also some studies that discovered insignificant correlation between these two variables. For example, Limpanithiwat and Rungsombudpornkul (2010) examined the relationship between inflation and stock prices in Thailand and he also investigated the impact of particular incidents that is Tsunami and global economic recession on the relationship. The vector autoregression (VAR) was employed to examine the correlation. The outcomes showed that no relationship existed between inflation and stock price. Using the Johansen cointegration test, C Floros (2004) also discovered that in the long-run there was no affiliation between stock returns and inflation in Greece.

Furthermore, certain studies also found that equity prices and inflation are positively related. Farsio and Fazel (2008) argued that inflation and equity prices can move in similar direction. They employed data from 1950 through 2007 and ran simple regressions as well as the Granger causality tests. They then obtained a positive correlation between inflation and equity prices. In addition, Kaur (2015) studied the impact of inflation bug on the economy barometer- Stock Market Index and it was found that inflation was positively correlated with stock market index over the period 1995 – 2015. Similarly, Ibrahim and Agbaje (2013) tested the correlation between stock returns and inflation in Nigeria and their results showed that inflation has a positive and significant effect on stock returns. Additionally, Ibrahim and Agbaje (2013) cited that Graham (1996), Boudoukh and Richardson (1993), Graham (1996), Choudhry (2001), Patra and Posshakwale (2006) and Lee et al. (2000) amongst others also obtained a positive linkage between inflation and equity returns. Moreover, Saleem et al. (2013) examined a long run correlation between KSE 100 index return and inflation rate in Pakistan. The result from cointegration test indicated that KSE 100 index return and inflation rate was inversely correlated but the Granger causality tests indicated that there was no causality between KSE 100 index return and inflation rate in any direction. Additionally certain studies showed both positive and negative relationship. For instance, Anari and Kolari (2001) states that the stock price and inflation are inversely related in the short run but positively related in the long run. As far as the paper of V Tripathi and A Kumar (2014) is concerned, they studied long term relationship between inflation and stock returns in BRICS markets using panel data. Correlation results indicated a significant negative correlation between stock index and inflation rate for Russia and a significantly positive correlation for India and China.

Interest rates and stock prices

Several studies have employed various methods to explore the relationship between rate of interest and stock prices and as conclusion different outcomes were obtained. Amarasinghe (2015) studied the causal correlation between equity price and interest rate. Monthly data for the period from January 2007 to December 2013 was used and the Granger Causality test was ran and it indicated one way causal correlation between the variables. That is stock returns did not Granger Cause interest rate but interest rate did Granger Cause stock returns. A regression was also run and the outcome demonstrated that interest rate has significant inverse affiliation with ASPI. In contradiction the results of granger causality test for S Ray (2012), showed that there is no significant causal relationship between interest rate and share price. On the other hand, Hussain et al. (2014) explored the linkage between equity returns of the Karachi Stock Exchange (KSE) and the short term interest rates in Pakistan. They initially found out the significant short term and long term relationships between stock returns and the interest rates by using the error correction mechanism and co-integration test. Then they employed the Granger Casualty test and they found no significant relation between these two variables in either direction just like S Ray (2012). However, in the study of Shah et al. (2012), it was observed that stock prices did not granger cause interest rates but interest rate did granger cause stock prices. Moreover, Panda (2008) investigated whether interest rates matter for stock markets in the Indian context. Monthly averages of the SENSEX and NIFTY were used to measure stock prices in April 1996-June 2006. During that same period, the month-end yields on 10-year government security and treasury bills (15-91 days) were used to measure long-term and short-term interest rates, respectively. It was discovered that the long-term interest rates had an inverse effect on stock prices, while short-term interest rates had a positive effect on stock prices.

Even, the study of Maysami et al. (2004) demonstrated that short-term interest rates and long-term interest rates respectively have significant positive and inverse correlation with the stock prices. Pallegedara (2012) obtained the same result as the previous author that long-term interest rates affected stock prices negatively but in the short run he did not obtain the same result. In fact, Pallegedara (2012) studied the dynamic correlation between stock market performance and the interest rates in Sri Lanka for the period from June 2004 to April 2011. The result revealed that stock market performance was negatively related with interest rate in the long run whilst no causal relationship was determined in the short run.

Exchange rates and stock prices

Researchers have not obtained same affiliation between exchange rates and stock prices. Some of them found that a long run relationship exist between these variables while others found no such relationship. In addition certain researchers found a negative relationship; some found a positive relationship while other found a mixed or bidirectional relationship. There are a number of studies that discovered positive linkage between exchange rate and equity prices. For instance, Odoyo et al. (2014) examined the relationship between stock prices and exchange rates in Kenya for the period from 1st January 2012 to 31st December 2013. They applied the Pearson product-moment correlation coefficient method and their findings showed a positive relationship between these two variables. Similarly, ND Richards & J Simpson (2009), studied the relationship between equity prices and exchange rates in Australia. The outcomes demonstrated proof of a positive co-integrating affiliation among the two variables, with Granger causality discovered to run from equity prices to the exchange rate. Conversely, some of the researchers opposed the above argument and presented a negative relationship between the variables in the long-run. For instance, Erbaykal and Okuyan (2007) investigated whether the traditional or portfolio approach is relevant for developing countries, by making use of the correlation between equity prices and exchange rates. For this research, they used the cointegration and causality tests. They employed monthly data from 13 emerging nations. In 6 nations, an inverse correlation between the variables was found in the long-run. On top of that a causal relationship in 8 nations was obtained, for 5 nations there was uni-directional causality running from equity prices to exchange rate and for 3 nations bi-directional causality existed between the variables. These results were interpreted as the relevance of the portfolio approach in the developing countries investigated. Furthermore bi-directional causality has also been observed in other studies such as; Cakan and Ejara (2013) who studied the dynamic relationship between the exchange rates and stock prices for twelve emerging nations during the period of May 1994 to April 2010. They made use of linear and non-linear Granger causality tests in their analysis. According to their results stock prices and exchange rates had linear and non-linear bi-directional causality in majority cases. Additionally, G Singh (2015) investigated the relationships between exchange rate and equity price over the period January 2007 to March 2014. The results showed that exchange rate has a positive effect on equity prices. According to granger causality test, both in long run and short run a bi-directional causality existed between exchange rate and equity price. On the other hand, there are certain researchers that obtained uni-directional causality. In fact, Ghazali et al (2008) studied the correlation between stock prices and exchange rates in Malaysia. They employed high-frequency data of USD-MYR exchange rates and Kuala Lumpur Composite Index (KLSE) from July 22, 2005 to March 23, 2007, which is the span of time during which MYR was not pegged. Engle Granger and Toda-Yamamoto causality tests concluded that uni-directional causality was running from equity prices to exchange rates. Nevertheless, investigations have also ever provided results of no long run relationship and no causal relationship between these two variables. For example; Ihsan et al. (2015) examined the causal relationship between exchange rates and Karachi Stock Exchange (KSE) 100 Index and the same result was

obtained by Rahman and Uddin (2009) which indicated that there is no cointegrating relationship between stock prices and exchange rates. Also, it was discovered that exchange rates is not Granger caused by equity prices and equity prices is not Granger caused by exchange rate, thus there was no way causal correlation between these two variables.

3. Research Methodology

Model Specification

We follow the model specification of Laichena and Obwogi (2015) to investigate the impacts of the macroeconomic variables on stock returns in the East African stock market. The study employed a multiple regression model in undertaking the panel analysis as follows:

$$Y_{i,t} = \alpha + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \acute{\varepsilon}_{i,t}$$

Where Y= Stock return, X_1= interest rate, X_2= Inflation rate X_3= Exchange rate, X_4= GDP, $\acute{\varepsilon}_{i,t}$= error term.

A panel regression will be employed to examine the effect of selected macroeconomic variables on stock prices in five emerging countries. Following the model used by Laichena and Obwogi (2015) the study postulates the relationship between stock prices and selected macroeconomic variables as

$$\mathbf{SPI_t = \alpha_0 + \alpha_1 INFL_t + \alpha_2 INTRt + \alpha_3 EXR_t + u_t} \qquad (1)$$

Where: $\mathbf{u_t}$ is the stochastic error term. $\mathbf{\alpha_1}$ which is the coefficient of **INFL** is the elasticity of **SPI** with respect to **INFL**. In particular, it measures the degree of responsiveness of **SPI** to changes in the level of inflation ceteris paribus. $\mathbf{\alpha_2}$ and $\mathbf{\alpha_3}$ also represent their respective coefficients and elasticities and thus postulate similar behaviour as $\mathbf{\alpha_1}$. Table 1 describes each of the variables used in the model.

4. Analysis

This section presents the various estimation results (Table 2) and discussions regarding the implications of the empirical findings.

Stock prices and inflation

The findings from our study showed that consumer price as a proxy of inflation is a significant variable to explain stock prices since it has a probability value of less than 5%. The result also indicates that inflation is positively related with stock prices in the emerging countries selected. Boyd et al. (2001) showed that nations with lower inflation, the inflation rate are expected to have a positive effect on stock market development. The four countries that we are studying, they aim to control inflation at a low rate. For instance Brazil‟s central bank has been trying its best to control its high inflation rate. According to the Wall Street Journal article Brazil Central Bank Hints at End to Rate Increases, Brazil‟s central bank increased its interest rate for ninth consecutive times, from 10.75% to 11%. This rise in interest rate is to deal with the inflation from supply shock of food crops due to draught. Even in Mauritius, Russia, India and Nigeria instruments of monetary policy are used by their central bank to keep inflation under control. The positive correlation that we found between the two variables indicates that a rise in inflation result in a rise in stock prices and vice-versa. This outcome support the Fisher‟s theory of interest rate that if the economy was at full employment in one period and no inflation was expected, then, the central bank raised money supply suddenly; the aggregate income would grow causing higher investment. Earlier studies also confirmed the positive relationship such as Farsio and Fazel (2008), Ao Olufisayo (2013) and Ibrahim and Agbaje (2013). In the same framework, RC Maysami et al. (2004) obtained a

positive significant correlation between inflation and Singapore stock returns. A possible reason for such a correlation might be the government‟s active role in stopping price increase as the economy continued to recover after the 1997 crisis. Furthermore, Shabri et.al (2001) obtained a positive linkage between share prices and inflation in Malaysia and Indonesia. Also, Onneetse L. and Khaufelo R L (2014) found the same result that is inflation (CPI) is positively and significantly related with Botswana stock market price. However our findings seem to contradict the results of certain previous studies that obtained an inverse relationship between inflation and stock prices just like Fama and Schwert (1977), Feldstein M (1980) and Kaul and Seyhun (1990). The inverse relationship is also supported by Kalyanaraman L and Tuwajri AL (2014) who found that Saudi stock prices and inflation as measured by consumer price index have negative correlation. This result supports the notion that investors do not consider equity as a hedge against inflation. In addition, according to Eita JH (2012), rise in inflation is associated with fall in stock market prices. Again, this outcome implies that Namibian equities are not a hedge against Namibian inflation and it suggest that if there is an economic slowdown predicted by inflation increases, stock prices will decrease. On top of that, Spyrou (2004) who examined the relationship between stock return and inflation for 10 selected emerging markets, found insignificant relationship in Mexico during 1989M1–1995M12, 1989M1–2000M8, and 1995M12–2000M6. This contradicts our findings as we have got a significant relationship between the two variables.

Stock prices and interest rate

Previous literature found that interest rate and stock prices are positively related that is a rise in interest rate results in a rise in stock prices and vice versa. Maysami et al. (2004) showed that short- and long-term interest rates have significant respectively positive and inverse relationship with the Singapore‟s stock market. The reason is possibly that long-term interest rate is a good proxy for the nominal risk-free component used in the discount rate in the stock valuation models and may also serve as a surrogate for expected inflation in the discount rate. Besides, Chia and Lim (2015) indicated that the long-run relationship between share prices and interest rate of treasury bills is positive. The positive impact contradicts to the theory that interest rates and share prices should be inversely related. By contrast, the study done by Raymond K (2009), Inyiama and Nwoha (2014) and Amarasinghe (2015) found that interest rate and stock prices are negatively related. In addition, Elly and Oriwo (2012) obtained a strong inverse correlation between the 91 day Tbill and the NASI. In fact according to them the reason could be that T-bill rates tend to compete with stocks and bonds for the resources of investors. This decreases the demand for stock market instruments and leads to an eventual fall in stock prices. Additionally, Apergis and Eleftheriou (2012) also discovered inverse relationship between stock returns and interest rates. This negative relationship means that interest rates represent not only the opportunity cost of investments in the stock exchange market, but also the higher borrowing cost from the banking sector, taking into consideration that their economies under study belong in a bank-based borrowing system. Our empirical findings confirm the above arguments by reporting a negative association between prime lending rate and stock prices in our emerging economies sample. However, the findings from our study also showed that lending rate is an insignificant variable to explain stock prices since it has a probability value of more than 5%. This means that interest rate has no impact on inflation rate. One reason may be due to the stable lending rate of Mauritius, Russia and India during the period of May 2012 –September 2014. There are various previous studies that support our findings such as Zohaib Khan, et.,al. (2012) who conducted a study on the impact of interest rate, exchange rate and inflation on stock returns of KSE 100 index. It was discovered that interest rate have insignificant effect on stock returns of KSE 100. Additionally, even MM Quadir (2012) discovered that the effects of Treasury bill interest on

stock returns were found statistically insignificant. This result was expected because a good number of macroeconomic variables (such as inflation rate, exchange rate, balance of trade and consumer price index) in determining the value of stocks were absent in the study. Furthermore, according to Naik and Padhi (2012), short term interest rate, as proxied by three month government of India treasury bills turned out to be the insignificant determinant of stock prices. On the other hand, ST Jawaid and A Haq (2012) found that long term interest rate has insignificant effect on stock prices. This is so because usually the long-term changes in interest rate do not affect the short-term investment of stocks.

Stock prices and exchange rate

Our result indicated that exchange rate is a significant variable to explain stock prices due to its probability value of less than 5%. The finding also reveals a negative correlation between these two variables. In addition, according to Ma and Kao (1990), a currency appreciation inversely influences the home stock market for an export-dominant nation and positively influences the home stock market for an import-dominant nation. Hence, since our findings indicate an inverse correlation among the two variables, it means that the four emerging countries are export-dominant countries. For instance, Statistics Mauritius announced December 17, 2014 that net exports amounted to Rs 4.71 billion for the third quarter of 2014 and its ratio to total exports worked out to around 39% compared to 37% in the corresponding quarter of 2013. Additionally, during the year 2010-11 India was able to cross the $200 billion mark for the first time in its export history. The financial year 2011-12 recorded an augmentation of 21% in exports which reached $303.7 billion. As far Brazil is concerned, in 2013 it exported $247B, making it the 22nd largest economy in the world.

Throughout the last five years its exports have rose at an annualized rate of 3.7%, from $205B in 2008 to $247B in 2013. Lastly in 2013 Russia exported $507B, making it the 9th largest exporter in the world. Our findings indeed support the finding of study conducted by Hussin et al. (2012) who proved that foreign exchange rate (MYR) and Islamic share price (KLSI) share a long-term relationship which is negative and significant. In addition, the study of Kirui et al. (2014) also revealed that there is an inverse correlation among stock returns and the exchange rate. In fact, the impact of one standard deviation shock in exchange rate lead to the fall of stock returns in the mid of the second quarter however it increased in third quarter. It fell in the fourth quarter and came back to the equilibrium at a later time. The decrease in stock returns supported the inverse and significant coefficient of the exchange rate. Moreover, Khan and Yousuf (2013) examined the relationship of a selective set of macroeconomic forces on stock market prices in Bangladesh. Again, it was found that the exchange rates are negatively related with the stock prices – meaning that Taka depreciation results in higher imported inputs and, thus low exports and low stock prices and vice versa. However, there are studies such as Mutuku and Ng"eny (2015), MS Khan (2014) and Inyiama and Nwoha (2014) that found positive relationship between stock prices and exchange rate. Additionally, according to Osamwonyi and Evbayiro-Osagie (2012) exchange rates in Nigeria are positively related to SMI (Stock market index) in the short run but inversely in the long run. In fact, the Nigerian economy is an open economy where foreign sector play a key role in the capital intensive oil and gas sector. In the short run, it was found that exchange rate has a positive impact on growth in import trades by enhancing the returns on trading firms and multi-nationals, and hence SMI. This clarifies why it is significant in the short run. In the long run, it turns negative as the long run growth is impaired and the balance-of-payments as well by appreciating exchange rate. Our study also contradicts findings that obtained insignificant correlation among equity prices and exchange rate. For instance, the study of E Ozbay (2009) indicates that the affiliation between stock returns and currency basket (DLCB) employed as a

proxy for exchange rate is negative but insignificant. In addition according to O I Inyiama, and C Nwoha (2014), a positive but insignificant relationship exists between share price and exchange rate.

5. Conclusions

This paper has investigated the impact of macroeconomic variables on stock prices of five emerging economies namely Mauritius, Brazil, India, Russia and Nigeria for the time frame; June 2008 to September 2014. It could be deducted that inflation rate and exchange are significant variables to explain stock prices. It was also found that inflation has a positive relationship with stock prices in the five emerging markets and this implies that an increase in inflation leads to a rise in equity prices and vice-versa. However, exchange rate was found to be negatively related with stock prices which mean that increase in exchange rate causes stock prices to fall and vice-versa. As far as interest rate is concerned the result indicated that it has an insignificant relationship with stock prices. This implies that interest rate has no impact on stock prices. The reason behind this contradicting result might be due to short period of study, or most probably differences in liquidity and depth in the different emerging markets and as well as differences in political and economic circumstances. In addition, the data set spans the period of the recent financial crisis. This may have had some impact on behavior of stock market and thus on the correlation between macroeconomic variables and stock prices.

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Appendix 1

Table 1
Description of Variables and their Expected Results

Variables	Measurement of variables	Expected Results	Arguments
SPI Stock Prices	SEMDEX, IBOVESPA Index, NIFTY 50 Index, MICEX Index and NSE ALL-Share Index		
INFL Inflation	CPI	Negative Relationship	According to Fama''s (1981) hypothesis increasing inflation rates decrease real economic activity and demand for money. When economic activity decreases, it has an inverse effect on the future corporate profits and, hence equity prices.
INTR Interest Rate	Lending rate	Negative Relationship	According to MM Alam and MGS Uddin (2009) when the interest rate paid by banks to depositors rises, people switch their capital from share market to bank. This reduces the demand of share and thus also reduces the price of share and vice versa. On the other way, when interest rate paid by banks to depositors increases, the lending interest rate also rises which leads to a fall in investments in the economy. This is an additional explanation related to declining share price and vice versa.
EXR Exchange Rate	Country's currency per U.S dollar	Positive and negative relationship depending on the nature of the economy	Ma and Kao (1990) states that domestic-currency appreciation affects domestic equity-price movements inversely for an export-dominant nation but positively for an import dominant nation. In fact, for net exporting nations, currency appreciation results in a fall in net exports. Thus, the decrease in firm's profit will have an effect in price of the stocks. But for net importing countries, currency appreciation may result in lower import prices causing a rise in firm's revenue and in turn price of stock.

Table 2
Fixed effect with robust standard errors

	Coefficients	P>|t|
Inflation	1.1364	0.027
Interest rate	-0.2174	0.428
Exchange rate	-1.4043	0.008

Comparison of Approach towards selected Features of Marketing Innovation in a Business Organization and in a Cooperative

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Abstract
Business marketing belongs to one of the fastest developing areas. Businesses which are oriented on final customers decide for themselves how and which marketing innovations they actually apply. Micro and small enterprises are a special category, as they are not able to apply marketing innovations in the same range as medium sized and big enterprises, due to their capital strength and resulting disadvantages. However, nowadays, some of the innovations are becoming more available also for micro and small enterprises. These are for example social networks or websites, which could be administered by company itself. We decided to focus on how the production cooperatives use the websites and social networks. These are production cooperatives with a target to meet the approved international principles and selected legal form of business, apart from just making the profit and also limited liability companies which were established to make a profit.

Keywords: *cooperatives, business, social network,*
JEL classification: J54, M31

1. Introduction

Up to September, there were 591 483 business subjects in Slovakia in total, 197 830 out of which were limited liability companies. There were 1 358 cooperatives in the same period of time (SO SR, 201). The aim of business is to make profit. In order to meet this precondition, it is necessary to inform specific customer segment what customer requirements the business could meet. One of the areas marketing pays attention to is a business presentation.

Kotler (2015) emphasizes that the task of marketing is to identify and meet the human and social needs. He gives an example of Google company that identified the need for more efficient information search or Ikea company which offers modern furniture for a reasonable price. Drucker (1973) also emphasizes the need to know the target segment. Halada (2015) has a more specific view, as he understands marketing as a process of planning and realization of support and distribution of ideas, services and products and price policy with the aim to meet the targets of organizations and individuals. In his opinion, management, market research, research, development, logistics, pricing, sale and service are the main functions of marketing. The given functions are interlinked and interconnected in a form of marketing strategy.

Based on above mentioned it is clear that if the company would like to make some profit, it's necessary to focus on the needs of the customer and it's essential to get to know him. Principally, the businesses should communicate what problem or need they are able to meet. Many business societies are interested in addressing as big amount of potential clients as possible.

Table 1

Development of number of business companies and cooperatives in the period of 2011-2016 in the Slovak republic

Year	2011	2012	2013	2014	2015	2016	Absolute growth index
Business company	145 110	155 689	171 941	184 258	183 531	200 141	1,38
Growth index	-	1,07	1,10	1,07	0,99	1,09	-
Cooperatives	1 573	1 542	1 546	1 542	1 323	1 353	0,86
Growth index	-	0,98	1,01	0,99	0,86	1,02	-

Source: http://datacube.statistics.sk/#!/view/sk/; own processing

The number of business companies has increased in the given period by almost 40%. In 2015, there was a slight drop which could have been caused by the introduction of tax license, when many inactive companies closed their businesses. There was an opposite trend with cooperatives, where their number has decreased in a given period. In the last year, a mild increase was registered. The biggest decrease was registered in 2015. The situation was the same with the business companies.

We think that it is important to point out a specific role of cooperatives, not only within the legislation, where they are seen as a form of enterprise, but also in a wider aspect. Business register defines a cooperative as *„...an association of unfinished number of persons, established for the business purpose or to sustain economic, social or other needs of their members."*. (Law no. 513/1991, Coll.). Cooperative membership is not round off, what means it's open for new members. Vejdělek (1997) reckons that arrival and departure of its members has no influence on the existence of the cooperative. On the other side, in the 90s, thanks to legislative and economic changes, there was a mass drop in the membership base, mainly of agriculture cooperatives, what had a fundamental, even breaking-up influence on given subjects. It's important to emphasize, that a mass departure of the members was caused by the legislative changes.

Apart from allocations in Business register, each cooperative should follow principles approved by International cooperative federation:

1. Optionality and open membership – it means a possibility to join for all who might be interested, regardless their race, social status, political opinion or religion. The condition is to accept the statutes and requirements following the membership.
2. Democratic control by the members – apart from the controlling committee, the activities of the cooperative should be controlled by its members as well.
3. Economical participation of the members – members contribute to cooperative with their capital and have a democratic control over it.
4. Autonomy and independence – cooperatives are autonomous, independent subjects governed by the members. In case a cooperative enters into partnerships or receives external sources, members need to maintain the autonomy and their governance.
5. Education and awareness – cooperatives provide their members with possibility of education, members inform public about advantages of membership in a cooperative.

6. Cooperation with other cooperatives – cooperatives serve their members as efficiently as possible and should strengthen cooperative system through cooperation with national, regional and local structures.
7. Interest in community – through established policy, cooperatives endeavor to sustainable development of the community.

Apart from business activity, cooperative keeps the principles. It's not possible to say there is any similarity with non-profit organization. If a cooperative makes a profit, this could be divided between its members, shareholders and those who are actively interested in its activities and take part on its governance.

We assume that even despite the given differences, for both subjects it is important to make profit. For business companies, it means to make sense of its business purpose, for a cooperative, it's a source of financing of its further development, taking care of the members and of society.

Companies are a part of the market, where there are active competition subjects, which have greater capital strength, better technology, more qualified employees, better approach towards external sources of financing. Given type of companies represent significant competition for capitally weaker companies. These are mostly micro and small companies. Given factors, together with the other ones, are part of limiting factors of small and medium sized companies (Jáč – Rydvalová – Žižka, 2005):

- Unfavorable economic situation.
- Internal competition.
- Interest rates.
- Legislative restrictions.
- Financing availability.
- Foreign competition.
- Costs on energies.

For the purpose of elimination or reduction of given factors, small and medium sized companies join into organizations which promote more suitable legislative conditions, common authorized interests and provide help to the members with any business activities and employee development they mght need. As an example of specific associations we can state Slovak association of small and medium sized enterprises and traders, focused on:

- Representation of members against other subjects of economic and social life in Slovakia,
- Creation of conditions for spreading the information between the members, generalization of facts and experience from business activity,
- Organization of courses, seminars and trainings, study stays, exhibitions,
- Submitting the proposals and remarks for solving the authorized interests.

Coop Produkt Slovensko is associating production cooperatives and promoting similar interests of member cooperatives. Apart from similar interest such as Slovak association of small and medium sized enterprises and traders, it promotes dispensing of ideas of cooperative system, creates conditions for cooperation with other cooperative organizations, including those foreign ones. It runs consultancy activities in the field of cooperatives establishment, economic and legislative area.

Given organizations associate not only entrepreneur subjects, but also organizations such as universities, schools, self-government representatives, government institutions, which significantly help the members by promoting suggestions and measures into practice.

However, business subjects need to make an effort to establish themselves on the market. Apart from implementation of 4C concept (customer value, communication, convenience, and cost to the customer), not only in the process of planning, but also in practice and in perception of sold goods as a certain way how to meet the need or solve the problem of the customer, it is important for the company to present itself against a specific segment. At the same time, it's important to build relationships against potential customers, local community, organizations, and suppliers. Suitable, and nowadays even essential, tools for building the relationships and addressing the new clients are tools of online marketing, mainly internet website and social network site.

Internet, so called web sites, became an essential part of communication mix of companies, but also of other institutions. They could be observed as a tool of direct marketing, as they allow a direct sale, are interactive, are able to adjust contents to given visitor, based on his preferences and measure their efficiency. It's important to set their main target. This could be a direct sale, recruitment of potential customers, communication with key organizations – stakeholders or creation and strengthening of brand image. There could more than one reason to set up a website. In all cases, it's necessary to follow certain criteria. Karlíček a Král (2011) introduce some of them:

- Attractive content: internet sites need to be interesting and attractive for their group of users. Otherwise the user will not be motivated to examine the site closely or to come back.

  Website interactivity can help to increase its attractiveness. For instance, organizations could allow discussion of the users, where they can share their opinions and experience. Organization should monitor forums and answer the questions. (Neelotpaul, 2010).

- Easy to find: there is a significant number of different websites on the internet. To have the website efficient, it needs to be easy to find.

- Easy to use: website navigation needs to be intuitive, user friendly.

- Graphic design: unprofessional, old, aesthetical design puts off the visitors. Unsuitable design influences how the customer sees the company.

An important criterion is readability of text, as it has a big influence on purchase decision. Čichovský (2012) in his publication states that 83 % of potential customers wouldn't buy the goods, if they can't read the customer information due to the size of the letters. To a certain rate, we can blame the legislation, as it dictates manufacturers which information should be included on a product. Healthy human eye is not able to read letters smaller than 1,1 mm from the distance of 30 cm. Therefore some supermarkets offer a gift at the entrance – magnifying glass with a supermarket logo.

Apart from given criteria, among other factors that contribute to higher attendance of the website is the load speed, its displaying on different devices, etc.

Facebook, a chosen social network, has a great potential. It represents a marketing opportunity for companies (with regard to specific target audience). With a growing number of people, it's possible to get more quality information about products, services and company from the customer point of view. To get new fans doesn't mean necessarily to sell the goods. Through communication with fans, company could build better relationships with customers, who would provide a valuable feedback. Opinions are spread very quickly, what could be sometimes dangerous for the companies. However, if you manage to create a group for a certain brand, it's a great opportunity to influence and win new customers (Janouch, 2010).

Facebook offers a wide range of social applications. For example fun pages, company profile, automatic updates of entries, highlighting, etc. Despite of that, it's good to create a specialized application for Facebook, which would support the following campaigns (Treadaway, Smith, 2010):

- Launch of a new product or service – it could be a development of application which creatively shows the value of goods.
- Intensive brand creation – with a game application, an interactivity which helps customers to get positive experience related to specific brand or a product.
- Logical spread of a brand through selected articles or a profile – some organizations provide their products or services which naturally evaluate as a motive for creation of application and thus strengthen its overall value.

It's important for the company that a specific application motivates a user to a certain activity that will support set objectives or a message related to a brand. Applications may serve a different purpose, but once the users use the application, they will be confronted with the given brand or a product.

2. Use of selected marketing innovations within companies

In the following part, we will focus on the use of specific innovations in the field of marketing within selected companies.

Within a set of cooperatives which we have analyzed, there is a typical domination of small enterprises, second are micro enterprises, and there are only very little medium sized enterprises. There are no big companies, with 250 and more employees.

Figure 1

Structure of analyzed cooperatives based on number of employees
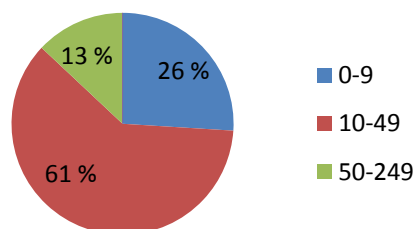
Source: own processing

In a given set of business companies, micro enterprises prevail, second are small enterprises, and third are medium sized companies. The same as in the previous set, there are no big companies.

Figure 2

Structure of analyzed business companies based on number of employees
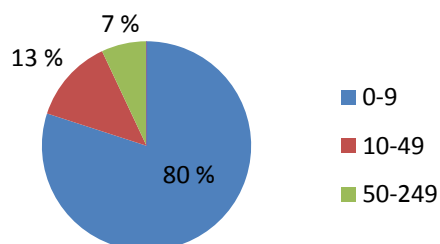
Source: own processing

1.1. Targets

The main target of our work is focused on comparing the use of selected marketing innovations in cooperatives and in business companies.

To reach the main target, the following partial targets were set:
- Collection and selection of book, magazines and internet sources,
- Evaluation of the level of the use of marketing innovations in business companies based on number of employees,
- Evaluation of the level of the use of marketing innovations in cooperatives based on number of employees.

1.2. Methods and methodology

We have used standard scientific methods such as analysis and synthesis, comparison, induction, deduction and selected mathematical methods. Before we started with the work elaboration, we have become familiar with the theme of cooperatives, choice and selection of suitable book, magazine and internet sources. When selecting the analyzed subjects, we have focused on representatives of cooperative movement and association of private entrepreneurs, specifically Coop Produkt Slovensko (association of production cooperatives) and Slovak association of small enterprises, where there are business companies and entrepreneurs as members. For the puArpose of our research, we have focused on business companies, specifically liability limited companies.

The results are arranged based on number of employees. The intervals are set up based on recommendation of European Commission no. 2003/361/EC. After getting the results, we have formulated specific conclusions and recommendations.

2. Use of selected marketing innovations in production cooperatives and in business companies

Internet marketing could be considered a dynamically developing sub-discipline of the marketing itself. We can see the development in a world-know publication on marketing by Kotler. In a Czech translation from 2001, only few basic examples and terms are mentioned. In a publication from 2007, very often there are examples from the area of e-business and there are even several phenomena which are changing the theory of marketing. Another translation from 2013 abandons the rooted marketing approaches behind due to social changes, economy development and global market, but also due to the impact of information and communication technologies. Comparing to classical marketing, internet marketing has several specialties. For instance, it is available 24/7, 356 days a year, has a good possibility to monitor, measure and evaluate, has an ability to communicate with broad, even global public. It also offers possibility of individual approach to each customer (Eger, 2017).

However, Janouch (2010) emphasizes another important part of internet marketing. It's an online reputation, a presence on the internet in terms of leaving the traces. On the internet, marketing activities are mutually interconnected; they complement and condition each other. It's therefore very important to make a use all the tools and space (environment). By environment, we mean websites, blogs, social network profiles, etc.

Totally new marketing space emerges by interconnection of internet and television. Receiver becomes transmitter that will send a feedback back to a sender. E-mails, favorite websites and applications are thus available thanks to interconnection of internet and television. Internet television has not achieved expected success, however, internet in television has already shown a striking marketing potential. Thanks to combination of data received by the user, it will be possible to adjust the commercial even more. Author states an example of the use of smart TV and technology based on Google Analytics. A day before his

wife's birthday, while watching a sports match, it could offer him a suitable present, based on her favorite websites and at the same time, it gives him an advice where to get it, so it's delivered on time. It's a simple combination of data, which users provide about themselves on the internet (Čada - Hieczko, 2011).

Before entering the online space by using the internet website or social network site, it's important for the company to set specific goals and give a purpose to their creation. Number of friends or fun page followers is considered to be a success indicator. Based on author's opinion, they would not compete with those who follow sales and profits made thanks to the contact with the customer. Companies should set the following business goals (Sterne, 2010):

- Increase revenues.
- Decrease costs.
- Increase the customer satisfaction.

Author enforces the idea that given business goals need to be measurable through the income.

Production cooperatives in a given set use internet website differently, depending on their size. The results are summarized into a table.

Table 2

Number of production cooperatives in a given set using the internet website

Number of employees	Using	Not using
0-9 (micro enterprise)	45 %	55 %
10-49 (small enterprise)	77 %	23 %
50-249 (medium enterprise)	100 %	0 %

Source: own processing

Micro enterprises use internet websites the least. With a growing number of employees grows also a number of companies which present themselves through internet websites.

Table 3

Number of business companies in a given set using the internet website

Number of employees	Using	Not using
0-9 (micro enterprise)	67 %	33 %
10-49 (small enterprise)	75 %	25 %
50-249 (medium enterprise)	100 %	0 %

Source: own processing

Similar to production cooperatives, the share of business companies using the internet website is growing with the growing number of employees.

Within both categories of companies, within micro enterprises there is the highest amount of companies which do not use internet websites. However, production cooperatives reach a higher share. Almost the same results were reached within the category of small enterprises. All medium sized companies – both production cooperatives and business companies from the given set – use internet website.

Table 4

Number of production cooperatives in a given set using social networks

Number of employees	Using	Not using
0-9 (micro enterprise)	18 %	82 %
10-49 (small enterprise)	32 %	68 %
50-249 (medium enterprise)	100 %	0 %

Source: own processing

Table 5
Number of business companies in a given set using the social network

Number of employees	Using	Not using
0-9 (micro enterprise)	30 %	70 %
10-49 (small enterprise)	75 %	25 %
50-249 (medium enterprise)	100 %	100 %

Source: own processing

When discussing the use of selected social network in business companies and in production cooperatives, we can state the following. We can see that there is a higher share of social network usage within business companies in the category of micro and small enterprise.

In general we can say, there is a higher share of use of selected marketing innovations – such as internet website and social network website. The low use of innovations in companies with 0-9 employees from a given set was caused by to following factors:

- Lack of theoretical knowledge and practical experience in the field of marketing,

- Lack of personnel,

- Missing financial resources designed for marketing,

- Unwillingness and prejudice against given marketing innovations.

We assume that in this case, to be cautious is not the best way, as the social networks are an opportunity to establish and build relationship with regular and potential customers.

3.   Conclusion and policy implications

The share of micro cooperatives using an internet website and social network is lower, when comparing to business companies. In the introduction, we have stated specific particularities which differentiate cooperatives from business companies and nonprofit organizations. Among the main ideas is self-help and one of the principles is democratic governance by its members. We assume that given principle could have an influence on low use of selected marketing innovations. For the analyzed type of business company is typical a lower number of partners, comparing to number of partners of production cooperative. This has an effect in more flexible adoption of decisions on investments, into marketing for instance. The main target – making the profit – could be related to more intense use of given innovations. Companies therefore try to address the biggest possible number of potential customers in a given segment.

As the main barrier of a low share of using the social networks and internet websites in micro enterprises – business companies, we see the lack of theoretical knowledge and unwillingness to implement given innovations into practice. One of the main barriers for implementation of innovations into production cooperatives is a rather broad spectrum of membership base. Allocation of financial resources on marketing is influenced by voting by the meeting of members. Among the other barriers, there are general barriers related to micro enterprises, or disadvantages arising from minor personnel and capital facilities.

As these companies are members of specific organizations, we recommend implementation of education activities focused on given issue and on marketing in general.

Elaboration of marketing plan with a specification of the needs of given group of employees could be helpful to production cooperatives as well as to business companies. Implementation of individual features of online marketing could be more efficient, and at the same time, it could be a way of its realization.

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Energy Policy and its Impact on Energy Security of EU

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Abstract
EU is heavily dependent on deliveries of oil and gas, therefore energy policy and especially energy security plays important role in the main EU strategic documents. This paper deals with EU energy policy and its impact on energy security and electricity prices. It calculates two main indicators in relation to energy security - Import dependency and Supplier Concentration Index (SCI) which show progress in EU energy security issues (also) due to its coordinated policy. Paper also focuses on electricity market interconnection as one of the key instruments for increasing of secure intra-EU electricity supply as well as decreasing the electricity prices across EU.

1. Introduction

Energy Policy is one of the main pillars of EU's key strategic documents. Uneven distribution of energy sources, differentiated consumption, invoke not only economic and ecological problems, but also significant geopolitical threads, that can only be solved by joint implementation by the member states (Baláž, 2011). European Union's energy policy is defined by three main objectives – secure energy supplies, competitive prices and sustainability. Energy security concerns after Russian-Ukrainian conflicts in 2006 and 2009 became one of the main driver for establishment of EU Energy Union project. Strengthening emergency and solidarity mechanisms, speaking with one voice in external energy policy, implementing of the internal energy market, increasing energy production in the EU, diversifying supplier countries and routes, increasing energy efficiency, reaching the proposed 2030 energy and climate goals represent the main targets of EU Energy strategy defined in 2014 (European Commission, 2014).

Intention of the paper is to explore the status of the EU Energy policy and to identify its role in strengthening of EU's energy security, using the available information sources as well as own calculations. In addition to security issues, paper also focuses on impact of EU's energy policy on development of electricity prices that have a large impact on competitiveness of EU industry.

2. Security of gas supply

IEA defines energy security as "the uninterrupted availability of energy sources at an affordable price". Energy security has many dimensions: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Short-term energy security focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance (IEA,

2014). EU is significantly dependent on import of raw materials therefore decreasing of its consumption as well as diversification of source and transit is of key EU's importance.

In terms of energy dependency, it is important to measure proportion of net import to consumption for all kinds of commodity:

$$\text{Import dependency} = \frac{\text{Net import}}{\text{Primary energy consumption}} \tag{1}$$

As it can be seen from Figure 1, EU imports 53,5% if its energy consumption – oil – 89%, gas 69%, 43% solid fuels. Also in relation to its total energy consumption oil imports represent the main energy supply (32% of total primary consumption), followed by gas (15%). For security reasons, EU countries must maintain emergency stocks of crude oil and/or petroleum products equal to at least 90 days of net imports or 61 days of consumption, whichever is higher, while current oil stocks are sufficient for 120 days.

Figure 1
EU Energy dependency
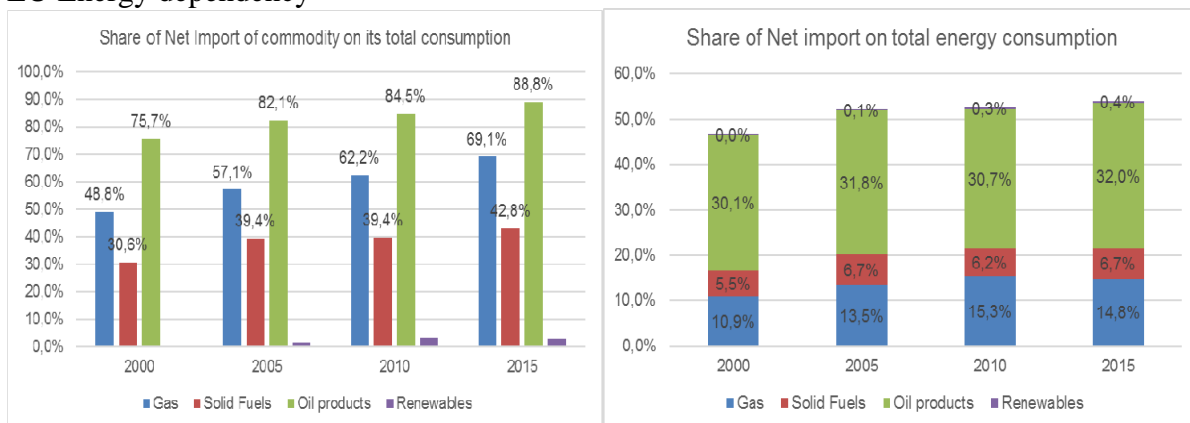
Source: Own calculation based on Eurostat (2017)

Despite of higher oil dependency, import of gas represent a major supply risk due to strong concentration of sourcing countries as well as its infrastructure limitations in its diversification (Kiernan, 2005). Gas consumption represents more than 20% of EU's total energy consumption. In 2015, total consumption of gas was 426 bil. m^3 (Eurogas, 2016) which represented 4% increase in comparison with 2014. Majority of gas is imported from outside EU (more than 60%), mainly Russia (38%) followed by Norway (34%) (Eurostat, 2014). The main transit routes for gas export from Russia to Europe are Brotherhood pipeline (60% of total transport), Yamal (via Belorussia and Poland to Germany) and Nordstream (under the Baltic sea to Germany). The share of LNG (Liquefied Natural Gas) on total gas supply has increased from 4% in 1990 to current 10%. The main suppliers represent Qatar, Algeria and Nigeria. Position of LNG in EU's energy strategy is not based on its current consumption in EU, but on its future expected deliveries that are expected to increase by 50% until 2020 due to expected rising exports from U.S. and Australia.

Although import dependency represents the main indicator of energy security, it does not provide any information about individual commodity importing alternatives and their relative importance. Majority of EU countries are significantly dependent on commodity imports from abroad, but there is a big difference if a country is dependent on a single supplier (mainly Russia) or has its import diversified. Concentration of Suppliers Index (CSI) in its calculation

incorporates also diversification of sources and/or transit routes. We calculated CSI index for gas supplies because of EU's significant gas dependence on Russia.

$$CSI = \sum_{i}^{n}(\frac{Xi}{X})^2 *100 \tag{2}$$

where:
X_i = net gas import from supplier from country i to country X
X = gross domestic gas consumption in country X

Notes:
Intra EU and EEA (mainly Norway) imports were excluded
Values above 100 were adjusted to 100
Value for Austria and Luxembourg was influenced due to its Eurostat reporting without country identification

Figure 2
CSI Index for EU and individual member countries
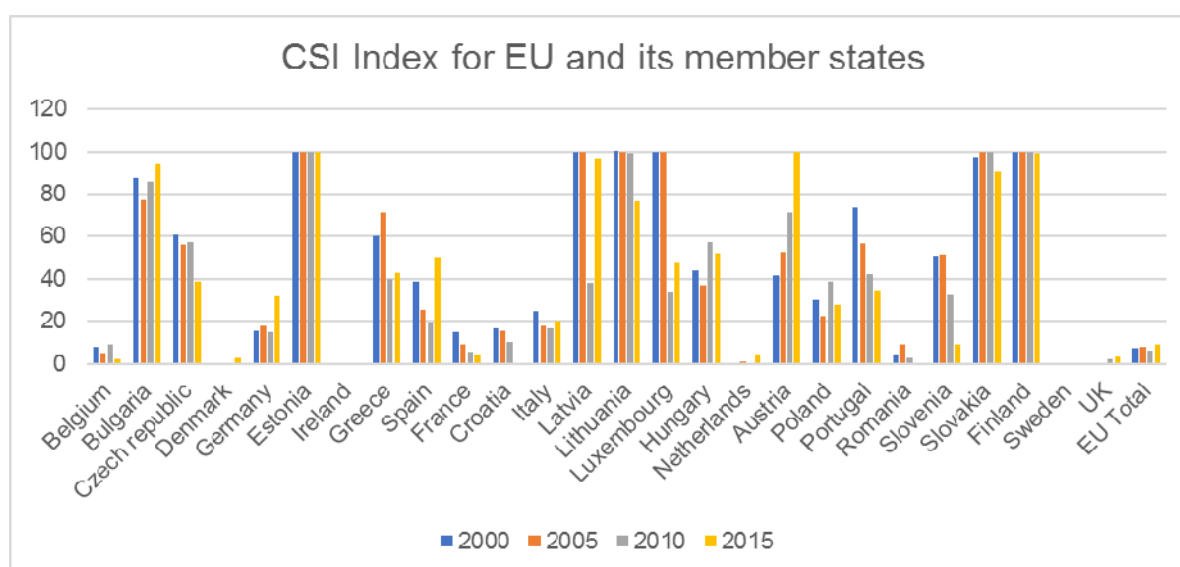
Source: Own calculation based on Eurostat (2017)

Value of CSI index for EU Total during 2000 – 2015 period was stable, around 8 and 9, which represents relatively low value of dependency. Figure 2 shows that EU countries can be split into more groups. Countries with high diversification are Belgium, Denmark, France (low proportion of fossil fuels on energy consumption), Sweden, UK, Holland (including its own generation), Italy, Germany and Greece, all of these countries benefit from import of gas from Norway. Other countries as Slovak Republic, Finland, Latvia, Lithuania, Estonia and Bulgaria are fully or almost fully dependent on one gas supplier. They do not only have high energy security risk but also higher importing prices in comparison with more diversified countries. After Russian-Ukrainian gas conflict in 2006 and 2009, EU countries implemented measurements for increasing their energy security as for example reverse-flow, but also focused on LNG supply that should be one of the main instruments of energy security improvement. In 2015, LNG was delivered to 7 from 20 in 10 member countries. In addition to building up importing facilities, it will also be important to build up necessary infrastructure for LNG transport across EU countries especially to inland countries.

3. Interconnection of electricity markets

Other important instrument for increasing of energy security is interconnectivity of energy markets. In 2012, European Commission set a target for every member country to have electricity interconnection of 10% of its installed capacity. In 2014 EU increased the target to 15% in 2030. Currently 11 countries are not compliant with the target – Bulgaria, Cyprus, France, Germany, Ireland, Italy, Poland, Portugal, Romania, Spain and UK. Interconnection of electricity markets is very important due to increasing proportion of renewables in energy mix and also for increase of liquidity especially in countries with insufficient generation. There are currently 2 connected markets – Multi-Regional Coupling (MRC) - consisting of 19 countries (85% EU electricity consumption) and 4 MC consisting of Slovakia, Czechia, Hungary and Romania which we will further explore.

Slovak electricity network is connected by three 400 kV and two 220 kV lines with Czech Republic, with two 400 kV lines with Poland and Hungaria and with one 400 kV line with Ukraine. Recently there was an agreement between Slovak Republic and Hungary to build up two new 400 kV interconnections that should allow Slovak Republic to export excess electricity after commissioning of two new blocks of nuclear powerplant in Mochovce. Table 1 shows net import/export position of individual countries participating in 4M market coupling. Czech Republic represents the biggest producer as well as exporter with net export of 15% of its generation. On the other hand, Hungary represents the biggest importer, importing of more than 30% of total electricity supply in Hungary.

Table 1
Power market in Czech Republic, Slovak Republic, Hungary and Romania in 2015

GWh	Czechia	Slovakia	Hungary	Romania
Generation	83 892	26 903	30 342	66 296
Export	28 661	12 611	6 249	11 220
Import	16 146	14 999	19 935	4 492
Net Export (+) Import (-)	12 515	-2 388	-13 686	6 728
Domestic supply	**71 377**	**29 291**	**44 028**	**59 568**

Source: Own calculation based on IEA data

Net import/export position of the country defines the "commercial flow" of electricity, that flows mainly from Czech Republic to Slovak Republic and Hungary. In case there are sufficient cross-border capacities, prices in individual countries are coupling. But because of limited cross-border connection between Czech Republic and Slovak Republic, it is not always possible to fully transport demanded lower priced amount of electricity to Slovakia and Hungary where the price is higher and that causes prices differences among 4M MC countries as well as the price coupling between Slovak Republic and Hungary. Figure 3 shows that most of the time, there were 2 prices on the market that confirms insufficient cross-border capacity but on the other hand also that the market tends to eliminate the price differences due to very rare existence of four different prices on 4M MC markets.

Figure 3
Price coupling in 4M MC

THE BALANCING OF PRICES IN CZ-SK-HU-RO DAY-AHEAD MARKET COUPLING IN 2015

Legend:
- 4 different prices
- 3 different prices
- 2 different prices
- No price difference
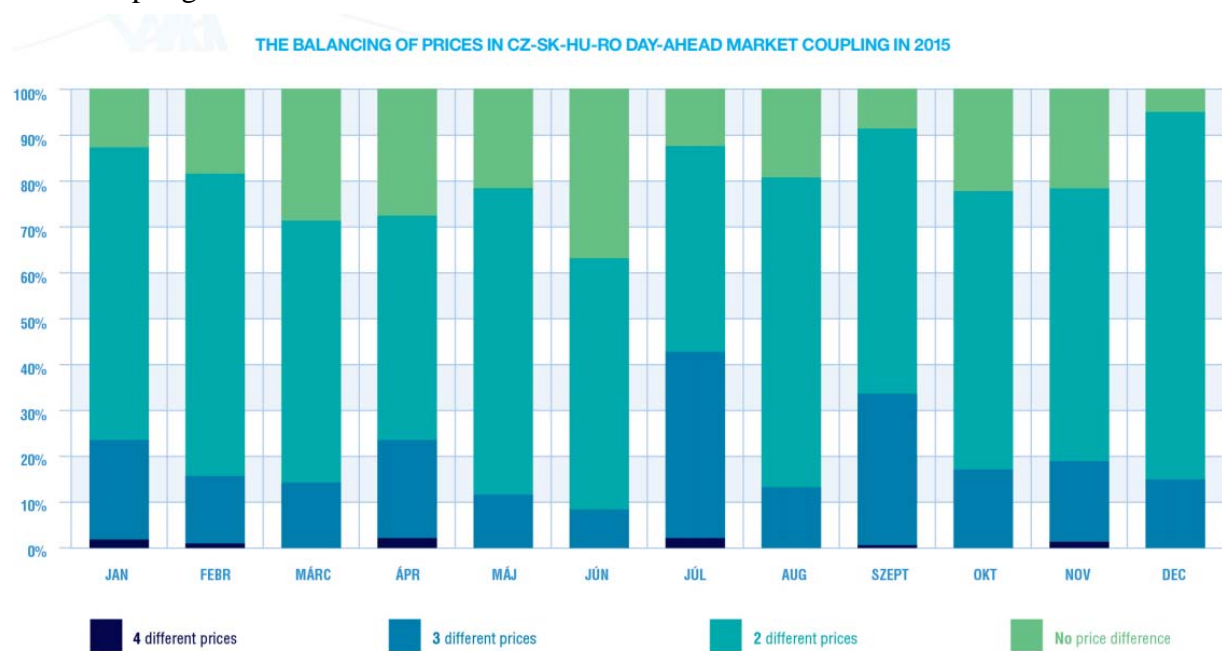
Source: MAVIR (2017)

Czech Republic was the country with the lowest electricity prices during the period of 1.1.2007 to 30.6.2017 due to overproduction of electricity. After interconnection of Czech Republic(as CZ) and Slovak Republic(as SK) market from 1.9.2009 prices in both countries started to align with correlation of 99,7% already in the first year of CZ-SK market coupling. That means that both markets had de facto one supply curve and the cross-border capacities were able to transfer potentially all demanded electricity from Czech Republic to Slovak Republic.

Price spread between those two markets were during most of the traded hours minimal. As there are no publicly available data for electricity prices in Slovak Republic before 1.9.2009 it is not possible clearly confirm that market coupling has decreased electricity prices in Slovak Republic. But due to the general fact that export only goes to the countries with higher marginal price (SK) we can conclude that interconnection of Slovak and Czech Republic markets has potentially lowered Slovak Republic electricity prices.

Electricity is not traded on daily but hourly prices and therefore it is also important to analyze their volatility. Standard deviation of daily prices (Table 2) was in 2008 in Czech Republic (before market coupling) 30,4 €/MWh. In 2010 (full year after market coupling) it was only 15,32 €/MWh (approx. 50% decrease), in 2016 it was even lower (13,11 €/MWh) which confirms that market coupling significantly decreased the daily price volatility in Czech Republic and therefore also decrease the cost for electricity procurement.

Table 2

Daily price statistics in Czech Republic and Slovak Republic

ČR - rok 2008		ČR - rok 2010		ČR - rok 2016		S R - rok 2010		S R - rok 2016	
Mean	64,41341872	Mean	43,70188584	Mean	31,14968	Mean	43,65104452	Mean	31,47453893
S tandard E rror	0,324596319	S tandard E rror	0,163754049	S tandard E rror	0,139924	S tandard E rror	0,164747433	S tandard E rror	0,145748556
Median	62,53	Median	45	Median	30	Median	45	Median	30,3
Mode	0,04	Mode	1	Mode	30	Mode	1	Mode	30
S tandard Deviation	30,4221395	S tandard Deviation	15,32653916	S tandard Deviation	13,11407	S tandard Deviation	15,41951483	S tandard Deviation	13,65999133
S ample Variance	925,506572	S ample Variance	234,9028026	S ample Variance	171,9788	S ample Variance	237,7614377	S ample Variance	186,5953631
K urtos is	0,977614217	K urtos is	0,776209146	K urtos is	2,206595	K urtos is	0,796250389	K urtos is	2,232532527
S kewnes s	0,537046502	S kewnes s	-0,347134237	S kewnes s	0,716807	S kewnes s	-0,369240923	S kewnes s	0,467893221
R ange	251,06	R ange	104,95	R ange	121,7	R ange	104,95	R ange	131,7
Minimum	0,04	Minimum	0,01	Minimum	-20	Minimum	0,01	Minimum	-30
Maximum	251,1	Maximum	104,96	Maximum	101,7	Maximum	104,96	Maximum	101,7
S um	565807,47	S um	382828,52	S um	273618,8	S um	382383,15	S um	276472,35
Count	8784	Count	8760	Count	8784	Count	8760	Count	8784

Source: Own calculation based on data from OTE (2017)

Hungary joined SK-CZ market coupling in 2012 which influenced the price correlation between Slovak Republic and Czech Republic markets (drop to 0,96), but mainly the Hungarian electricity market. As the data for Hungarian electricity prices are available also before market coupling, we explored the impact of market coupling on Hungarian prices. We did not explore the absolute prices as they are mainly exposed to other fundamentals (as coal prices, nuclear powerplant decommissioning, supply vs demand, etc.) which are not effected by market interconnection. Hence, we focused on changes of median electricity prices before and after market coupling in Hungary and compared it with changes of median electricity prices in Slovak Republic and Czech Republic.

Table 3

Changes of median of daily electricity prices in Czech Republic, Slovak Republic, Hungary

Country	Year 2012 (do 12.9) vs 2011	Year 2012 (od 12.9) vs 2012 (do 12.9)	Year 2013 vs 2012 (od 12.9)	Year 2016 vs 2013
C z echia	-17,1%	-1,2%	-15,2%	-15,8%
S lova kia	-16,9%	-1,4%	-14,5%	-15,6%
Hung a ry	-8,1%	-10,9%	-12,1%	-10,7%

Source: Own calculation based on data from OTE (2017)

Note: Czech Republic is as Czechia and Slovak Republic is as Slovakia in the Table 3

Median of daily electricity prices in Czech Republic and Slovak Republic during period of 1.1.2012 to 12.9.2012 (start of market coupling in Hungary) decreased in line with global trend by approx. 17% to 42,59 €/MWh in Slovak Republic and 42,49 €/MWh in Czech Republic. In Hungary, during the same period, median represented high 50 €/MWh (decrease only by 8%). After Hungary joined SK-CZ market coupling, median of daily prices decreased by 10,9%, which was significantly higher than the median decrease in Slovak Republic (-1,4%) or Czech Republic (-1,2%). In absolute terms, differences between median prices in Slovakia and Hungary represented 7,41 €/MWh before market coupling, in three months after beginning of the market coupling the median differences represented only 2,54 €/MWh. It confirms that cross-border interconnection had a positive impact on electricity prices in Hungary.

Romania was the next country that joined SK-CZ-HU market coupling (12.11.2014) which resulted in increase of daily trades by 247% to 55 029 MWh and further decrease of correlation between prices in Czech Republic and Slovak Republic to 0.97 due to increase of marginal electricity price in Slovakia. But the price correlation between other markets increased with price alignment of Hungarian and Romanian markets. Figure 4 shows that the highest prices among 4M MC were in Hungary, followed by Romania, prices in Czech

Republic and Slovak Republic are due to insufficient cross-border interconnection still relatively significantly lower. After commission of third and fourth block in nuclear powerplant in Mochovce, nuclear powerplant in Paks and building up new Slovak-Hungarian interconnections, all four markets will be even more interconnected and price coupled. After interconnection of 4M MC with MRC countries, it is expected that prices in Czech Republic will more align with prices in Germany with spill-over to other M4 MC countries.

Figure 4

Average marginal price in Czech Republic(CZ), Slovak Republic(SK), Hungary(HU) and Romania(RU) during in period from 1.1.2007 until 30.06.2017
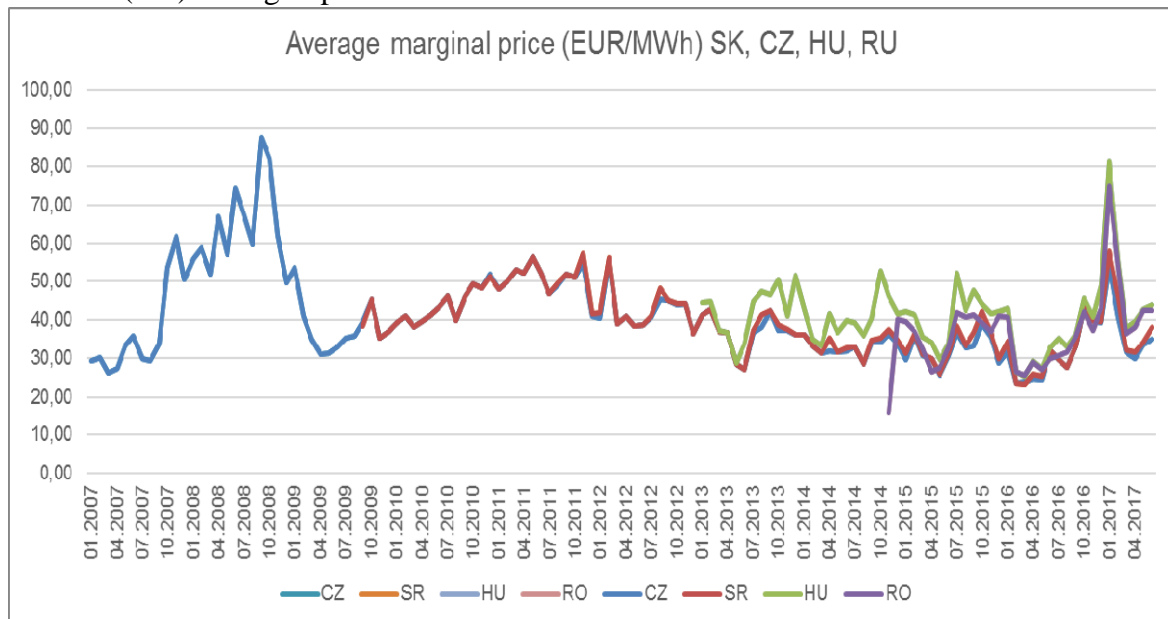
Source: Own calculation based on data from OTE (2017)

3. Conclusions and policy implications (TNR bold 12 pt, 6 pt spacing after)

Despite of the fact that truly coordinated EU energy policy was being established quite recently, its positive impact on energy security can be already seen. Increase of share of renewables in total gross energy consumption in 2015 not only decreases the green-house emission but also increases the total production of electricity in EU which has a positive impact on import dependency. As we shown in our example of M4 market coupling, interconnection of energy markets increases electricity and gas supply in EU with further expected increases having positive impact on import dependency as well as energy prices. In terms of gas supplies, we calculated that 11 countries were able decrease their supplier concentration index (SCI) due to increased import diversification or positive change in energy mix. But as import dependency still being as high as 88% in terms of oil and 69% in terms of gas, EU must continue to implement further measures - increase its own production, improve its diversification, increase its energy efficiency mainly in industry and buildings consuming 40% of total energy consumption. Key factor for secure supply of energy commodities will also be reestablishment of reasonable good commercial and political relations with Russian Federation.

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The Link between Interest Rate and Savings:
The Case of Mauritius

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Abstract

This study investigates the effect of the rate of return on savings for the case of an emerging economy using dynamic time series econometric analysis over the period 1975 to 2015. Results from the analysis showed that in the long-run, the interest rate has a highly significant positive influence upon the level of savings, with a 1% increase in the interest rate leading to an increase of 2.07% in the savings. In the short-run, the inflation rate, the young age dependency rate and per capita income appeared to be the only determinants of savings in the country, with interest rate showing no significant impact.

Keywords: *Domestic savings, rate of interest, Vector error correction model (VECM)*
JEL classification: E43, E47

1 Introduction

Saving is one of the key vehicles that help in bringing long-run economic growth in a country and economic growth is of great importance because it affects the state of life that individuals lead. Worldwide, many studies have been carried out concerning savings behaviour, for instance Baharumshah et al. (2003) in countries of Asia, Krieckhaus (2002) for 32 developing economies, Ramajo et al. (2006) who analysed countries of the OECD and Mohan, (2006) who studied around 20 countries which differed in their level of income. The degree of savings available limits the amount of investment and thus the rate of growth. If the saving level is high, the country has a large amount of funds for investment in order to spur economic growth. But why do people save? They save in anticipation of a higher consumption in the future. The saving's decision is dependent upon several factors and according to the Life-Cycle Hypothesis, the income level and the age dependency ratio are determined as the key determinants of savings in a country. However, Abdullah and Khan (2010) advanced that the rate of return, the fiscal balance, and the inflation rate also figure as important determinants of savings in a country. One way in particular through which savers could be encouraged is through an increase in the rate of return on their savings. Evidence suggests that if the rate of interest rises, so will savings. In some way, the rate of interest contributes to the economic growth in a country. According to McKinnon and Shaw (1973), the interest rate is one of the most vital determinants of savings. It is noteworthy that there are controversies that exist in the literature since some studies concluded a negative impact of interest on savings (Ouliaris, 1992; Loayza et al., 2000; Agrawal et al., 2007; Simon-Oke and Jolaosho, 2013), while others found a positive link (Fry, 1978; Balassa, 1992; Aron and Muellbauer, 1999; Chandra and Long, 2003; Opoku and Ackah, 2015) or even no significant impact (Gulnur and Fatma, 1996).

Studies based on emerging small island states have been scant, with the majority of studies focusing on developed country cases or panel sets. Moreover, many existing studies have either ignored the issue of dynamics in saving modeling and/or other factors embracing the mobilization of savings including financial development such as better access to institutions involved in banking facilities. This study therefore focuses on the interest sensitivity of

savings for the case of the small island developing state of Mauritius. It also analyses of the direction of causality existing between the savings level and the rate of interest as well as the impact of other determinants of savings in the country. This work employs a dynamic time series econometric framework, namely an Autoregressive Distributed Lag Model, with a uniquely collected data set spanning over the years 1975-2015 to shed light on the interest rate-savings relationship. Mauritius poses as an interesting case study given it tremendous economic progress since its independence and it is now one of the best performers on the continent. Moreover, despite being a vulnerable island economy, it has proved to be resilient against numerous external events in its history with a stable economic growth averaging 4% in recent years. In practice, the monetary policy of the island has been geared in a way to guarantee a positive rate of interest while at the same time maintaining the inflation rate constant. Over time, the interest rate policy was used in an efficient manner as it provided the savers with rates of return that were positive. As such, as from the mid- 1980s, the domestic savings in Mauritius has regularly surpassed the expenditure on investment.

The research is organised as follows: Section II examines the existing literature related to the interest sensitivity of savings will be examined; Section III discusses the methodology framework and provides a discussion of the results and section IVconcludes.

2. Literature review

People would have been holding their assets in terms of cash if they were not bound to receive interest. Keynes (1936) argued that in order to make individuals hold their assets in a form other than cash, an interest should be payable. He assumed that converting securities in cash involved a cost. As such, Keynes identified a relationship between the rate of interest and savings. The Keynesian theory thus helps in identifying the positive link which exists between savings and interest rates. In other words, as soon as the level of interest rates rises, the level of savings will also rise because those who save will earn more returns on their savings. In the same way, if the interest rates decline, so will savings since there would be no motivation for saving.

In addition, the life-cycle hypothesis of saving brought by Ando and Modigliani (1963) states that whether interest rates affect the savings level is debatable. Two effects of interest rates upon savings have been identified. The first is known as the substitution effect and puts forward the fact that an increase in the rate of interest will affect savings in a positive way as the actual consumption price is higher in relation to the price in the future. On the other hand, the income effect argues that with rising interest rates, income spread over lifetime would increase and this would decrease the level of savings. As a result, savings would react positively to interest rates only in a situation of domination by the substitution effect over the income effect. Evidence shows that in countries where the financial markets are not completely developed, the substitution effect dominates the income effect and thus concludes that in most cases, domestic savings react positively to interest rates.

Upon agreeing on the fact that interest rates had an impact on savings, McKinnon and Shaw (1973) were of the view that with a liberalisation of the interest rates, interest rates were bound to increase and consequently, increase the level of savings. Ritter and Siber (1986) stated: "It has been proved beyond doubts that the interest rate at least has an influence on savings and investment." Savings bring about the supply of loanable funds. A reward such as interest would be demanded by savers in order to pay back the fact that they forego actual consumption. They argued that, if the rate of interest is high, people would be motivated to save and if the rate of interest is low, people would forego saving. As such, the loanable funds theory (Wicksell 1900) assumes that if people decide to save, this depends completely upon

the interest rates. Savers would benefit when the interest rates are high. Ritter and Siber (1986) also argued that an increase in domestic savings would lead to higher savings within the community. The authors believed that savings acted as a good private and social virtue.

Just like the Life-cycle hypothesis, the Financial Repression Hypothesis advocates that the rates of interest form part of the determinants of savings. Given high economic growth, savings increase along with the real rates of interest (Sheshinsk and Tanzi, 1989). Kishan and Opiela (2000) along with Ehrmann et al (2001) argued that a stringent policy will cause an increase in the cost of accessing credit and as such have a negative impact upon the rates of interest on deposits and thus force households to save. Moreover, Uremadu (2005) agreed with the theory of loanable funds and stated that the loanable funds were a result of well-planned savings. Again, savings are the outcome of interest rates.

Monetary theories put forward by Classical-Neo Classical theorists state that when interest rate is high, a high effect is exerted on savings. They also demonstrate that rates of return and savings are directly and positively related. Moreover, Keynesian theorists argued that higher savings are ultimately amplified through lower interest rates. However, Friend et al (1996) argued that the relationship between savings and real rates of interest is ambiguous.

SAVINGS ARE INTEREST-INSENSITIVE

However, according to the Life-cycle hypothesis critics, both the real as well as the financial parts of an economy are complex and could be distorted. As a result, the benefits to be enjoyed from a rise in the rates of interest would be reduced. Therefore, domestic savings could no more react positively to a rise in interest rates. The theory of Loanable funds argued about the fact that the decision of saving depends completely upon the rates of interest. However, critics argue that there are other motives for saving, other than for earning interest. For instance, as identified by the Keynesian theory, brought by Keynes in 1936, there are three distinct motives to justify savings. The first is the transaction motive; saving in order to be able to pay for everyday transactions. The second is the precautionary motive which involves saving in anticipation of unexpected events which require a cash outlay. Finally, the speculative motive which requires saving in order to exploit investment opportunities that are attractive. As a result, savings do not depend only on interest rates and whether savings are interest-elastic is arguable.

HOW FAR DO SAVINGS AFFECT INTEREST RATES?

In developing markets, if the level of public savings decreases and the level of private savings stagnate, real rates of interest may increase. In order for the real rates of interest to rise, the fall in savings should counteract the fall in demand. Many Neo Classical economists including Friedman, put forward the fact that real savings form part of the factors which determine the rate of interest. The supply of real saving is included in what neo classical economists stated as: "The forces of productivity and thrift", which functions just like the market forces of demand and supply.

At the global level, if we assume that between the main global economies there is a high level of financial integration, the demand for investment and the supply savings, in other words, the supply of and demand for loanable funds, will dictate the real rates of interest. Normally, the supply of loanable funds, in other words, the supply of savings, rise along with the real rates of interest. As such, increases in real rates entail a rise in saving. What could explain a decrease in the real rates of interest is the saving curve shifting to the right. Blanchard et al. (2014) revealed the fact that real rates of interest decline and global savings increase is related to positive shocks to saving at a global level.

3. Methodology

According to Modigliani and Brumberg (1980), individuals make plans of their savings behaviour over their life cycle on the basis of their available resources over lifetime and the life cycle stage in which they are currently situated. Within the Life Cycle Model, the income level and the age composition are the key determinants of savings. We complement the Life Cycle Model and follow the studies of Reinhart and Ostry (1995) and Kwack & Lee (2005) our conceptual model includes the rate of interest (our variable of interest), the Government budget balance and the inflation rate. Therefore, the savings function will be:

Savings = f(Y, r, f, A, p),   [1]

Where, Y= Per Capita Income,

r = Rate of Interest,

f = Government Fiscal Balance,

A = Young Age Dependency ratio and

p = Inflation rate

With respect to the savings function above, the econometric model can be subsequently written:

$$GDS_t = \alpha_0 + \alpha_1 INC_t + \alpha_2 INT_t + \alpha_3 GBB_t + \alpha_4 YADR_t + \alpha_6 INF_t + \varepsilon_t \quad [2]$$

The above regression function is analysed in its log specification (double log) to ease interpretation, that is to enable analysis in terms of rate of change

Where, GDS represents the Gross Domestic Savings as a percentage of Gross Domestic Product, lnINC is a logarithm of Gross National Income per capita (Edwards (1996); Bayoumi&Samiei (1998); Collins (1989), INT is the rate of interest on savings deposit, GBB represents the Government budget balance as a ratio of Gross Domestic Product (Domenech, Taguas and Varela (2000); Gale and Orszag (2004)), YADR is the young age dependency rate (Loayza and Shankar (2000); Kwack and Lee (2005) and INF is the rate of inflation (Lahiri (1989); Athukorala and Sen (2004)). The coefficients for α_1, α_2 and α_5 are expected to be positive while those of α_3 and α_4 are expected to be negative, t represents a time series data and ε_t is the error term.

Data series have been compiled and collected from sources such as The World Bank Data, The Bank of Mauritius website, Statistics Mauritius and the United Nations Data.

Analysis of Data

We test the time series properties of the data, particularly the existence of a unit root. The ADF and Phillips Peron Test revealed that all the variables are stationary at level except the Gross Domestic Savings which was observed to be an I(1) variable. The ADF test thus provided us with a mixture of I(0) and I(1) variables. Since none of the OLS or Johansen's (1988) approaches allows for testing any long-run connection between a mix of variables which are stationary at level and others, at first difference, we will apply the Autoregressive Distributed Lag Model (ARDL) brought into being by Pesaran et al (1999, 2001). The long-run dynamics are determined by an F-statistic, or Wald test. When using non-stationary variables in an economic model, cointegration becomes a pre-eminent requirement. If cointegration does not exist, the regression could be fallacious. As such, the results obtained

would be nearly meaningless. Cointegration is a condition to consider in establishing whether a model has long-run connections that are meaningful.

In this respect, we carried the ARDL Cointegration test and used the Akaike Information Criterion (AIC) since Shrestha & Chowdhury (2005) stipulated that the AIC is best known for the selection of the maximum applicable lag length. The Bounds Test indicated an F-statistic of 6.6566 and as a result, we rejected the null hypothesis which argued no cointegration at 1% significance level since the F-statistic surpassed the upper bound of 4.15. In other words, between our variables, there is a long-run relationship during the period under consideration. Initially, we went in line with Pesaran and Shin (1999) who argued that for annual data, the maximum relevant lag length would be 2. The selected ARDL model was (1, 2, 1, 2, 1, 1). Table 1 presents the long-run coefficients while Table 2 presents the short-run dynamics of the model.

Table 1
ARDL Long-Run Coefficients

Variables	Coefficient	Std. Error	t-statistic	Probability
GBB	0.131703	0.294603	0.447054	0.6587
INC	6.616692***	4.020146	1.645884	0.1103
INF	-1.577500*	0.315559	-4.999057	0.0000
INT	2.071040*	0.520459	3.979255	0.0005
YADR	1.352875**	0.524796	2.577905	0.0162
CONSTANT	-112.4734***	66.542053	-1.690261	0.1034

Note: *, **, *** represents significance at 1%, 5% and 10% level of significance respectively

Table 2
ARDL Short-run Dynamics

Regressor	Coefficient	Std. Error	t-statistic	p-value
Δ(GDS(-1))	0.225497***	0.130737	1.724813	0.0974
GBB	-0.041059	0.110974	-0.369989	0.7146
Δ(INC)	41.871076*	8.834299	4.739604	0.0001
Δ(INF)	-0.571729*	0.058895	-9.707553	0.0000
Δ(INF(-1))	0.226394*	0.079416	2.850715	0.0088
INT	-0.091820	0.211877	-0.433363	0.6686
Δ(YADR)	4.660232*	1.178687	3.953748	0.0006
Δ(YADR(-1))	-3.239105*	1.074489	-3.014555	0.0060
Constant	-323.2392*	58.531821	-5.522454	0.0000
ECM(-1)	-0.642266*	0.122172	-5.257067	0.0000
R-squared		0.941461		
Adjusted R-squared		0.907313		
AIC		4.217183		
DW Statistic		2.420223		
F-statistic		27.57010*		

Note: *, **, *** represents significance at 1%, 5% and 10% level of significance respectively

As Table 1 demonstrates, all variables with the exception of Government Budget Balance are critical long-run determinants of the savings rate in Mauritius. Table 2 also proved that all variables but Interest rate and Government Budget Balance are important in determining the level of savings. The impact of each descriptive variable will be explained on the basis of its effect on the rate of savings individually.

The results show that the rate of interest on savings deposits affect savings in a positive manner in the long-run. The results of this study are consistent with various studies including Fry (1978, 1980), Summers (1982), Sheshinsk and Tanzi (1989) as per the literature review. Therefore, it can be concluded that increasing the rate of interest will motivate people in saving more since they have the possibility to earn more on their savings. In line with the Life-cycle hypothesis brought by Ando and Modigliani (1963), from which savings function in this study has been derived, domestic savings in Mauritius react positively to interest rates. The findings go in accordance with one effect identified by the hypothesis which is the substitution effect and argue that the actual consumption price is higher in relation to the price in the future, and thus savings react positively to an increase in interest rates, in the long-run. As shown in Table 1, an increase by 1% in the rate of interest would approximately increase the rate of savings by 2.07% in the long-run. The rate of interest on savings deposits is highly significant at 1% significance level in the long-run.

However, in the short-run, the results are incompatible with the assumptions underlying this thesis. Instead, it is shown that the rate of interest negatively affects the savings level in Mauritius in the short-run. The results are however in accordance with Keynesian theorists who argue that higher savings are ultimately amplified through lower interest rates, and thus interest rates and savings are negatively correlated. If interest rate increases by 1%, the savings level will decrease by 0.09%, in the short-run. However, the rate of interest is not significant in determining the level of savings in Mauritius in the short-run.

In the long-run, Government Budget Balance carries a positive sign, which is incompatible with the beliefs of the study. There was the assumption that there is a negative relationship between savings and the fiscal balance because most of the time, the Government of Mauritius runs a deficit in the budget and as result, the savings level had to be decreased. Within literature, the results of this thesis contradict results of Poterba and Summers (1987) among various others. The positive sign could be caused by the fact that actions from the private sector impact upon the decision of the Government in the running of the deficit. Additionally, the result disproves the Ricardian Equivalence theorem which declares that in the running of a deficit, increasing Government savings will not impact in any way on the total savings as there will be an equal decrease in the level of private savings and vice-a-versa. In the long run, if the Government Budget Balance rises by 1%, savings will increase by around 0.13%. However, in the short-run, the results are consistent with both Poterba and Summers (1987) and the Ricardian Equivalence Theorem, suggesting that a rise of 1% in the budget balance will cause savings to decrease by 0.04%. However, both in the long-run and short-run, the results are statistically insignificant since the p-values obtained exceed the 10% significance level.

Both Table 2 and Table 3 show that income per capita shares a positive relationship with the level of savings in Mauritius. This result goes in line with the stipulated model, which believed that more income available would lead to higher savings as individuals have more income to save. These results are in accordance with Kuznets' (1960) findings. Moreover, the results contradict the substitution effect which argued that with more income, people would have the tendency to consume more and thus they would save less. Put another way, if income per capita in Mauritius rises, Mauritians will tend to save more and thus postpone consumption. Based on the ARDL approach, in the long-run when income increases by 1%, savings would rise by 6.62% and in the short-run by 41.87%. As it can be seen, income has a higher impact on savings in the short-run. The statistical significance of this variable is 10% and 1% in the long-run and short-run respectively.

Inflation is supposed to exert a positive effect on savings, which means that if inflation rises, so do savings. However, the results obtained are contradictory both in the long-run and

in the short-run. Instead, inflation shares a negative relationship with savings. Why there was the expectation of a positive sign is simply because in order to counteract future inflation, individuals tend to make more savings. Moreover, more than once, inflation was included in savings functions to act as a proxy for macroeconomic uncertainty. Thus, a rise in inflation was supposed to increase savings. However, the results are in line with Keynes (1923) who noted: "the inflationary disincentive to saving". He argued that inflation undermined the real value of former savings and at the same time reduces the capacity and willingness of individuals to save by destroying the necessary confidence in saving. In a study by Feldstein (1982), it was also argued that inflation has a negative impact on savings. As tables 2 and 3 presents, if inflation rises by 1%, savings will decrease by 1.58% in the long-run and by 0.57% in the short-run. Both results are statistically significant at 1%.

The Life-Cycle Model, from which savings function has been derived, stressed the importance of the age dependency ratio. Specifically, there was the addition of the Young Age Dependency Ratio in the equation of this thesis. A negative sign was being expected to go in accordance with findings such as Kwack and Lee (2005) who argued that young individuals had less to save due to little or no income. Moreover, savings are expected to decline with a rise in the proportion of youth in the population. However, the results obtained are contradictory. Rather, both in the long-run and short-run, the results are positive which meant that an increase in the proportion of young people in Mauritius will lead to an increase in Mauritian savings. As per Tables 1 and 2, if the youth dependency rate increases by 1%, so will savings by 1.35% in the long-run and by 4.66% in the short-run. Finally, the negative and significant variable ECM(-1) shows the speed of adjustment of the Error Correction Model and validates the fact that savings is a dynamic phenomenon.

4.0 Conclusions

This paper examined the determinants of domestic savings over the period covering 1975 to 2015 in Mauritius. The analysis was guided by the Life Cycle Model and among the various determinants of savings, much importance was attached to the rate of return on savings in order to detect whether savings in Mauritius are interest-elastic or not. Furthermore, the empirical study also analysed the other potential determinants including the fiscal balance, inflation, income per capita and the young age dependency rate. The ARDL Cointegration approach was used to detect the long-run relationship as well as the pace of adaptation in the short-run. The results revealed that the rate of interest is an important determinant of savings, if not the main. In the long-run, the variable is highly significant, while not at all in the short-run.

Moreover, according to Corbo and Schmidt-Hebbel (1991) and Athukorala and Sen (2004), Government policies which target an improvement in the fiscal balance can potentially bring a considerable increase in the domestic savings. However, the results obtained in this research have proven that the Government fiscal balance is statistically insignificant both in the long-run and short-run. A negative relationship resulted between income per capita and savings in Mauritius implying that an increasing income, individuals have the tendency to consume more instead of saving more. The Young Age Dependency ratio presents a significant positive effect on Gross Domestic Savings in Mauritius both in the long-run and the short-run. However, contrary to expectations, a negative relationship between the variables was not obtained. This may be explained simply because with a younger population in Mauritius, national savings rate is quite low as youngsters are more interested in consuming rather than saving.

As a general conclusion therefore, the Gross domestic savings in Mauritius are interest-sensitive. However, the results have shown that savings in Mauritius respond to interest rates

only in the long-run, which means that policymakers in the country should target long-run policies in order to obtain the expected effect of interest rates on savings. Besides that, inflation should be taken into consideration in the computation of an optimal interest rate since this research has proven that inflation not only affects interest rates but savings as well. With time, income per capita rises and negatively affects the level of savings. As such, the Government should regulate consumption and promote savings, not only to induce Mauritians in saving more but also to make youngsters conscious about the importance of savings. Additionally, if the level of savings rises in the country, evidence suggests that this will spur the economic growth of the economy.

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VAT Cash Accounting in Practice in Slovak Republic

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Abstract
One of the basic problems of small business entities is payment discipline or insolvency of their business partners. Non-payment by the due date affects the fulfillment of tax obligations. Regarding abovementioned, VAT cash accounting scheme was adopted. In this scheme, VAT is payable or deductible on receipt of payment. However, it is not simple to apply the legislative rules of this scheme in practice. This paper includes an explanation of the nature of the special scheme. We analyze and evaluate use of these particular rules by taxpayers in practice.

Keywords: *value tax added, cash accounting, VAT deductible*
JEL classification: H41

1. Introduction

The group of small and medium-sized entrepreneurs in the Slovak Republic accounts for 99.89% of the total number of business entities (Slovak Business Agency, 2015). Problems with payment discipline in the private sector also generate other consequences related to the fulfillment of the obligations towards the state budget in the field of VAT. Failure to meet financial obligations will entail additional costs for the enforcement of legal claims, whether it is the application of receivables in the business relationship of business entities or the application of the receivables of state authorities in the administration of taxes, which is the tax office for VAT. These additional costs are mainly related to the claim of the court, the costs associated with the administration of these claims, the costs of assignment and execution, or the cost of the sanctioning nature, such as default interest.

A serious problem for the supplier in applying the current VAT regime occurs when he is required to meet his financial obligation to the tax office and the customer has not fulfilled his financial obligation. If a vendor does not have enough liquid funds allocated to other sources to meet a cash liability to the tax office, he / she becomes insolvent, which may in some cases substantially jeopardize the supplier's business or even cause his / her existence problems. In order to prevent such situations from being practiced, a special VAT treatment was incorporated into the VAT Act on the basis of receipt of a payment for the supply of goods or services.

The aim of this contribution is to analyze and evaluate the use of the special VAT scheme based on the receipt of payment by taxpayers in practice on the basis of quantitative indicators from publicly available sources.

2. Special VAT regime in Slovakia on receipt of payment

The legal basis for the legislative adjustment of the VAT scheme on the basis of payment is the Directive on the Common System of VAT ('the Directive'). Under the Directive, only VAT payers who fulfill the conditions laid down in this Directive may apply VAT on the

basis of the receipt of payment. The Directive defines the limit based on the annual turnover as the starting condition. The basic annual limit is set at EUR 500,000. The directive allows EU Member States to raise the starting point up to EUR 2 million. This increase can not be achieved only on the basis of a decision of an EU Member State, but only after approval by the competent authorities of the European Union.

In the national legislation of the Slovak Republic, which is the VAT Act, there are currently two conditions. The starting point is the annual turnover limit, which was adopted at EUR 100,000. The payer must not reach the established turnover for the previous calendar year and, at the same time, reasonably assumes that he will not reach it even in the current calendar year. Turnover refers to revenue (if the payer manages double-entry bookkeeping) or income (if the payer is a simple accountant) excluding VAT on goods and services supplied in the Slovak Republic, with no revenue included in the turnover from the supply of goods and services whose supply is exempt from VAT. At the same time, the condition must be that the payer must not be bankrupt or be wound up.

The purpose of the special scheme for the application of VAT is that the taxable person is liable to the taxable person for the supply of the goods and services on the day of receipt of the payment from the customer for the goods or service supplied. At the same time, the right to deduct the tax arises only as of the date of payment for goods and services to his supplier, regardless of whether he applies the standard scheme or the special VAT scheme (Baštincová, 2016).

The special scheme for the application of VAT on the basis of the payment applies only to the supply of goods and services in the Slovak Republic which are made for consideration and for which the supplier is a taxable person. In other cases, the payer applies VAT under the normal VAT scheme.

The VAT payer who complies with the conditions laid down by the VAT Act may choose to apply VAT on receipt of payment from the first day of the taxable period. The taxing period may be a calendar month or a calendar quarter. The taxable person shall notify the tax authorities in writing of the date on which the VAT is based on the receipt of the payment by the end of the calendar month in which he applies a special scheme.

The tax liability for the application of VAT on receipt of payment arises on the date of receipt of the payment for the goods or service that is or is to be delivered from the received payment. The payment received is considered a payment, including VAT. A taxpayer who has opted to apply VAT on receipt of a payment creates a tax liability at the moment of receipt of the payment, with the same tax liability being applied in the case of payment for the goods or service supplied or the advance payment for the supply of goods or services. Tax liability arises at a rate that corresponds to the payment received (methodical guidance, 2015).

The right to deduct VAT on goods and services paid to the payer by the supplier arises on the date of payment for the goods or service to that supplier. If the payer pays only part of the consideration for the goods or service, the right to deduct VAT arises proportionately according to the amount of the amount he has paid. Where a payer applying VAT on receipt of a payment purchases goods or services from a payer applying this special arrangement, as well as from a payer who does not apply this special scheme, the right to deduct VAT in any event arises only on the date of payment to the supplier.

In cash payment, the day of payment for the delivered goods or service is the day of receipt of cash. For non-cash payments, the day of payment is the day on which the payment was credited to the supplier's account. If a payer makes a payment card payment, the day of

payment is considered to be the payment day, but only if the revenue is registered through the electronic cash register (methodical instruction, 2015).

A payer applying a VAT scheme on receipt of a payment is required to produce an invoice for the delivery of goods or services, which also contains the verbal information "tax is applied on receipt of payment". If the payer does not provide such verbal information on the invoice, the tax liability arises on the date of delivery of the goods or the date of delivery of the service. In order to protect the customer, the payer can not correct the original invoice by adding the verbal information "tax is applied on receipt of payment".

The termination of the application of the VAT scheme on the basis of receipt of payment may be due to a taxpayer's decision or by law. In the case of voluntary termination of the application of the VAT scheme on receipt of payment, the day of termination is always the last day of the calendar year. Voluntary termination of application of this special scheme is not possible on another day during the calendar year. If a taxpayer decides to terminate the application of VAT on receipt of a payment, he will notify the tax office in writing of his decision within the calendar year of expiry of which he wishes to terminate the application of the special adjustment.

The legal grounds and date of the end of the application of VAT on receipt of the payment are clearly shown in the following Table 1.

Table 1
Legal grounds for termination of special VAT scheme

Legal basis	Day of termination
The VAT payer in the current calendar year will generate a turnover of EUR 100,000.	The last day of the taxable period (month or quarter) in which the turnover is reached.
The VAT payer will become a member of the group.	The day before the day you joined the group.
The VAT payer is bankrupt.	The day preceding the bankruptcy declaration.
The VAT payer goes into liquidation.	The day preceding the entry into liquidation.
The VAT payer is canceled without liquidation.	The day preceding the day of its cancellation without liquidation.
The VAT payer is the person continuing the business after the death of the VAT payer.	The last day of the taxable period (the month or quarter in which the inheritance proceedings are completed).
The VAT payer will have a change in VAT registration.	The day preceding the day on which the change to the VAT registration occurred.

Source: author´s processing

VAT payer or his legal successor is obliged to inform in writing the tax authorities about end of application of this special scheme, no later than five days after the end of the tax period (calendar month or quarter) in which the application of the VAT has been terminated.

An entrepreneur who has ceased to apply a special scheme, whether voluntary or compulsory, will incur a tax liability and a right to deduct the tax on the last day of the taxable period in which the scheme ended, in the same way as for the application of the standard regime (Baštincová, 2016).

3. Analysis of application VAT cash accounting scheme in practice

Under the Tax Code, the Financial Directorate of the Slovak Republic is obliged to publish an updated list of VAT payers applying VAT cash accounting scheme (hereinafter referred to as the "List") at its website.

On the basis of the data published on the List as of 14 December 2017, we analyzed the selected quantitative indicators. Between 1 January 2016 and 14 December 2017, we monitored for each calendar month:

• Cumulative number of payers applying VAT special scheme,

• The frequency of the end of the application of VAT special scheme,

• Extreme values.

At the beginning of the first taxable period in 2016, special VAT scheme began to be applied by 365 VAT payers. As shown in Figure 1, the number of these payers increased month-on-month. The average monthly increase in the monitored period is 26 VAT payers. In December 2017, the number of these VAT payers reached 517.

Figure 1
Cumulative number of VAT payers applying the special VAT scheme in the period from 1st January 2016 to 14th December 2017
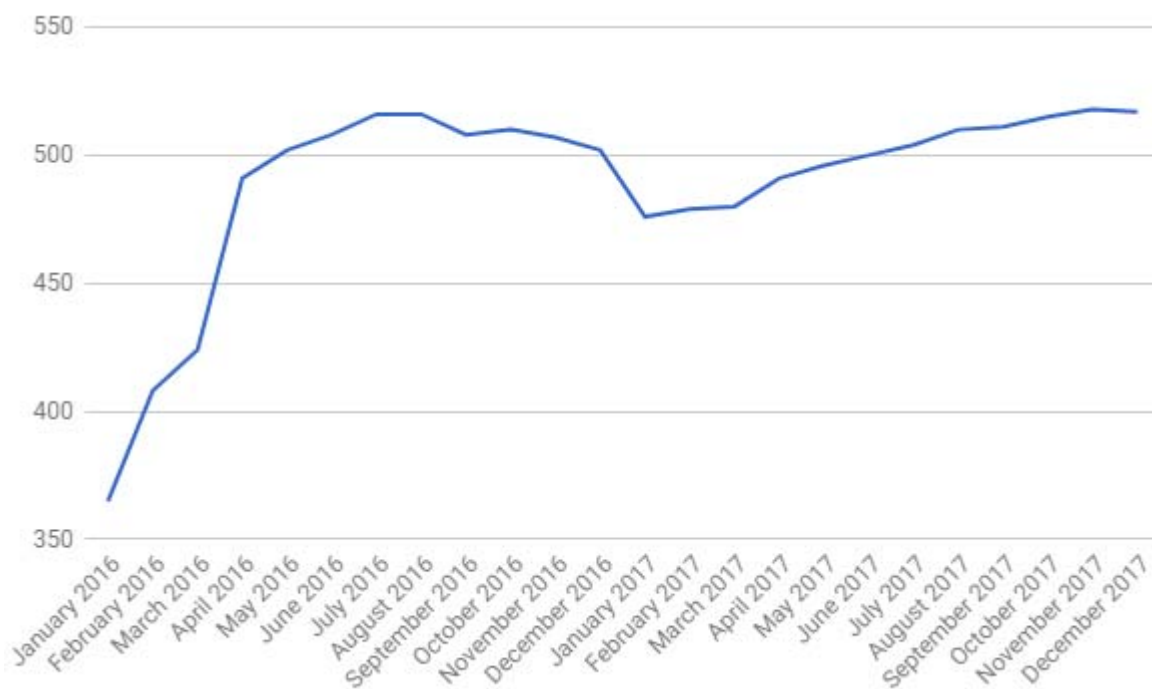
Source: author´s processing

Significant fluctuations in the number of VAT payers applying the special VAT scheme occurred in December 2016. It may be presumed that the reason was a voluntary decision by taxpayers to end the application of this scheme. Subsequently, there was a slight increase.

By adoption of the cash accounting VAT scheme is intended to improve the financial situation of small and medium-sized enterprises and to facilitate the fulfillment of their tax obligations through the shift of the tax liability for the goods and services delivered up to the moment of receipt of the payment from the customer. In the analysis, we proceeded on the

basis of the following assumptions, also used by the Ministry of Finance of the Slovak Republic for the design of this VAT rules in the legislative process:

- The proportion of taxable persons involved in the application of the VAT scheme is 60% of the eligible subjects,

- An annual turnover threshold of up to EUR 75,000 (originally proposed limit) is equivalent to approximately 125,000 taxable persons.

The number of taxable persons who could apply special VAT scheme in practice can only be estimated. This conclusion was also made by the Ministry of Finance of the Slovak Republic in analyzing the impacts on the business environment. Based on these assumptions, the theoretical base of VAT payers applying VAT cash accounting is 75,000 entities. This value does not roughly fall with the fact that has been formed in practice. The highest value of VAT payers who apply special scheme (data over the reference period) is more than 145 times lower. It is extremely challenging to predict the behavior of VAT payers.

The maximum number of VAT payers who started to apply this special VAT scheme is from January 2016 and represents 365 VAT payers. The lowest number is recorded for months (ended months) March and September 2017, only two taxpayers each month.

Most of the VAT payers ended the application of VAT cash accounting in December 2016 (46 VAT payers).

3. Conclusions

The aim of this contribution was to analyze and evaluate the use of the special VAT scheme in practice on the basis of quantitative indicators from publicly available sources. On the basis of the analysis carried out, it can be stated that the number of taxable persons who apply a special VAT scheme is low, given the number of total eligible VAT payers. In our opinion, effective legislation is complicated and difficult to apply in practice. Considering the advantages and disadvantages, most VAT payers decide to apply the normal VAT regime. (Not)Applying VAT cash accounting scheme is an example of how the inappropriate setting of the legislative rules can make the useful measure difficult to apply in practice.

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Impact of Corruption on Tax Collection

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Abstract
The article focuses on assessing the impact of factors on tax compliance, respectively on tax evasions. The analysis focuses primarily on the impact of corruption perceptions on tax evasion and tax compliance. This article is based on selected theoretical approaches to assessing the taxpayer's motivation to commit crimes of an economic nature and the impact on taxpayer's decision making to tax compliance.

Introduction

Taxes are significant source of revenue for public budgets. Considerable attention in the economic literature is focused on tax research and the efficient tax collection. These studies analyse and explain the reasons for which taxpayers pay taxes. The study (A-S model), which substantiated tax evasion through the theory of expected utility was an important contribution to this discussion (Allingham – Sandmo, 1972).

In addition to the factors described in the A-S models, studies also describe other factors that affect tax collection, such as interaction between taxpayers and tax authorities, social standards, personal standards, attitudes and values, religion (etc.). The willingness to pay taxes is perceived as tax morality (Torgler, 2003). Tax moral is determined on one hand by fiscal policy instruments and on the other hand, it is influenced by personal (custom) moral standards, social norms, etc. In the literature, we encounter studies that consider taxpayers as naturally honest individuals who even in many cases do not think about tax evasion. These studies criticize approaches in which taxpayers are perceived as persons with amoral attempts to maximize utility (Pyle, 1991). Research in this area suggests that there are individuals who have always abided rules and have high standard of tax compliance. It means that the state will collect taxes even without any penalties and audits. Decisions that lead to tax evasion isn't a simple process (Elffers, 2000; Dwenger et al., 2016).

1. The standard model of tax evasion

The cornerstone of this model has been laid down by the Allingham and Sandmo, which designed model based on the theory of expected utility (A-S model). Model A-S assumes that taxpayers take into account the size of the benefits which tax evasion brings them and not declaring the taxable income in real amount. Such activity is associated with a certain risk of detection and the cost of detecting tax evasion. In accordance the model, the probability of the tax audit and the fine has an impact on the decision of the taxpayer when considering tax evasion (Allingham – Sandmo, 1972). Model A-S can be given in the following form:

E[U] = (1-p) U(I_r - tI) + pU(I_r - tI - π (I_r -I))

U = utility function

I = reported income

I_r = real income

t = tax rate of reported income $0 \leq \theta \leq 1$

p = probability of audits, $0 \leq p \leq 1$

π = penalties from unreported income, $\pi \geq 0$.

Based on model we assume that if the benefit from tax evasion is greater than the cost of tax evasion, the taxpayer opts for tax evasion. With the increasing probability of audits and penalties, individuals perceive more external stimulus that ultimately lead to internal incentives for tax morality. Rules and compliance with the law stimulated by penalties should help taxpayers not to fall into groups of taxpayers with lower tax morals (Elffers 2000). The determination of the level of fines is intended to discourage potential offenders from acting unlawfully and, at the same time, to recover any social losses caused by such conduct. The level and structure of fines is determined by the government's decision to maximize income or social well-being (Becker, 1968).

The A-S Model was later adjusted and modified. Model of Yzikati (1974) sets fines on the difference between the real income and the actual income. Graetz et al.(1986) modified the A-S model by the response of the tax administrator's reaction on the taxpayer's conduct. We can also express this relationship with the following mathematical equations:

$$U(\alpha,\beta) = \alpha [\beta u(I_H - T_H - F) + (1 - \beta)u(I_H - T_L)] + (1 - \alpha)u(I_H - T_H)$$

Where α represents the probability by which an individual reports lower income than his real income, β represents the probability of tax control. The first expression in the equation presents value of expected utility that taxpayer does not declare real tax income. Second term in equation presents utility at recognition high income. I_L and I_H are the income of an individual with a low declared income and a higher declared income. T_L and T_H present the amount of tax due for lower income and higher income. In this case, the amounts of fines are labelled as F. The model analyses the behaviour of taxpayers and tax administrator for different levels of tax control and institutional setting of tax control (Graetz et al., 1986).

The game theory is often applied to the analysis of the taxpayers' behaviour. Through various models of game theory, we can create clear strategic aspects of social interactions. Ultimately, the game theory helps to simplify the complexity of taxpayers' behaviour in compliance with the tax laws. The result of such an analysis is not only to determine the resulting tax strategy of the tax entity, but it also provides us help to understand and analyse the reasons for which the tax entity has rejected other strategies (Graetz et. al.,1986; Levi, 1997).

Results of empirical studies do not always match with the theoretical assumption of standard tax evasion models (Alm et.al., 1999). Taxpayer's considerations of tax avoidance are more complex and it is necessary to consider many other variables that an individual assesses at a given moment and makes their decision on the basis of these factors. From this reason, research models in experimental economics that have begun to take into account the impact of other aspects of tax decision making had to be reconsidered and appropriately modified.

2. Behavioural Approaches Based on Social Standards

The standard model that looks at the individuals through the function of expected utility provided a good basis for tax evasion analysis, but for a more comprehensive view of taxpayers' behaviour, it was extended and modified, for example by including moral costs, social standards, personal standards, culture and religion.

Some studies on behavioural aspects state that taxpayers tend to incorrectly evaluate (underestimate /overestimate) tax morals of others. Such distortion may influence the attitude of the taxpayer to pay taxes depending on how they assess the tax discipline of others. Confronting individuals with their behaviour can have a positive impact on tax collection (Erard and Feinstein 1994). The moral costs associated with tax evasion are reduced if the individual discovers that other members of the group are also avoiding taxes. A common social character in society is more motivation to avoid paying taxes (Torgler, 2003). Conversely, if an individual assumes that other taxpayers pay taxes, moral costs increase and hence willingness to act according to tax rules increase (Alm et al., 1999).

Baldry (1986) argues that an individual's decision about whether or not to realize tax evasion is affected by "moral remorse". Posner (2000) claims that an effective sanction is not just a legal punishment in the form of a fine, but also a loss of a certain status in society, which then identifies fraudster as dishonest. Polinsky and Shavell (2000) argue that social standards can be considered as a general alternative to enforcing legal standards in the context of guiding individual compliance. Violation of social norms leads to internal moral costs (guilt, remorse) or external social sanctions as a social shame and ostracism.

Such experimental findings indicate the importance of social interaction within the group and the importance of theories that seek to explain the high level of tax compliance. Torgler (2001) in his study, points out the importance of social and institutional factors in tax compliance. According to Wenzel (2004), personal standards and moral values represent taxpayer's individual ethics, on the basis of which an individual evaluates himself and assesses his actions.

The positive effect on tax collection can also be caused by pride, where an individual is proud of his belonging to the country. This identifies the individual as a member of a particular group. National pride can therefore affect the behaviour of people in groups, organizations, and societies (Hashimzade et. al., 2014; Wenzel, 2004).

Margolis (1997) analysed the relationship between morality and religion. In his analysis, Margolis is based on the frequency of visits of spiritual and church events, particularly the church service, which roughly shows how much time people devote to religion. Direct participation in ecclesiastical rites involves closer links and thus supports the norms of the religious community (Tittle – Welch 1983).These linkages have a strong preventive effect because an individual reflects on their reputation within the community, which ultimately increases tax morals in society (Grasmick et al., 1991).

Alm et al. (1992) indicate that taxpayers have a higher degree of honesty and higher tax morale, if the benefits of paying taxes in the form of public goods are higher. The authors found that tax morale increases with individual benefits from the public good compared with enrichment at the expense of the unpaid tax.

The quality of public institutions and the control of corruption have a direct impact on tax compliance and the rate of tax evasion in the country. Increasing the level of perceived corruption thus affects both the ultimate effect of tax morality. This results in an increase in the shadow economy, which is rising with the decline in tax morale (Alm – Torgler, 2006; Frey – Torgler, 2007).

An important determinant may be the degree of satisfaction of tax subjects within the government. If the government is trustworthy, transparent and objective, tax subjects tend to comply with tax rules. On the other hand, the result of perceived injustice by the public results in a decline in tax morality for taxpayers that moral and moral costs are reduced. State trust and justice are important institutions that affect citizens' motivation to comply with tax rules (Murphy, 2004; Braithwaite et.al., 2007).

3. Model and results

Based on these studies, I assume the following relationship:

H1: The perceived the level of corruption affects the size of the tax evasion.

H2: Acceptance of corrupt practices by taxpayers affects the resulting tax discipline.

To verify hypothesis 1 (H1) we will use the Corruption Perceptions Index published by Transparency International in the conditions of the Slovak Republic and the size of the tax gap in value added tax. In view of the change on indicators for the post-2011 corruption assessment, the calculation will divide into two periods before the change of indicators and after their change in 2012. For the verification of hypothesis 2 (H2), we will use data with the European Value Study (EVS) for the reference periods between 1981 -2008 for European countries. The EVS database is based on data obtained through surveys. Respondents answer questions from the survey areas concerned. In this article it will analyse the relationship between "Justifiable: cheating on taxes" and the attitude to corruption "Justifiable: someone accepting a bribe". The results of hypothesis 1 are shown in Table 1 below.

Table 1
The impact of corruption perceptions on the development of the tax gap in Slovakia for years 2002 – 2015.

Years/variables	X	Y	x2	Y2	x.y
2002	3,7	0,215	13,69	0,046225	0,7955
2003	3,7	0,166	13,69	0,027556	0,6142
2004	4	0,24	16	0,0576	0,96
2005	4,3	0,222	18,49	0,049284	0,9546
2006	4,7	0,262	22,09	0,068644	1,2314
2007	4,9	0,309	24,01	0,095481	1,5141
2008	5	0,303	25	0,091809	1,515
2009	4,5	0,335	20,25	0,112225	1,5075
2010	4,3	0,338	18,49	0,114244	1,4534
2011	4	0,365	16	0,133225	1,46
2012	46	0,399	2116	0,159201	18,354
2013	47	0,356	2209	0,126736	16,732
2014	50	0,295	2500	0,087025	14,75
2015	51	0,292	2601	0,085264	14,892
Spolu	43,1	2,76	187,71	0,796293	12,0057
spolu ´	194	1,34	9426	0,458226	64,728
coeff. of correlation	0,488333	X	X	x	x

coeff. of correlation´	-0,97439	x	X	x	x
coeff. of determination	23,85%	x	X	x	X
coeff. determination ´	94,94%	x	x	x	X

Source: Prepared by the author based on Transparency International

In between 2002 and 2011, the size of the tax gap was positively affected by social perceptions of corruption. Since 2005, the size of estimated tax evasion has gradually increased in value added tax. The perceived corruption index values are rising gradually from 2003 to 2008. The opposite is the analysis of the period between 2012 and 2015. The strong indirect dependence between the variables is directly affected by the government's adopted changes in the fight against tax fraud and the way the government responded to corruption in the public sector. The results of the Corruption Perception index are based on surveys between domestic and foreign entrepreneurs and analysts. They only concern corruption in the public sector. Several anti-corruption measures were taken in 2012 and received very positive feedback by the amendment to the Judges and Judges Act, which put into practice the publication of court rulings on the Internet, public tenders for judges, and more detailed property testimonies for judges.

In a subsequent period, the Anti-Corruption Action Plan was updated and at the same time, a draft proposal amendment to the laws for restricting corruption in the public sector was tabled. Research suggests two trend lines that have been affected by changes in the methodology of corruption perceptions by selected subjects. The first period which is under review is marked by a positive relationship between the size of the tax gap and perceived corruption. In the second period, there are significant changes that determine the impact of the corrupt environment and the magnitude of tax evasion. The research carried out in the second analysed period is marked by the adoption of the "Action Plan to Combat Corruption" and the "Action Plan to Combat Tax Fraud". By adopting anti-tax fraud tools, the magnitude of tax evasion has fallen despite the growing perceived corruption in the public sphere. Therefore, the government can by punitive measures increase the tax discipline of taxpayers if the moral costs are lower due to the higher perceived level of corruption in the country. The results of the analysis coincide with the conclusions of Wenzel (2004) and Litina and Palivos (2016).

Litina and Palivos (2016) note that countries with higher levels of corruption in society have, in principle, more problems with tax fraud and tax evasion. Alm et.al. (2016) state that corruption associated with tax institutions is primarily due to higher levels of tax evasion. Bribery of fiscal authorities is a significant determinant of tax evasion. The higher the value of the bribe, the higher the level of tax evasion. DeBacker et.al. (2015) have confirmed that companies with owners from countries with higher levels of perceived corruption are more prone to tax evasion. Such action cannot be suppressed by repressive tax instruments, since they have a lesser impact on the conduct of companies with owners from countries with a higher level of perceived corruption.

The results of hypothesis 2 are shown in the Table 2.

Table 2
The relationship between accepting corruption and tax morality.

Dependent variable					
Justifiable: cheating on taxes					
	B	SE B	Beta	T	Significance
Justifiable: someone accepting a bribe	0,52	0	0,37	161,29	0
Valid N	160058				
Multiple R	0,374				
Multiple R Squared	0,14				
Adjusted R Squared	0,14				
F value	26012,87				

Source: Prepared by the author based on European Value Survey

The result of the analysis is, as assumed, positive relationship between accepting of corruption (bribery) and accepting of tax evasion in the proposed models that analyse the relationship between political corruption and tax evasion through a model with two different groups of agents. Assumptions of hypothesis 2 about the expectations of the relationship between the acceptance of corruption and the tax evasion were confirmed. These conclusions in a certain way confirm the theoretical assumptions relating to tax evasion in the context of the level of corruption and its acceptance. If a taxpayer accepts corrupt practices, he also tends to accept tax evasion. The willingness to pay the tax is influenced by the individual's moral attitude towards paying taxes and by honesty. The level of corruption may have such a pathological effect on the social norm that should be advocated for the highest degree of honesty of the taxpayer. Higher levels of perceived corruption may therefore discourage other taxpayers who have paid taxes under the rules from paying taxes.

4. Conclusions

This paper has provided several results. Firstly, the level of tax collection efficiency decreases when the government approaches inefficiently to public resources and traditional instruments. At the same time, public opinion can harm public governments with a high level of uneconomic spending and a high level of corruption. Government also needs to focus on improving the quantity and quality of public goods and services, building the institution's positive attitude towards citizens, building trust in the institutions, justice and transparency and building tax compliance. These facts coincide with the conclusions of Nicolaides (2014).

The established assumptions in individual hypotheses were confirmed by the analysis of selected variables (corruption perception index, VAT GAP, questions from the EVS survey). Based on the conclusions of the research and the theoretical interpretations of individual authors, we can say that it is necessary to promote social norms that will lead to individual norms formulating the honesty of individuals. They are the basis of voluntary and positive building of tax morality in society. Such process of development of society is not easy, especially with respect to the history of individual states, as an example the Slovak Republic can mentioned. It is therefore necessary to combine these efforts of the public governments with the traditional instruments of tax policy, since they are more effective in times when social and personal standards fail.

In public opinion, individuals who do not act honestly and carry out tax evasion and fraud are more open, while most tax subjects act honestly. More importantly, the tax administrator has to act vigorously, objectively and transparently. The results of the investigation and

identification of the tax evasion should be presented in the public space. Such action creates some deterrent effects for other tax subjects and can act preventively.

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Life Cycle of an Industry: A Case of Steel Industry

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Abstract

The aim of the paper is to identify the stage of life cycle of steel industry. In the first chapter we deal with theoretical background of industry life cycle. In the next chapter we describe methodology and data which are use to analyze the stage of industry life cycle. We use following indicators: steel production, steel use, steel trade and concentration ratio indices. Then we focus on presentation of results and identification of the stage. We identified that steel industry is in the third stage of industry life cycle - maturity stage.

Keywords: *life cycle, steel industry, concentration*
JEL classification: E32, F44

1. Introduction

A typical tool used for the purpose of industry analyses within diagnostics of external environment of the firm is the industry life cycle analysis. Before using this concept, it is essential to define "right" industry because most industries can be analysed at different levels or from different segment point of view. Another critical element is selection of right indicator(s) based on the development of which the stage of life cycle of an industry can be identified and consequences for strategy setting derived. Although there is a rich literature concerning industry life cycle analyses there are still ambiguities in approaches to identification of industry life cycle stage. The aim of the present paper is to identify the stage of life cycle of steel industry based on different indicators and to evaluate their usefulness within industry life cycle analyses.

2. Industry life cycle – theoretical background

The industry life cycle is in general equivalent to the product life cycle however; it has longer duration that varies greatly from industry to industry. The available literature distinguishes different stages on industry life cycle however, most frequently the authors present from four (e.g. Grant, 2013; Dess et al., 2005) to five (e.g. Johnson et al., 2009) stages.

We shortly examine the features of four basic stages. The *introduction stage* is an experimental one, typically with few competitors exercising little direct rivalry and with product features that are nor clearly specified. In this stage, an industry typically generates low sales growth, rapid technological change, operating losses and the need for sources to finance operations. The *growth stage* is characterised by rapid increase in sales (typically above 10% year-on-year increase) that attracts other competitors to enter into industry. The primary key to success is to create consumer demand through strong brand recognition, differentiated products and the financial resources to support value-chain activities. In the *maturity stage*, the aggregate industry demand begins to slow. Products and services tend to be standardized. Barriers to entry the industry increase as control over distribution is

established and experience curve benefits come into play. Thus, there are few opportunities to attract new competitors. However, rivalry among existing competitors intensifies. Advantages based on efficient manufacturing operations and process engineering become most important for keeping costs low as customers become more price sensitive and competition is often based on prices. Finally, the *decline stage* occurs when industry sales and profits began to fall but it can be a period of extreme rivalry especially when there are high exit barriers.

According to Grant (2013) there are two fundamental factors that are driving industry evolution, namely demand growth and production and diffusion of knowledge. Johnson et al. (2009) warn that it is important to avoid putting too much faith in the inevitability of life-cycle stages. One stage does not follow predictably after another: industries vary widely in the length of their growth stages and others can rapidly de-mature through radical innovation.

If an organization wants to be successful, it must know the whole industry and its changes. It requires the long-term look on the industry to capture changes and to avoid mistakes. McGahan (2004) dealt with industry structure and its effects on business profitability and investor returns. McGahan identified four distinct trajectories - radical, progressive, creative and intermediating. According this research, the industries evolve along one of these trajectories. Similarly to the industry's life cycle, only a long-term view of industry and its development can help find the way the industry is headed.

The importance of identification of right stage of life cycle is reasoned by the fact that different stages are connected with differences in firm strategy creation from the power of five forces, functional areas, value-creating activities and overall objectives point of view. The typical industry life cycle profile is an S-shaped growth curve (Grant, 2013) that is usually constructed on a basis of evolution of market size measured by industry sales. However, for analyses and delineation of the industry life cycle also other indicators can be used. Going out from features of the life cycle stages, there are obvious changes in number of competitors and the level of rivalry itself, changes in demand, innovation intensity (Bos et al. 2013; Tavassoli, 2014), market size, profit, employment and output distribution (Dinlersoz – MacDonald, 2009), etc.

3. Data and Methodology

The analysis of life cycle we performed in conditions of metallurgy industry, more specifically steel industry in accordance with Johnson et al. (2009) who state that it is useful to conduct industry analysis at a disaggregated level, for each distinct segment. Although an industry is likely to be at different stages of its life cycle in different countries (Grant, 2013), we consider steel industry to be globalised one owing especially to universal nature of steel products, fast development of metallurgical technologies through global learning and fast transfer of know-how implemented in steel producing companies (Bobenič et al., 2015). Thus, we performed our analysis on a worldwide basis. We constructed life cycle curves of steel industry based on following indicators: the total volume of worldwide steel production (as a measure for market size), industry concentration (as a measure for competitive rivalry based on the assumption that concentration and competition are in antagonistic relationship), steel use (indicating level of steel demand) and world steel trade.

The total volume of worldwide steel production was derived from *World Steel in Figures* (2017) and analyzed for the period of 1995 to 2016. World steel trade and indices described below were analyzed and calculated for the period 1990-2016. The last indicator, steel use, was analyzed from 2000 to 2015. The level of steel use and world steel trade was also drawn from *World Steel in Figures*.

The industry concentration was assessed on the basis of one the most traditional indicators, namely concentration ratio index (CR) that is working with a market share of firms in the particular industry (for more details see Mihalčová - Hintošová, 2004). Market share calculation (s_i) was carried out on the basis of data on crude steel production volume by the following equation

$$s_i = \frac{x_i}{X}$$

(1)

where x_i represents the volume of crude steel production of the i-th firm in the steel industry, and X is the total volume of worldwide steel production. Information on volume of crude steel production on yearly basis was drawn from *World Steel in Figures*. The concentration ratio index (CR_m) is calculated as the sum of the market shares of *m* largest firms and can be written in the following form:

$$CR_m = \sum_{i=1}^{m} s_i$$

(2)

where s_i represents the market share of the *i*-th firm in the sector and index *m* denotes the number of investigated largest firms in the industry. The subject of the investigation may be different number of firms. For the purpose of the present paper following numbers of firms were used: *m = 1, 4, 8, 25*. Besides this, we calculated also MCR (marginal concentration ratio) that is calculated as a difference between CR_8 and CR_4.

4. Results

In this part of paper we deal with indicators mentioned in previous chapter.

Figure 1
Concentration indices of steel industry
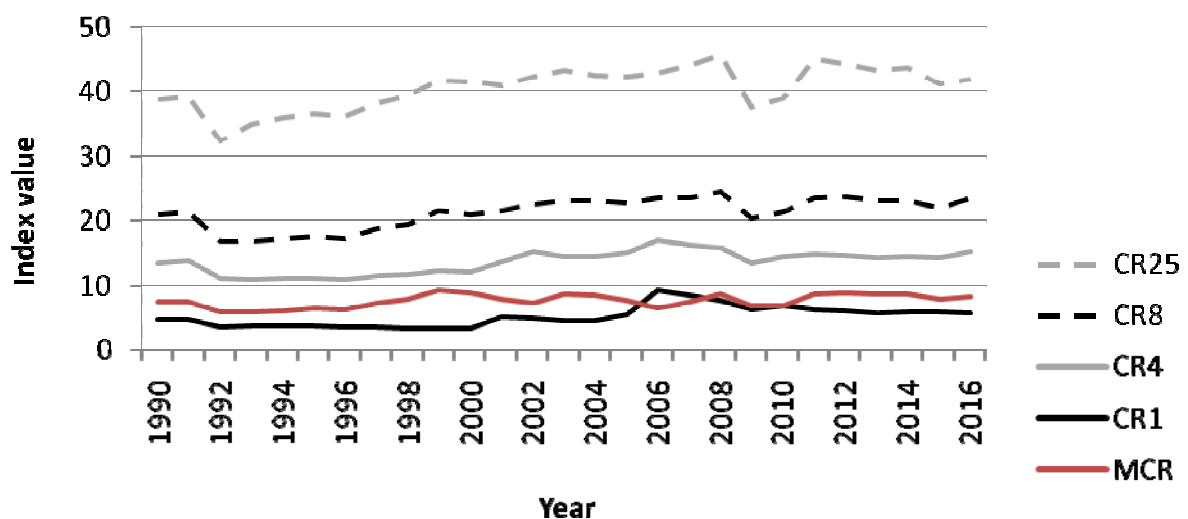
Source: Authors based on data extracted from *World Steel in Figures* (2017).

As we can see in the Figure 1, steel industry is relatively constant in terms of level of concentration. Except for 2009, there were no significant fluctuations. The decline in 2009 can be attributed to the global crisis. On the other hand, indicator CR4 does not exceed the 25%, so we can regard this industry as unconcentrated. Similarly, the MCR indicator is

constant, which means that the four largest producers do not create a stronger market position from the perspective of other competitors.

Figure 2
World steel production of steel industry
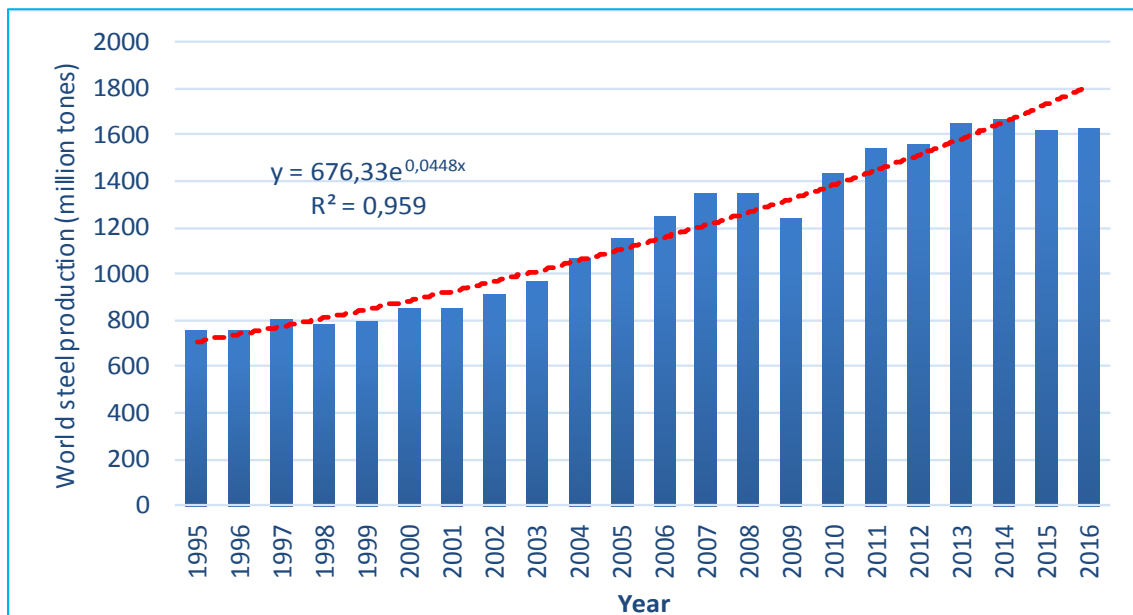
Source: Authors based on data extracted from *World Steel in Figures* (2017).

As we can see in the Figure 2, the world crude steel production between 1995 and 2016 is growing exponentially. As in Figure 1 we can again see a decline in 2009.

If we express this production in the form of annual percentage changes (Figure 3), during the period 1995-2016, the industry experienced only a five negative changes, but only in one case (2009) this drop exceeded the 5% level.

Figure 3
World steel production (% change) of steel industry
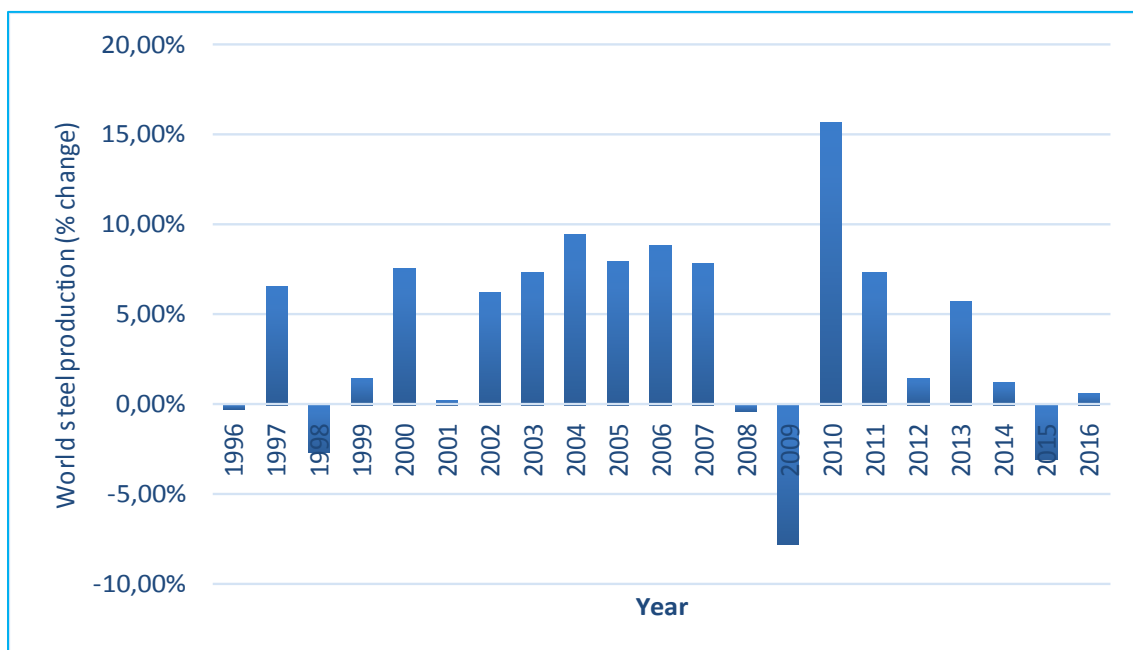
Source: Authors based on data extracted from *World Steel in Figures* (2017).

Figure 4
World steel trade
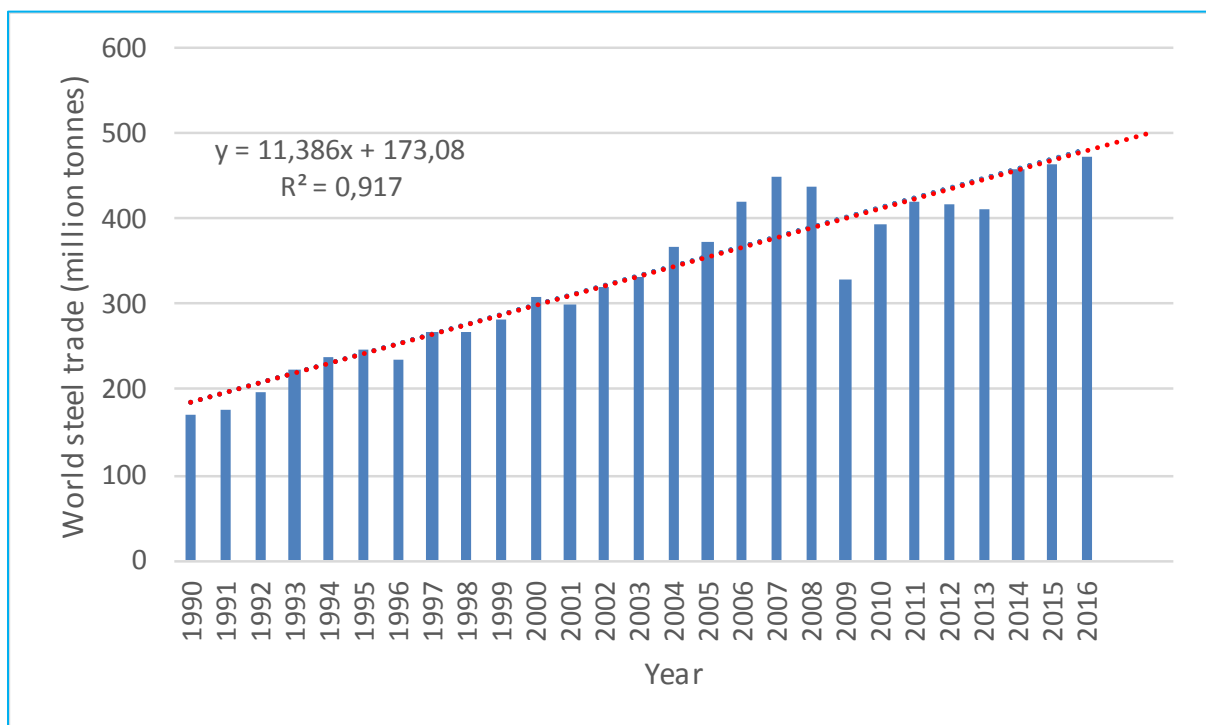
Source: Authors based on data extracted from *World Steel in Figures* (2017).

World steel trade is growing similarly to world steel production with decline in 2009. But we can find one difference – while steel production in 2010 has reached and exceeded 2008 level, the pre-crisis level of steel trade was reached in 2014. Regarding to world steel use, we can also see a growth in almost every year in period 2000-2015.

Figure 5
World steel use
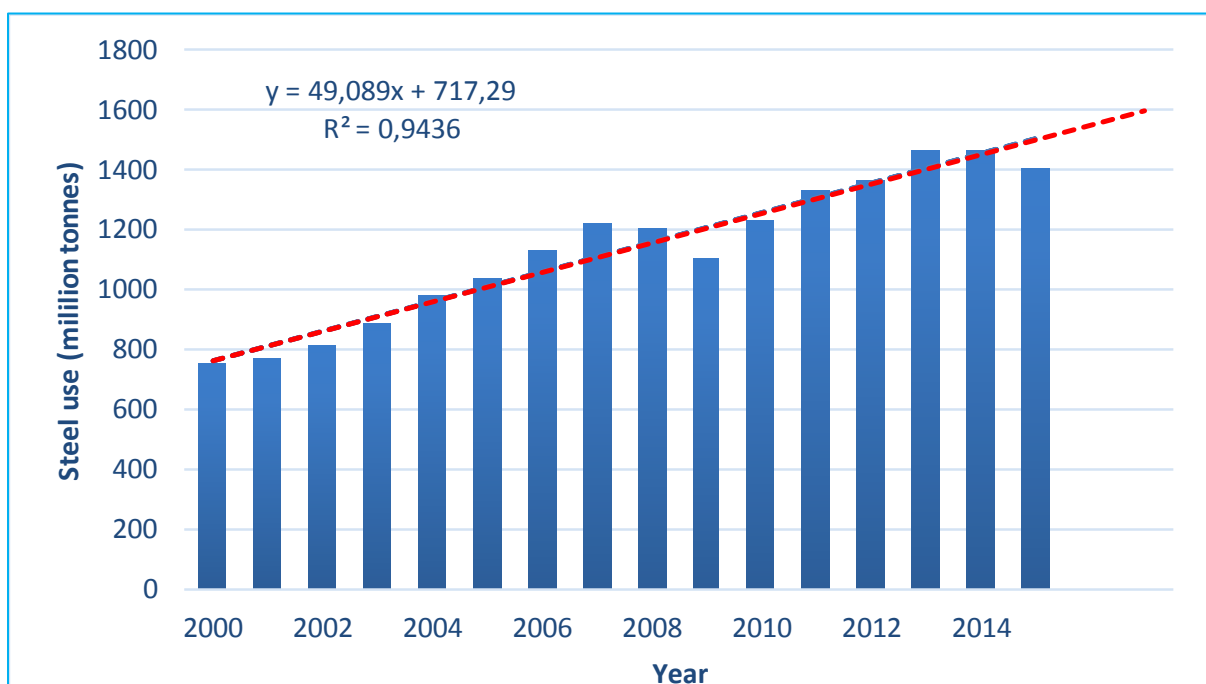
Source: Authors based on data extracted from *World Steel in Figures* (2017).

5. Conclusion

Based on the results achieved, the steel industry is in the maturity phase. As we can see on Figure 2, Figure 4 and Figure 5, the steel production, steel trade and steel use grows. On the other hand, this growth exceeded 10% level (growth stage) only once (see Figure 3).

Level of concentration (Figure 1) is also relatively stable. In analyzed period all indicators of concentration are on the similar level. It can suggest that there is no space for entry of new competitors in industry (maturity stage) who could raise a level of concentration.

In this paper we analyzed phase of steel industry life cycle. Based on our results and theoretical knowledge we found out that industry is in the maturity stage. This results were achieved trough selected indicators and concentration ratio indices. It is obvious that for thorough analysis is necessary to use more indicators, because results achieved are ambiguous and it requires comparing them in their mutual contexts.

Acknowledgement

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Cultural Differences: A Challenge for Project Management

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Abstract
The aim of this paper is to present and analyse the impact of cultural differences on the project management execution phase. Following the increase in international collaboration between organizations and project execution by multicultural teams, scholars have begun to recognize cultural differences as one of the main problems project managers are facing. Taking into account all aspects of human existence and the great impact culture has on human behaviour, cultural studies emerge as a pertinent goal for project management improvement.

1. Introduction

Globalization has influenced project management profoundly, which is evident in the increasingly large number of projects executed in a multicultural environment. At the same time, reconciling cultural differences has become one of the most important challenges of our time. Commonly, project managers consider cultural differences both as a critical factor for the successful outcome of a project, as well as a stumbling block to overcome in order to minimize the potential risks in a project. The argument in this paper is that there is a notable lack of a model to help project managers handle cultural differences. Given innovative technological advances, a model assisting cultural knowledge sharing, cultural training, and open communication could be a good start for solving or minimizing the impact of cultural differences on project management. In addition, the creation of such a model could be a step toward achieving the pivotal characteristic of sustainability in project management. This is one reason to conclude that multicultural awareness will find its way into project management methodologies and practices in the very near future.

2. Literature review

2.1. A word on terminology

Projects are extremely important for organizations. In order to continuously improve their operations, companies are increasingly becoming project-oriented by applying project-based organization and management strategies. Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirement (PMI: Project Management Institute). The needs of a project-oriented organization may vary compared to those of a traditional organization. Project-oriented organizations are organizational forms which entail the creation of temporary systems needed for project assignment execution (Lundin – Söderholm, 1995).

Lately the criteria for project success have changed. Discrepancies in experience and cultural values which are not taken into account may affect the execution of the project. In many cases, project execution follows a standardized approach which neglects cultural differences. In turn, cultural differences impact the project in numerous ways. Therefore, it is necessary for the participants in multicultural projects to understand cultural differences and their implications. A multicultural project involves a project team whose members have different national or ethnic backgrounds (Mäkilouko, 2004).

According to researchers Varner and Beamer (2011), "Culture explains how people make sense of their world". Culture can be described as the lifestyle of a group of people (Seymen, 2006) shared by all or almost all members of a social group (Seymen, 2006). This definition is in line with the culture point of view of the most frequently cited Dutch researcher Geert Hofstede. He claims (Hofstede, 1991) that culture is "the collective programming of the mind that distinguishes the members of one group or category of people from others".

The literature review shows a gap in knowledge about the impact of Bulgarian national culture on project management execution. We will take into consideration culture as an independent variable and project management as a dependent one. Despite the fact that several scholars have explored particular cultural dimensions, the issue has become popular mainly through Hofstede's research. Since this paper is limited in length, the focus will be only on Hofstede's set of dimensions (2001) which he describes in his book *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*.

The units of analysis of this paper are multicultural projects and Bulgarian project managers in particular. Many of the latter believe that culture cannot be a serious obstacle or a decisive factor for cooperation.

Figure 1
Results from Hofstede's research on Bulgaria
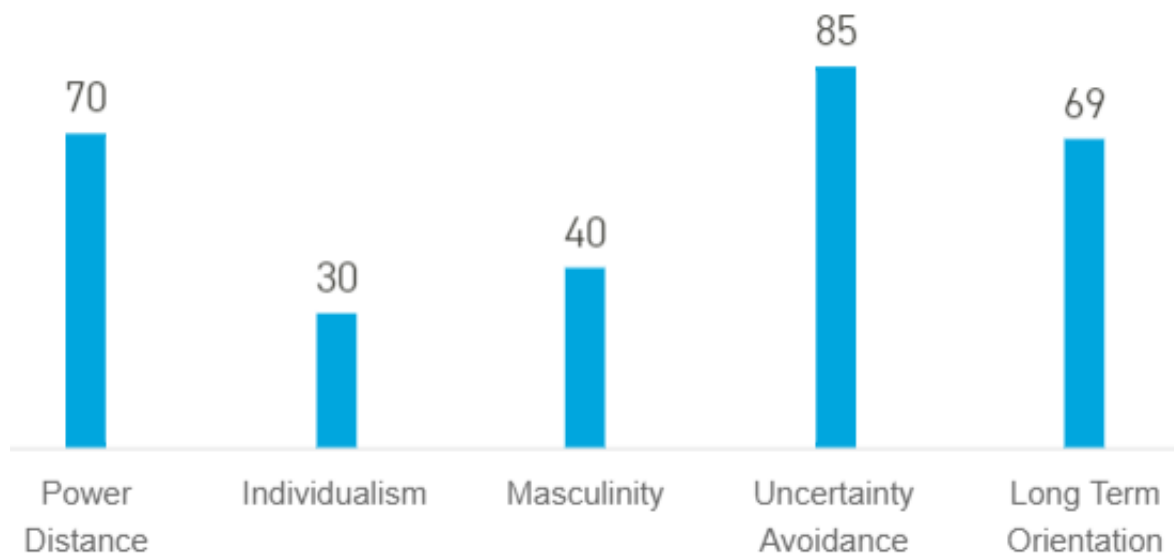
Source: Hofstede Insights. Available at the URL: <https://www.hofstede-insights.com/country-comparison/bulgaria/>. [accessed 23.01.2018].

2.1.1. Power Distance

Through this dimension, Hofstede illustrates how society deals with inequality among people. Here we will take into account the distance between managers and staff members on the organizational ladder. In Bulgaria there is a clear-cut division between those two groups, hierarchy is highly valued, and the boss has the ultimate decision-making power.

2.2.2. Individualism vs. Collectivism

The next dimension measures the extent to which Bulgarians prefer 'we' instead of 'I'. Is it important to be part of a group (also an easy way to avoid responsibility), or family is the key unit to belong to? With a score of 30, Bulgaria is considered a collectivistic culture. Living conditions and family care are prevalent.

2.2.3. Masculinity vs. Femininity

The representatives of a masculine culture are driven by competition, accomplishments, and success while feminine cultures value caring for others and quality of life. In terms of this dimension, Bulgaria can be characterized as a feminine culture. People appreciate equality and solidarity. Conflicts are resolved through compromise and negotiation. An empirical study by Alexandrova (2015) regarding cultural differences and their impact also confirms that Bulgarian culture is closer to the 'feminine' cultural type.

2.2.4. Uncertainty Avoidance

This dimension has to do with the way society deals with ambiguity and the fact that the future can never be predicted. Uncertainty creates intolerable anxiety. Bulgarians tends to avoid uncertainty and unintended risks in life, and prefer security at the workplace.

2.2.5. Long- vs. Short-term Orientation

The last dimension describes the extent to which society respects traditions and social obligations, or favours a more pragmatic approach. In terms of this indicator, Bulgaria has a pragmatic culture. Traditions easily adapt to changes in circumstances, parsimony, and constancy in achieving results.

Having the same understanding, team members believe that mutual benefits and financial results are the dominant factors. Overall, they reckon that cultural differences are not an obstacle that cannot be overcome. The outcome of a study by Stoyanova (2012) shows that finding a common interest is the most important priority, and as long as business standards are followed, everything else can be smoothed out. Considering all the above, it can be concluded that Bulgarians are capable of improvising and acting intuitively, so they can be said to be flexible and adaptable.

2.2 Cultural differences in project teams

Cultural differences impact the behaviour of team members in multicultural projects. People often view cultural differences as something that will not benefit their organization, although it can definitely bring positive results. A good understanding of the probable effects of cultural differences can lead to improved project execution and better organizational performance at a later stage.

Representatives of heterogeneous project teams enhance the cultural, gender, or ethnic diversity of the team. Such members are more likely to seek and find innovative and unconventional solutions in new or challenging situations. They perform better than homogeneous teams and have mostly beneficial effects on the project.

Conversely, homogeneity improves communication which often has been called the 'power engine' for the project success. Hence, if culturally diverse teams are not properly managed, this may lead to poor communication (Loosemore – Lee, 2002). Another aspect of cultural diversity is cultural conflicts (unexpected ones in particular) which occur during meetings between people from different cultures (Hofstede, 2001). Conflicts between individuals from different cultures can be explained by the fact that people often prefer to work with similar counterparts (Jehn et al., 1999). The differences in values, origin, and experience of the members of heterogeneous groups lead to conflicts (Jehn et al., 1999). The key to dealing with cultural conflicts is communication and active listening (Parvis, 2003), as well as knowledge of different cultures in order to recognize intercultural problems. Language does not only serve the purpose of communication, but it is also closely tied to cultural understanding (Matsumoto – Juang, 2012).

Achieving an adequate and accurate combination of workforce diversity could even take years, which shows that managing diversity in organizations can be a complex and long-term process with no guarantee for success.

Even if strict adherence to 'proven steps' for effective project management is observed, multicultural projects are not as successful as traditional ones. While the lack of diversity in the organization could reduce conflicts, this would inevitably lead to a decrease in innovation.

2.3 The role of the project manager

A skill required of project managers is having the ability to understand the culture of the people belonging to their team (Kerzner, 2000). Cultural awareness of the team members is a challenge for project managers on a daily basis. Overall, most of them are not culturally trained, which is often the reason for neglecting cultural differences. In the absence of such knowledge, a wide range of problems occur due to various types of misunderstanding. Therefore, the issue of cultural differences should be considered positive by project managers, as well as a challenge to be faced (Obikunle, 2002).

Consequently, one of the main tasks of the project manager is to monitor, describe, and analyse cultural similarities and differences, as well as manage them successfully. Gaining new insights into solving problems as well as a good understanding of the concepts of 'culture' and 'differences' is also essential to any project manager.

In order to overcome cultural differences, the following may help:

- creating a multicultural knowledge network;
- soft skills trainings and workshops;
- recognition, respect, and knowledge of local holidays and traditions
- building multicultural competence.

PMBOK (PMBOK Guide, 5th edition) states that "cultural influences are critical in projects" and "multicultural competence becomes critical for the project manager".

Cultural differences in the workplace cannot be resolved by imposing one culture on another. Therefore, diversity is also crucial for organizations as they strive to work effectively in an increasingly interrelated business world and attempt to cope with these circumstances in a way that supports the organization's goals. Leading by means of culture may be among the few sources of sustainable competitive advantage left to companies today. Successful managers will stop regarding culture with frustration and instead use it as a fundamental management tool (Groysberg, 2018). According to the study by Alexandrova (2015), national

culture has an indirect effect on the overall behaviour of the economic units and is an important determinant of the manager's style. Further cross-cultural studies on this topic are certainly needed.

3 Conclusion

Multicultural project management can be successful through effective leadership, intercultural communication, and mutual respect. International projects with effective multicultural teams can be a source of experience and innovative thinking. Multicultural projects are becoming a trend. More and more projects are successfully executed with the assistance of multicultural teams. To achieve the project objectives and avoid potential risks, project managers must be culturally sensitive and promote creativity and motivation through flexible leadership.

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The Economic and Legal Aspects of Startups
in the Slovak Republic

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Abstract

In the world, millions of new companies are established each year in various sectors of the national economy. Some of these new companies are mainly focused on development and research of new technologies, innovative products and scientific research and these companies are beginning to bring more economic benefits to the country than traditional sectors of the economy. Therefore, it is necessary to support these companies and to create economic and legal conditions in society to further develop them. The development and support of such companies bring not only new investments but also new job opportunities for the country's economy. Investing into startups is not exceptional anymore. More often not only private (angel) investors invest into these companies, but also large international banks, mutual funds or large multinational companies do so. Also in Slovakia there are successful startup companies that gained attention of many investors abroad. These companies contribute significantly to the image of the Slovak Republic abroad as a country with high innovation potential.

Keywords: *Startup, Venture capital, Slovakia, Startup environment, Business Angels, Support for government*
JEL classification: G23, G24, G32

The Aim and Methodology

The aim of the paper is to evaluate the current state of start-up in Slovakia. Point out the economic aspects of the start-up, the start-up financing options, the initial costs associated with the foundation of the J.S.A. and defining the start-up concept by different authors. Also define the legal aspects related to the start-up of a start-up company with a focus on the shareholder agreement and other documents.

1.   Introduction

We are currently experiencing economic growth in many countries of the world, and changing conditions in the global markets are affecting all the world's economies. However, the most important influence on the economy of individual countries in recent times have technologies that are currently bearers of innovation potential and development of human capital.

The driving force behind these economies should be small and medium-sized enterprises, which can respond to changing market conditions in a relatively short time and at minimal expense. Such businesses could be startups that bring not only development of new technologies, but also growth of employment and rise of living standards.

Startups are new and dynamic business entities that are primarily active in the field of information technology and thus have faster access to world markets. However, the future of these startups is full of questions. According to Harvard Business School's Shikhar Ghosh research, up to 75% of startups cease to exist (Blank, 2013).

On one hand, startups are very innovative, flexible, able to reach out to the client and have great prospects if their product is successfully marketed. But on the other hand, they are struggling with many issues such as imperfect business model, poor market estimate, unknown brand or rapidly growing competition, etc. Startups need support for their development. It is not necessary to emphasize the fact that startups in advanced economies have great support. That is why, in other countries, including Slovakia, a number of measures have been taken to encourage startup development.

The government of the Slovak Republic is also trying to support startups in Slovakia. Since the beginning of 2017, the new Act no. 290/2016 Z.z. on support of small and medium-sized enterprises and amending Act no. 71/2013 Z.z. on the provision of subsidies within the competence of the Ministry of Economy of the Slovak Republic, as amended (hereinafter the "Startup Act") has entered into force.

In this Act, startups are defined as entrepreneurial initiatives with high growth and innovation potential that can start and sustain smart and inclusive economic growth in the long run and also attract foreign investment. They contribute to the development of high added value sectors, regional and global competitiveness, and the creation of skilled labor (Uznesienie vlády Slovenskej republiky č. 307, 2015). Their added value is a breakthrough or fundamentally improved product or service for the relevant market.

According to Act no. 513/1991 Z.z. as amended - The Commercial Code created a new type of business Simple Joint Stock Company ("J.S.A"), which should encourage easier establishment of startups and their survival on the market as well as other economic and legal aspects of startup operations.

2. How to define startup

The startup definition is not exactly defined. First of all, look at the differences between a classic business and a startup. Classic businesses are located in industries such as mining, engineering, automotive, textile and construction. Their business intent, business risk, and the market on which they operate are known, as well as the target group of customers.

Startups, however, are the exact opposite of traditional businesses. This is an entirely new type of business where the risk is not known because it is not possible to model it in advance. We can say that every business begins with an idea, that the creator of the idea wants to develop it until successful end, in other words into a new product that would be interesting for the market. Thus, the development of the startup from the moment of the initial idea to the moment when it becomes a full-fledged enterprise is a unique process.

According to Steve Blank, who was involved in a number of startups, the startup is "*essentially an organization created to find a repeatable and scalable business model*" (Blank, 2010). Every startup looks for its own business model, needs to know and try to answer all the basic questions that are behind success of a company. Who will be our future customers, what added value will our products bring to them, who are our competitors, what resources we will use, what is the cost and income structure.

Eric Ries defines startup as "*a human institution that originated to create a new product or service on the condition of extreme uncertainty*" (Ries, 2010). He also points out that the foundation of a successful startup is an innovation but at the same time all new inventions are

always based on a previous technology. Many startups do not upgrade the product, but offer other ways to use it with new business models.

Another look at the startups brings Paul Graham, who gives his insight into what is startup and what is not startup. "*The idea is something I think I want to do. It's really just a thought, though I will talk about the idea for a few years, it's just an idea. An investor who invests in an idea can help make the idea a faster startup, but this investment does not create a startup. When the idea begins to work, it becomes a project. Contrary to the idea, the project goes much further, because something is actually being done, it's not just talking and presenting an idea. Startup already means some seriousness to me. As opposed to an idea the startup project must be alive and have its customers. Startup is a normal business for me* " (Čo je a čo nie je startup?, 2018).

According to Ivan Štefunko of Neulogy Ventures, who is engaged in startup support by providing financial resources for startups, he says "In the broader sense a startup can be any fast growing new company. In Silicon Valley, however, it is connected more with technology-oriented, innovative companies with global potential and high degree of scalability. The company remains a startup until it finds a scalable, repeatable model of how to make money. Perhaps surprisingly startups are also huge internet companies with millions of valuations " (Klempová, 2014). Problems of startups in Slovakia and in the Czech Republic are addressed by authors mainly in connection with venture capital rather on general level, for example Dvořák and Procházka (1998). The issue of startups, mutual funds and sovereign funds is also addressed by authors as Chovancová (2008) and Pauhofová (2014). KPMG is also engaged in the startup research in Slovakia (KPMG, 2016). Entrepreneurial models and entrepreneurship strategies of the startups were also analyzed by Štefan Slávik, Richard Bednár, Branislav Zagoršek and others (Slávik et al., 2015).

3. Economic aspects of startups and possibilities of startup financing

Founders of startups have, at the beginning of the business, just an idea they want to implement, but they do not have enough funding to implement it. Funding of an idea, or an already existing startup is a high risk for banks and therefore getting a loan from the bank is difficult or nearly impossible. New startupists are usually helped by family, friends and enthusiasts, but also by resources from external environment (Startup 4 Dummies. 2015):

- **Business angels** - represent a group or individuals, investment enthusiasts financing a startup under certain conditions. Business angel must be convinced that the startup has a potential, that it is a unique and interesting project that will be successful in the market. In addition to funding, the business angel helps startup with its advice and contacts.

- **Venture capital funds** - are created from private or public sources, investors are experienced and familiar with many startups but ultimately only support a small number of them. Their caution stems from the fact that they finance startups in large-volumes and according to phase in which the startup finds itself at certain point of the time. They enter into financing only when the startup already has its clients or the potential of its entry into the foreign market is likely.

- **Financing through innovative funding - crowdfunding** is becoming more and more popular. Forbes has ranked 10 of the best crowfunding portals (Top 10 Crowdfunding Sites For Fundraising, 2013), among the best known are Kickstarte, Indiegogo, Crowdfunder, RocketHub, Crowdrise, etc. The course of such funding is that the project sets a target for collecting a certain amount of financing and the date by which it must be collected. If the specified amount is not collected, the money will be returned to the

people who supported the project. If a fixed amount is obtained, the reward is based on the amount of the donation. The supporter runs the risk that the project will not function according to his expectations that it will not function properly, or even that the final product will never be developed.

According to the results of the survey conducted by KPMG, the most common ways of external financing of Slovak startup companies in 2014 were (Prieskum slovenského startup ekosystému, 2014):

- **74%** of startups use for financing their personal savings, which is often a limiting factor in the development of the startup to the next stages of its life cycle.

- **39**% of startup companies in Slovakia confirmed the assistance of "angel investors".

- **22**% of Slovak startup companies had access to resources of family, friends, and acquaintances.

- **15**% of resources came from venture capital.

- **4**% of startups used crowdfunding.

- **4**% of Slovak startups used financial resources from banks.

Financing of startups fundamentally determines the overall startup success rate. Startups in Slovakia have only limited opportunities to get an investor and to grow and develop further. The capital market has been inactive for years. Capital financing in Slovakia is characterized by low demand and supply levels as well as low awareness of the benefits of capital financing and the resulting lack of experience in dealing with capital investors in general. Nor did the Stock Exchange in Slovakia come up with the initiative to start startup financing through the Stock market or to create conditions for startups.

Other forms of funding could be also important for startups, such as convertible credit, combinations of funding and provision of long-term advisory services (which guarantees a greater chance of surviving on the market), etc.

The aim should be to ensure that bank financing resources are gradually replaced by equity financing, especially for startups that are basically dependent on external financing (limited cash flow history, no assets that could serve as collateral, etc.).

However, capital market access is expensive for most startups, mainly due to fixed costs of due diligence and equity issues. The cooperation of banks and various institutions, which, after refusing a startup loan, should be cooperative and provide good quality feedback, while at the same time they should inform the client about possibilities of financing on the capital market.

Another important aspect is the need to improve startup access to sources of funding (including venture capital). However, there are other barriers that arise from inadequate connections of EU Capital Markets (absence of a single Capital Market) and limited access to available funding opportunities. The priority therefore must be an increase of efficiency of the internal market functioning, in particular:

- greater competition on the market,

- more players on the market,

- new products,

- lowering the market entry price for both investors and applicants,

- better distribution and diversification of risk,

- sharing risk among investors across the EU.

From idea to project implementation there is a long journey to establish a company. In order to start a successful startup, you need to issue and write shares on the shareholders' accounts, register them in the Central Depository of Securities and open accounts with the bank. As shown in the table below, the establishment of J.S.A. is not just about one euro, as the law says.

Current costs for setting up J.S.A. (prices are excluding VAT).

Basic capital of the company	1,00 €
Drawing up notary record at the foundation of the company	416,67 €
Allocation of the LEI code from the Central Securities Depository	70,00 €
Allocation of the ISIN code from the Central Securities Depository	130,00 €
Shareholders' accounts opening at OTP Bank	free of charge at the moment
Account fees at the bank	4,50 € per month
Registration of a new issue (Securities Issuing Orders) at the National Central Securities Depository	152,00 €

Source: Own research, Bratislava, January 2018

4. Legal aspects of startups in Slovakia

The Slovak business environment is primarily created by a range of small and medium-sized entrepreneurs, accounting for up to 99% of all companies, including startups. Small and medium-sized enterprises (SMEs) provide business opportunities for almost 75% of active labor force in business economy and contribute to more than 50% of gross output and value added (Stav malého a stredného podnikania, 2012).

Comparison of Legal Forms of Companies in Slovakia:
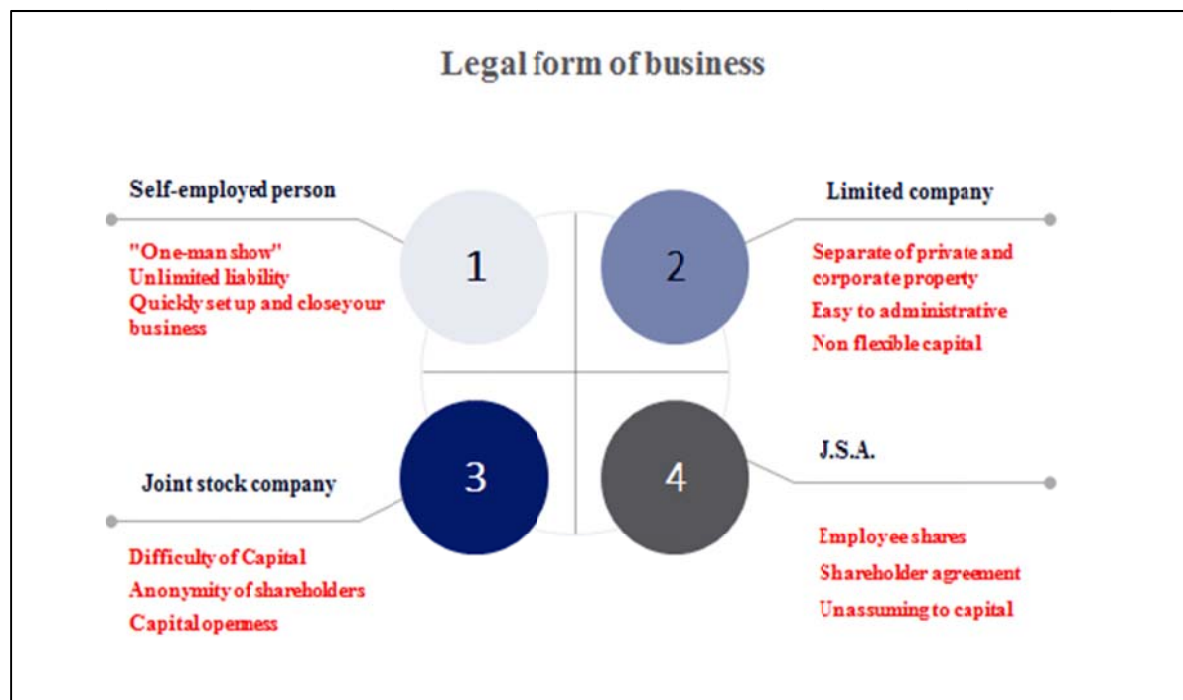
Source: Demo T., Seminar: "How to Take Legal Startup", Wolters Kluwer, Bratislava, November 2017.

In order to facilitate the establishment and development of startups, 513/1991 Z.z. as amended - Slovak Commercial Code established a new legal form - new type of business Simple Company for Shares (hereinafter "J.S.A."), which was created mainly with the aim to support startup companies and to keep them on the market. Compared with the existing legal forms of companies, this is a major shift forward.

The J.S.A. should solve problems with the frequent disappearance of startups due to the lack of capital when founding, but it will also be interesting for investors. The J.S.A., is a hybrid form of a capital company that combines the elements of a limited liability company together with elements of a joint-stock company. The effort was to combine benefits of limited liability company (eg. a low capital requirement or a simple company structure) and a joint stock company (share in the share capital represents the company's shares and liability for breach of obligations) into a single entity.

The main advantage of such company is, in particular, the amount of its basic capital, which is € 1 of share capital and the shareholder does not disclose the liabilities of the company. The value of the J.S.A. share could be also expressed in euro cents or in the combination of euros and euro cents. A disadvantage, in contrast to the joint stock company, will be the lists of stockholders that will be listed in the registers of stockholders led by the Central Depositary of Securities of the Slovak republic, which means for the J.S.A. shareholders., less anonymity.

Founders sometimes omit documents or legal actions when setting up their startup. Its absence will show in complications or disagreements not only among the founders but also among the investors who have entered into the project. One such important document is also a shareholder contract that should contain some important provisions (Demo, 2017):

- *Nominations* - division of powers of the bodies (General Assembly, Board of directors).

- *Protection of the minority investor (*reserved matters) - investor wants to control handling of assets (loans, loans, purchase of equipment ...).

- *Handling of stocks* - drag along, tag along.

- *Prohibition of change of control* - unwanted change of control over the original founder (investor).

- *Active and passive ban* (eg. CEO of a company that has a stake in another firm dealing with the same business).

- *Commitments to the company* - full time equivalent, prohibition of other activities, exceptions, good leaver / bad leaver.

- *Liquidation preference* - the right of preferential satisfaction of the investor, especially when selling the company (a positive event is when it is a successful sale or a negative event when it is liquidation of the company).

- *Right to information* - regular reporting, right to control - financial investor.

- *Deadlock* - agreement between shareholders or CEO decides or Russian roulette form.

- *Settlement of arbitration between shareholders* - arbitration.

Another important part of documents is setting relations with employees, advisers, future business partners, protection of know-how and protection of intellectual property rights.

1. **Setting employee relations** - first of all, the founder should treat relations with his employees, whether in the form of a ban on competition, employee works, confidentiality

obligation, employee shares should be at most 15%. Other rights related to management of shares (limited transferability or pre-emptive right), setting the conditions for the issue of shares (KPIs / Time, termination of employment and hence the obligation to sell part of the shares) should also be adjusted.

2. ***Setting relations with external consultants and suppliers*** - entering into confidentiality agreements, licensing agreements where copyrights need to be included in the contract (if the individual develops the software, then put the intellectual right into the contract).

3. ***Contractual treatment of business*** - it concerns mainly employment, management and supply contracts.

4. ***Protection of know-how and intellectual property rights*** – this concerns timely registration of a trademark, patent or technical solution, in order to avoid dispute as to the patent or other trademark. An important part of registration is also protection of intellectual property rights not only within the company (employees' works) but also externally with investors, suppliers or advisers. It is also possible to protect a certain type of software through the so-called software patent (Startup 4 Dummies, 2015). However, due to high cost of registration, this protection option is available mostly to large (IT) companies.

5. ***Legal and financial advisor*** - should be at the start of business and should regulate the company's business.

Conclusions

The issue of startup development and support in Slovakia is not yet fully resolved either from the perspective of its founders investors who invest in this type of business, as well as institutions that deal with this area. There are number of open questions that need to be answered, although on the other hand, we see positive change in adopting legal regulation that defines what is a startup and defines also conditions for establishment of a startup. Startup business has a tremendous potential for the future. The positive side of this ongoing process is that investment in new ideas and technologies has a growth trend and this development can raise the level of national economy by exploiting the global market potential as well as the potential of human capital. The development of the society will be related also to the support and success of the startup companies not only in Slovakia but also abroad.

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Diverse Approaches and Definitions of the Term Culture

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Abstract
The main objective of the present paper is to provide an overview of definitions and models concerning the term culture and to highlight the variety of aspects being emphasized. The definitions come from a wide spectrum of sources, such as research of respected scholars, dictionaries, or international organizations. Based on the definitions cited, we attempt to summarize the stated definitions into a single, comprehensive definition.

Keywords: *culture, definitions, models*
JEL classification: Y 80, Z 10

1. Introduction

The word culture belongs to the core of a language vocabulary and is understood by the whole language community. However, everyone associates this concept with different denotates, reaching from fine arts, architecture, through customs and traditions transmitted from one generation to the next, up to the perspective of behavioral norms and communication patterns considered right within a community. Generally, we can say that none of the stated approaches is false. Culture is a complex system of concrete and abstract elements.

From the scientific point of view, it is an interdisciplinary phenomenon, interfering with ethnology, linguistics, international relations, marketing, etc. The intercultural dimension, as a consequence of globalization tendencies, is highlighted more and more frequently.

In the present contribution we provide an overview of definitions of the term culture, illuminating and reflecting the most significant aspects of the concept in question, and excerpted from a variety of sources. Within one section, we refer solely to the models and approaches of Geert Hofstede. However, it needs to be emphasized that it is only a fraction of definitions to be found in the literature and other relevant sources. In fact, there are dozens of definitions of culture, and much more room would be needed to discuss each of them in detail.

2. Selected Definitions of Culture

When analyzing various definitions of culture, we can say that some of them are rather complex, incorporating several aspects, others are relatively simplified, targeted at one specific aspect.

The definitions provided within our paper come from a variety of sources. Firstly, several definitions stated here reflect research results and ideas of respected scholars and scientists. Secondly, a few definitions are cited from well-known dictionaries, such as Oxford Dictionary or Duden. Eventually, we also provide definitions by selected international

organizations, for instance The United Nations Educational, Scientific and Cultural Organization (UNESCO).

2.1 Geert Hofstede and his Models of Culture

A scientist who cannot be ignored when discussing the concept of culture, is Geert Hofstede. Using analogy to computer programming, he calls culture *mental software*, or *software of the mind*. Hereunder, certain patterns of thinking, acting, and feeling, are understood (Hofstede et al., 2010).

According to Hofstede et al. (2010), culture can be viewed in a narrow and broader sense. In the narrow sense, culture means basically the same as *civilization*, or *refinement of the mind*, or the results of it, for instance art and literature. Usually, this is the approach of the Western world, or the most Western languages. On the contrary, culture in a broader sense is the mental software (Hofstede et al., 2010). Within the book *Cultures and Organizations – Software of the Mind* (2010), the latter approach is applied. Similarly, we will neither be restricted by the narrower perspective, and will prefer the attitude regarding culture as a set of behavioral and thinking patterns.

Hofstede et al. (2010) further emphasize, that culture is a learned collective phenomenon, as it is, at least to a certain extent, shared by members of a social group. *"...It is the collective programming of the mind that distinguishes the members of one group or category of people from others,..."* (Hofstede et al., 2010, p. 6).

Furthermore, Hofstede et al. (2010) distinguish culture from one´s personality and human nature. Human nature is common to all humans and is stored within our genes. Personality is, on the other hand, unique. It is the combination of inherited and learned traits, i.e. it is influenced by culture, as well as by personal experience. The relationship between the terms culture, human nature, and personality can be graphically illustrated as in the Figure 1 under.

Figure 1
The Levels of Uniqueness in Mental Programming according to Hofstede et al. (2010)

Personality –
specific to
individual;
inherited and
learned

Culture –
specific to group or
category; learned

Human nature –
universal; inherited
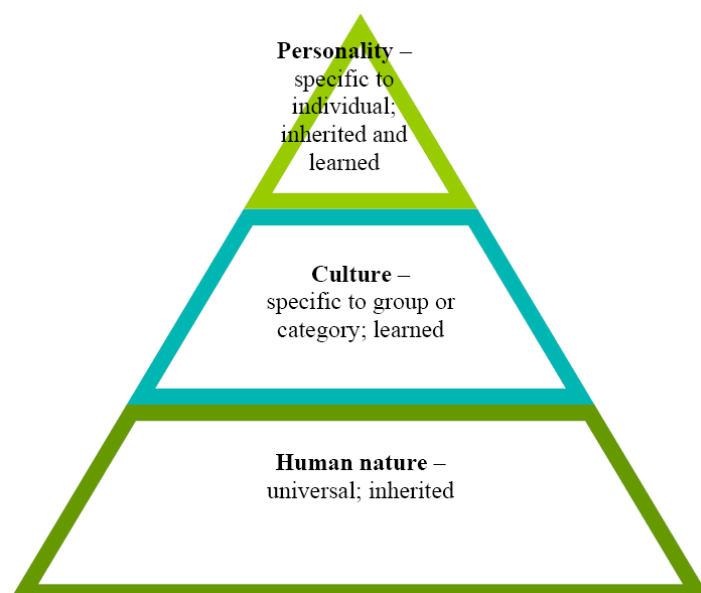
Source: Hofstede et al. 2010. p. 6

Another frequently cited model of Hofstede demonstrating certain aspect of culture, is the Onion model (Figure 2). In a rather simplified way, it shows that some elements of culture

(symbols) are visible immediately, they are the most superficial, while familiarizing with others requires a deeper insight (values).

Figure 2
The Onion Model of Culture
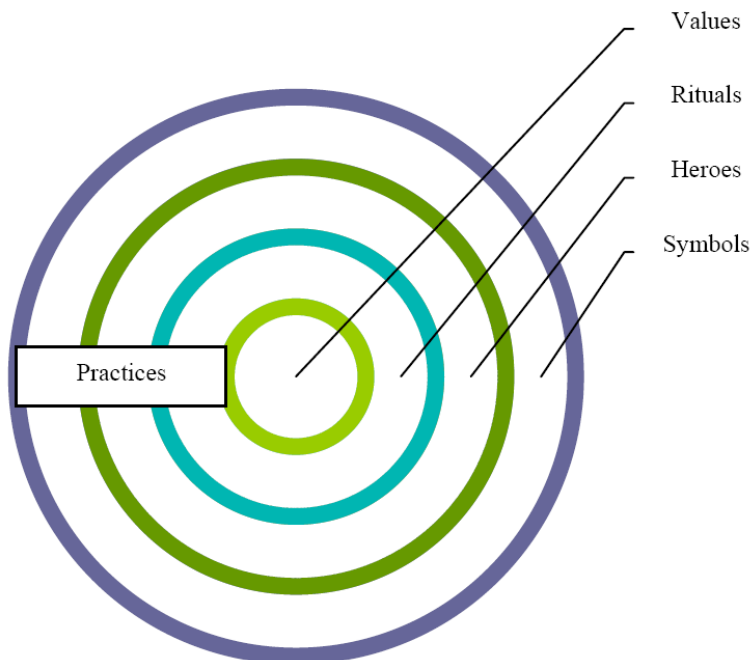
Source: Hofstede et al. 2010. p. 8

According to Hofstede et al. (2010), the four manifestations of culture (values, rituals, heroes, symbols) cover the overall concept of culture.

Hofstede et al. (2010) define symbols as *"words, gestures, pictures, or objects that carry a particular meaning that is recognized as such only by those who share the culture,"* (Hofstede et al., 2010, p. 8). Even flags, hairstyles, or dress belong to this category. By heroes, dead or alive, real or imaginary persons are meant, possessing highly prized characteristics, therefore serving as a model for behavior. As for rituals, these include collective activities, that are found to be essential within a particular culture. Religious ceremonies or greetings are examples hereof. Symbols, heroes and rituals together represent practices, visible to an observer, although their cultural meaning is not visible. Values create the core of culture, meaning broad tendencies of preferring something. They are engaged in pairs of attributes, such as dirty versus clean, evil versus good, moral versus immoral, etc. (Hofstede et al., 2010).

2.2 Other Approaches to Culture

A very similar approach was developed by Edward T. Hall (1976), who applies the analogy of culture and an iceberg. This means, certain elements of culture are visible, but most of them are hidden, not visible at the first sight.

Ting-Toomey and Oetzel (2001) define culture as *"a learned system of meanings that fosters a particular sense of shared identity and community among its group members,"* (Ting-Toomey, Oetzel, 2001, p. 9). Also in this case, emphasis can be put on the notions shared identity and community, implying culture is no property of an individual, but rather of a group of people who share it.

Nadler et al. (1985) regard culture, similarly as the authors above, as a system of socially created and learnt standards, shared by members of an identity group, and whose purpose reposes in perception and handling. Standards typical for a cultural group, to which an individual belongs, influence the individual´s communication style to a significant extent.

According to Casmir (1985), each culture provides certain clues or guidelines, which are transmitted from generation to generation, and which have their roots in the community´s experience. Based on these, decisions are made, and conflicts solved. They represent the core of human cooperation (Casmir, 1985).

In principle, culture has impact on our everyday life. Carbaugh (1985) talks about so called cultural codes, that:

- *"Operate in the cooperative accomplishment of everyday work,*

- *Influence participants´ abilities to recognize and manage conflict,*

- *Play an important role in participants´ abilities to cooperatively make various*

  organizational decisions" (Carbaugh, 1985, p. 30).

Samovar (2013) summarizes some basic assumptions concerning culture. Culture is very closely linked to communication, and, furthermore, it is possible to say that culture is communication and, vice versa, that communication is culture. Culture consists of several elements, namely religion, history, values, social organizations, and language. It is a dynamic and integrated system, transmitted from generation to generation. Moreover, it is a learned phenomenon (Samovar, 2013). Based on Samovar´s approach it can be concluded that there is an overlap in his understanding of culture and the one of Hofstede, as they both state concrete, and to some extent even the same elements of the concept.

As Sapir (1949) suggests, culture may be conceptualized in three ways. Firstly, culture embodies any socially inherited, material or spiritual, element in human life. Similarly, as in some cases above, also here it can be substituted by the term civilization. Secondly, culture is *"...a rather conventional ideal of individual refinement, build up on a certain modicum of assimilated knowledge and experience but made up chiefly of a set of typical reactions that have the sanction of a class and of a tradition of long standing,..."* (Samovar, 1949, pp. 80-81). In our opinion, this definition seems to be rather complex. Therefore, we would attempt to formulate its simplified version as *individual refinement, based on knowledge, experience, and tradition*. However, Sapir (1949) himself considers the third approach the most difficult to illustrate. It shares certain attributes with both aforementioned explanations. With the first approach, the *"emphasis on the spiritual possessions of the group rather than of the individual"* is shared (Sapir, 1949, p. 83). With the second conception, stressing of certain factors as more valuable, more significant, etc., is shared (Sapir, 1949). As also the third way of defining or describing culture might be seen as vague or incomprehensible, we will mainly remember Sapir´s distinguishing among three approaches to the term culture in general.

Sapir (1949) further states, that the limitation of the notion to e.g. art, or science is disadvantageous, as being too exclusive. In his opinion, the attitude likely to come nearest is claiming that the cultural conception is aimed at including all views of life, and specific manifestations of civilization that provide a people with a distinctive place in the world (Sapir, 1949). He concludes, that culture can be *"defined as civilization in so far as it embodies the national genius,"* (Sapir, 1949, p. 84).

2.3 Culture as Defined by Dictionaries and International Organizations

As far as dictionaries and encyclopedias are concerned, definitions there are usually briefer, but on the other hand comprehensible. A general dictionary normally provides several definitions focusing on different scientific areas, such as social sciences, agriculture, or biology. Sometimes, also synonymous notions, or grammatical aspects are added. A special dictionary may provide more complex explanations. For the purpose of this paper, we will regard exclusively definitions dealing with social sciences, such as anthropology or ethnology, and leave the natural sciences-related definitions out of concern.

Macmillan Dictionary (online) provides four definitions of culture, with some of them being further divided into more specific ones. Those relevant for the objective of this paper are the following ones: (1) *"activities involving music, literature, and other arts"* – in this context, the culture is viewed as civilization or a society, and (2) *"a set of ideas, beliefs, and ways of behaving of a particular organization or group of people"* – here, a theory, or philosophy, or beliefs, are meant. The latter definition involves two sub-definitions. In concrete, culture is considered (a) *"a society that has its own set of ideas, beliefs, and ways of behaving"*; secondly, (b) *"a set of ideas, beliefs, and ways of behaving of a particular society"* (Macmillan, 2017). We can conclude, ideas, beliefs, and behavioral patterns are the key words extracted from the above stated definitions.

Similarly, Oxford Dictionary (online) also involves several definitions of culture, depending on the scientific field. To a certain degree, the definitions relevant for us overlap with those from Macmillan. The first one *"arts and other manifestations of human intellectual achievement regarded collectively"*, refers to the human activity. More specifically, *"A refined understanding or appreciation of culture"* is meant hereby. Behavioral patterns and ideas are at the core of the next definition: *"The ideas, customs, and social behaviour of a particular people or society."* Furthermore, the focus is on traits distinguishing one social group from the other: *"The attitudes and behaviour characteristic of a particular social group"* (Culture, 2017). We can see that according to Oxford, the factors ideas and behavior are essential, as well.

Within Duden, a German dictionary (online), also several diverse explanations of culture are stated. The dictionary defines culture as the sum of intellectual, artistic achievements of a society, representing high human development[1]. Besides, among other definitions by Duden, culture can be understood as a culturing of a person[2] (Duden, 2017).

According to UNESCO[3] (2017), the definition of culture has been a controversial issue for a long time. However, they state, that one of the commonly used definition is the following one: *"[Culture] is that complex whole which includes knowledge, beliefs, arts, morals, laws, customs, and any other capabilities and habits acquired by [a human] as a member of society,"* (UNESCO, 2017). What we consider crucial here is the connection of the key components of culture under one overall definition. Thus, the complexity of the concept is emphasized.

OECD[4] (2005) claims that culture is often defined as a set of values, benchmarks or norms, whereby these define the state of social relations, shared goals, reciprocity and cooperative behavior among communities and individuals belonging to the given society. Besides, culture

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[1] *"Gesamtheit der geistigen, künstlerischen, gestaltenden Leistungen einer Gemeinschaft als Ausdruck menschlicher Höherentwicklung"*
[2] *"Kultiviertheit einer Person"*
[3] United Nations Educational, Scientific and Cultural Organization
[4] Organisation for Economic Co-operation and Development

as a value system might have impact on functioning of an economy (OECD, 2005). In this concrete definition, we would like to highlight the remark of a culture´s being connected to developments and state of an economy. We assume, this approach belongs to the less frequent ones, or at least the economic factor is not named explicitly. However, we believe the relation between a culture and the national economy deserves attention of not only academic community, but as well policy makers.

3. Conclusions

Despite the fact that only a limited number of existing definitions of the term culture were cited above, we have proved its being approached from diverse perspectives. Based on the discussed definitions and models and their summarizing, we would propose a comprehensive definition of culture with following wording: *Culture is a dynamic system consisting of values, norms, laws, beliefs, customs, as well as of patterns of thinking, feeling, acting and behaving, i.e. material or spiritual elements, which is learnt and transmitted from one generation to another generation, while providing guidelines to the members of the community who share it.*

We are aware that culture is a complex phenomenon, which is not always easy to properly define. Therefore, a significant amount of definitions has occurred in the literature. As we did not include all of them, our work has certain limitations. Having considered more of them would most likely have led to a slightly different wording of the final definition.

In conclusion, we would like to encourage those engaged in discussions on culture to consider the wider perspective, and not to be limited by solely one approach or definition.

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Post-Crisis Consolidation in Eurozone - Cluster Analysis

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Abstract
In 2008 euro area was hit by the global financial and economic crisis, which transformed into a crisis of sustainability of public finance. The fate of eurozone rests uncertain until today. The progress of consolidation and restoration of economic growth does not take place in all countries the same pace. That is the main reason why we decided to analyze post-crisis development in the euro area. Firstly, the present paper uses cluster analysis that classifies the individual euro area member states based on their level of macroeconomic consolidation. Depending on the results of the research evaluate achieved economic performance of the euro area. We make recommendation for selected eurozone member states to maximize the effectiveness in their consolidation efforts.

Keywords: *Eurozone, Post-crisis Consolidation, Cluster Analysis*
JEL classification: F15, F41

1. Introduction

Eurozone is the highest reached form of economic integration in Europe. At the moment of its creation in 1999, independent and sovereign economies decided to abandon national currencies and adopt the single European currency. States have rejected an autonomous monetary policy and transferred competencies to the newly constituted European Central Bank. At the same time, countries retain responsibility for their fiscal and budgetary policies. (Lipková, 2013a)

European economists have chosen to their own concept of building a monetary union. It was focused at achieving nominal and real convergence between Member States. European model was based on fulfilment of the Maastricht criteria, the creation of common institutions and an agreement on framework for budgetary policy coordination, also known as Stability and Growth Pact. (Baldwin, 2013) The primary purpose of harmonizing economic cycles was assurance of symmetrical development within the monetary union. (Fogel – Saxena, 2005) Euro area to date is the community of states that have their economic model built on different foundations. German and Dutch economic model is based on competition, decentralization and low inflation. Nordic welfare state is typical with high level of wealth redistribution. Southern economies are fighting unemployment at the cost of higher inflation and their external competitiveness was kept by currency devaluation. (Baldwin, 2013) Heterogeneity between EMU Member States is also present in GDP per capita, debt levels, unemployment rates, different labour markets or their own social systems. The question is how countries so different can function in a system of single currency?

The Theory of Optimum Currency Area is based on the assumption that a country joining a monetary union must be able to maintain its external competitiveness. (Baldwin, 2013) After the loss of autonomous monetary policy, it can be achieved only through more difficult path, by maintaining wages and prices low, since devaluation of a currency is no longer

possible. Hence, monetary union consisting of relatively heterogeneous economies is able to function in medium term by keeping stable level of competitiveness, internal and external balance monetary union; however deep convergence is necessary in long therm.

Paradoxically, fulfilment of Convergence Criteria and the respect of the Stability and Growth Pact (after joining the euro area), does not ensure the level of external competitiveness. (Sipko, 2012a) If we observe divergent processes in a monetary union, then an exchange rate of a single currency, in our case the euro, becomes overvalued in the less competitive states. As a result, their exports are disadvantaged and domestic production is less resistant to completion pressure from other countries of the monetary union. After the crisis broke out in 2008, there were discussions about the need to implement measures aimed on increasing the competitiveness of economies which were severely hit by the crisis. (De Grauwe, 2012a) If we consider competitiveness as a key attribute for well-functioning of eurozone, then it is important to analyze how the competitiveness of individual Member States in EMU evolves in time. Sipko admits that crucial causes of current dept crisis were growing imbalances between eurozone members. (Sipko, 2014) He examined discrepancies on current account, real effective exchange rate and net investment position of eurozone member states.

From a methodological point of view, in the paper we analyse macroeconomic data obtained from the Eurostat website. Information on country competitiveness, we received from Global Competitiveness Index (GCI) that is yearly published by World Economic Forum. The resulting data were subjected to empirical and econometric analysis. For cluster analysis we used statistical software Stata. Graphs and tables used in the paper are made by the author.

2. Brief Literature Review

Large number of authors is currently devoted to economic issues of the euro area. The theme has a fundamental impact on the world economy, individual member states of monetary union and the EU as a whole. The second reason of scientific interest is the dynamics of development in eurozone. Regularly we can expect that new impulses come for further research.

A world-renowned author on issues of the euroarea and the current debt crisis is a Belgian economist *Paul De Grauwe* (2012a, 2012b), this issue is addressed in several publications such as *The Governance of a Fragile Eurozone, From Panic-Driven Austerity to Symmetric Macroeconomic Policies in the Eurozone or Lessons from the Eurocrisis for East Asian Monetary Relations*. The theory of optimum currency areas, issues of real and nominal convergence and empirical analysis of the European debt crisis we can find in publication *Economics of European Integration* written by *Richard Baldwin* and *Charles Wyplosz*. In present paper we looked also at the functioning of the Stability and Growth Pact. As a starting point to our work served papers like *EMU SGP: Prospects of macroeconomic stability* (Fogel – Saxena, 2004) and *Why SGP has failed?* (Haan – Berger – Jansen, 2004).

The crisis in the euro area is also addressed by Slovak author Lipková (2013a). She mostly analyzes economic developments in the crisis hardest hit by the eurozone countries. For our research paper where her publications devoted to Spain and Cyprus: "…*The crisis in the southern periphery of the Eurozone - the example of Cyprus* and *The crisis in the southern periphery of the euro area - Spanish and Cypriot examples…*" (Lipková, 2013a).

3. Results

The global financial and economic crisis that hit the world economy in 2008 had heavily affected European Monetary Union (EMU) and it resulted in major changes of three basic macroeconomic indicators: GDP growth, public debt and unemployment rate. Their negative development threatens the sustainability of the single currency and determines the economic consolidation in the euroarea member states.

GDP growth, unemployment rate and the amount of public debt are considered as the basic macroeconomic indicators. They together determine the success of the state´s economic policy, in our case the euroarea. (Fogel – Saxena, 2004) In our research, firstly, we focus on evolution of three aforementioned macroeconomic indicators over the years 1999-2014 (since EMU creation till present). This period of euroarea existence we further divide into two sub-periods, pre-crisis (1999-2007) and post-crisis (2008-2014).

At the same time these basic macroeconomic indicators are interrelated. To prove the statement we use cross-correlation between three variables. Table 1 shows the results of our correlation analysis conducted on a sample of 19 current Member States of the European Monetary Union. We see the synergies between growth of GDP, public debt and unemployment rate over the period 1999-2014. Table 1 shows Pearson correlations between each pair of variables. These correlation coefficients range between -1 and +1 and measure the strength of the linear relationship between the variables. P-values are all below 0,01 which means that probability of no interaction between variables is below 1%.

Table 1
Correlations between unemployment rate, GDP growth and public debt

	U	**Real GDP**	**Debt**
U		-0.2016	0.2442
(Sample Size)		(304)	(304)
P-Value		0.0004	0.0000
Real GDP	-0.2016		-0.4006
(Sample Size)	(304)		(304)
P-Value	0.0004		0.0000
Debt	0.2442	-0.4006	
(Sample Size)	(304)	(304)	
P-Value	0.0000	0.0000	

Source: Author´s calculations. Program Stata.

1 Economic growth

In the pre-crisis period 1999-2007, the euroarea is experiencing a phase of solid economic performance. Member states of the currency union do not feel the negative effects of the loss of autonomous monetary policy. Based on the Eurostat data (Real GDP growth, % change over previous period) the euroarea grew at an average annual rate of 2.3%, which is comparable with the growth value of 2.9% for the same period in the US economy (Eurostat).

Since 2008, we observed a severe economic turbulence and a slump in the economy both in the US and the euroarea. But after 2010 we perceive different economic development. States using euro over the years 2008-2014 experienced a negative average annual growth of -0.1%, while at the time US economy recorded average annual GDP growth rate of 1.1%, ie. a relative success of consolidation efforts (Eurostat).

Figure 1
USA v. Euro area Comparison of real GDP growth rate in period 1999-2014
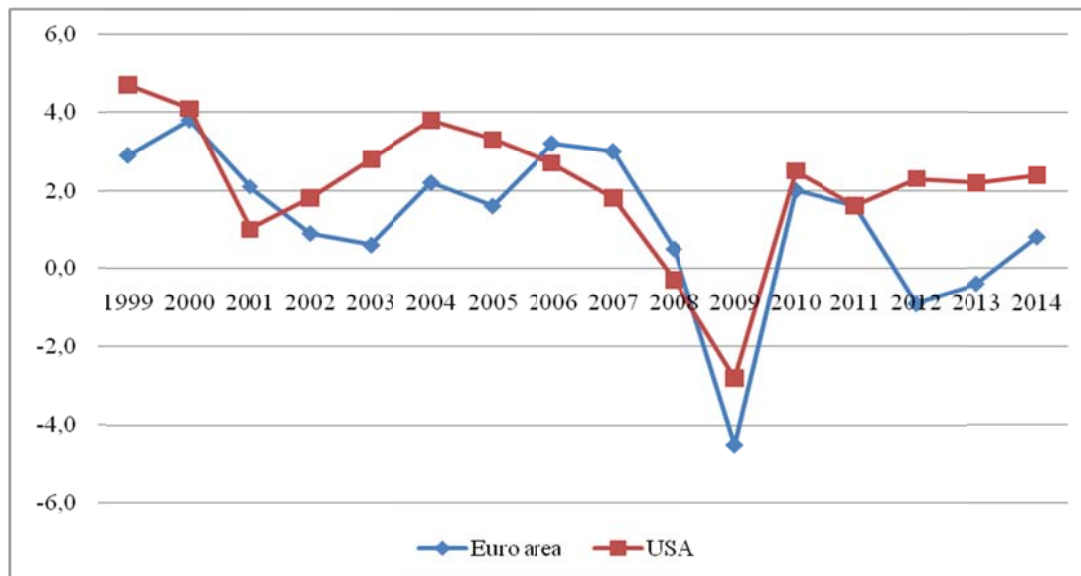
Source: Eurostat. Real GDP growth rate – volume. [online]. Available at the URL:
<http://ec.europa.eu/eurostat/tgm/ table.do?tab=table&init=1&language=en&pcode=tec00115&plugin=1>.
[accessed 18-12-2017].

The recession in the euro area had so called double bottom. After exhaustion of fiscal measures effects, countries were forced to accede to the restrictive policy, which resulted in European economy to fall by 0.4% in 2012 (Eurostat). On the other hand, in the US, the phenomenon of bottom crisis is absent. The basic cause for the application of restrictive measures in the euroarea was the beginning of a debt crisis in Greece, Ireland, and Portugal and partially in Spain. Europe abandoned Keynesian concept of expansive fiscal policy. Eurozone member states due to existing pressure of financial markets and justified concerns about the future of the European common currency pledged themselves to consolidate public finances. (De Grauwe, 2012b) That is also the reason why Eurozone witness double bottom and crisis resolution was not as effective as in US.

2 Public debt

European debt crisis bears its name based on unsustainable growth of government deficits and public debt in the euroarea member states. Based on the Stability and Growth Pact member state has to respect following two criteria:

1. State budget deficit must not exceed 3% of GDP.
2. The public debt must be less than 60%.

The truth is that the Eurozone as a whole at the moment of its creation in 1999 had the level of public debt more than 70% of GDP. During the pre-crisis period, despite continued economic growth, there has been no significant reduction of public debt, which in 2007 reached a value of 65% of GDP. In comparison, the US economy experienced in the pre-crisis period a moderate growth of public debt from 54.5% of GDP in 1999 to 62.8% of GDP in 2007 (Eurostat). The increase was due to both tax reductions for selected subjects and extra government spending associated with military operations in Afghanistan and Iraq (De Grauwe, 2012b).

Figure 2
USA v. Euro area. Comparison of government debt in period 1999-2014
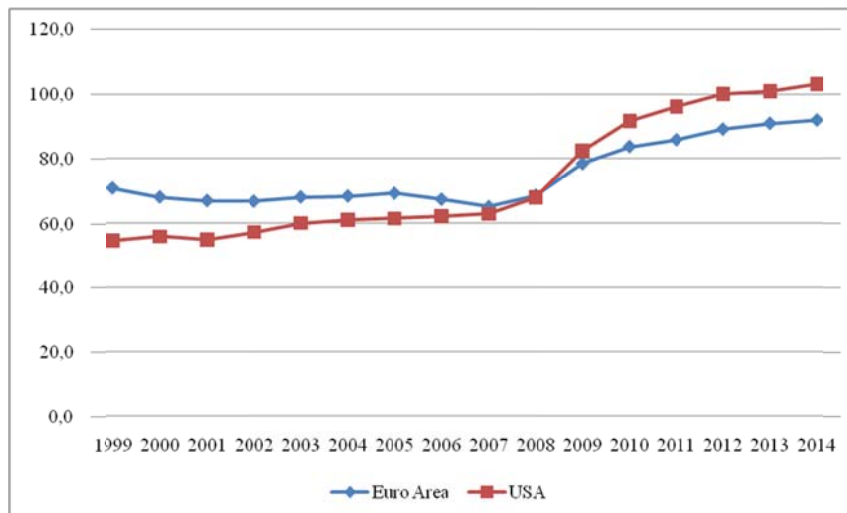
Source: Eurostat. General government gross debt - annual data. Available at the URL: <http://ec.
europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=teina225&plugin=1>.

Paradoxically, in the post-crisis period a debt evolution in the US the higher rate of growth than in the Eurozone. The public debt of the US economy is currently at 103.2% of GDP (Eurostat, 2015). After 2008, the public debt in the euro area is by 10 percentage points lower than in the US. Then why we are not talking about the US debt crisis? USA is currently a federation of states but one united economy. On the other hand, the euro area is a monetary union of independent states with autonomous fiscal policy. While the US has tools to address the crisis situation in the different federal units, the euro area after the outbreak of the crisis did not have mechanisms to deal with a crisis situation in its member states. (De Grauwe, 2012)

After 2008, the Eurozone suffered from the debt problems in states such as Italy, Greece, Portugal and other. Table 2 shows the countries of EMU with the highest debt ratio to GDP and states where we recorded the highest growth rate of public debt after 2008. (De Grauwe, 2013) An extreme case is Slovenia, where the debt ratio as a result of the banking crisis during the seven years had quadrupled.

Table 2
Most Endangered Eurozone economies in terms of public debt

	2008	2009	2010	2011	2012	2013	2014
Belgium	92,2	99,2	99,5	102,0	103,8	104,4	106,5
Ireland	42,6	62,3	87,4	111,2	121,7	123,2	109,7
Greece	116,8	133,2	126,9	171,3	156,9	175,0	177,1
Spain	39,4	52,7	60,1	69,2	84,4	92,1	97,7
France	68,1	79,0	81,7	85,2	89,6	92,3	95,0
Italy	102,3	112,5	115,3	116,4	123,1	128,5	132,1
Cyprus	45,3	54,1	56,5	66,0	79,5	102,2	107,5
Portugal	71,7	83,6	96,2	111,1	125,8	129,7	130,2
Slovenia	21,6	34,5	38,2	46,5	53,7	70,3	80,9

Source: Eurostat. General government gross debt – annual data. [online]. Available at the URL: <http://ec.
europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=teina225&plugin=1>. [accessed 17-12-
2017].

3. Unemployment

A growth in unemployment was an inevitably impact of the general decline in economic activity in the Member States of the monetary union. The average unemployment rate in the 12 euro area Member States has peaked at value 11.9%. Even in the pre-crisis period, the euro area recorded significantly worse results than the economies of the US and Japan, where the unemployment rates stood at 5%, respectively 4%, while in the EU it was 7%. (Eurostat) After the outbreak of the crisis we observed a significant increase of unemployment both in the euro area and the USA. Since 2010 data shows a positive evolution of the US economy, while the European economy has been unable to produce additional new jobs and unemployment due to the outbreak of the debt crisis grew even after year 2011. From 2014 the positive evolution in the euro area, but the level of unemployment is still by 4 percentage points higher than in pre-crisis period, while the US economy in 2014 recorded pre-crisis level of unemployment.

Figure 3
Level of unemployment in EA, EU, US and JP
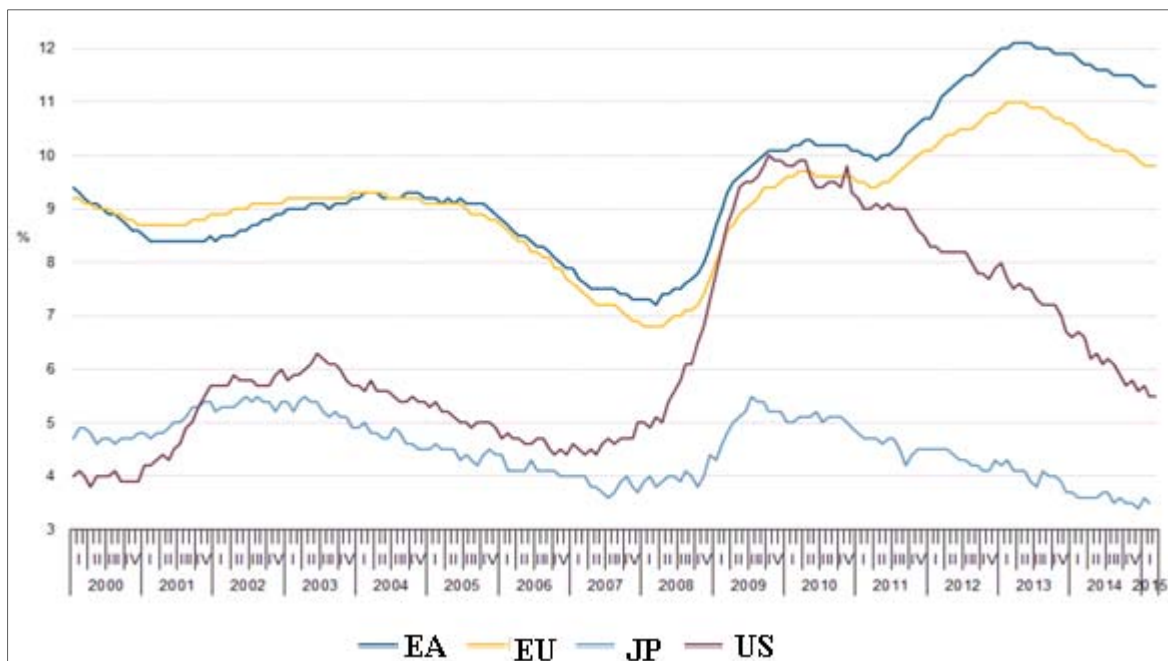
Source: Eurostat. Unemployment rate. [online]. Available at the URL: <http://ec.europa.eu/eurostat/statistics-explained/images/9/9a/Unemployment_rates_EU-28_EA-19_US_and_Japan_seasonally_adjusted_January_2000_May_2015.png>. [accessed 22-01-2018].

By observing the unemployment rate in the EU and the euro area, it is interesting t their mutual comparison. (Graph 3) In the pre-crisis period, the unemployment rate within the monetary union was identical or slightly lower compared to the EU level. Since the outbreak of the crisis in 2008, we observe that the rate of unemployment in the countries using a common currency is higher than in the EU, while the existing difference tends to increase. In other words, states in monetary union produced fewer new jobs. This is a negative phenomenon which did not exist in pre-crisis period. We also assume that the post-crisis consolidation within EMU is slower compared to the EU as a whole.

4. Cluster analysis

Cluster analysis represents a starting point for our further research. We categorize EMU member states based on three macroeconomic criteria:

1. real GDP growth,
2. unemployment rate,
3. consolidated public debt.

Based on selected criteria cluster analysis associate states in a groups (clusters) with similar characteristics. If the EMU was an OCA, we would not be able to do a cluster analysis. It is due to the fact that in OCA member states represent a homogeneous bloc with similar macroeconomic characteristics and harmonized economic cycle.

We analyze a sample of 19 EU countries currently paying with euro. All macroeconomic data were downloaded from Eurostat. For cluster analysis we used Ward's method, the minimum variation. (Ward, 1963) Calculations were made in program Stata. Based on the results of the analysis 19 euro area member states were divided into the four clusters (see the Figure 4).

Figure 4
Cluster analysis dendrogam
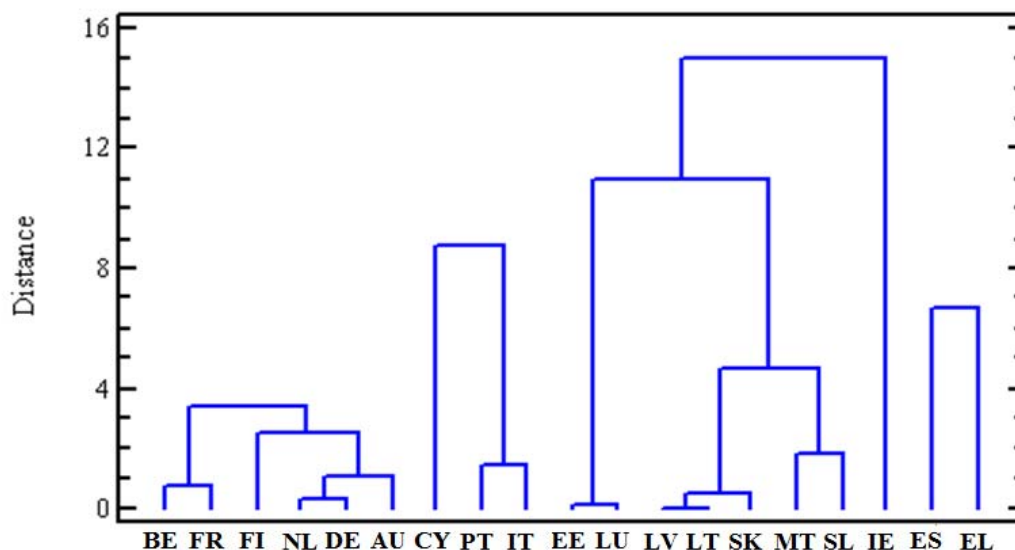
Source: Author´s calculation. Program Stata.

Cluster 1: *Belgium, France, Germany, Austria, Finland and Netherlands* - The original area Member States as well as countries belonging to the so-called core of monetary union. Cluster consists of economically highly developed countries that achieve relatively low levels of GDP growth, relatively high public debt and low levels of unemployment. Countries in Cluster 1 were only slightly affected by the crisis and in the post-crisis the development of three examined macroeconomic variables period had stabilized. Still there are some deviations. Belgium achieved a high level of debt and France in the post-crisis period recorded worse macroeconomic results than the rest of the Cluster. Nevertheless, the six economies perform well and they are extremely competitive.

Cluster 2: *Cyprus, Italy and Portugal* - The countries of Southern Europe, which achieved relatively high levels of unemployment, low economic growth and they are burdened with high public debt. All three states were strongly affected by the debt crisis. Cyprus and

Portugal were forced to seek external financial aid. Compared to other EMU Member States, both economies are not competitive. Italy is a specific example. It is the strongest of the weakened states. A 3th biggest economy of the EMU is divided into two parts: industrial, highly competitive north and underdeveloped southern regions with very similar condition to the other states of Southern Europe.

Cluster 3: *Estonia, Latvia, Lithuania, Malta, Slovenia, Slovakia, Luxembourg and Ireland* - This is the most abundant and relatively heterogeneous cluster consisting of former centrally planned economies and small European economies of EU-15. The common denominator is the relatively low rate of unemployment, low levels of debt (except Ireland and Slovenia) and high rate of economic growth. It is also the country which recorded a positive trend in terms of competitiveness. All countries are export-oriented, extremely open economy, adaptable and dynamic states. Often economies of big states are rigid and inflexible. Countries in Cluster 3 proved that in order to maintain their competitiveness they are able to transform their economy, take serious measures and adapt to changes in global economy.

Cluster 4: *Greece, Spain* - two countries of the Southern Europe possess absolutely highest unemployment rate among the euro area countries, low growth rates and high levels of public debt. Both countries have been badly hit by the debt crisis and by many are regarded as the weakest parts of EMU. Their future economic development is marked by the need economic transformation. In Greek case this would not be possible without external aid. On the other hand, Spain 4th biggest EMU economy might be able to fulfil its austerity plan and post crisis consolidation would be possible if Spanish financial sector retain stable.

Table 3
Cluster Summary

Cluster	Members	Percent
1	6	31,58
2	3	15,79
3	8	42,11
4	2	10,53

Table 4
Centroids

Cluster	Unemp	Real_GDP	Debt
1	7,58333	0,666667	81,4667
2	14,3	-0,6	123,267
3	9,3625	2,825	53,4125
4	25,5	1,1	137,4

Source: Author´s calculations, program Stata.

Cluster analysis separated quite precisely the most advanced countries of the Eurozone (Cluster 1), from those who were hardest hit by the crisis, respectively states which perform poorly in terms of post-crisis consolidation (Cluster 2, 4). The study of the development of three economic indicators does not unveil factors that cause fluctuations of basic macroeconomic variables. Within the Monetary Union we have countries like Spain, where the pre-crisis period was followed by positive developments in all three monitored indicators but nevertheless remains today one of the weakest Eurozone members. Unemployment has exceeded 20%, the debt level is higher than 100% GDP (Eurostat) and economic growth is feeble. Spanish economy is marked by the decline in purchasing power, increased taxes and restrictive government measures (Lipková, 2013b).

Figure 5
Cluster set-ou in space
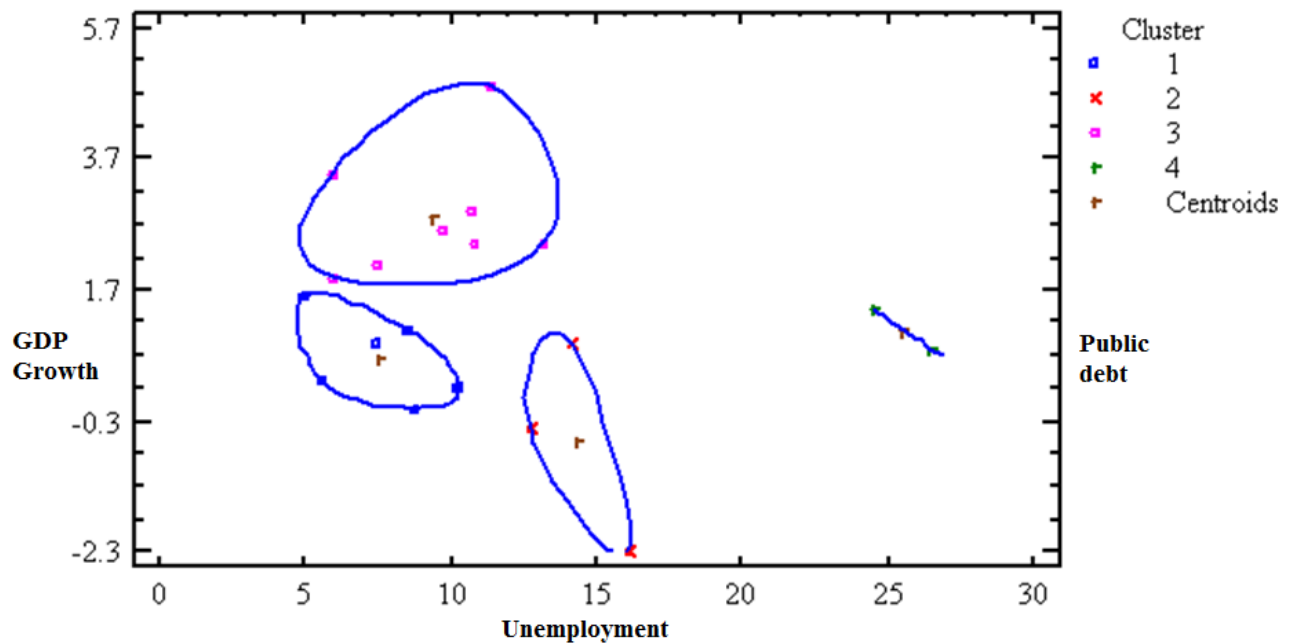
Source: Author´s calculations, program Stata.

5. Conclusions

Global financial and economic crises uncovered severe structural deficiencies of European Monetary Union. Stability and Growth pact proved itself as an insufficient mechanism in terms of crisis preventions. At the same time due to lack of internal mechanism in EMU and irrational macroeconomic policy several euroarea member states experienced severe economic deterioration. This is marked by changes in three basic macroeconomic indicators: GDP growth, unemployment rate and public debt. In comparison to USA, EA economy experience slower rate of post-crisis consolidation. Due to debt crisis, Eurozone was forced to abandon active fiscal expansion and instead introduced austerity measures. This caused significant economic slowdown and insufficient job creation. On contrary US economy with its expansive fiscal policy was able to reach pre crises level of unemployment in late 2014. Eurozone is still an ensemble of heterogeneous states. By cluster analyses of current data we able to categorize EA member states into four categories: 1. Most competitive economies, 2. Rigid and less competitive economies, 3. Open and adaptable economies and 4. Most endangered economies.

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Strategic Integration of Internet of Things into the Mobile and Electronic Business Application

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Abstract
Accelerated expansion in creation of information systems nowadays is researched. It is vital to understand the link between the existing and emerging technologies, gaining a competitive advantage through the use of innovative business models, which could become a major benchmark in the electronic business field. Deeper understanding and the effort to design models and link with emerging internet of things technologies (IoT) are important issues, seeking for effective performance. The differentiation of mobile business aspects from electronic business dimensions are a set of the parameters with the introspection on the applications and the working options of the user. It is important to understand the evolution aspects of the next generation systems, with the highlight of new possibilities to apply and design the IoT technologies, based on customer orientated mobile business, enabling connection of multiple devices and objects, sensors, systems of data automatization. As mobile business is the result of the electronic business and IT evolution, and now IoT enables merging of these technologies. For the value adding, mobile business services should take the advantage of electronic business services, with the opportunities of creating, configuring, integrating, upgrading, troubleshooting, and maintaining new business models. IoT will integrate technologies of everyday devices, equipping it with ubiquitous intelligence, adding value through the automatization of decision making. The goal of the article is to conduct a comparative analysis of the electronic and mobile business in order to identify the main strategic aspects of IoT integration into the application of existing technologies.

Keywords: *internet of things, electronic business, mobile business, mobile business application*
JEL classification: M15, O32 , Q55

1. Introduction

Changes in economic relations are more and more influenced by information technology. This phenomenon is being observed on the global, European and Lithuanian levels. Concepts and phenomena, such as digital economy, e-commerce, work in a virtual team, emerge. Number of companies and people, actively working in cyberspace, constantly grows. It is generally recognized that the development of electronic business is very important for the national economy - e-business helps to reach wider markets and a larger customer base.

Therefore, economic growth of each country is related to how effectively business will master the cyberspace. Due to also rapidly developing information technology and telecommunications, arises the key global information technology challenges - mobility and security. Consumer lifestyle is becoming more and more mobile. All this has led to the new demands - to be able to receive and transmit information, perform business functions not only from a fixed workplace or home, but also while traveling, being far away from work or place of residence. This has led to the emergence of the mobile information and communications technology (MICT). Increasingly accelerating global changes has led to that that mobile audio transmission is not enough, there is a need to perform business functions from any location. This has resulted in emergence and development of the m-business as a separate e-business direction.

The article aims to conduct a comparative analysis of the electronic and mobile business in order to identify the main strategic aspects of internet of things integration into the application of existing technologies. The object of research – application of e and m-business. Research methods - literature analysis and generalization.

2. Electronic, Mobile Business and Internet of Things Concepts

Emergence of the information and communications technology (ICT) has changed not only the way people live, culture, but also companies and the way they function. Technological development is becoming increasingly faster and the time interval between revolutionary discoveries becomes shorter (Davidavičienė, 2012). Nowadays information system becomes an organic part of any company. The rapid development of information and communications technology (ICT), globalization, changes in the political environment, development of the knowledge economy and other factors have a significant impact on business. At the same time the modern user expects that his needs will be met without delay. Exactly that has been one of the major conditions for the emergence of electronic business. The most important e-business advantage over traditional is the service speed, its flexibility when responding to changes. E-business is becoming the driving force of the information and communications sector. The internet and modern technologies help to improve the processes of the traditional business. This is being done by transferring normal business operations to the internet network and automating them. Currently, more and more organizations are trying to move away from traditional trade methods to electronic, increasingly seek to transform their business into electronic and at the same time into mobile. Organization's presence in the internet and mobile space has become a question of its existence. E-business is moving into different areas: business, governmental institutions, non-commercial organizations and households. It is a tool and an opportunity to greatly increase the organization's efficiency (Damaskopoulos et al., 2015; Davidavičienė – Tolvaišas 2011). Information technology made it possible for e-business to become much more open, i.e. easily accessible information. The internet is a source, the use of which can improve company's efficiency in all departments. It may help to find new customers, test products, find employees, conclude best transactions, find equipment, suppliers, etc.

Electronic business (e-business) concept appeared relatively recently but received a very high recognition, becoming a universal term used in the dictionaries of information technology, culture and business. However, there is no single commonly accepted definition of e-business. Electronic business is based on internet technology, which allows transforming the internal and external nature of the interactions. It should be noted that e-business covers areas such as e-commerce, business studies (collection of information about competitors, markets, consumers, etc.), customer relationship management, supply chain management, enterprise resource management (Davidavičienė, 2014). This new type of business is

characterized by rapidly expanding possibilities, increasing competition and high consumer expectations. Businesses are changing their organizational structures and forms all over the globe. Many authors describe e-business differently. Herhausen (2015) states that e-business involves e-commerce and internal and external organization's applications, which form the modern business. In his opinion e-business is not just transactions of e-commerce; it's a new creation of old business models while using technology to maximize the business value. Bharadwaj (2013) states that e-business should be treated not only as an environment for purchase of goods or services, but also as a customer service, collaboration with business partners, electronic transaction management within the organization. Also e-commerce is defined as a business where ICT infrastructure is used to increase business efficiency and create a basis for the emergence of new products and services (Zidianakis, 2014). For example, scientists define e-commerce as a business which in order to benefit itself and consumers, using the information management and business structure, develops, distributes or facilitates the use of products or services by firstly using electronic and other means (Raudeliūnienė, 2014).

After the analysis of scientific literature we can distinguish the main reasons that encourage companies to implement electronic and mobile business models:
• Globalization - geographical boundaries between markets disappear, number of competitors grows and diversity increases;
• Time-based competition - the ability to monitor the competition and quickly respond to the ever changing situation;
• Mobility based user needs - even though consumer demand is constantly changing, there is a possibility to quickly react to the changes and propose new solutions.

Company that uses ICT solutions gains a competitive advantage. Innovative ICT solutions ensure effective marketing, better sales results, faster customer service, more efficient operational planning, expenditure reduction, employee and customer communication nurturing, customer personalization, more intense search for personnel and wider search for new technologies and suppliers (Sabaityte – Davidaviciene 2018).

Many authors provide a simple structure of the mobile business profile, which they classify using the three main classes: technology, content and network (Brown, 2012; Preece, 2015).

However, the detailed analysis shows that these three classes are not enough. In order to define the full mobility map, and after the assessment of the structure model of the m-business environment, it is determined that it would be appropriate to add classes such as business regulation and consumer demand. The mobile business structure expands and creates preconditions for more efficient analysis of what makes the greatest impact on the emergence of the most suitable m-business application solutions. A conceptual structure of the mobile business model is created after the analysis of components and their connections.

Business users' needs, related to mobility, appear in the center of mobile business. In order to fulfill these needs, three essential and complementary elements are required: network (consisting of different subnets), technology (which includes all the necessary communication hardware, mobile devices and platforms) and content (consisting of application solutions, content and support services). These units are combined by regulatory and social environment. These two values will be considered constants in the further research. On the developed model basis it is possible to examine the interrelations between all mobile business users, strengthen their co-operation, examine development opportunities and directions of the mobile business, strive for excellence, create effective operational procedures (including a

strong and secure infrastructure), achieve effective and quick results, develop and improve model itself.

Figure 1
M. Business Framework
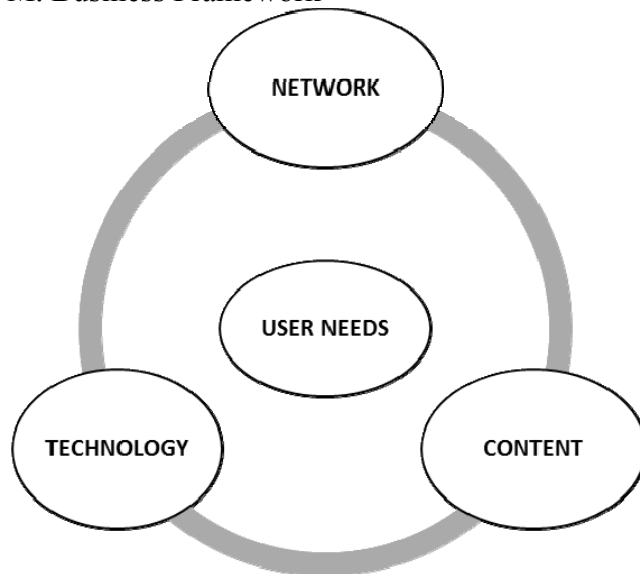
Source: created by authors

The need to execute business functions from anywhere has led to the emergence and development of the mobile business. In the global business environment mobile business has emerged as new business platform, which determines creation opportunities of new products and services.

M-business is characterized by many market penetration trends of e-business. Installation environments of the m-business solutions, same as in e-business, are divided into four main groups according to the subjects involved in the m-business relations: business to consumer (B2C), business to business (B2B), business to employee (B2E) and business to government (B2G). M-business solutions in many ways are similar to the traditional e-business solutions, but new component is that it makes it possible to provide consumers with a broader range of personalized and "unattached to one location" solutions. Subjects involved in m-business relations have different interpretations on benefits of the m-business solutions. For users m-business solutions means convenience, traders associate m-business with a large source of revenue, service providers view m-business as a unfilled market, from a viewpoint of the state - this is a productive connection with the public. With the help of MICT it is possible to get almost all the services as with ICT, but in this case, specific services require mobile devices and their potential, data communication protocols and network solutions are being used.

The m-business concept is quite broad and cannot be imparted in a single definition. Technological opportunities and scale are constantly changing; therefore it's hard to create a definition that would fully cover the evolving m-business. Sila (2013) considers that mobile business is a part of the electronic business, but even though many execution methods of the business processes are similar to the ones listed in the e-business category, MICT makes it possible to carry out those business processes anywhere and anytime. According to Chong (2013) m-commerce is characterized by the product acquisition functions via mobile phones, while m-business can be described in a broader definition, covering internal business processes and transaction management anywhere and anytime. Mobile commerce according

to Turowski (2013) is defined as monetary operations which are performed using the mobile telecommunications. On the basis of this definition, the majority of authors believe that mobile commerce is a mobile business's subset, which is based on a wireless connection.

The environment of mobile business is characterized by a number of characteristics that are different from e-business (Jovarauskienė, 2015; Turowski, 2013). First of all it is characterized by greater convenience - mobile tool is easy to use, can be accessed by multiple users at the same time and accommodate a lot of information. Other benefits include availability: user receives real-time information and is able to communicate anywhere in the world. Mobile business can be described as use of MICT in order to survive, improve and develop the existing business processes and relationships, or to develop new business segments (Kim, 2016).

Mobile business can cover all the factors, processes and actions that are implemented in accordance with MICT. Considering this aspect, mobile business can be defined as all types of business operations carried out using the MICT. Therefore, analysis of the e-business and m-business concepts leads to the conclusion that m-business can be defined as a part of the e-business.

At the same time it is possible to define the mobile information and communications technology. ICT is defined as information collection, processing, storage and dissemination techniques and methods, while mobile information and communications technology is defined as information collection, processing, storage and dissemination techniques and methods at any point in space.

While mobile and electronic business definitions are discussed broadly, the term Internet of things (IoT) has been more and more used, but still there is a lack of common understanding what is this technology about and what are the main possibilities of its use. Atzori et al. (2010) states that IoT is a paradigm, created by rapid development of modern wireless telecommunications, and it could be analyzed as mobile business evolution technology. Wortman and Fluchter (2015) state that origins of IoT term firstly mentioned 15 years ago and have been attributed to the work of the Auto-ID Labs at the Massachusetts Institute of Technology (MIT) on networked radio-frequency identification (RFID) infrastructures. It should be noted that Internet of Things is already been described as global information society infrastructure (ITU 2012), enabling advanced services by interconnecting (physical and virtual) things based on, existing and evolving, interoperable information and communication technologies. Al-Turjman (2018) focus the IoT analyzis in information-centric way and describe this technology as an approach that propels the internet away from the host centric paradigm which is based on perpetual connectivity and end-to-end principle, to an ad-hoc network architecture where the focal point is the provided information, and data content is treated as the first class entity in network architecture, providing the possibilities to communicate without fixed infrastructure. Based on Wortman and Fluchter (2015) it could be stated that there are 3 main points of view on IoT definition:

- emphasis on the objects which become connected in the IoT;

- focus on Internet-related aspects of the IoT, such as Internet protocols and network technology;

- center on semantic challenges in the IoT relating to, e.g., the storage, search and organization of large volumes of information.

Defining term of IoT, it should be also noted the application possibilities of that emerging technology:

-   smart industry (intelligent production systems, Industry 4.0 application);

-   smart home or building area (intelligent thermostats and security systems);

-   smart energy (smart electricity, gas and water meters, base for smart cities development);

-   smart transport (intelligent solutions for vehicle fleet tracking and mobile ticketing);

-   smart health (patients' surveillance and chronic disease management);

IoT could be described as a system of elements and its relations (Savukynas – Marcinkevičius 2017; Shah – Yaqoob 2016). The system consists of identification, fixation, communication, calculations, service and semantics (see Figure 2). Identification is important process while addressing the device by its ID number, providing name and address information for sensor through communication network. Fixation process is described as data gathering from the different devices connected to the network and data transferring to the data base or cloud service. Communication process in IoT is realized by connecting devices and data share between it. Calculations in the IoT are made by integrating microcontrollers and software in order to manage and control the system. In this process also important aspect is ability to gather big data and use the potential of cloud service platforms, in order to perform calculations with real time data and perform decision making. Savukynas and Marcinkevičius (2016) states that service in IoT could be classified into the identification of identity, gathering of information, general services and universal services. The semantic process is about the smart gathering of knowledge from the different data collected by the devices, setting the value for the customer by providing smart insights and support the decision making process.

Figure 2
Elements of IoT
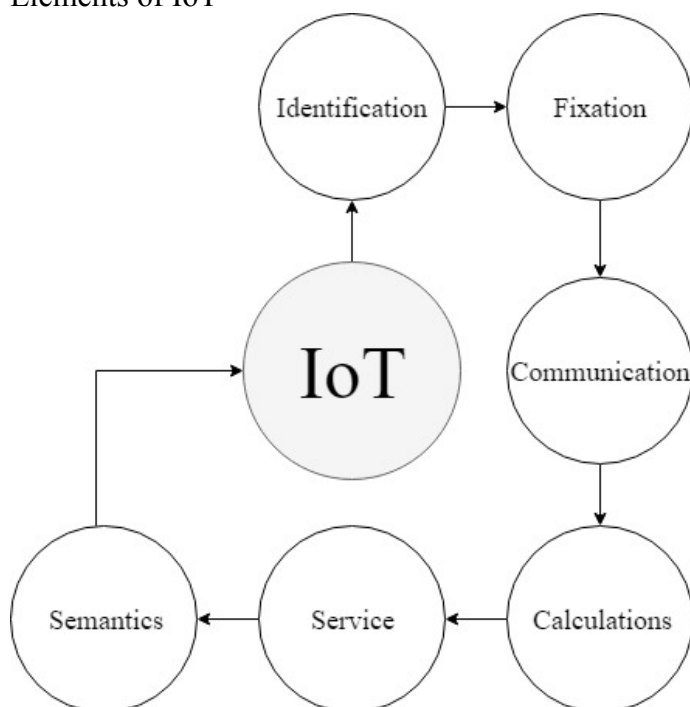
Source: created by authors and based on Shah – Yaqoob (2016) and Savukynas – Marcinkevičius (2017)

Seeking for better understanding of strategic integration of IoT and electronic and mobile businesses, it is important to understand the main characteristics of these objects.

3. Characteristics of Internet of Things and Mobile Business

Literature analysis (Atzori et al., 2010; Wortman – Fluchter 2015; Al-Turjman, 2018) revealed that IoT technologies could be analyzed as next generation mobile services and mobile business, created by rapid development of modern wireless telecommunications and should be analyzed in information-centric way, performing as a system of identification, fixation, communication, calculation, services and semantics elements. It is important to link the characteristics of m-business and e-business to IoT. M-business is not only an extension of the e-business' opportunities into the environment of mobile equipment since its role would be quite limited. Detailed analysis can highlight these differences between the three applications (Table 1).

Table 1
Basic difference between main e and m-business and IoT application possibilities

ELECTRONIC BUSINESS	MOBILE BUSINESS	ELECTRONIC COMMERCE	MOBILE COMMERCE	INTERNET OF THINGS
Transfer of the business functions to the WEB environment. Business productivity and efficiency-driven WEB and computer solutions. WEB and computer solutions that create new business models.	Transformation of the business functions into the mobile ones. MICT solutions for business efficiency and increase in productivity. MICT solutions that enable new business models.	WEB based solutions for trade and communication with consumers. Services supplied by using information technology and tools, exchanging electronic data messages via computer networks.	Sales and communication with consumers via mobile equipment. Services supplied to users via mobile phones and portable devices.	Solutions for smart industry, smart home and buildings, smart energy, smart transport, smart health Services supplied to users via different devices, wireless telecommunications networks, sensors, microcontrollers and software for management and control of the system Development of the innovative business models

Source: created by authors

E-commerce solutions are implemented in the WEB network. Trade and communication with customers is implemented with the internet support. MICT realizes the possibility of all of these functions to be executed regardless of the stationary workplace. User can use services more flexibly than in the e-commerce environment. After the analysis of differences between the e-business and m-business it should be stressed that the e-business's success was based on a new business possibilities resulting from the execution of functions with the support of ICT (Kim 2016). New possibilities not only enabled the development of old business models, but also the development of new ones, based on the ICT possibilities. With the emergence of MICT it became possible to use the above-mentioned benefits without being tied to a particular point in space. MICT solutions created preconditions for the emergence of new business models.

It should be emphasized that virtually all e-business functions can be transferred to the mobile environment, while only a small number of emerging m-business functions can be transferred to a stationary electronic media. M-business characteristics can be specified (Figure 3) by detailing some of the functions based on MICT possibilities and aspects of the m-business environment. One of the m-business's advantages is the potential to provide new functions in the business aspect.

Figure 3
The classification of particularities of mobile business applications

- FLEXIBLE SETTINGS IN REAL TIME
- GEOGRAPHICAL POSITION
- THIRD PARTY APPLICATIONS
- FLEXIBLE SERVICES
- FLEXIBLE USER LOCATIONS
- MULTIFUNCTIONAL SERVICES
- EQUIPMENT DIFFERENCES
- USER ASPECTS
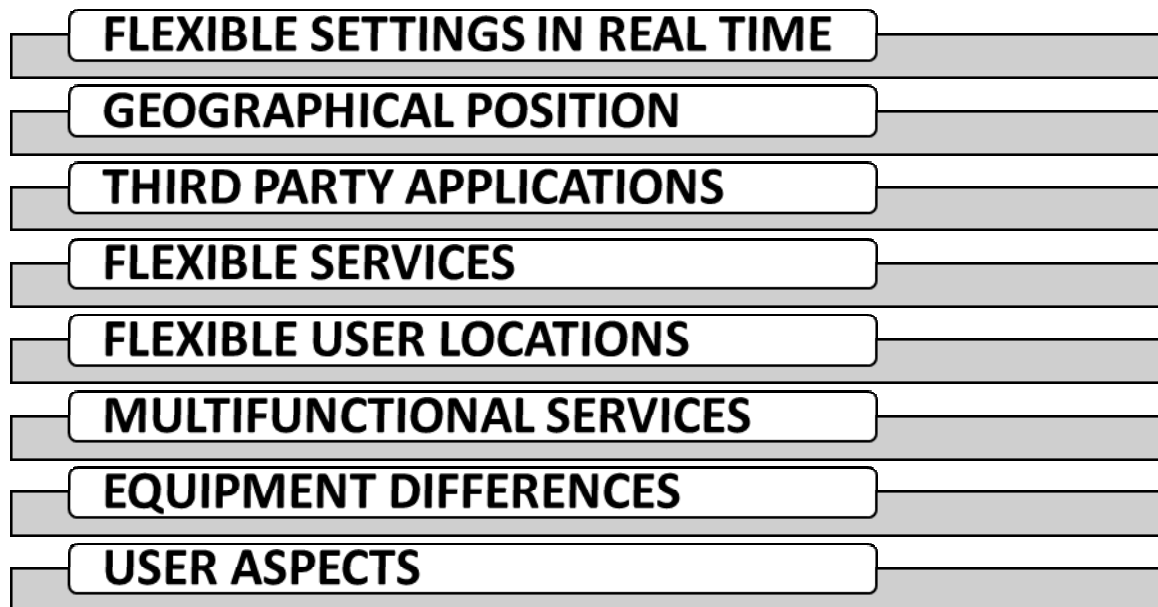
Source: created by authors

User's aspect. The main difference between the e-business and m-business is user's geographical location. User of the e-business usually has to be in the stationary workplace, in front of a personal computer, use the keyboard and other input means. In m-business, all of these aspects are replaced by total mobility, enabling use of technologies and solutions anywhere in space and at any time.

Equipment differences. The most radical description of this aspect would be possible by a comparison of equipment from different times. In the 1990 no one would have thought how the computer will look today. Modern technologies, according to the 1964 Moore's Law (Gordon Moore, one of "Intel" company's founders, who was the first to determine by empirical studies that the number of transistors in a crystal will increase twice every 24 months), still to this day a new type of chip is invented every 18-24 months. This allows making an assumption about always mowing and growing gap between the newly emerging equipment (Paliulis – Dagienė 2009).

Multifunctional services. Innovative mobile business solutions can be linked and adapted to the existing business processes. Business users get an opportunity to choose the time and the place to use certain services. Possibilities of the latest mobile information and communications technology and examples of successful MICT application help to determine what services are needed for the user. Based on them, an appropriate solution can be offered for a specific user (Wang, 2014).

Integration of the MICT solutions into the already installed systems in organizations. Organizations are able to transfer a number of operational functions to the mobile medium thanks to the solutions of the mobile information and communications technology. Most of the business functions before the emergence of MICT could have been carried out only by physical contact. Rapidly evolving MICT presents opportunities to perform functions efficiently and quickly.

Geographical position. M-business solutions are becoming available anywhere in the world. User's positioning service would allow offering customers personalized services that

could be useful while user is at a specific location. This creates a new medium for providers and users of solutions of mobile information and communications technology.

Flexible settings in real time. Device and technology settings created for the users of electronic and mobile business are flexible, easily adaptable and modifiable according to the certain personalized user needs. Technological settings of the most e-business solutions have to be manually adjusted by the user, while personalized settings of the m-business solutions in the future should be installed automatically. Due to changing circumstances they are respectively set by the specific needs of users in real time, e.g., when users leave their workplace, settings of services, which are available in real time and in a real place, should automatically reconfigure for the specific equipment used by the users. There should be a possibility to use the corresponding options and easily change the settings if the user wishes to do so (Gao, 2014).

Third-party applications. MICT business solutions are based on technical requirements. Third-parties - e.g. network service providers, which provide network facilities or addresses for all m-business participants and protect their information until it is downloaded to the terminals of specific participants (Herhausen, 2015). Third Party Integration is a possibility to integrate applications, technologies and desktop tools that already exist in the organization into the newly applied m-business solutions.

Flexible services. With streamlined integration of services, users will have a greater opportunity to use more and more interrelated spectrum of services and technologies (Chlivickas, 2009). Some m-business systems will offer a full service package, from which the user will be able to choose the required services and change those selections at any time. Many of the new m-business solutions will be easy to integrate into mobile networks and equipment, e.g. m-business solutions can be executed in a number of data transfer ways, such as SMS or smart data transmission applications. They can be implemented via conference bridges, network calls, video calls and many other services, e.g., Viber, Whatsapp messaging and information services.

Flexible user's location. The features of mobile business will help the user to work and perform daily tasks without being tied to a permanent location. The upcoming m-business era will bring more possibilities and encourage social changes. There will be more opportunities to work virtually; new ways of controlling such work will be developed. It will be possible to carry out job functions continuously, while traveling, when stuck at the airport, etc. Most of the job opportunity barriers should disappear over time.

Detailed analysis of the mobile business environment's exclusivity suggests that by extrapolating the already existing business approaches and paradigms towards new areas, it becomes possible to realistically assess the business prospects in the future. Although it can be said that today's business user is already satisfied with the existing technological possibilities, but we always need to think on how those possibilities can be used and expanded in the future. If the mobile business solutions would be seen not only as an expansion of the possibilities of electronic business, it will be possible to distinguish the benefits of differences in characteristics. "Components" of the main technologies used in e-business may differ from the ones used in the support of m-businesses.

The analysis of the IoT main characteristics (Nitti et al., 2016; Savukynas – Marcinkevičius 2017) revealed that this technology could be described by these characteristics: connectivity, heterogeneity, dynamics, and scale of use. Connectivity is an integration into the global information and communication infrastructure. The integration process could be realized by integration in to the operating system and also by creating links with existing mobile business technologies and devices. The aim of the link creation with

existing mobile business devices is to provide smart service using existing technologies, taking into account the limitation due to the privacy protection and semantic coherency of information and physical objects. Heterogeneity occurs within the use of connected devices operating based on different technological platforms and networks. Dynamics is te characteristic related to the conditions of the devices, which could be set to the active or sleep mode, depending on the set tasks. Scale of use is defined by the number of objects connected to the system in order to add the value to the providing smart service.

Conducted comparative analysis of electronic and mobile businesses revealed the strategic aspects of IoT integration into the application of existing technologies, which could be described through the deeper investigation of IoT system elements and IoT characteristics, linking it with mobile business characteristics (Figure 4).

Figure 4
The ingration of IoT applications into the e and m business characteristics
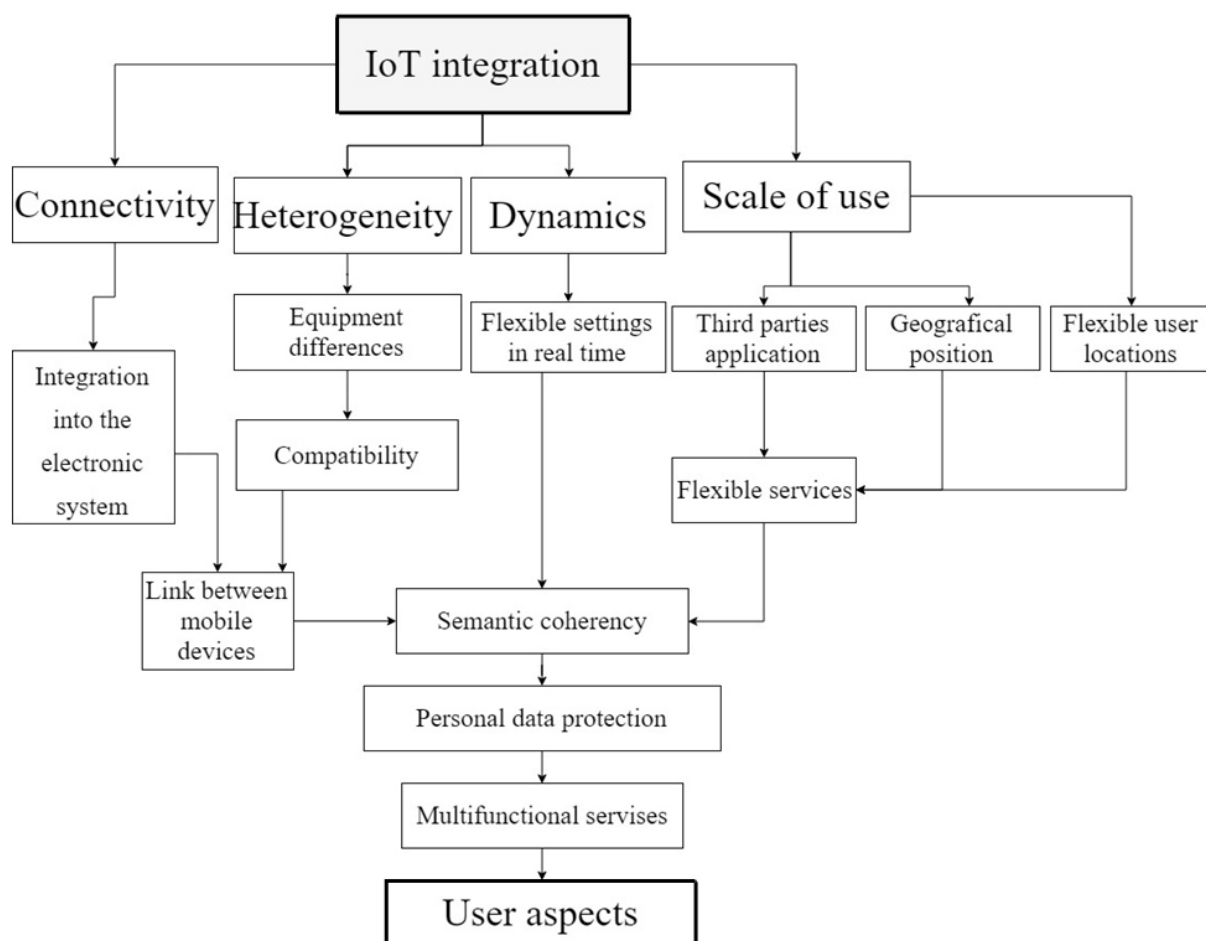
Source: created by authors

4. Conclusions and Policy Implications

Comparative analysis of the e- and m-business revealed the main structure elements of the electronic and mobile business and created preconditions to efficiently explore and compare differences and similarities of it. After the analysis of e-business components and their relationships, a conceptual e-business structure model was proposed, based on which it is possible to examine the mutual relations between all electronic business participants and distinguish the interaction models of involved subjects. M-business environment was

structured after the isolation of e-business components. In addition to the three m-business core classes, classified by many authors, it is proposed to add regulatory, social environment and business user needs classes.

Comparative analysis of the mobile and electronic business showed that m-business is characterized by many market penetration trends of the e-business. Analysis revealed the peculiarities of mobile business. It was determined that m-business is not only an extension of the e-business's technical feasibility. After detailed analysis it was concluded that virtually all e-business functions can be transferred to the mobile environment, while only a small number of emerging m-business functions can be transferred to a stationary electronic media. Functional structure, which covers various aspects of the m-business, was presented.

One of the main m-business advantages is that m-business solutions enable to provide new, in the aspect of business, functions. By detailing some of the functions based on the capabilities of mobile information and communications technology it is possible to specify the m-business's and its medium's difference from the e-business. While most business users are satisfied with existing e-business solutions, it will become impossible to compete in business if capabilities of the new m-business solutions will not be taken into account. In the course of technological progress more and more new technologies are applied in the m-business while the e-business technologies remain the same.

Analysis of Internet of Things concept revealed that the term of IoT is used broadly, but there is no common understanding of this next generation mobile services. The analysis showed that IoT could be defined as the evolution of mobile business, focusing on the adoption of Internet-related aspects (such as protocols and network technologies), connected devices and semantic challenges. It should be noted the application possibilities for that technology: smart industry, smart home or building area, smart energy, smart transport and smart health. The IoT could be defined as system, consisting of the identification, fixation, communication, calculations, service and semantics. In order to integrate the IoT into the existing e and m business characteristics, the conceptual model is proposed combining the IoT characteristics: connectivity, heterogeneity, dynamics and scale of use together with the m business aspects as flexible settings in real time, geographical position, third party integration, flexible user services, and equipment differences in order to provide user centric multifunctional services.

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Factors Affecting Individual and Group Decision Making in Economics

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Abstract
Everyone must face various types of decisions each day, and while decision making individual is biased upon several factors which they do not need to be aware of. Memories or lack of self-control are type of biases which each involve into the decision making process. The natural formation individuals into teams is observed in firms, households, society, where individuals interact with one another. Decision making process is affected by many factors because as the individuals are biased they affect the results of group decision making. Individual decision making biases includes memory biases, perception biases, increased confidence biases. Factors which affect group decision making are herding, crowd behaviour, social attraction, group cohesion, conformity, social cooperation, group polarisation, social stereotyping, in-group favouritism, fairness, reciprocity, self-control issue, cognitive sophistication.

1. Introduction

Standard economics states, that agents (individuals, managers, government regulators) choose among alternatives in accordance with well-defined preferences. Individuals are making various decisions on daily basis, starting with those less important to those which are usually are not easy to make because of the consequences, outcomes. Individuals make decisions among themselves but they often become members of decision making teams or groups. Whether this groups are teams in the companies, board of directors, group of experts et cetera, where the decisions are made as a consensus based on group decision making. The decision-making process of individuals and groups become a main subject of economic research, mostly because the judgement of individuals is biased by several factors and so is the group decision making. These factors vary in individual and group decision making. Thaler (1985) linked human decision making with the double personality self-control problem. It consists of two perspectives, the first is looking at person as sophisticated planner, who always knows in which areas is his self-control weaken, when is he more willing to procrastinate. Vice versa is the second self which is naïve, his behaviour is influenced by emotions. Individual decision making can be described as a constant conflict between these two types of personalities. The group decision making depends on the team members and their personalities therefore in teams the variation of final decisions differ. This article explains the differences between individual and group decision making and summarizes factors affecting the decision making.

2. Individual decision making

One of the most dominant theories is the theory of rational choice, which is based on rational decision making. According to this theory individuals are making rational decisions based on appropriate goal setting, problem analysing, alternative solution choosing. By selection of proper information needed for decision individual determines the alternatives when following the principle of maximization personal well-being. In the case of group decision making the followed principle is based on maximization of group well-being by trying to reach the highest possible utility. The nature of decision making from canonical model approach explains how agents decide under the conditions of uncertainty whether they often choose their known set of alternative choices with particular outcome. They prefer satisfying the fundamental choice axioms in other words they have scale which rank those alternatives.

Utility maximization in decision making is proceed by certain resource condition limitations as money, time, et cetera. A rational individual chooses the optimal choice from a set of available alternatives using one of the decision-making procedures suggested by normative theory under strickt uncertainty optimism-pessimism method, minimax remedy method principle of insufficient reason, optimistic method, and pessimistic method.

None of the above methods fulfils each of the rationality conditions, and the choice of methods depends on an individual's readiness to ignore one of these requirements.

Kahneman (2003) emphasises the importance of distinguishing poor judgement of agents from their intuitive decision making action. Agent's behaviour is not guided by their computing abilities, although they decide according to what happen they see at a given moment. How important is intuition and reasoning role in decision making can vary because of different cultural experiences and background, which favour different intuitions about the meaning of situations. The role of emotion in judgement and decision making is incorporated in the study of intuition as well.

2.1. Systematic biases in individual decision making

Individuals are not behaving rationally as theory of rational choice may suggests, but they often make errors in decision making. These errors tend to have common characteristics and are systematically repeated. (Tversky and Kahneman, 1986, Ariely, 2003, Thaler and Sunstain, 2003). In 1959 Simon was the first of many investigators who demonstrated systematic mistakes made by individuals in problem solving, judgement and choice. His work based on distinction between substantive rationality and procedural rationality reported, that people behave coherently by following reasonable procedures but sometimes make suboptimal decisions. The frequency of errors in decision making is important for economic efficiency.

The observed variations are in human judgement (calibration) via:

- •   increased confidence intervals,
- •   perception biases,
- •   memory biases.

Overconfidence, as one of the most relevant biases observed by Griffin and Tversky in 1992 exposed that judgement confidence overemphasize the strength of evidence and underemphasize its weight. Previous studies of calibration and confidence have found that part of apparent overconfidence could be caused by probability judgements which are correct in average, however they contain inner errors (Budescu et al., 1992; Soll, 1993). The

calibration phenomenon is best explained through calibration of hard and easy question, conflicting results on expert calibration etc.

Imperfect human perception and inconsistent memories cause memory biases. Pleasant memories are easier to remember without biases (creating the illusion nostalgia) the unpleasant ones. Simply said the availability of human concrete experiences are creating biases in judgement of fault. Underweighting of likelihood information is another type of bias which is a type of under confidence that results when individuals underemphasize the large size of a sample of weak evidence. Illusion of control occur when agents involve element of skill into decision making and they overestimate the effect of effort (Camerer, 1995).

Thaler and Shefrin (1988) carried out number of investigations about self-control and procrastination. The problem of self-control is linked with a certain habits, long-term planning, lack of motivation, willpower and temptation to finance immediate consumption for example with retirement savings. Authors examined dual preference structure for projection the inner conflict of personal emotional and rational side. Dual preference structure operates with two incompatible choices, the doer responsible for current self-controlled consumption and the planner responsible for emotions, maximizing doer utilities. Procrastination occurs when individuals wrongly assume that the activity they perform now is more important that the activity they presume to do later. The more naïve the individuals are the tendency to procrastinate is increasing.

Decisions are usually made under the conditions of risk and uncertainty. Under the uncertainty, the decision maker can evaluate possible consequences of alternatives that can be achieved depending on the events actions connected with each decision, but is not able to report those events. The results of decision making process are affected by optimism in risk taking.

2.2. Group decision making

Individual decision maker is in real life influenced by other individuals, and agents for whom economic theory perceives that households, and firms are making their decisions as groups where individuals interact with one another. Important economic and political decisions are made by groups of professionals or members of committees, the differences between individual and group decision making are becoming popular in the research of experimental economists. The group identity became central concept in the social sciences. Davis et al. (1982) and Desanctis et al. (1987) focused on small groups and their effect of social interaction like attitudes and their behaviour toward decision making. Chaundhuri (2011) listed the reasons why many participants in laboratory public goods experiments are conditional co-operators whose contributions to the public good are positively correlated with their beliefs about the average group contribution.

2.2.1. Systematic biases in group decision making

Tajfel and Turner (1979), Tajfel (2010) focused on the intergroup conflicts and intergroup behaviour. The distinction between two extremes of agents' behaviour have been examined:

- interpersonal identity
- intergroup identity.

The interpersonal identity, impossible to find in real life decision making, is the interaction between two or more individuals fully determined by their interpersonal relationships and individual characteristics. It can be affected by various social groups or categories to which they respectively belong. Intergroup identity consists of interactions

between two or more individuals (or groups of individuals) which are fully determined by their respective memberships in various social groups or categories. Herrara-Viedma et al. (2002) established new model for multi-person decision making problems with different preference structures based on two consensus criteria: firstly, with consensus measure which indicates the agreement between experts' opinions and secondly, by measure of proximity to find out how far the individual opinions are from the group opinion. Goethe, Huffman and Meier (2006) were focusing on non-selfish action in the group decision making when there is no incentive to do so. Organizations also constitute a social boundary, or group. They investigate whether this social aspect of organizations has an important benefit, fostering unselfish cooperation and norm enforcement within the group, but whether there is also a dark side, in the form of hostility between groups. They provided confounding effect of self-selection into groups.

Abrams et al. (2006) explained the issues of variations in intergroup behaviour, where the survey showed the effects of social categorisation on intergroup relations, intergroup conflict and ethnocentrism (the social psychology of the language, identity and the self-concept). The group formation as, the distinction between interpersonal and intergroup behaviour explained as group cohesion contains social attraction, social influence, conformity, social co-operation, crowd behaviour, group polarization, social stereotyping. Herd behaviour (herding) is significant in the groups where one individual is the leader and the rest of the group mimic the actions. However, individuals would not necessarily make the same choice in this phenomenon the factor of social pressure is present and their natural desires are to be accepted as group members (not being outcasted) by following the crowd behaviour. Social attraction is linked with the predisposition of individual to behave in a positive manner to another individual. Social influence occours when an individual is easily emotionally affected by the opinion of the group or another individuals. Kelman (1958) identified main forms of social influence: compliance, identification, internalization. Compliance occours when individual affected by others, but is keeping possitive opinion private, Identification is the change of individuals' opinion and acceptance according to influence from authority such as leader. Internalization is characteristic by individual public and private opinion acceptance of another group members. Conformity is the change of individual behaviour for the purpose of being accepteted by the group. Group polarisation identifies extreme decisions made by a group that would be othervise more neutral due to decisions made by individual group members.

Morita and Servatka (2013) were pointing on the question related to the theory of the firm, how integration between two parties helps resolve the problem of efficiency associated with relation specific investment. The study focused on the hold-up problem which is the main cornerstone in the economic study of organisations. According to the social identity theory the group members are characterized in-group favouritism. There are many hierarchical organisation of the group members for example according to the same organisational boundaries which is leading to better understanding in hold-up problem resolution.

One of the several literatures examining group behaviour is game theory literature. Behavioral game theory have examined that groups are more likely to decide according to standard game-theoretic prediction than individuals, because their decision making is significantly biased. Group membership is natural and various types of intergroup biases are present. Behavioral game theory demonstrated three reasons why groups make better decisions than individuals:

- cognitive sophistication
- productivity and self-control issue
- fairness and reciprocity

The verification that groups are more cognitively sophisticated is illustrated in beauty-contest game example. In this type of game the individual make its decision according to the prediction how other individuals he thinks will decide and according to this prediction he formulate his answer. It is the prediction of the average opinion anticipation of the average opinion to be. Tre results examined that groups choose systematically lower number therefore their reasoning is deeper and built on their prediction that other anticipated strategy will be thoughtful as well. Several studies have shown that groups think one step ahead of individuals which lead them to faster decision making and better estimation of the results. Another example of less unbiased group decision making is demonstrated through two-person company takeover game. This concept is based on the idea of the winner's course where the value of newly purchased item is highly overestimated according to the personal bias. The results identified that the decision made by groups leaded group members to reduction in their personal bids according to the communication among the group members. And therefore, the groups are better in strategy making and avoiding errors then single individuals. Lack of self-control in groups is demonstrably lower compared to individual self-control issue.

Experimental evidence provided by Falk and Ichino (2006), proved that productivity in groups were significantly higher compared to individuals. Related study highlights how pairing team members helps to improve self-control biases. Fairness and reciprocity evidence is explained through rather maximize group welfare than prioritize own welfare. By engaging group members into the discussion, the most rational resolution is usually picked. That might lead to in-group, out-group effect which explain what preferences are preferred.

Table 1
Individual and Group decision making biases

Individual decision making biases	memory biases	creation of illusion nostalgia
	perception biases	lack of self-control, lack of motivation, lack of willpower, procrastination,
	increased confidence biases	overconfidence
Group decision making biases	herd behaviour	herding
	crowd behaviour	
	social attraction	
	group cohesion	social influence: compliance, identification, internalization.
	conformity	
	social cooperation	
	group polarisation	
	social stereotyping	
	in-group favouritism	
	fairness	
	self-control issue	
	cognitive sophistication	
	reciprocity	

Source: author's processing

From mentioned all above, in group decision making it is essential from what personalities is the team composed. Whether there is team member majority with lack of self-control, the ethnocentrism, herding effect or crowd behavior is present. The tam member could be biased by many factors (overconfidence, inconsistent memory biases, lack of willpower, etc.) and therefore the way how individual affect the team could differ. Suppose the case that team member have many overconfident individuals this leads to many social conflicts, or if one of the team member had been preferred from the side of superiors that could socially affect the group and lead to group polarisation. Therefore, in individual

decision making the individual is biased only by inner biases and the results of its decisions could vary minimally, whereas group decision making is biased upon many factors depending on each personality in the team.

3. Conclusions

Agents often judge likelihoods correlate various situations with others, they are overconfident when they state probabilities of events of forecast numbers and they often adapt their expectations to observed behaviour of market on behalf of own inner understanding of the phenomenon. They are likely to preserve how others will be preserving and according to that they adjust their decisions. Through their procrastination, they let decisions at a later date, overestimate the control abilities of certain circumstances and let the decisions be incorrectly affected by memory. Bounded rationality and cognitive limitations are therefore less likely examined in group decision making according to experimental investigation. Group membership is naturally observable in real life behavior, some individuals may use group membership as a tool how to avoid their behavioral irrationality or limitations. The biggest difference between individual and group decision making is that individual is taking into account while making a decision only self-interests, self-experiences and therefore the results on common decisions could vary minimally. The supposition of group decision making is greater variety of decision making results. The greater contrast could be caused by different group member experiences, different group member personalities, group member relations, group member conflicts, etc. Another aspect is how the team is forming the results when some of the team members have the power, or how adaptable are the team members. However, in group decision making the individual is less likely to change its personality (or the point of view) but the team decisions are affected by each team member and external impacts. The question is whether the individual as a team member is less likely to change its decisions in behalf of inner group consensus or how is the individual affected by a team. Because the same way how is the individual affecting the team resolution, the team is affecting the individual and its perception.

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Models and Algorithms for Courier Delivery Problem

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Abstract
The purpose of this study is to further describe the role of a courier, which represents one of modification of the algorithm for solving the travelling salesman problem. We are dealing with the problem, known abroad as the "Pickup and Delivery problem", which also includes courier delivery problem and at the same time we will present approaches to its solution using various algorithms and optimization techniques. Furthermore, it outlines different types of models related to the tasks of the courier, which have a world-wide practical use.

Keywords: *courier delivery problem, heuristic algorithms, a modification of the algorithm for solving the travelling salesman problem*
JEL classification: C 61

1. Introduction

It is extremely important for couriers to have an optimal route planning, because it can significantly save part of their costs. The courier delivery problem (CDP) is a one of modifications of Traveler Salesman Problem (TSP). Various types of TSP, which are used for planning the optimal routes uses standard methods and models with static or dynamic approach. The static approach presupposes knowledge of all requirements from customers in advance, long before the couriers have started their ride. However, in real-world situations is more used the dynamic approach, in which courier has to responds spontaneously to incoming customer's requests into the system. These are cases, where the new requirements appear right after the courier has left his logistics center. In such situations it is necessary to decide how to fit the incoming requirements into the route, which has been already planned for the courier.

The basic aim of TSP is to find the shortest way for a traveler salesman (Hamilton's cycle), in which are all nodes visited only once, whereby the total traveled distance is minimal. Therefore, we are searching for the best route for salesman, who has to go across to the given set of places and after that has to return to the starting point with the total travel cost at a minimum. As regards the definition of "distribution problems", it is not only about the distribution of goods, materials, people, etc., but it is also about their collection. One of the most important publication that provide an overview of the basic variants of the distribution problems, including the methods of their solution, is published by authors Toth and Vigo (2002). We also include under this category the problem of allowing distribution and collection within one route, in the foreign literature also known as the Pickup and Delivery Problem (PDP), which was discussed and solved by authors such as Battarra et. al (2014). Pickup and Delivery Problems include various transportation problems (one of them is the Courier Delivery Problem), which are linked to the fact that the specified requirements are defined by the pickup point and the delivery point.

Problems of larger dimensions, which are dealing with optimization of transport networks, are part of the integer programming and because of that is finding their optimal solution often

not only a time-consuming issue, but sometimes it is impossible. For this reason, heuristic and metaheuristic methods which are able to provide approximate solutions in a satisfactory time, are very often used to solve the courier delivery problem. Other advantages of these methods include their relatively easy adaptability to specific practical tasks. PDP can be divided into three basic groups (*Many-to-many, One to many to one, One-to-one*), depending on the type of requirements and the structure of the route. Courier Delivery Problem is divided into *One – to – one* group. In this issue, we consider problem with an only one pickup and one delivery point.

The aim of this paper is to mathematically formulate and describe the static role of a courier delivery problem as one of the modifications of the known traveler salesman problem. It is quite clear from the title itself that the direct applicability of this task will be in the areas of courier service. Consequently, we will present approaches to solve this problem with using various algorithms and optimization techniques.

2. Courier delivery problem

The most common example of PDP in practice is the courier delivery problem. In real situations couriers not only use vehicles to serve their customers, but often use other types of transport, such as bicycles with a very limited capacity. Customer service in CDP consists in the fastest possible shipment between two places (pick-up and delivery point). Courier has to pick-up shipment from the vendor, which is then delivered to the customer at a pre-agreed time (also called door-to-door service). The aim is to minimize the total delivery time or total shipping costs. In real world, we are more likely to encounter situations where we have to respect certain boundaries, such as time windows, that are one of the most exciting extensions of the CDP with extensive use in practice. The constraints refer to the determination of the time interval in which it is necessary to distinguish between the earliest possible start and at the latest permissible end of service of the given customer. In other words, the courier has a time limit when it is necessary to pick up the shipment from the customer and vice versa, when he has to deliver it to the customer.

In the CDP, it is necessary to distinguish between the pick-up point and the place of delivery of the shipment. In other words, the courier has to pick up the shipment from the customer from one place and deliver it to another (it is not required to deliver shipment immediately after its picking-up). It is also important to keep the sequence of visiting the places, because the corresponding place of delivery cannot be visited before the picking up this shipment .

We illustrate the problem of a courier in the Figure 1 in which we encounter three types of nodes (places). The place we usually refer to as number 1 is taken as the starting point (in our case, it is a logistics center from which the courier or multiple couriers start their route). The second type of places are picking points, which are represented by even indexes. Delivery points represent the third type of places labeled with odd indexes. Therefore, it logically follows that the courier should not arrive at the *i + 1* node before visiting the node *i*, even though it represents an odd number. Courier has to deliver four shipments. In our case, it is nodes with odd indexes, so it is especially important to enumerate the individual nodes that must be followed in all models. Therefore, the aim of CDP is to visit individual places and return to the starting point looking for a route with minimal cost. In the Figure 1 the arrows display the direction of the delivery made by one courier.

Figure 1
Graphical representation of CDP
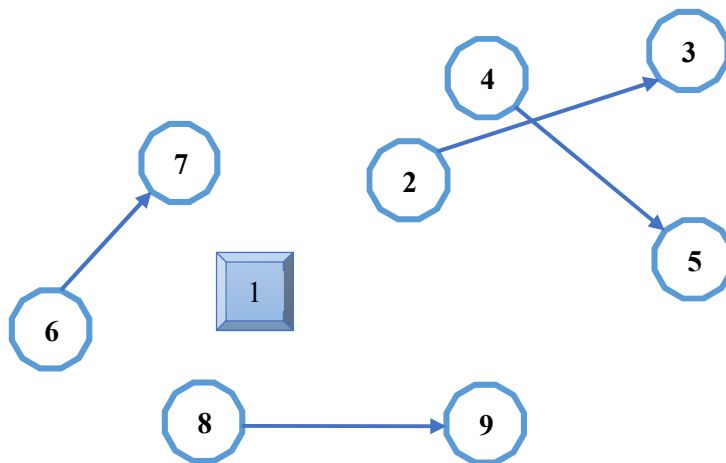
Source: Unpublished manuscript

2.1. Static Courier Delivery Problem

In this paper, we focus on the static model of the courier, in which we assume that all shipments requirements are known in advance. In other words, before we start optimizing such a task, we know all n picking points and all the delivery points, with a total of $2n + 1$ locations (including the starting point). Furthermore, we are aware of the costs d_{ij}, which represent the distance between the locations i and j. The variable u_j represents the moment in which the courier arrives at i. The mathematical model presented by Fábry (2014):

$$\text{minimum} \quad z(x) = \sum_{i=1}^{2n+1} \sum_{j=1}^{2n+1} d_{ij} x_{ij} \tag{1}$$

$$\sum_{i=1}^{2n+1} x_{ij} = 1, \qquad i = 1, 2 \ldots, 2n+1, \tag{2}$$

$$\sum_{j=1}^{2n+1} x_{ij} = 1, \qquad j = 1, 2 \ldots, 2n+1, \tag{3}$$

$$u_i - u_j + (2n+1)x_{ij} \leq 2n \qquad i = 1, 2 \ldots, 2n+1; \ j = 2, 3 \ldots, 2n+1, i \neq j \tag{4}$$

$$u_{2i} \leq u_{2i+1}, \quad i = 1, 2 \ldots, n, \tag{5}$$

$$u_1 = 0, \tag{6}$$

$$x_{ij} \in \{0, 1\}, \qquad i, j = 1, 2 \ldots, 2n+1, \tag{7}$$

If the courier travels from the place i to j, the variable x_{ij} acquires the value 1 and the value 0 otherwise. The objective function (1) represents our goal - minimizes the total transship cost of the road. The boundary system (2) and (3) determine that each customer is visited once and it ensures that each shipment is picked up and delivered. The constraint (4) prevents the formation of partial cycles. In terms of CDP, it is necessary that the boundary

creates the condition where the starting node is being also its end node (node 1). For us, a delimitation (5) is crucial because it distinguishes even and odd indexes of the individual nodes, providing the basic condition for the role of the courier that the place of delivery will not be visited until the shipment is picked up. The Figure 2 displays a possible solution of CDP.

Figure 2
Solution of CDP
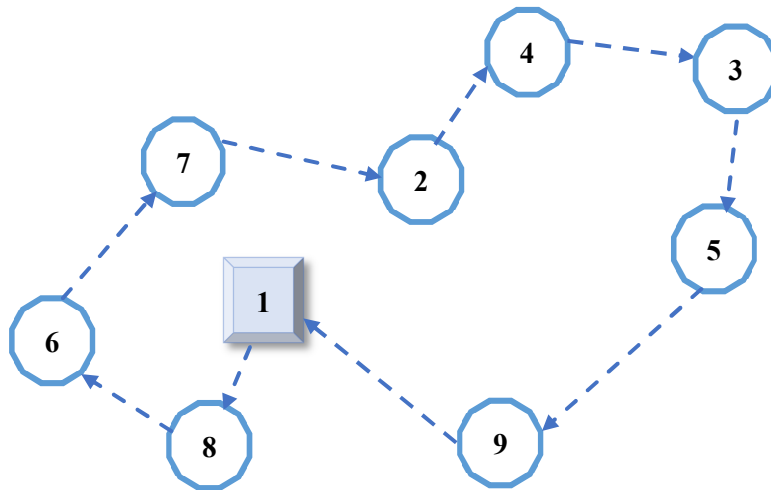
Source: Unpublished manuscript

3. Courier Delivery Problem optimization

Delivering shipments over transport networks are a basic process in transport systems and an important part of logistics systems. The optimal management of transport processes brings better service quality, cost savings and also reduces harmful environmental impacts. Just by creating suitable models, we can optimize the processes on the transport networks.

To solve the traveler salesman problem , from which our role as a courier is based, several specific computational procedures have been developed. These are the following methods by Brezina et al. (2009):

> ➢ optimization methods - these methods lead to an optimal solution but are not generally usable for tasks with large numbers of nodes,
> ➢ heuristic methods and
> ➢ combined methods

3.1 Heuristic algorithms for solving the static CDP

The basics of these heurists have been modified specifically for the role of the courier and its various modifications with regard to the courier's time and capacity. In this post, we'll focus on modifying the algorithm of your closest neighbor.

3.1.1 Modification of the nearest neighbour algorithm

This method is to determine the closest place to get from where the courier is right. Unlike the distribution tasks, it is necessary to consider that the courier not only delivers the item to different places, but also highlights them, and delivery does not have to take place immediately after the takeover, as long as the courier capacity permits. The modification is that when we leave the depot we only think of places with even indexes in which we can pick up the delivery. Therefore, in the case of a courier task, it is necessary to update the set of locations in each step of the algorithm by adding additional ones that can be visited. After

visiting a specific picking location , i represents the place from the set of the previously unposted places. By contrast, delivering the $i + 1$ shipment added to the set. The algorithm ends when the set A is empty.

Let A be a set of not yet visited places that can be visited in the given step, i.e. at the beginning of the algorithm it contains only numbers of *2,4,6* to *2n*. The sequencings of the visited places is S, the distance between the places i and j is given by the d_{ij} matrix and the total distance that the courier passes is denoted by the variable z. For the role of the courier, we can write the algorithm into the following steps (Fábry, 2014):

Step 1. $A = \{2,4,...,2n\}, S = \{1\}, z = 0, i = 1$

Step 2.   We find a place i, that $c_{ik} = min_{j\in A}\, d_{ij}$,
             $S = S + \{k\}, z = z + d_{ik}, A = A - \{k\}$,
             if k is even, then $A = A + \{k + 1\}$,
             $i = k$

Step 3.   If $A = \emptyset$, we continue with step 4, otherwise step 2

Step 4. $S = S + \{1\}, z = z + d_{k1}$. The end algorithm.

The basic process of this method describes step 2. In the given row, the distance matrix finds the closest place to deliver. This place then adds to the sequence of visited places and removes from the set of places that can be visited. The last part of this step serves to verify that the place where the courier is directed has a fair index. If so, it adds sets to A instead of delivering the shipment.

We can use the presented heuristic method programmed in the MS Excel in order to obtain solution of the static CDP. We can see the VBA source code of modification of the nearest neighbour algorithm in the Appendix 1.

3. Conclusion

The aim of this paper was to present model and algorithm for solving courier delivery problem. Since the role of a courier includes heavy tasks in the NP-hard problems, multiple methods and algorithms can be used to solve larger and time-consuming tasks that provide relatively good solutions at an acceptable time. These are mainly heuristic algorithms specifically designed for courier delivery problem. Among other things, optimization mathematical models of CDP are presented in the form of integer linear programming. Optimization algorithms for larger dimensions may not provide the optimal solution in real time and hence use heuristics, otherwise called "approximate" solutions that are not the optimal solution, but since these processes are always polynomial, they can find a "good" result in acceptable time.

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Appendix 1
Source code of the modified nearest neighbor method in VBA

```vba
 Sub sused()
Dim A As Range
  Do Until Range("end").Value = 0

Range("km").Value = Range("A").Find(Application.Min(Range("A")))
Range("n").Value = Range("A").Find(Application.Min(Range("A"))).Column
Range("s").Value = Range("A").Row
Range("k").Value = Range("n").Value - Range("s").Value

Dim YAY As Range
Range("A").Offset(Range("k").Value, 0).Name = "A"
Columns(Range("n").Value).Clear
Set A = Application.Union(Range("A"), Cells(Range("n").Value, Range("n").Value + 1))
    ActiveWorkbook.Names("A").Delete
    A.Select
    ActiveWorkbook.Names.Add Name:="A", RefersTo:=A

Range("n").Offset(1, 0).Name = "n"
Range("k").Offset(1, 0).Name = "k"
Range("s").Offset(1, 0).Name = "s"
Range("km").Offset(1, 0).Name = "km"

Loop
Range("n").Offset(-1, 0).Name = "n"
Range("km").Value = Cells(Range("n").Value, 1).Value
End Sub
```

Influence Quality of Education System at Human Capital

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Abstract
In the contribution, I draw attention to the impact of the quality of the education system on human capital. At present, competition organizations must have high-quality human resources on a global scale. Through correlation analysis, I will compare the human capital index with the quality of the education system and the availability of skilled employees human resource capacities within Eastern Europe and Central Asia. In the human capital index, I mainly focus on the know-how component in which the Slovak Republic has the highest rating but also the deployment. On the other hand, I consider the most important component within the Human Capital Index. Based on correlation analyzes, we recommend that companies invest in education for key human resources only. Within the cloud and intranet, we need to ensure high security, as know-how is highly dependent on the value of the human capital index.

Keywords: *human capital, education system, know-how*
JEL classification: M 10, M 12, M19

1. Introduction

   If organizations have effective human capital they are competitive in national and global terms. In this contribution, I will discuss human capital specifically focuses on the index, because only human capital can generate added value. In the human capital index, we will examine its impact on the quality of the education system as well as the availability of capable human resources. Within the index, I will compare the components of capacity, deployment, development, know-how through correlation analysis. From the point of view of the methodology, I will use a correlation analysis and I will find the values through Pearson Correlation Calculation.

   Pearson Correlation Calculation:

(2)

$$ r = \frac{\sum_{i=1}^{n} x_i y_i - \frac{1}{n} \sum_{i=1}^{n} x_i \sum_{i=1}^{n} y_i}{\sqrt{\sum_{i=1}^{n} x_i^2 - \frac{1}{n} \left(\sum_{i=1}^{n} x_i \right)^2} \sqrt{\sum_{i=1}^{n} y_i^2 - \frac{1}{n} \left(\sum_{i=1}^{n} y_i \right)^2}} $$

   The evaluation of Pearson correlation is as follows:
$0 < | r | \leq 0.3$ - weak dependence,
$0.3 < | r | \leq 0.8$ - mild to moderate dependence,
$0.8 < | r | \leq 1$ - strong dependence.

2. Human capital - characteristics

Within the concept of human capital is a person's ability to create new knowledge (innovation) in according Vojtovič (2011). The basic characteristics of human capital include:

- it is not material in nature,

- is a renewable human resource,

- not a personal property,

- the value of human capital is adequate for age and living conditions.

Several authors examine human capital and its impact on performance, motivation and other aspects that can effectively develop it.

In the sense Raineri (2017) "independent streams of research propose that human capital and employee motivation serve as mediation mechanisms that explain the relationship between high-performance work systems (HPWS) and performance. Results indicate that personnel selection, performance evaluation and training, job descriptions, and empowerment practices make simultaneous contributions to the human capital and affective commitment paths." On the other hand, Romero-Martínez, García-Muiña and Ghauri (2017) "regarding the moderating effect of intellectual capital, the results show that both human and technological capital boost the impact of international inbound open innovation on international performance. Organizational capital also increases the benefits of financial inbound open innovation; however, it impacts negatively in the case of strategic inbound open innovation."

In examining the impact of motivation Kianto and Sáenz (2017) "the results show that intellectual capital positively mediates the relationship between knowledge-based HRM practices and innovation performance and illustrate the pivotal role of human capital in this relationship: knowledge-based HRM practices impact structural and relational capital partially through human capital, and human capital affects innovation performance by enhancing structural and relational capital."

Creative thinking is influenced to a considerable extent by a new emerging generation, cultural composition of human resources, environment and balance of personal and working life.

The basic characteristics of creativity are the following, according to Žák (2004):

- fluency x flexibility: fluency of thinking is characterised by constant thinking, flexibility is an original ability of a person who thinks in contexts and logical links

- consciousness x fictitiousness: creativity is limited by consciousness, an overall worldview of a person is a limit of creativity. Fictitiousness arises from a conscious human thinking.

- lateral x linear creativity: a person in learning the facts that he/she cannot join or classify in his/her mind, is forced to make a connection through creativity. In linear creativity a human mind creates logical connection. It helps mainly in decision making process and searching for optimal solution. Lateral creativity is characterised by intuition, new links, opinions are created in human mind.

A brain is the most important organ for creativity. Every human source uses a different part of a brain to think. The right part of the brain is characterised by inspiring thinking and the left one by motivation.

Todd I. Lubort has defined the key factors for creativity, according to Hospodářová (2008):

- intellectual ability;

- expert knowledge;

- style of thinking;

- personality features;

- internal motivation;

- supportive environment.

Human resources as the only one are capable of thinking and suggesting creative solutions in order to propose basic factors of a value curve, i.e. quality, price, design, innovation, services, promotion and availability.

As part of human capital theory, human components could learn, change, innovate, creative thinking. The main data for measuring human capital include:

• labor Force Data: Number of workers, age, gender,

• human development and performance: education programs,

• data regarding attitudes, performance and non-financial character: quality, innovation, research.

3. Influence quality of education system at human capital

The following graph displays the percentage of the index of human capital for the countries of Eastern Europe and Central Asia. Human capital is expressed in four aspects:

• capacity,

• deployment,

• development,

• know-how.

The highest percentages in the capacity category are for Central Asian countries. Higher percentages of Deployment have the central Asian countries and the Czech Republic. For Eastern Europe, higher percentages are developed and know-how.

The Slovak Republic has the best know-how position. In terms of comparison of the first and last country, i.e. Slovenia and Albania; Slovenia has the best place in development and know-how. On the other hand, Albania had the worst placement in all categories except for development where it ranked thirteenth place. Based on the development of the human capital score index, the best countries were placed, namely Slovenia, Kazakhstan and Kyrgyz Republic. The worst of the score was Albania and Tajikistan.

According to Bani (2017) "…*we would like to investigate whether globalization helps to alleviate or worsen inequality in education and benefit everyone in the observed population in the same way in terms of education. Globalization narrows the education gap in low-income countries but it widens the gap in middle-income countries...*" With a given sentiment was shared by Sharafutdinov et al. (2017) „today, in a constantly changing economic situation in the world innovations are the driving forces of the global economy, where one of the main places takes labor potential of human capital."

Figure 1
Ranking by Human Capital Index score – Eastern Europe and Central Asia
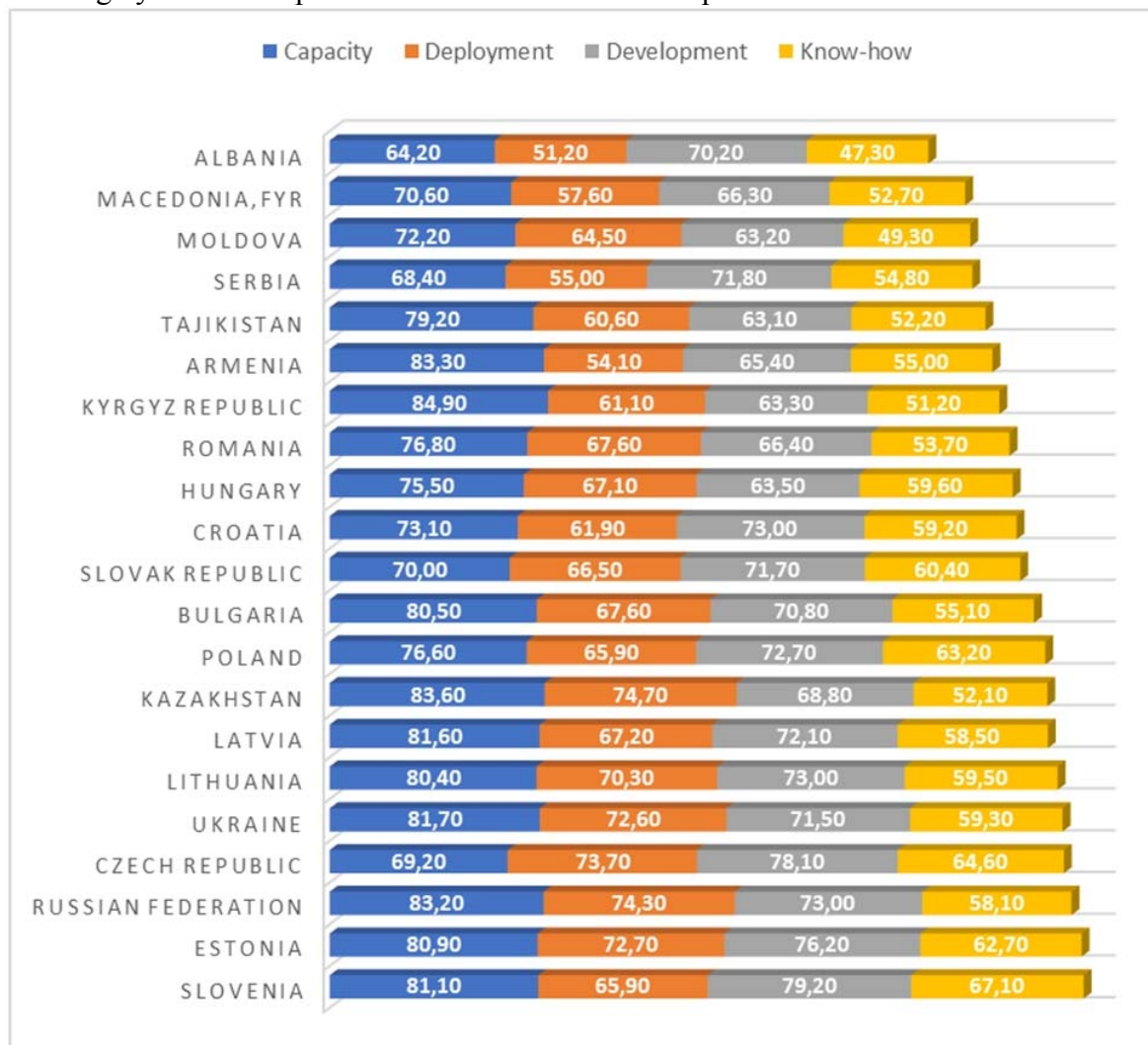
Based on multiple studies, the authors explore learning and its impact on human capital, which alone can create change, innovation, and can think creatively. In the sense of Lopes and Serrasqueiro (2017) „using information from 31 European countries over the period 2010-2014, total R&D expenditures were regressed against several variables such as the Hofstede's cultural dimensions, the public sector transparency index, and other aggregated variables. Culture and transparency can act as attractiveness drivers, for business sector organizations and for other private and public institutions, toward the implementation of knowledge transformation mechanisms and intellectual capital achievements." On the other hand Amanova et al. (2017): "…*we have revealed that human capital development is directly dependent on the quality of education. In this connection, the Republic of Kazakhstan should strengthen educational system modernization. We should note that Kazakhstan's accession to the Bologna Process and the implementation of the Bolashah program show the increase of the Human Development Index (HDI) value - up to 56th place*…".

According to Zaei and Kapil (2016) "…*the output of structural equations models (SEM) and LISREL statistical software showed that intellectual capital and its components have direct effects in promoting KM processes. By improving intellectual capital and its indexes,*

knowledge management can be improved...". According studies of Docquier and Machado (2016) „*…the effect of liberalising the international mobility of college-educated workers on the world economy. In addition, liberalising high-skilled migration decreases income per worker by 2.5 per cent in developing countries. Overall, it increases efficiency (+6.2 per cent in the worldwide average level of income per capita) and inequality (+1.2 percentage points in the Theil inequality index). Much greater effects can be obtained if total factor productivity varies with human capital...*".

In the sense of Leon (2016) "*…therefore, we aim to develop a benchmarking tool capable of capturing a company's competitive position and future evolution, based on its IC efficiency. The results of our longitudinal study highlight that a firm is competitive only when it manages its knowledge assets more efficiently than its competitors…*".

4. Conclusions

In the next section, I will analyses the impact of the quality of the education system on the human capital index through a correlation analysis. The correlation value is 0.2638, which represents a low dependence where n = 21. For the value, I consider that the quality of the education system does not affect the value of human capital.

Figure 2
Correlation analysis - quality of education system and human capital index

Source: own processing based on data from the World Economic Forum; http://reports.weforum.org/global-human-capital-report-2017/dataexplorer/
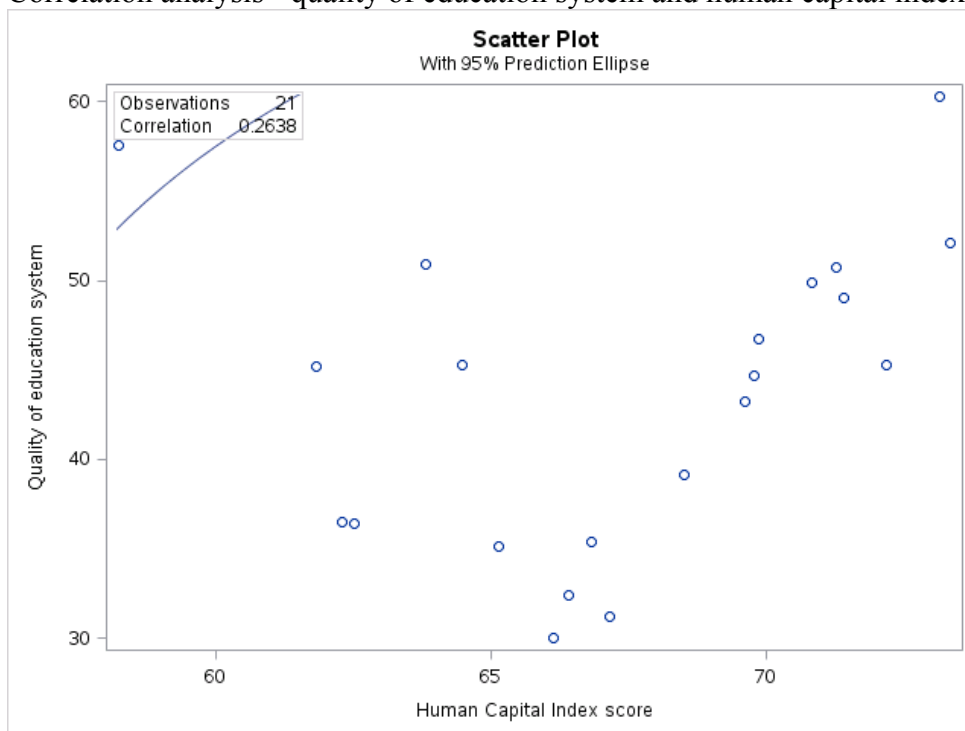
As part of the correlation between the human capital index and availability of skilled employees, its value is 0.4945, representing a higher dependence on the quality of the education system. Between the quality of the education system and availability of skilled employees the value of 0.57874 a moderate dependence but higher than the index of human capital.

Human Capital Index is comprised of four components through correlation analysis I will examine their individual dependence.

Figure 3

Correlation analysis – deployment, capacity, know-how, development

Source: own processing based on data from the World Economic Forum; http://reports.weforum.org/global-human-capital-report-2017/dataexplorer/
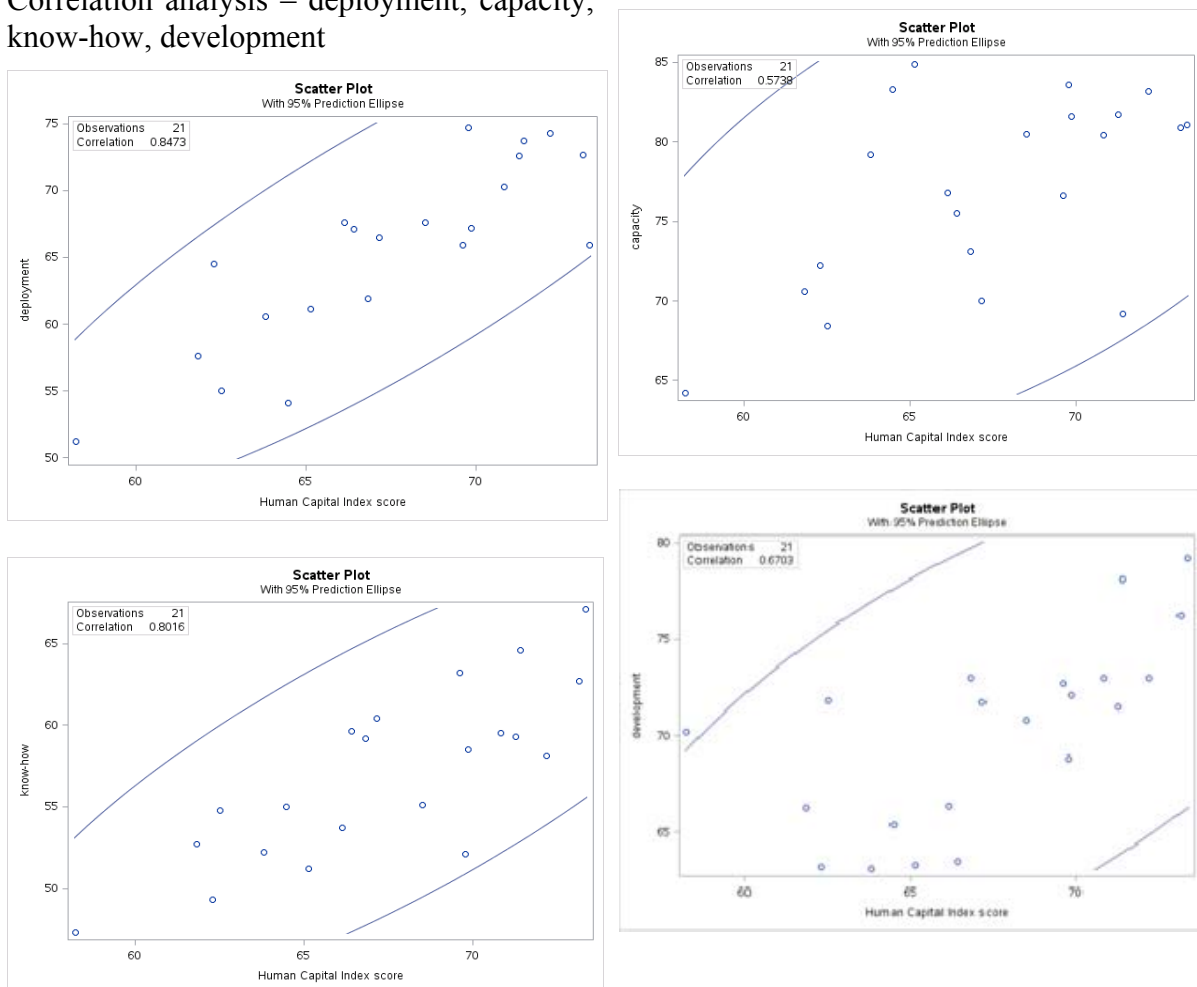
The highest dependency is in the deployment folders, i.e. the value of the correlation coefficient is 0.8473 and the know-how component is 0.8016, which is a strong dependence. On the other hand, the capacity and development components have a modest capability. Examination of dependence was carried out at n = 21.

Based on correlation analyzes and content analysis of scientific studies, I draw the following conclusions and recommendations:

• know-how and deployment are a strong dependence on the human capital index, the higher value of which depends on the workplace but also on the educational system,

• in the case of key human resources, it is also important to invest in the benefits of education,

• the direct impact of a quality education system is poorly attributable to the value of the human capital index,

• the quality of the education system to a small extent is dependent on the availability of skilled employees,

• we recommend increasing the quality of the cloud and intranet security business.

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Competitive Intelligence in Slovak Banking Sector

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Abstract
Main goal of the paper is to prove that competitive intelligence services are beneficial for its clients in Slovak banking sector and that there still are opportunities to develop methods that can significantly improve quality of its products and business performance of commercial bank. First chapter consists of introduction and literature review. We chose mainly foreign authors, that are considered as mainstream in the field of competitive intelligence and connected their opinions with two Slovak authors who published some papers related to our topic. Second chapter of this paper is about methods and data by which we aim to prove goals of this paper. Data for the paper were provided by competitive intelligence company from Slovakia. Conclusion assesses results and interpretation of our paper.

1. Introduction

Banking sector is one of the most profitable sectors in Slovak economy with four largest banks reaching combined market share approximately 66% of total assets in 2016. At the same time there were 28 licensed commercial banks in Slovakia.

Competition between largest market players is tough and in low interest environment, where it is difficult to maintain margins unchanged, banks are forced to rapidly adapt and react to the moves of their competitors and newcomers in relation with PSD 2 implementation.

Management and strategists in banks need information and valuable insight to assess what are their competitor's intentions and plans. In many cases information from internal sources i.e. managerial accounting, internal distribution network, etc. are not sufficient enough. In those cases companies often use services of competitive intelligence agencies that are able to offer unbiased insight and advice for decision making on different levels.

The aim of this paper is to prove, that competitive intelligence services are beneficial for its clients (banks in Slovakia) and that there still are opportunities to develop methods that can significantly improve quality of its products.

2. Literature overview

According to Porter (1980), companies have competitive strategies that help them perform in a competitive environment: *"...Every firm competing in an industry has a competitive strategy, whether explicit or implicit. This strategy may have been developed explicitly through a planning process or it may have evolved implicitly through the activities of the various functional departments of the firm...".*

The main starting point of our understanding of information importance in strategic decision making is the assumption that to be successful in highly competitive banking market means that the company achieves its strategic goals. Companies may focus on different goals for example raising its market share, defend its current market position, etc. Under such market conditions, companies compete against each other and often find themselves in direct confrontation, in which the bank that has the strategic initiative, has the necessary influence on market development that enables it to reach its strategic goals (Bartes, 2012).

Competitive intelligence services have lots of similarities with state level intelligence. Both are very similar when it comes to HR requirements, data and information processes, unbiased products, methods, etc. There is one very important difference, especially in methodology. Commercial competitive intelligence may never use invasive methods in its research and it has to at all times comply with ethics and moral standards.

Currently, there are lots of information available online. With technological revolution and internet adoption we have seen an information explosion. More and more information are available online and open source intelligence becomes very important in today's commercial sphere (McDowell, 2009).

Importance of competitive intelligence implementation was also the thesis in the paper that was written by Štefániková and Masárová (2013). Although, in most companies CI department is informing directly board members and is placed as high as possible within the organizational structure. According to survey, conducted by Frost & Sullivan Company in cooperation with SCIP, CI department mostly reports directly to Marketing department.

Figure 1
Your CI department reports directly to what department?
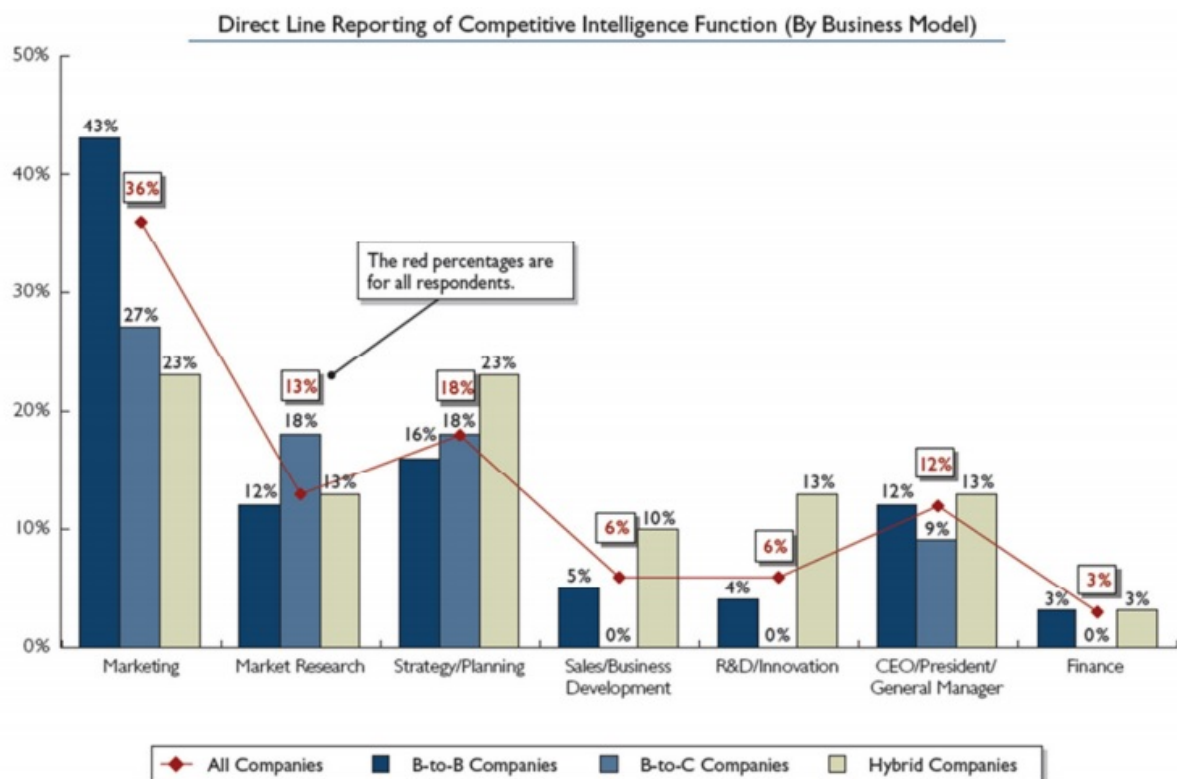
Source: ŠTEFÁNIKOVÁ, Ľ. – MASÁROVÁ, G. 2013. Elsevier. *The Procedia – Social and Behavioral Sciences.* Vol. 110, pp. 669-677. ISSN 1877-0428.

2. Data and methodology

Assessing whether competitive intelligence services are useful and important in decision making is very difficult. There are not any surveys that are focused on specific importance of CI services in Slovak banks. We can only create an estimation based on the data provided by MARKET VISION SLOVAKIA Ltd. The company offers competitive intelligence services for clients in different sectors and they provided us with summary statistics of logs in their online CI tool only from their banking clients. We have categorized users in three groups:

- TOP management,
- Middle management,
- Others.

Each one of those groups has unique information needs. Members of the board need information to support their strategic decision making while members of middle management group need information and data to support their decision making on tactical level. Other users are mostly specialists and analyst with limited managerial and decision making responsibility. They information needs consist mostly from intelligence on operational level.

Analyzing opportunities and techniques to improve quality of competitive intelligence products may only be done by experienced specialist in the field. MARKET VISION SLOVAKIA Ltd. also provided us with the data from their conference survey conducted in August 2017. Competitive intelligence professionals wrote down their opinions and insights about where do they see barriers, opportunities in relation to completing their tasks and what does work for them during completing those tasks. Answers are categorized in three groups:

- Opportunities,
- Barriers,
- Good practices.

Provided survey results offer unique insight on how should intelligence provider (agency or internal CI department) set up its development and investment plan to fulfill its customers' needs in the future.

3. Results and discussion

According to the summary statistics of logs into the competitive intelligence tool for banking professionals, middle management and their subordinates uses the solution most often. Members of the board seem to use competitive intelligence occasionally.

Figure 2

Summary statistics of competitive intelligence solution usage
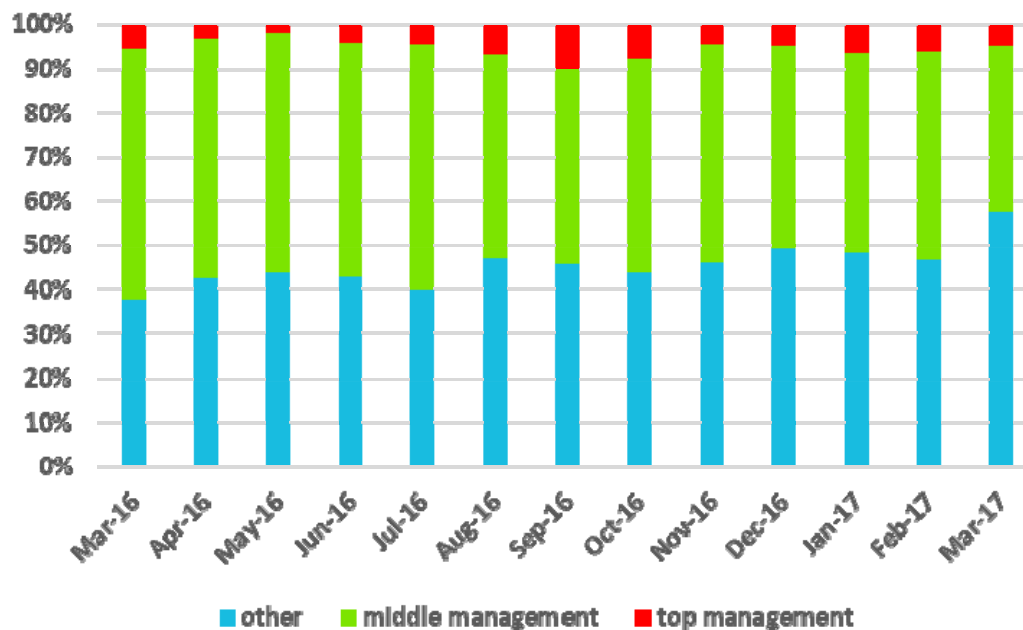
Source: own visualization by the Author on based of *Market Vision*. 2017. Mystery Shopping, Competitive Intelligence, Customer Intelligence. [online]. Available at the URL: <http://www.marketvision.sk>. [accessed 17-12-2017].

It is very important to state, that top management group of users is the smallest group when it comes to number of members. Others users are the group with the most members. As a result, we can argue, that members of middle management uses external competitive intelligence services most frequently.

Figure 3

Statistics of competitive analysis usage
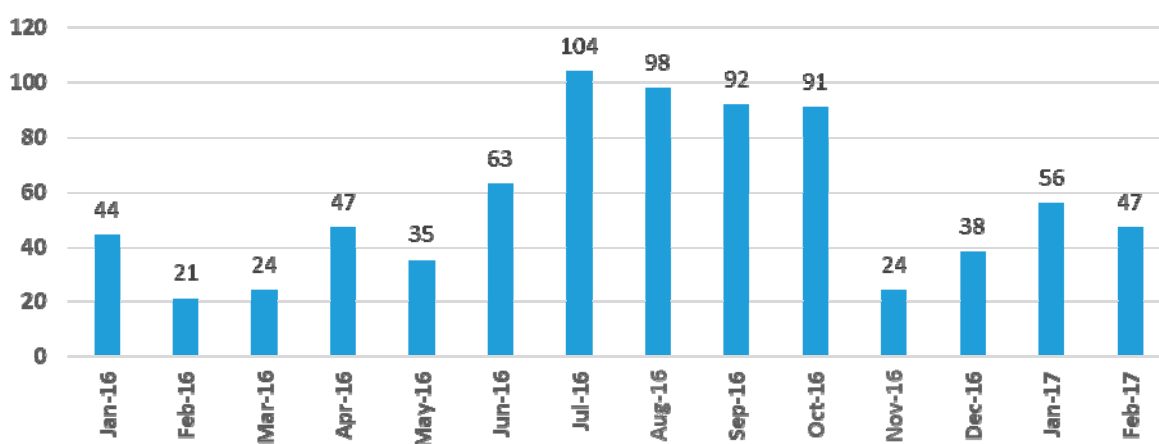
Source: own visualization by the Author on based of *Market Vision*. 2017. Mystery Shopping, Competitive Intelligence, Customer Intelligence. [online]. Available at the URL: <http://www.marketvision.sk>. [accessed 17-12-2017].

Competitive intelligence services provide its clients not only with everyday latest news, but also with regular analytic insights i.e. Analysis of mortgage market that is published every month with fresh data and insights from an intelligence team. According to the data from MARKET VISION SLOVAKIA, banking professionals use regular analysis too. They are

able to evaluate their campaign performance in relation with performance of their competitors.

Figure 4
Competitive intelligence professionals survey (n=47)
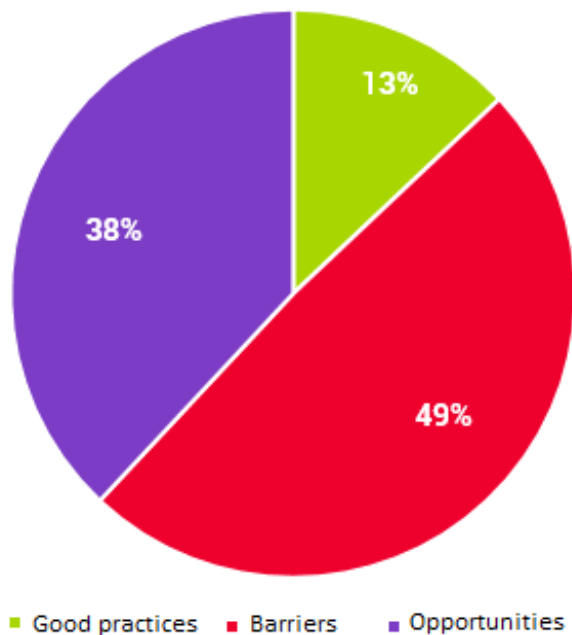
Source: *Market Vision*. 2017. Mystery Shopping, Competitive Intelligence, Customer Intelligence. [online]. Available at the URL: <http://www.marketvision.sk>. [accessed 17-12-2017].

13% of all answers and ideas were categorized as good practices. Majority of those answers relates to interpretation of research results. Competitive intelligence professionals stated that there is a growing need to present conclusions of their tasks in relation with current market environment and moves of the competition. Visualizing and simple interpretation of results is insufficient.

Barrier related answers reached 49% share of all collected answers and ideas. CI professionals mostly complained about unavailability of data necessary for completing their task. At the same time unavailability of information and data was very frequent answer in "Opportunities" category, which means that there is an untapped potential in developing methods of obtaining those information or creating qualified estimates.

CI professionals see the biggest potential in their education, according to the results. Lifelong education is a common term for intelligence professional, who always assume that there is or may be something he or she does not know. This assumption is crucial when working on their research task and projects.

For unexperienced person – a layman, results of the "Good practices" category may seem as a disappointment. But competitive intelligence professionals are (or at least, should be) curious employees, that always try to search for information that seem to be unavailable. They are also reluctant to share their good practices and share methods of their work, because well performing competitive intelligence team is a huge advantage for the company.

4. Conclusions

The paper aimed to prove benefits of using competitive intelligence services in management decision making processes. According to the data of CI provider MARKET

VISION SLOVAKIA Ltd. those services are widely used by different organizational units across the whole structure of banks in Slovakia.

Although, competitive intelligence is relatively new discipline in our geographical region, it is a mature sector in Western Europe and North America. Competitive intelligence tools on American market are the most developed tools integrating structured and unstructured data with valuable unbiased insights of CI agencies.

In CEE region and Slovakia, there are many opportunities in developing methods to obtain information that seem to be unavailable. At the same time, competitive intelligence professionals noticed growing importance of connecting research results interpretation with information about current market situation, moves and intentions of competitors.

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Agri-Food Trade of the European Union Regarding
its Partner Countries

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Abstract
Recently, production of goods increases hugely all over the world, resulting an enormous increasing in international trade. Trade in industrial goods grows at a large rate due to trade liberalization, while agriculture is one of the most vulnerable sectors all over the world. However, barriers of agri-food trade were reduced or eliminated; there are still many obstacles to the totally free trade of agricultural products (e.g. restrictions, safeguards, bans, limitations, etc), especially in the European Union. Besides the WTO's liberalization pressure and its multilateral negotiations, there are a lot of countries that have signed bilateral agreements. In this study, it was examined, what kind of bilateral agreements were entered into force by the EU and how was international agri-food trade influenced by these bilateral agreements as well as by restrict measures. For this, secondary data were analyzed by different statistical methods and the effect of trade measures was characterized by using this results. From the results it can be concluded that EU has preferred different agreements with the various country groups as well as EU has applied different kind of agreements in different eras. The EU's average growth rate of food trade and average share of food trade is highly variable by partner countries. Bilateral agreements have not always caused trade growth between the two partner regions. The EU's restrict measurements effect the EU's foreign trade, because these restrictions are applied to meat products and these commodities are imported the less in the EU.

Keywords: *agri-food foreign trade, trade agreement, average growth rate*
JEL classification: F 10

1. Introduction

As it is known agriculture is one of the most vulnerable economic sectors all over the world. Nevertheless agricultural exports have several economic benefits. It can help to stimulate a wide array of industries linked to agriculture, including transportation, processing, and farm input suppliers. Furthermore, most of the future growth in food demand is expected to occur in developing countries (McMinimy et al., 2015). International trade in agricultural and food products has increased sharply during the past decades, mainly due to the increased trade liberalization, population growth, urbanization and changing diets (Anderson, 2010). Although currently the European countries have the largest share of world food exports, agri-food exports from other underdeveloped countries are expanding rapidly (especially from low-and middle –income countries in Africa, Asia and South America) (Aksoy, 2005). At the same time, there are many countries that can not overcome the barriers to export their products, so they promote the free movement of products on the global market. Nevertheless, there is no country that freely allows the import of certain products. Protective measures of agricultural protection are present in all countries, but they are of particular significance in the

agrarian policy of the countries of Europe and the United States. Agriculture sector has a particular importance to the member states in EU, because it has a significant share in the total EU budget. While the United States primarily implemented protectionist measures that favours the stimulation of exports (offensive protectionism), the EU applied mainly defensive protectionism (limiting imports) (Markovic – Markovic, 2014). There is a long-standing trade dispute between the US and the EU. They have different opinion on agriculture, particularly with regard to environmental protection, consumer safety, animal welfare and farming support. EU and US farmers still operate under very different conditions and product different products (Diamand – Schimpf, 2016). One of the barriers to negotiations between the US and EU involves the EU's safeguards against genetically modified organisms (GMOs) including genetically modified foods and crops. The EU restricts or outright bans the import of GMO products and requires the labelling of all GMO foods (Lewis, 2014). The US has no such labelling requirements for GMO foods. Furthermore, the EU bans imports of hormone-treated meat from the US and restricts most meat exports to the European Union to a limited quantity of beef imports that are certified as produced without the use of hormones. Even so, the US is the largest importer of EU agricultural products and it trades particularly with the EU15 member states. However, patterns of agricultural trade with the US vary greatly between these EU member states. The largest agri-food exporters to the US are France, Italy, Spain, the Netherlands as well as Germany, and the largest importers of US products are Germany, Spain, the Netherlands and the UK. Although it is often stated that tariffs are not a major barrier to trade between the US and EU, both sides set tariffs on agricultural imports. The EU applies much higher tariffs on all products than the US. The average agricultural tariff of EU is 30%, well above the average US agricultural tariff of 12% (www.usda.gov). In case of tariffs there are many differences in regulation, safety measures, procedures and monitoring between the US and EU (Diamand – Schimpf, 2016).

Despite, the EU is one of the most open economies in the world with number of trading partners. It is the largest trading partner almost for 60 countries, while China and the US is a trading partner for 36 and 24 countries. European goods and services account for 35% of the EU's GDP (Mazure – Tiltina 2015). Approximately 90% of world future demand will be generated outside the EU. The EU's aim is to expand the trade relations more widely, because trade in goods and services makes a significant contribution to increasing sustainable growth and creating jobs. The EU trading partners benefit from preferential tariff access to the EU given that the EU has concluded free trade agreements with more than 30 countries. Further aim is to negotiate new form of free trade agreements with certain countries. These agreements could generate 2.2 million new jobs as well as contribute to the EU's GDP with EUR 275 billion. Besides that trade agreements can have many other benefits such as opening new markets for EU goods and services, increasing investment opportunities, making trade cheaper and faster, making the policy environment more predictable and last but not least supporting sustainable development (http://ec.eurpoa.eu). Such free trade agreements are for instance the EU-Canada Trade Agreement (CETA), the EU-India Free Trade Agreement as well as the so called DCFTA with Mediterranean region, with special attention with regard to the sensitive products (such as agricultural products). Sensitive products are treated also specially in case of EU's agreement with the MERCOSUR countries. In order to wide its relationships with Central and South-American countries. In additional, EU support more active and (some new and) updated trade relations with Japan, India as well as ASEAN countries. The Transatlantic Trade and Investment Partnership (TTIP) is the most significant recent EU-US project and will reinvigorate the transatlantic partnership as a whole, beyond its trade aspects (not only with the US but also with other trade partners) (EPP Group Position Paper, 2015)

Of, course these agreements and partnerships intend to liberalize agricultural trade and eliminate, or substantially reduce tariffs and restrictive quotas around certain commodities, such as rice and pork in Japan, or dismantle supply management programs that protect poultry, eggs, and dairy in Canada. Even so, on the negotiating agenda are still obstacles to agricultural products, mainly non-tariff trade barriers, including certain sanitary and phytosanitary (SPS) measures as well as Geographic Indications (GI) (Mazure – Tiltina, 2015). Burnett (2015) is of the opinion that multilateral agreements require successful reforms of global agricultural markets, involving trade liberalization and the reduction of domestic subsidy programs.

1.1 Methodology

During this study data were used related to EU's bilateral trade agreements and its international trade in foods on secondary databases (Eurostat, Faostat, OECD Statistics). The data were calculated using basic statistical methods (average values, ratios, geometric average, standard deviation, coefficient of variation). Data on international food trade of Eurostat and Faostat from 1992 to 2015 were used to calculate the annual growth rate of exports and imports with various partner countries of the EU during these 25 years. From these data were calculated the average growth rate by countries. This indicator is appropiate to separate out the fluctuations that are caused by other factors (such as political, meterogical, economic, etc. factors) in certain years. Furthermore data on share of food exports and imports were averaged (it is possible, because coefficient of variation were almost in all cases below 15 percent). Using these data it can be established, how was the change of food trade affected by bilateral agreements with partner countries. Data on food trade balance of OECD Statistics were used to calculate imports/consumption ratio and exports/production ratio. These data were compared by countries in order to state whether the trade of the limited foods is influenced by EU's restrictions.

The aim of this study is

– to group the EU's bilateral agreements by type and by partner country groups;

– to review the situation and opportunities outside the EU;

– to compare the change and share of international food trade with partner and non-partner countries of the EU;

– to establish the impact of agreements and restrict measurements on EU's foreign trade;

– to put forward suggestions taking into account the future development opportunities.

2. Results

Trade in goods and services makes a significant contribution to increasing sustainable growth and creating jobs. Approximately 90% of world future demand will be generated outside the EU. It is a key priority for the EU to open up more market opportunities for European business by negotiating new Free Trade Agreements with key (and other) countries. These agreements could generate 2.2 million new jobs as well as contribute to the EU's GDP with EUR 275 billion. Besides that trade agreements can have many other benefits such as opening new markets for EU goods and services, increasing investment opportunities, making trade cheaper and faster, making the policy environment more predictable and last but not least supporting sustainable development. The EU has a strong, rules-based multilateral trading system with a high level of transparency. The EU manages trade relations with third countries in the form of bilateral trade agreements, which have different names depending on their content (Table 1).

Table 1

EU's bilateral agreements

Country	Date of entered into force	Type of agreement
Europe		
Iceland	1973	Agreement
Norway	1973	Agreement
Switzerland	1973	Agreement
Andorra	1991	Customs Union
San Marino	1992	Customs Union
Turkey	1995	Customs Union
Faeroe Islands (DK)	1997	Agreement
Macedonia	2004	Stabilisation and Association Agreement
Albania	2006	Stabilisation and Association Agreement
Montenegro	2010	Stabilisation and Association Agreement
Russia	2013	Partnership and Cooperation Agreement
Serbia	2013	Stabilisation and Association Agreement
Bosnia and Herzegovina	2015	Stabilisation and Association Agreement
Kosovo	2016	Stabilisation and Association Agreement
Georgia	2016	Association Agreement
Moldova	2016	Association Agreement
Ukraine	2014	Association Agreement
	2016	Deep and Comprehensive Free Trade Agreement
Mediterranean		
Syria	1977	Cooperation Agreement
Palestine	1997	Association Agreement
Tunisia	1998	Association Agreement
Israel	2000	Association Agreement
Morocco	2000	Association Agreement
Jordan	2002	Association Agreement
Lebanon	2003	Interim Agreement
Egypt	2004	Association Agreement
Algeria	2005	Association Agreement
Other countries		
Armenia	1999	Partnership and Cooperation Agreement
Azerbaijan	1999	Partnership and Cooperation Agreement
Mexico	2000	Economic Partnership, Political Coordination and Cooperation A.
South Africa	2000	Interim Trade, Development and Cooperation Agreement
Chile	2005	Association Agreement and Additional Protocol
South Korea	2015	Free Trade Agreement
Kazakhstan	2016	Enhanced Partnership and Cooperation Agreement

Source: Edited by own based on data of http://ec.europa.eu

Economic Partnership Agreements with partners such as African, Caribbean and Pacific countries aim primarily at supporting development. Free Trade Agreements with developed countries and emerging economies are economically driven and based on reciprocal market opening. Some Association Agreements are part of broader political agreements. Partnership and Cooperation Agreements are non-preferential trade agreements and part of other broader agreements. As it can be seen in the table 1, EU has preferred different agreements with the various country groups (for instance Association Agreement with Mediterranean countries) as well as EU has applied different kind of agreements in different eras. Furthermore EU has successfully signed a number of bilateral trade agreements with various partner countries such as Canada, Colombia, Ecuador, Iraq, Papua New Guinea and some African countries (Cameroon, Cote d'Ivoire, Ghana, Madagascar, Mauritius, Seychelles, and Zimbabwe). In addition, EU has a number of ongoing trade negotiation processes such as Transatlantic Trade

and Investment Partnership (TTIP) with the USA, Comprehensive Economic and Trade Agreement (CETA) with Canada, Free Trade Agreement with Japan, and Trade in Services Agreement (TiSA) negotiations by 23 WTO countries, including the EU.

EU's average growth rate of food trade and average share of food trade can be seen in table 2 by bilateral partner countries. In case of some countries either the value of growth rate (mainly Mediterranean countries) or the value of share of trade (Russia, Serbia, Ukraine, Egypt, Algeria and Chile) have increased after the agreement (these cells of table are shaded with grey colour). However, there are some countries where the average growth rate of exports (Turkey, Macedonia, Albania, Ukraine, and Armenia) or the rate of the imports (Montenegro, Israel, South Africa, and Chile) or both exports and imports (Russia, Tunisia, Mexico) were decreased after the agreements (shaded with diagonal lines). In Russia and in Ukraine the growth rate of food exports, while in Montenegro and in Moldova the growth rate of food imports show declining trend year by year. Thus, bilateral agreements have not always caused trade growth between the two partner regions.

The average growth of food exports and imports with the partner countries vary between 1-10 percent per year, but this data is almost the same in case of ongoing negotiation countries and in case of other countries (Table 3). There are only a few exceptions, where the growth rate is higher than this average (Turkey, Macedonia, Tunisia, Russia, and China).

A relatively large share of EU's food exports go to Switzerland (7%), and Russia (7.1%) (this latter has decreased after entering the agreement), and in case of other partner countries can be seen, that the share of food exports and imports are larger, than in countries which have not applied the agreement yet (Table 2 and Table 3).

Table 2
EU's average growth rate and average share of food trade by bilateral partner countries (from 1992 to 2015)

Country	Date of entered into force	Avarage growth rate of exports (%)		Avarage growth rate of imports (%)		Avarage share of exports (%)		Avarage share of imports (%)	
		Before agreement	After agreement	Before agreement	After agreement	Before agreement	After agreement	Before agreement	After agreement
Europe									
Iceland	1973	..	106	..	106	..	0.3	..	1.4
Norway	1973	..	104	..	105	..	3.4	..	4.5
Switzerland	1973	..	105	..	107	..	7.0	..	3.5
Andorra	1991	..	101	..	107	..	0.3	..	0.0
San Marino	1992	..	105	..	125	..	0.0	..	0.0
Turkey	1995	135	115	110	110	..	1.8	..	4.1
Faeroe Islands (DK)	1997	..	106	..	101	..	0.1	..	0.6
Macedonia	2004	118	104	98	109	0.4	0.3	0.2	0.2
Albania	2006	122	106	91	113	0.4	0.4	0.0	0.0
Montenegro	2010	112	106	106	97	0.2	0.2	0.0	0.0
Russia	2013	111	77	115	102	9.7	7.1	1.2	1.4
Serbia	2013	112	111	106	103	0.6	0.7	0.8	0.8
Ukraine	2014	116	78	110	109	1.6	1.2	1.2	2.5
Bosnia and Herzegovina	2015	109	..	108	..	0.9	..	0.1	..
Kosovo	2016	114	..	113	..	0.2	..	0.0	..
Georgia	2016	111	..	123	..	0.1	..	0.1	..
Moldova	2016	111		95	..	0.2	..	0.2	..
Mediterranean									
Syria	1977	..	103	..	110	..	0.4	..	0.0
Palestine	1997	..	114	..	109	..	0.0	..	0.0

Tunisia	1998	109	106	124	103	..	0.5	..	..
Israel	2000	104	106	109	102	..	1.1	..	1.0
Morocco	2000	106	110	105	106	..	1.2	..	2.3
Jordan	2002	107	112	99	114	..	0.4	..	0.0
Lebanon	2003	104	105	92	110	1.0	0.8	0.0	0.0
Egypt	2004	106	113	87	110	1.1	1.4	0.4	0.7
Algeria	2005	101	109	110	104	2.2	2.7	0.1	0.1
other countries								
Armenia	1999	149	103	..	109	..	0.1	..	0.0
Azerbaijan	1999	100	101	..	113	..	0.2	..	0.0
Mexico	2000	124	105	120	107	..	0.9	..	0.9
South Africa	2000	106	111	135	109	..	1.0	..	2.6
Chile	2005	97	117	115	105	0.2	0.3	2.6	2.8
South Korea	2015	107	..	106	..	1.7	..	0.2	..
Kazakhstan	2016	112	..	106	..	0.2	..	0.1	..
other consortiums								
EFTA	1960	..	106	..	107	10.7	10.7	9.4	9.4
NAFTA	1994	..	104	..	104	20.4	20.4	10.8	10.8

Source: Edited and calculated by own based on data of Eurostat and Faostat

Table 3

EU's average growth rate and average share of food trade by bilateral partner countries and other regions (from 1992 to 2015)

Country/Region	Avarage growth rate of exports (%)	Avarage growth rate of imports (%)	Avarage share of exports (%)	Avarage share of imports (%)
Agreement has been signed but not entered into force				
Canada	105	105	2.9	1.9
Colombia	109	104	0.2	1.8
Ecuador	105	106	0.1	2.2
Iraq	112	..	0.3	0.0
Japan	102	105	5.9	0.2
Cameroon	105	104	0.3	0.7
Cote d'Ivoire	106	103	0.5	2.6
Ghana	108	107	0.3	1.3
Madagascar	102	100	0.1	0.3
Mauritius	109	101	0.2	0.6
Seychelles	102	100	0.1	0.3
Zimbabwe	113	97	0.0	0.3
Papua New Guinea	111	106	0.0	0.2
African, Caribbean and Pacific Group of States, signatories of the Partnership Agreement	106	103	9.0	15.1
other regions				
European non-EU-28 countries	105	106	26.9	18.0
United States	104	104	16.7	8.1
China	125	109	2.9	4.1
Oceania and southern polar regions	109	101	2.6	4.5
Australia	109	99	2.0	1.6
Latin American countries	106	105	4.2	32.1
America	104	104	24.6	43.4
Asia	109	107	30.0	17.3
Africa	107	103	15.0	16.5

Source: Edited and calculated by own based on data of Eurostat and Faostat

In EU there are many obstacles to the totally free trade of agricultural products. The EU bans the imports of GMO products, hormone-treated meat and restricts most meat exports to

the European Union. While the US has no such restrict measures for foods imported from the EU. In table 4 there are data related to trade of some goods which imports are limited to the EU. These data were examined in three countries (EU, USA, and China).

Table 4
Trade balance of some foods (Thousands tonnes)

	Crops	Beef and veal	Pigmeat	Poultry meat	Dairy
EU					
Production	339 391	7 857	23 441	13 605	63 467
Imports	34 665	304	15	828	188
Consumption	339 662	7 765	21 371	13 036	60 931
Ending stocks	44 254	483	225	500	550
Exports	40 815	393	2 085	1 397	2 644
Trade balance	6 151	89	2 070	569	2 456
Imports/consumption (%)	*10.2*	*3.9*	*0.1*	*6.4*	*0.3*
Exports/production (%)	*12.0*	*5.0*	*8.9*	*10.3*	*4.2*
USA					
Production	583 663	10 342	10 956	20 532	31 536
Imports	8 803	2 106	675	77	357
Consumption	442 997	11 376	9 344	17 414	30 715
Ending stocks	97 493	317	283	480	855
Exports	133 756	1 027	2 257	3 111	1 129
Trade balance	124 953	-1 079	1 582	3 034	772
Imports/consumption (%)	*2.0*	*18.5*	*7.2*	*0.4*	*1.2*
Exports/production (%)	*22.9*	*9.9*	*20.6*	*15.2*	*3.6*
China					
Production	550 184	6 989	54 870	18 180	42 474
Imports	115 422	557	916	408	1 175
Consumption	653 203	7 504	55 691	18 166	43 224
Ending stocks	272 416	0	175	0	
Exports	1 893	41	295	422	13
Trade balance	-113 528	-515	-621	14	-1 162
Imports/consumption (%)	*17.7*	*7.4*	*1.6*	*2.2*	*2.7*
Exports/production (%)	*0.3*	*0.6*	*0.5*	*2.3*	*0.03*

Source: Edited and calculated by own based on data of OECD Statistics

As for export/production ratio the US exports a higher proportion, while China a lower proportion of their products than the EU in case of all examined commodities. The share of each exported food type is almost the same proportionally in the EU and in the US. As for the imports/consumption ratio it can be concluded that it is very variable by the three countries. Share of imported foods for consumption are different by types of foods in each examined country. In the US a relatively high proportion of meat consumption is provided from import (especially beef, veal, and pig meat); while in China primarily the crop, beef, and veal imports meet a portion of domestic demand. A relatively high proportion of EU's crop consumption is provided from import, while import of meats and dairies contribute to the domestic consumption negligibly. Consequently the EU's restrict measurements effect the EU's foreign trade, because these restrictions are applied to meat products and these commodities are imported the less in the EU.

3. Conclusions

EU has preferred different agreements with the various country groups, as well as EU has applied different kind of agreements in different eras. This influences the EU's trade with each partner country. The EU transacts a higher volume of trade with the countries with which it signed an agreement with deeper content. The EU's average growth rate of food

trade and average share of food trade is highly variable by partner countries and these indicators are not explained by the fact that these are the EU's partner countries or not. Bilateral agreements have not always caused trade growth between the two partner regions. The EU's restrict measurements influence the EU's foreign trade, because these restrictions are applied to meat products and these commodities are imported the less in the EU. For the future, it might be considered to initiate more multilateral negotiations, because these are much more efficient in terms of individual countries. If the EU opens up its markets for meat products, much more meats would be imported from the third countries, especially from the US. However, more meat products of EU might be exported, because a higher amount of surplus would remain. According to estimations the TTIP agreement will increase food and agriculture imports from the US.

Acknowledgement

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The Purpose of The Value Chain Analysis for Transfer Pricing after BEPS

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Abstract
In a post-BEPS environment, the concept of value chain analysis has become pivotal. OECD has introduced the value chain analysis as a key basis for setting and documenting transfer prices in accordance with the arm's-length standard. Value chain analysis (VCA) is an essential tool for group of companies to fully align the corporate governance framework, operating model and the tax/transfer pricing structure of the group.

1. Introduction

Classical transfer pricing and the arm's length standard are still the prevailing principles of transfer pricing; however, the requirements for supporting a company's transfer pricing system are rapidly evolving and are demanding a more complete review of the entire value chain. As controversial as transfer pricing can be in many regards, there is an established set of principles and methods generally agreed upon under the Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations issued by the Organisation for Economic Cooperation and Development (OECD Guidelines) and most local statutes and regulations. Most of the controversy is in interpreting the facts and applying the available methods based on evidence from third party transactions. Typically, only the simplest sides of transactions are looked at, while the entrepreneurial entities and the full value chain receive limited review. It refers to this as classical transfer pricing.

The purpose of this article is to find answers to these questions: What is a value chain? What is a value chain analysis? Why is a value chain analysis for transfer pricing important?

1.1 The overview on the discussed issue in professional and scientific papers

A value chain refers to the activities that take place within a company in order to deliver a valuable product to market. The value chain system was first described in Tableau Economique (2016) , written in the 18th century by the French economist Quesnay (1759). Many experts since have expanded on this source, as well as Porter's massively influential model (1985) , including Grant (2016, contemporary strategy analysis) and Leontief (1986, the input-output model). However, the value chain analysis pioneered and illustrated by Porter (1985) in his groundbreaking book, Competitive Advantage, remains an indispensable methodology. Having evolved and adapted over the years, companies and industry specialists continue to successfully implement Porter's value chain analysis. The practice is now also a vital part of societal global initiatives. According Gurria (2008, OECD), OECD Secretary-General, "International trade and investment have undergone accelerated changes with the emergence of global value chains." A global value chain involves the coordination of

activities, people, and processes across geographies. Value Chain Analysis can be defined as a strategic planning tool and it's used to analyze the value chain of the focal company. Value chain is how internal functions create value for customers. Value system is the way each value chain is structured and it spans across multiple companies". The Value Chain Model represents various functions under "one" company and how they should work together to create "Competitive Advantage". Competitive Advantage is the ability for a company to put "*generic strategy*" into practice, generic strategy includes. Another related concept is "Value System", it's simply how each value chain (company) is connected with each other. Global Value Chains (GVC) studies originated in sociology. Unlike Porter's value chain concept, which is concerned primarily with how firm company strategies can be renovated by shifting the focus to the configuration of business activities, GVC studies (Gereffi et. Al, 2005) consider the generation and transfer of value within the system as a consequence of company efforts to optimize production networks and, conversely, the mechanism of how the value distribution structure affects the company's choice of the organizational form of international production networks. GVC analysis is not a global extension of Porter's value chain approach because the scope and motivation differ.

The Supply Chain Operations Reference (SCOR Model) is in the centre of the research by Bolstorf and Rosenbaum (2011), Poluha (2007) and Cohen et. al (2013). The model is used to ensure all essential functions and the corresponding entities are taken into consideration in a value chain analysis. By describing value chains using a common set of prototypical Process Functions, disparate functions can be linked to describe the depth and breadth of the entities in any value chain.

The concept of Business Process Redesign (BPR) was addressed particulary by Hammer and Champy (2009). One key aspect of any BPR analysis is the creation of a value map worksheet. A value map worksheet illustrates the relationship between the entities of a multinational's business and the functions they perform.

Kraljič (1983) has created The Portfolio Puchasing Model, which is a model/tool to analyse the purchasing portfolio of company. Specifically, the description of the value chain documented in the Master File should off er details on a multinational enterprise's "key functions performed, important risks assumed, and important assets used." The Portfolio Purchasing Model ("PPM"), developed by Peter Kraljic, can provide a valuable framework to assess relave magnitudes of functional impact and risks assumed by entities. Since its initial development, a variety of permutations have occurred to adapt this model to all dimensions of the supply chain, including demand profiling, products and throughput rate. Taking these variations of the model into account, a version suited for value chain evaluation for the purposes of transfer pricing can be created by replacing the specific items with the actual functions performed by an entity and profits by the impact of the function on performance.

Master File Informational Requirements achieved via Value Chain Analysis: • Important drivers of business profit, • Description of the supply chain for the group's five largest products and/or service offering by turnover, • A list and brief description of important service arrangements between members of the MNE group (Mulitinational entreprise), • A description of the main geographic markets for the group's products and services, • A brief written functional analysis describing contributions of value creation by entities, • A description of business transactions occurring during the fiscal year.

Harumová (2011) explores relationships, flows, transfers and prices in MNE´s.

1.1.1 Methodology and the research design

The research design was based on a hermeneutical basis and a study of the published scientific and research papers of domestic and foreign authors. When examining economic systems, pairing logical methods - induction and deduction – were used. Statistical analysis was used to verify economic data. The subjectivism was eliminated in the paper by receiving information. The methods of positive economics - characterization and knowledge of phenomena and their essence, as well as the methods of normative economics - the ways in which these economic phenomena shall be, in what shape they are desired, were applied on the studied economic phenomena.)

The design was structured into the following three phases.

Firts phase: Using the same generic value chain in different operational structures.

The aim of MNEs is to maximize profits from producing goods and services. The key feature of an optimal MNE business is to produce a profit from exploiting resources which produce property or services of greatest economic value. A useful starting point to understand how an MNE operates is a value chain analysis which will also form the basis for a transfer pricing functional analysis. An MNE's value chain is used to convert its economic resources of lower value into economic resources of higher value.

The following example shows how three different MNEs could adopt different operational structures using the same generic value chain (see Figure 1)

Figure 1
Value Chain Analysis Explain in Transfer Pricing
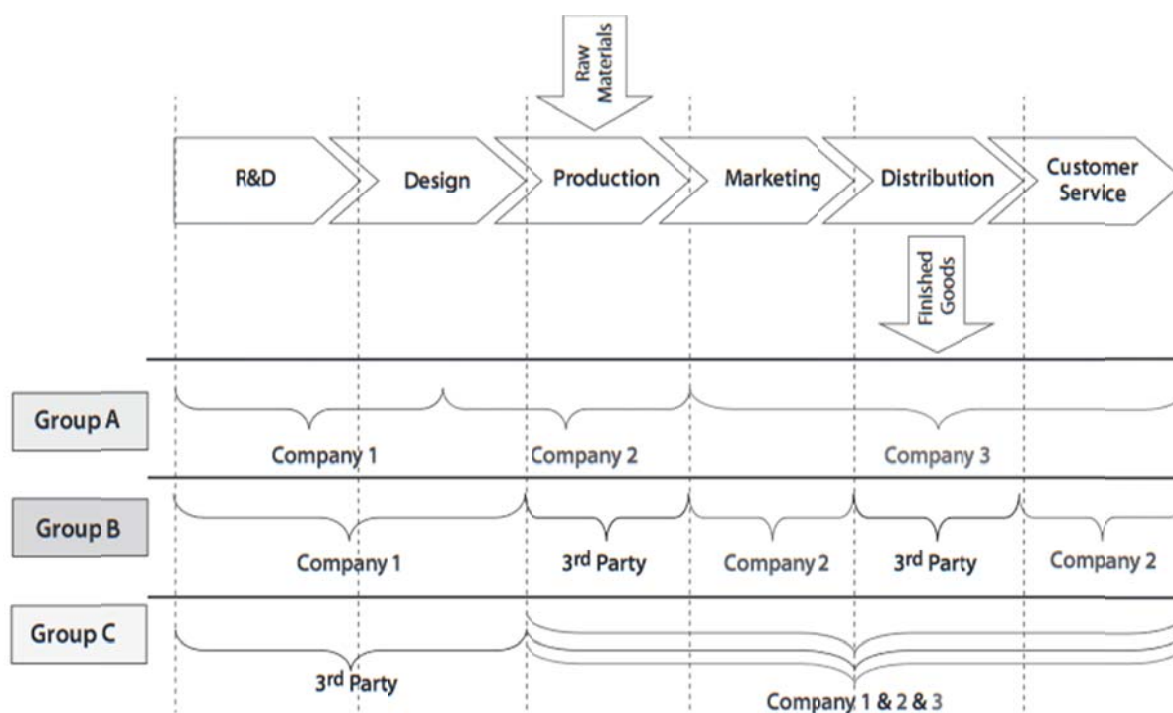
Source: United Nations. 2017. *Practical Manual on Transfer Pricing for Developing Countries (2017).* [online]. Available at the URL: <http://www.un.org/esa/ffd/wp-content/uploads/2017/04/Manual-TP-2017.pdf>.[accessed 2017].

Notes: The key feature of an optimal MNE business is to produce a profit from exploiting resources which produce property or services of greatest economic value. A useful starting point to understand how an MNE operates is a value chain analysis which will also form the basis for a transfer pricing functional analysis. MNE

Group A uses three different companies to perform very specific functions across the value chain as follows: Company 1 in Country A is an R&D company carrying out research and also undertaking activities relating to the design of products for the entire group. A company of this nature would employ technical personnel such as engineers and scientists. Company 2 in Country B is a fully-fledged manufacturing company (i.e. not a limited-risk contract manufacturer, for example) which also performs some functions on the design and practical application of its products. Company 3 in Country C is responsible for the marketing, distribution and after-sales functions within the group. MNE Group B uses two subsidiaries which perform some of the functions across the value chain and the group also outsources some of the activities to third parties: Company 1 in Country A is an R&D company and carries out all the research and design activities in relation to the company's products. This company is similar to Company 1 of Group A, apart from the fact that the design function is fully located in Company 1 and not partly carried out by Company 2. Company 2 in Country B is the company responsible for marketing and customer service. This company is therefore the customer interface for the group. The MNE has decided to outsource the production and distribution functions to third party companies. MNE Group C uses three companies to perform the same functions in different geographical locations using intangibles developed by a third party, which would typically be used by the group under licence. In addition to understanding the value chain of an MNE, it is also important to understand the context in which each of the companies within the MNE contributes to the value chain, as this will ultimately be relevant in analyzing the transfer pricing implications of the value chain. For example, in MNE group A the value chain is defined as Company 1 performing R&D, Company 2 manufacturing, and Company 3 distributing the MNE's products. The value chain, however, may be different depending on the legal and contractual arrangements between the companies. One possible context could be that Company 1 performs R&D at its own risk, and is the legal owner of any intangible property developed through that R&D; Company 2 acts as a limited-risk contract manufacturer through a contractual arrangement with Company 1, and Company 3 acts as a limited-risk distributor through a contractual arrangement with Company 1. In this case, Company 1 is the legal owner of the intangible property of the MNE, and bears substantial risk associated with the manufacturing and sales of the M N E's produc t s . A different possible context of exactly the same value chain could be that Company 1 performs R&D on a contract basis for Company 2, which is the legal owner of any intangible property developed through that R&D; and Company 3 acts as a limited risk distributor through a contractual arrangement with Company 2. In this case, Company 2 is the legal owner of the intangible property of the MNE, and bears substantial risk associated with the manufacturing and sales of the MNE's products. A different possible structure of the same value chain could be that Company 1 performs R&D on a contract basis for Company 3, which is the legal owner of any intangible property developed through that R&D; and Company 2 acts as a limited risk contract manufacturer through a contractual arrangement with Company 3. In this case, Company 3 is the legal owner of the intangible property of the MNE, and bears substantial risk associated with the manufacturing and sales of the MNE's products. Each of these different contexts would very likely result in different transfer pricing outcomes.

Second phase: Two schools of the Value Chain Analysis:

Different approaches to Value Chain Analysis (VCA) - The OECD (2008) refers to VCA but the construction of a proper value chain is still undefined. Two schools of thought have been leading the VCA debate.

One approach, the formulaic approach to VCA (Formulaic VCA), has been in use by some practitioners for several years. The formulaic approach is based more on creating minutely detailed weighting and scoring templates regarding key business activities and company business processes. These weights and scores are often developed through extensive company management workshops, and involve developing management's views into the detailed weighting and scoring templates that rank and score business processes and functions. The outcome of this approach is effectively a global profit split approach based on the identified value drivers. This approach is quite practical for taxpayers operating in industries where third party information about peers is limited or unavailable. In cases where third party data are widely available, however, the Formulaic VCA could be more susceptible to tax authority challenge as the tax authorities may try to replicate the findings of the Formulaic VCA using the third party evidence.

The second approach is based on the maximum use of arm's length information and applies classical transfer pricing tools to principal group peers to evaluate the entire value chain of the MNE. This is a relatively new approach, relying on classical transfer pricing

skills to develop key insights into the value chain using objective third party evidence. The analysis is supplemented by insights and information supplied by management, and with maximum use of classical transfer pricing tools. We call this the empirical approach to VCA (Empirical VCA).

The structure-conduct-performance (SCP) paradigm and the core competency framework that is based on peer analysis are at the heart of Empirical VCA design, which provides powerful insights for the entire value chain of a business. The approach relies on third party evidence to formulate a structure that complies with the core intent of classical transfer pricing. Empirical VCA has four primary steps: peer analysis, core competencies analysis, entity mapping, and evaluation of results (see Figure 2).

Figure 2
Four phases of empirical Value Chain Analysis

Source: PWC. 2016. *Transfer Pricing Perspectives: Rethinking value chain analysis*. [online]. Available a t the URL: <https://www.pwc.com/gx/en/tax/publications/transfer-pricing/perspectives/assets/tp-16-value-chain-analysis.pdf>. [accessed 2016].

Third phase: The Value Chain Analysis as part of Transfer Pricing Documentation process

A value chain analysis creates a context for the pricing of transactions between entities by assessing the relative contributions made by each entity to the overall business.

BEPS Actions 8 –10 require the consideration of the overall value chain to contextualise he transfer price of transactions. (Help of VCA: The revised interpretation of the arm's length principle requires a more granular analysis of the functions, assets and risks controlled by a business.).

A value chain analysis separates a business into a series of value generating functions. (Help of VCA: A value chain analysis can provide a foundation from which to identify the functions, assets and risks, helping to understand activities that create value.).

To assess a value chain, products pass through each level of value chain functions and at each level gain some value. (Help of VCA: Once the activities that create value are identified, the relative contribution of each entity/country to these value creating activities can be further analysed.).

2. Case Study – Value Chain Analysis for a Small Company

The case study method may be the most appropriate method to assess complex organizational phenomena. Here, the instrumental case study is developed to provide insight into an issue. In this kind of study, the case plays a supportive role and facilitates our understanding of something. These are the main reasons for choosing this method in the present research.

Fact Pattern**:**
European manufacturer that produces components in Europe and Asia that it distributes into the European markets. The firm has significant R&D functions and valuable technology.

- Some of the R&D activities , relating to New products and technology,are critical success factors. These functions typically involve some of the most senior management of the firm,

- Other R&D activities are simpler development / execution type of functions.

The firm also has significant marketing functions:

- The strategic marketing function's role includes the identification of needs for new products and providing direction of the R&D functions with respect to new product development and management of product portfolio,

- These functions typically involve some of the most senior management of the firm,

- Other marketing activities are trade marketing support functions.

In this case study, it will shows how the profit split method van build on the value chain analysis to determine contribution to value creation on the entire supply chain— this method is more commonly used to set or to test transfer prices.

Case Study**:**
What would a value chain analysis look like? What is the involvement of key entities in the value chain?

Table 1
Corporate Structure Chart

	R&D & Technology	Manufacturing & Procurement	Marketing, Including Brand and Development	Sales
Functions and entities involved	Research & Development Company (R&D execution)	European Manufactoring Company	Sales Companies Worldwide	Sales Companies Worldwide
	European Manufactoring Company (Development)	Asian Manufactoring Company	E-Commerce Sales Company	E-Commerce Sales Company
	IPR Holding Company (R&D Management)	Group Holding Company (R&D Management)	Group Holding Company	
	Group Holding Company (R&D Management)		IPR Holding Company	
Cost	Costs = 80	Costs = 400	Costs = 120	Costs = 200

Source: http://www.nera.com/content/dam/nera/publications/2016/Llinares%20Gonnet%20Pletz-VCA%20 Workshop%203-17final.pdf

Given the above value chain analysis, what transfer pricing techniques can be used to determine the remuneration of the various functions & activities?

Once the residual profit has been determined, the key consideration is the definition of the appropriate split factor that should be used.

Step 1:
Determination of Routine Remuneration.

Question 1 – Which functions deserve a routine remuneration?

- Decide based on VCA&FARA.
- Here, one could consider (based on facts &circumstances):

  - R&D execution – costs of 50 (out of 80) deserve a routine remuneration,
  - Manufacturing – total costs of 400,
  - Marketing – costs of 100 (out of 120) deserve a routine remuneration,
  - Sales- total costs of 200.

Question 2 : which method to use?

- Typically rely on the use of the TNMM

Question 3 : What remuneration to provide?

- Requires a benchmarking study (in general).

Example: Mark-up on total costs of 10 % for routine R&D and 5% for routine manufacturing and marketing, return on sales of 3% for routine sales activities.

Table 2
Overview of Approach

Remuneration		Consolidated Profit of Business Segment	Method
Routine Remuneration	Step 1	Determine remuneration for all benchmarkable activities/assets	**TNMM and/or CUP**
Core Functions and Intangibles - brand/technology etc.	Step 2	Residual Profit allocation by function and/or by entity (in this case by function)	**Residual Profit Split Method**

Source: http://www.nera.com/content/dam/nera/publications/2016/Llinares%20Gonnet%20Pletz-VCA%20Workshop%203-17final.pdf

Table 3
Step 2: What is Left after Routine Remuneration is Taken Out?

	R&D Technology	Manufacturing & Procurement	Marketing including Brand develelopment	Sales = 1 000
Total Costs (a)	80	400	120	200
Costs of functions deserving a routine remuneration (b)	50	400	100	200
Mark-up or margin in % (c)	10% on costs	5% on costs	5% on costs	3% on sales
Mark-up or margin in € (d) = (c) x (d)	5	20	5	30
Residual Profits (e) = 1 000 - ∑ (d)- ∑ (a)				140

Source: http://www.nera.com/content/dam/nera/publications/2016/Llinares%20Gonnet%20Pletz-VCA%20Workshop%203-17final.pdf

Residual Profit Split Method Application Requires Two Steps.

Based on the group value chain and value drivers, design the most suitable analysis to split the residuals. In this case, assume that investment approach is most suitable. Assume that its application shows that 60% of residual profits in a given year attributable to technology and 40% to marketing and branding.

Table 4

Implication in Terms of Contribution to Value Creation

	R&D Technology	Manufacturing & Procurement	Marketing including Brand develelopment	Sales = 1 000
Routine Remuneration	5	20	5	30
Residual Remuneration	84	0	56	0
Total Remuneration	89	20	61	30
% of Total Value Chain	44,50%	10%	30,50%	15%

Source: http://www.nera.com/content/dam/nera/publications/2016/Llinares%20Gonnet%20Pletz-VCA%20Workshop%203-17final.pdf

The residual profit split and transfer pricing methods in general can be used both to price transactions or to assess overall value chain.

Conclusion:

- Application of the profit split method should always be based on a thorough understanding of the VCA & FARE,

- Profit split method is not global apportionment,

- Method is particularly suitable to situation where several parties have key "DEMPE" functions,

- The identification of robust and appropriate split factors is an important aspect of the analysis,

- The method can be applied to set transfer prices, to test transfer prices or to determine contribution to value creation of the entire value chain as in this example.

3. Discusion and Conclusions

Until 2015 tax often operated in silo's, e.g. international tax versus transfer pricing compliance, whereas during 2015 and 2016, the BEPS project effectively integrated international tax and transfer pricing and pushed economic reality to be prevailing. This led to Value Chain Analysis being used by tax authorities and MNE's to comply with the increasing demand for full transparency on "tax sensitive data" (TPA Global, 2017). Thus, a holistic approach to taxation by MNEs is a "must-have". Since Action 13 of BEPS has pre-defined that standard forms (such as masterfile, local file, CbCR and local transfer pricing forms) need to be seen as an appendix to the local tax return, tax inspectors suddenly have the total picture of "their local company".

OECD's Forum on Tax Administration (FTA) first conceptualized the idea of achieving an enhanced relationship between tax administrations and large business taxpayers during its meeting in Seoul in 2006. The global financial crisis of 2008 further reinforced the importance of good corporate governance. Because of the overpowering techniques used by corporate groups over the last few decades under the garb of tax planning that has led them to

save millions in tax, the traditionally clear line between tax avoidance and tax evasion is blurring and the governments as well as the public at large is insistent on attributing individual liability for 'criminal' tax evasion to responsible persons within a corporate tax group.

From a CFO's perspective, tax structures should allow for a/an: • Easy entry; • Easy exit; and • No reputational risk.

With the latest focus on VCA, being in control requires a company to align its strategy communicated to its stakeholders with operational conduct as well as their tax/transfer pricing reality. A few examples of steps involved in becoming fully in control are:

- Synchronisation of financial data analytics

- A global tax (CIT, VAT, MF, CbC) compliance approach,

- Pro-active Risk Planning – Provisioning and ETR impact (APAs, tax rulings),

- Full alignment of governance and operational conduct (using RACI design),

- Efficient management of in-house challenges (HR, IT and succession planning),

- Clear/efficient communication to all internal and external stakeholders.

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Internationalisation of Companies and its Reflection in Economic Relations

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Abstract

For several decades, the world has been living in a period of globalisation. Globalisation has brought many changes into the life of companies, reflected in a number of their domains. The article focuses on the sphere of business, because we wish to point out the changes in requirements and the new challenges, which the managements and employees of multinational companies have to face due to their activities in an international environment. It deals with the issues of globalisation and internationalisation of enterprises, presents a theoretical basis of the topic, provides opinions of various authors and seeks answer or several questions. What aims should the company management pursue to ensure successful completion of tasks abroad? What properties and abilities should an internationally active employee possess? Who can stand his ground in a mixed, international team? Further, we engage with the importance of intercultural communication and intercultural competence for cultural rapprochement in cross-border business cooperation. Our intention is to accentuate the importance of intercultural communication and intercultural competence for successful foreign missions of companies and entrepreneurs as well as for the creation of supranational subsidiaries and multinational working teams.

Keywords: *globalisation, internationalisation, intercultural communication*
JEL classification: F 23, Z 19

1. Introduction

Globalisation is usually closely connected with diversity. This pertains to exchange of knowledge, mixing of cultures, global society and global environment (Stiglitz, 2008). As borders have ceased to present an obstacle, extensive changes take place in many areas of life such as politics, culture and economy. Globalisation of business environment has been most dramatically influenced by technological advancement and interconnectedness. According to Salacuse, the whole globe serves as an arena for business and many enterprises all around the world undergo a process of transformation from national to international ones (Salacuse, 1996). With internationalisation of companies, the demands on both employees and management, responsible for running subsidiaries abroad or working at home in international teams keep constantly growing. These requirements are connected with production, contracting, sales, services and other activities, bringing more demanding tasks and most of all, confrontation with different cultural environment to deal with. Intercultural communication and competence play especially important role in this multitude of challenges. Under such conditions, the ability of management to establish trouble-free relations largely contributes to success. Intercultural relations within the company can be quite stressful for managers, as there is not much space for correction of erroneous behaviour. Differences in communication practices and patterns of behaviour could cause problems in intercultural cooperation. The most frequent sources of misunderstandings are differences in practices

based on culture-specific mental schemata reflected in the communication processes and (in)ability to master intercultural competences among the company employees.

1.1 Aims and Methodology

The aim of the text is to clarify the motivation, importance and consequences of internationalisation in companies in the advanced period of globalisation. The paper aims to develop awareness of a direct relationship between internationalisation of companies and new requirements towards company employees resulting from their successful activities in new cultural conditions. The article clarifies the degree to which intercultural communication and competence influence the success of an internationally active company. Last, but not least the paper has an ambition to point out methods and tools facilitating the cumulative impact of representatives of various cultures on the economic results. The article uses research analysis of domestic and foreign specialised literature and punctuates the results and approaches of renown authors.

2. Towards new requirements for management and employees by means of internationalisation

In concurrence with the topic of the paper, in this section we will deal on the one hand with aspects leading towards establishment of international companies, raising new expectations towards management, and on the other, we will point out their importance and efficiency in international environment.

Internationalisation in the sphere of business is the consequence of the advancing and ever stronger globalisation and its impact on economy. It is obvious that the term of globalisation involves a range of definitions and variety of interpretations. Some authors claim that it is impossible to give a precise definition to globalisation as it is a construct appearing in a number of contexts. This is the attitude from the final decade of the 20th century supported also by Beck, who claims that globalisation is the most overused but least defined, and probably most misunderstood and politically most efficient word of the recent and coming years (Beck, 1997). Wohlmuth (2003) expressed a similar opinion about the definition of globalisation stating that any such attempt must fail due to its diversity. We can conclude from it that globalisation presents a multifaceted phenomenon, and its impact exceeds national borders and markets of particular countries. Within this context we agree with Leggewie's description of globalisation as elimination of global borders (Leggewie, 2003). Another author perceives globalisation as a process opening up new opportunities and spaces, and creating networks of interactions connecting those spaces. Thus, mutual impact and reciprocal relationships evoking transformation of society are enabled (Faβler, 2007). Concerning Faβler's claim, we can state that globalisation is from his perspective a social phenomenon present in all aspects of life, such as politics, economy, religion or science. Globalisation has brought, no doubt, many benefits, such as travelling, which gives people opportunities to utilise new employment prospects. Simultaneously, they may get to know new countries and cultures and collect knowledge and experience. Thanks to globalisation we can nowadays fully enjoy free movement of people, goods, capital and information. Tempel adds also patents, copyrights and brands to the list (Tempel, 2005). He talks about intellectual property giving the industrial countries an immense intellectual and scientific head start. He points out that science and research in consequence of globalisation has become a privilege of rich countries. Though, not because the people would be wiser there but as a consequence of financial resources. The impact of globalisation is visible in the economic sphere too. We can state that it is an irreversible trend of the civilisation, however, it is perceived both positively and negatively resulting in many discussions between supporters and opponents of globalisation. The supporters claim that globalisation processes fuel the development because

they facilitate and ensure liberalisation of markets. On the other hand, the opponents are persuaded that globalisation leads to concentration of power in the hands of rich countries preferring their own national interests, and talk about localization supporting domestic producers. Tempel adds that any deviation from integration and free trade system is not a solution for this complex situation; in his words, it would mean a catastrophe because free trade both facilitates competition and dissemination of know-how (Tempel, 2005). Taking into consideration the previously mentioned impact of globalisation, we may pose a question about the relationship between globalisation and internationalisation.

Before dealing with motivation of companies to internationalise, we will shortly explain the term of internationalisation. First of all, it is necessary to mention that internationalisation of companies is a logical consequence of globalisation in the economic sphere. The term internationalisation includes all those activities of an enterprise which are not aimed exclusively at their domestic market but at the markets of other countries, where they often set up subsidiaries. In this manner, they establish supranational or multinational companies. Opening of new markets is accompanied by establishment of new business relations with foreign partners. In that respect, to cooperate successfully, the cultural diversity of the markets needs to be taken into consideration. It is manifested mainly in the cultural context and linguistic differences. In other words, as stated also by Fisher (1998), working in international relations is a special adventure because it is a clash of two absolutely different models of mentality. Intense contacts with another culture and international mobility requires the company top management to change their professional behaviour especially concerning their language and intercultural competence. The fact that internationalisation has become part and parcel of company development is also implied by Voll (2007) who claims that internationalisation is one of the aspects of company development, while he interprets internationalisation as an expansion of regular and systematic cross-border activities, and company development as changes in time. As mentioned previously, internationalisation means entering new markets. We are convinced that various reasons exist for companies to be engaged in foreign cooperation. Management of some companies may consider international cooperation beneficial as a source of innovation, creativity and enrichment of scientific knowledge. It is manifested in know-how transfer enabling the entrepreneurs to increase the intellect of their employees and consequently the quality of production processes and products. Others see the prospect of cooperation in opening up new markets and earning new customers accompanied with increasing competitiveness of the company. But this requires an ability to identify risks and opportunities of the competitive environment. We could also mention some other motives for internationalisation of companies but the key idea is that the motives are always closely related to the interests, priorities and aims of each particular company.

Internationalisation is always a very brave step of a company and its success or failure depends on its flexibility in adapting to the conditions of the target market. As such supranational activities pose a variety of risks, the companies should take into consideration all the aspects of international cooperation, their business plan and the current situation on the market. Voll describes them as micro- and macro-factors of international cooperation. According to him, the micro-factors include the size and potential of the relevant market in the target country, competitiveness, labour costs in the particular branch of industry, availability of labour force with the required qualification and availability of appropriate suppliers. He also mentions macro-factors including geographical conditions of the country, benign political and legal environment, inflation, economic boom and the cultural conditions of the country (Voll, 2007). We can state that both constructs – globalisation and internationalisation – cause numerous changes in world trade. We refer to Geistmann, a well-

known expert, who studies, among others, the main consequences of both processes. He summarised them into four areas:

° establishment of large economic blocks such as NAFTA (North American Free Trade Association) or ASEAN (Association of Southeast Asian Nations),

° fall of communism and the consequent opening of new markets in Eastern Europe,

° technological advancement, especially in the sphere of information and communication technologies cutting distances, and eventually

° new quality of cross-border ventures in an unprecedented extent (Geistmann, 2002).

2.1 Mutual intercultural impact

Apparently, the impact of globalisation imposes in the sphere of mobility and new technologies requirements on the employees operating abroad or in a multicultural domestic company environment. The stakeholders' involvement could be summarised in the following questions: How to ensure that managers would comply with all the new requirements during a business trip abroad? Who can hold water in a culturally-mixed group? What characteristics should a manager leading an international team possess?

Currently, ever more stress is placed on intercultural communication. Perfect mastering of many aspects of intercultural communication, such as peculiarities of cultures, knowledge of cultural differences, specifics of thought and perception of time and space, belongs among the preconditions of successful cross-border cooperation. Broszinsky-Schwabe (2011) characterised intercultural communication as communication between representatives of different cultures. The author claims that individuals acquire relevant patterns of behaviour in their early childhood. Consequently, the communication schemata being internalized, in interaction with members of their own culture the communication is automatic. But, as she continues, the communication between individuals coming from different cultures is hindered not only by the use of different languages but also by different cultural backgrounds. We agree with the statement that understanding the differences in thought and action has a critical value for successful intercultural communication. Therefore, an important role can be assigned to interpreters and translators as mediators of ideas and opinions between the parties (Seresová, 2011). Very often, if the linguistic competence of participants is incompatible, interpreters and translators are invited to join the business or political negotiations. Seresová states that a translator has to prove not only his/her linguistic competence but also adapt their behaviour to the situation, expectations and requirements of the target culture and understand one's own cultural background. In practice, this means increased attention to history, religion language and culture.

All industries and nearly all companies are involved in international economic relations. Intercultural communication in the sphere of economy means internationalisation of processes where representatives of various cultures with their usual cultural schemata meet and integrate. Culture is then interpreted as an orientation system of the society consisting of specific symbols transmitted from generation to generation (Thomas, 1999). It seems that international cooperation requires complex knowledge, decision-making and behavioural strategies as it used to build bridges for mutual understanding. Intercultural competence is an integral part of intercultural communication, because it manifests specific interactional abilities, sensibility, adequacy and productivity in interaction with representatives of a different culture in a particular context. Intercultural competence is a transcending expertise which means that it belongs among the key competencies of the 21st century in all spheres of a globalized society and is demanded in many areas regardless of specialized education. It is

most relevant for managers, or engineers, scientists, politicians, managers of human resources, and simply anybody moving in international environment (Errl-Gymnich, 2007). According to some authors, intercultural communication is an ability to understand the cultural data and factors influencing perception, emotions, evaluation and acts of both oneself and others, to respect them, and productively utilise in the sense of mutual adaptation and tolerance together with creating synergic forms of coexistence and worldviews (Thomas et al. , 1997). Intercultural behaviour must be perceived as a process in which both personality and situational factors operate. If the manager is open-minded and communicative, his communication will be successful, in case the other party takes a similar approach. His competence will be manifested in his ability to recognise signals of the communication partner and adapt to them. Characteristic for intercultural competence is that it develops in interactions and is based on the collected experience (Thomas, 2003). The author claims that learning, perception and utilisation of any opportunity to learn, together with reflection and communication about how to plan, register and, based on results, evaluate situational and targeted activities are the basic requirements of an intercultural communicator.

Intercultural management as a theory does not only deal with foreign activities. It can become indispensable in other contexts as well. Management of cultural diversity is valuable for international corporations managing subsidiaries abroad and for multicultural teams at home. Intercultural management keeps growing in importance. It studies the impact of various cultures on the efficiency of management measures (Emrich, 2007). The term intercultural management involves a part of international management with the aim to transfer intercultural forms of thought and action into the professional and routine life of multinational companies. Intercultural management has to ensure and optimise competitiveness of international companies taking into consideration various cultural influences (Interkulturelles Management, 2018). Intercultural management studies five basic functions of company management in connection with cultural factors. Those are planning, organisation, human resources, management and controlling. When a domestic and a foreign culture meet, the following basic reactions can be identified:

° cultural dominance – represents behaviour based on the rules of one's own culture,

° cultural accommodation – means acting based on adapting the situation to one's own culture,

° avoiding culture – implies ignoring cultural differences in behaviour,

° cultural compromise – it is a situation when compromises in the rules of behaviour of both domestic and foreign cultures are made, and

° cultural synergy – creation of new, innovative and productive solutions and rules, which are not directly derived from the rules of either culture. Identification and facilitation of competent behaviour is of a key importance.

There are several methods and means of intercultural competence acquisition. The spectrum ranges from approaches excluding theories, so called Learning-by-doing, which are most preferred in practice, up to specialised seminars. They are theoretically based on the reasoning that the process of adaptation to a foreign culture can be considered a normal learning process.

Similarly, as it is with any learning, intercultural learning is a process leading to relatively stable changes in behaviour and it is based on experience. This process is not necessarily focused at acquiring knowledge and skills but it can introduce changes in opinions, attitudes, values and motivation. Its special feature is a changing learning content stemming from the foreign culture and it is set in a cultural context. Thomas asserts that intercultural learning

takes place when a partner tries to understand the specific orientation system of a culture he/she meets, relating to perception, values and behaviour, and integrates it into their own cultural system, applies it for their own thinking and acting in a foreign environment. Intercultural learning conditions an individual's perception of foreign-language orientation systems as well as the reflection of one's own cultural orientation system. Both learning in general and intercultural learning require motivation stemming from affective and/or cognitive experience with differences in learning situations (Breitenbach, 1979). We distinguish four consecutive stages posing different requirements towards learners, and presupposing appropriate conditions for learning and learning stimuli within the process of intercultural learning (Winter, 1988):

The first stage of intercultural learning means acquiring fundamental knowledge about the culture and familiarization with a different cultural environment. The learning process takes place in the form of lectures about area studies or discussions with representatives of the given culture. The second stage of intercultural learning is focused at understanding the orientation system of the foreign culture through key cultural standards. This particular stage provides knowledge about norms, value, attitudes and beliefs. Effectivity of the second stage can be achieved by means of training and sensitizing tasks focusing on typical forms of behaviour of the representatives of the culture. The third stage involves intercultural learning aiming at harmonizing different behaviour schemata. At this stage, the learner comprehends the rules of an individual's behaviour in the other culture, acquire an ability to interpret them properly and an opportunity to apply them in interactive situations. The fourth stage of intercultural learning represents general cultural learning and understanding of cultures. It means that individuals collect experience with intercultural communication. Mutual impact of cultures creates new opportunities to establish general rules, strategies and techniques that are very useful for further orientation and adaptation to intercultural specifics.

Competence in the language of one's partner is equally important. It can facilitate a reduction of communicative problems connected with information exchange. Nevertheless, one cannot claim that employees sent abroad with mastery in the target culture's language and possessing fair knowledge of the target culture would be better candidates for success compared to their colleagues without those abilities. Though experience suggests that they are better prepared to manage intercultural problems.

For companies, success in reaching their aims depends on, as mention before, fulfilling their expectations concerning their employees. Motivation to work in an intercultural environment, experience abroad and capability to adapt to a foreign culture seem to be at the top of the list. Another important factor is language competence and willingness to learn the host country's language. The requirements include personal characteristics which can influence the outcome of the employees' stay in intercultural environment. Those are physical and mental endurance, stress resistance, emotional stability, tolerance, ability to manage homesickness, and accept the local cultural conditions or religious and/or political obstacles. These attributes of intercultural competence are necessary though, insufficient conditions for successful intercultural operation. There are others too, necessary for coping with the particularities of the company in the host country. It is important to stress that especially interaction among foreign co-workers or business partners can display a wide scale of individual characters and idiosyncratic behaviour not necessarily conditioned by culture.

3. Conclusions and policy implications

Interdependence of economies leading to elimination of borders is one of the consequences of globalisation. So, globalisation and international interdependence have become on the one hand consequences and on the other preconditions for the process of

internationalisation in companies opening numerous opportunities to many entrepreneurs. As mentioned previously, a lot of companies see internationalisation as an opportunity to set up contacts with foreign partners. Such active involvement in globalisation processes carries a number of challenges that should not be underestimated. In that sense we may argue that internationalisation does not mean success automatically. It is long-term and demanding process requiring good preparation in the initial stage. The company needs to take into consideration a number of important factors connected with that strategy. We suppose that in addition to the abovementioned factors, awareness of cultural diversity of markets important for successful international operations needs to be accentuated. It is undeniable that intensive contact with other cultures increases the demands on all employees of the company involved in internationalisation. Our intention in this paper is to give reasons for the necessity of intercultural competence which may greatly simplify the work of employees at home or abroad and protect them from unnecessary failure. No doubt, knowledge about cultural specifics and differences of foreign countries is an inevitable precondition for successful cross-border cooperation between partners. Due to culture-specific knowledge one can anticipate the behaviour of a partner coming from a different culture. Though, it is important to keep in mind that every individual is a unique personality and we need to view them individually and not to ascribe them automatically attributes typical for their culture.

In conclusion, we would like to stress the importance of intercultural education of employees in international companies for their own benefit based on the following reasons:

The employees currently operating abroad cannot manage just with their professional expertise and skills. As a consequence of cultural clashes, they face situations in which lack of knowledge about the cultural background of their counterparts causes serious communication problems. From that perspective, acquiring intercultural competence and competent intercultural behaviour can be considered as means of forestalling them or solving them successfully.

The role of top management of supranational companies who either personally participate in business trips abroad or delegate others for them, is to manage the whole working process. This requires professional communication in foreign languages and intercultural competence in all areas of management.

Preparation for a stay abroad should include intercultural education in the form of e.g. intercultural training which should become a standard in international companies, as culturally educated employees with communicative competence can overcome potential problems much better and more effectively.

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Characteristics of Chosen Concepts of Behavioral Economics

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Abstract

Currently the behavioral approach utilizing the findings of psychology has been used in various sections of economic research. This article deals with epistemology of neoclassical economics as the current dominant school of thought. The object of the article is to examine systematic deviations from rational decision-making. It is generally the idea that man is rational in his decision making, he evaluates all available information and from all of the possible decisions he leans to the one, that according to objective criteria can be described as optimal. The experience of reality, however show, that the individual does not always behave as the economic model suggests, and therefore systematic deviations from rationality are formed. At the same time we must highlight, that the behavioral approach can be appropriate for the conversion of a more efficient institutional structure.

Keywords: *behavioral economics, deviations from rationality, consumer behavior*
JEL classification: D 90

1.   Introduction

In this article we shall first attempt to define economics as such, and then provide the view of neoclassical economics concerning human behavior and compare it with the approach of behavioral economics. The aim of this article will be to identify systematic deviations from rational decision-making, as well as the characteristic of concepts of behavioral economics.

Apriorism can be understood as a fundamental epistemological basis of economics (Mises, 1988). The beginning of economics as an apriori science is based on the concept of human negotiations. Aprioristic reasoning is purely conceptual and deductive. The result could therefore only be a tautology and analytical assessment (Mises, 1988), since human decision-making is irrefutable (axiom) .All implications of human actions are based on axioms. It may seem that deductive learning brings nothing new (in terms of knowledge of the new aspects of human actions). Nevertheless, it is creative, because it allows us to expand our understanding of human behavior theses.

Economics can therefore be derived by deduction from the axioms of human action and of its very nature it shows, that it cannot be empirically testable.

This does not mean that the current level of knowledge is definitive and accurate. Empirical evidence of failure of the theories are not possible. Failure must be found in deducation or inside of the auxiliary axioms (which are valid only under certain circumstances).

Thus, it comes to the basics of the derivation method, which helps to deduce behavioral economics from neoclassical economics as the central current concept. Behavioural economics is also seen as a method of modifying neoclassical economics with denying some of its subsidiary axioms (which can also be applied only in specific circumstances).

1.1   Neoclassical economics

Neoclassical economics is based on the following assumptions:

I.   Rational preferences of agents,

II.   Maximization of usefulness (profit),

III.   Independent proceedings based on perfect information.

Utility theory is the theory of expected benefits. This theory applies methodological individualism and has a normative character. Great importance is attributed to mathematical modelling of the behavior of agents.

2.   The chosen concepts of behavioral economics

„Behavioural economics applies the results of scientific research about individual and socially conditioned, cognitive and emotional tendencies of people to explain economic decisions "(Baláž, 2009, p. 27).

The basics of behavioral economics were laid by Kahneman and Tversky (1974) with publishing an article *Judgement under uncertainity: Heuristics and biases* in the prestigious journal Science.

The real birth of behavioral economics is represented by an article *Prospect Theory: An Analysis of Decision Under Risk* (Kahneman – Tversky, 1979).

2.1   Bounded rationality

The first auxiliary axiom, which modification forms the basis of behavioral economics, is the rationality of economic man. In the significant article by Kahneman and Tversky (1974) systematic deviations from rationality were developed. In the article Kahneman and Tversky described   three   common   heuristic   procedures   concerning   decision   making (representativeness, availability and anchoring).

The concept of bounded rationality was formulated later on. The acceptance of decision is divided into two systems (Kahneman, 2002):

1.   System 1 (product of evolutionarily older structures of the brain), whose decisions are fast, automatic, intuitive;
2.   System 2 and a system which responds slower, but the outcomes are the result of careful consideration.

This approach represents a return to the complexity of looking at a person as a subject of examination - the concept of the bounded man is replaced by the concept of bounded rationality, and therefore a significant approximation to the real motivation of the action.

Recent research contucted in the field of behavioral economics points to the fact, that the more complex a task is, the more likely people are to engage in System 2, while making decisions.

Market researchers should keep in mind that the more complex the research collection process becomes (more question types, complex answer matrices, thought experiments etc.), the more likely they are to collect responses generated by System 2. Since most of the System 1 decision making process is unconscious, respondents are more likely to offer what they consider to be plausible rationalizations for their decisions rather than their true underlying attitudes and motivations. In situations where there is social pressure to respond in a particular way, System 2 may even filter these rationalizations to create „*appropriate*" responses.

2.2   Prospect theory

New insights into human decision-making process came in 1979, in the form of prospect theory, combining knowledge of psychology of nonlinear probability weighting to the principles of expected utility theory and game theory, a new theory of benefits and choices that preserved the original conceptual framework of expected utility theory, but its validity extended to areas that the original theory was unable to explain, since the big difference in this theory was the redefinition of utilities in terms of decision-making.

In the article *Prospect Theory: An Analysis of Decision Under Risk* (Kahneman and Tversky, 1979), the theory of the expected benefit was sophisticated in the form of so-called prospect theory, which actually means, that the theory of expected benefit has become a subset of prospect theory for those cases where economic agents act rationally.

For the new theory of benefit the most accurate characteristic is the derivation of the size of the benefit from the change of benefit against some reference point, in contrast to the traditional theory, which derivate the size of the benefit from the amount of wealth (Kahneman, 2002).

Prospect theory has asserted that for decision absolute volumes are not important, but changes in utilities compared to some reference point, since economic agents do not respond to the state, but the changes and decide according to expected changes in utilities, according to potential prospects. This phenomenon is related to the so-called Hedonic treadmill, i.e. the tendency of man to get used to and adjust to the changed situation. New utility theory had another substantial component, namely the aversion to loss, since Tversky and Kahneman have realize that people are much less sensitive to gains than to losses. This finding is incorporated into the price function describing negative benefits, describing various examples of economic behavior, unsatisfactory to the traditional approach, where anomalies have gained great recognition, promoting the ideas of behavioral economics in the scientific community. Besides that, behavioral economics has confirmed that deviations from rationality are not random errors but systematic patterns of investor or managerial behavior (Duhigg, 2014).

2.3   Normativism

Neoclassical economics has been often criticized for describing economics, in which all such theses are valid, and which are also apriori largely distorted.

An example is the condition of "ceteris paribus" representing an important part of testing neoclassical economics. The meaning of this condition lies rather in partial findings "what would have happened if", but it is useless, if you consider formulation of verifiable predictions applicable in the economic world and if you assume, that there will be no external changes (Lavoie, 1977).

2.4   Methodological subjectivism

Rational choice theory emphasizes the quantification and mathematization. Complexity of a man as an object of investigation is heading rather to pluralization of methodology.

Limitation of the apparatus of economics at the mathematical one is very appealing for its simplicity, accuracy, precision and universality. However, if the process is simple and universal, in case of economics as the social science we find this more as its negative than its positive.

Human decisions are in addition to mathematical logics nestled into a social framework. If we have made from the economics only an applied mathematics, the assessment would be rather appealing, although it wouldn't work properly.

The usage of econometrics seems to be rather problematic. Although, it certainly isn't the goal of econometrics, any set of data can be adjusted by a theoretical model, resp. selected theoretical model can be confirmed by adjustment of the data.

We must at least admit, that the results are influenced by a method (based on its nature), which is unable to distinguish whether it's a scientific discovery or a mere speculation. If the failure happens, the positivist is unable to say whether there is an error in assumptions, theory or facts (Lavoie, 1977). Since the facts are easily influenced, the theory is usually rarely questioned.

2.5   *Overestimation of level of knowledge preferences*

Proven systematic deviations from rationality point to the fact, that economic entity doesn't know its preferences perfectly, which increases the rate of its suggestibility.

Framing is an important example, thus assessing events and phenomena on the basis of the way in which they are presented. Kahneman and Tversky presented such concept in the article *The Framing of Decisions and the Psychology of Choice* (Kahneman – Tversky, 1981), where they described the decision problems in which people systematically violate two essential requirements of rationality - consistency and coherence. These changes in preferences are derived from psychological principles, that govern the perception of decision problems and evaluation of alternatives.

The so-called framing information, represent different effects of the same information according to its presentation, meaning that by reiterating 80% of the unit, we can achieve more interest in than information than by stressing the second part of the whole, i.e. 20%.

2.6   *Mental accounting*

Mental accounting is cognitive deviation from rationality and it was developed as a concept by Richard Thaler. It has three basic components (Thaler, 1999):

I.   Perception of possible outcomes and follow-up evaluation of these decisions, that have been taken.
II. Possibility to assign these activities to specific mental accounts.
III. The frequency balancing these accounts.

One detailed application of mental accounting (Thaler and Shefrin, 1988) posits that people mentally frame assets as belonging to either current income, current wealth or future income and this has implications for their behavior as the accounts are largely non-fungible and marginal propensity to consume out of each account is different. The idea is that money in one account is not a mental perfect substitute for money in a different mental account.

Mental accounting massively influences decision-making and is considered to be the origin of behavioral finance. "Behavioral finance is an interdisciplinary science that applies the knowledge about cognitive and emotional deviations from rationality in the research of economic decisions of the financial markets" (Balaz, 2009, p. 211).

3.   Conclusions

Einstein asked the question (Mises, 1988), how can mathematics (a product of reason, which does not depend on any experience), fits so well with the objects of reality, and thus, whether, human mind is capable to discover the signs of real facts only through pure

reasoning and without any help or the experience. At the same time he also declares that if mathematical theorems refer to reality, they are not reliable, and if they are reliable, they don't apply to reality.

The concept of human negotiation forms the beginning of economics as an apriori science. Aprioristic reasoning is purely conceptual and deductive, and, therefore, a potential paradigm shift is possible only by finding errors in deduction or auxiliary axioms.

Thus, we come to the foundations of the methods of deriving from behavioral economics from neoclassical economics as the dominant concept of today's society. Empirical information on economic reality (departure from bounded idea of economic agents towards bounded rationality) represents an impulse for the development of behavioral economics, which is formed by modification of auxiliary axioms of neoclassical economics. These axioms deals with cognitive and emotional deviations from rationality in the decision-making process of a subject.

The current debt crisis is in its nature an appropriate area for research focused on limited rationality of economic subjects, while the output of research itself would be a basis, that would serve us to make recommendations for marketing. These recommendations would serve as a foundation for formulation of ideas and recommendations for consumer marketing and marketing applied in areas such as marketing of non-profit organizations, marketing in health care, etc.

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Sustainable Development as the Key Driver of Innovation

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Abstract
Nowadays, a significant number of companies are gradually meeting and promoting voluntary environmental activities that form part of their social responsibility policy. Responsible behavior towards the environment can have an impact on raising awareness of companies and their activities. The environmental approach becomes an element that distinguishes companies from its rival competitors and along with the promotion of the principles of sustainable development, companies can secure not only the short-term survival in the competitive environment, but also their long-term development and consolidation of their market position. Furthermore, it's a great sign if companies are interested in development of the environmental issues deeper, beyond the limits set by law, in the protection of the environment and the use of environmentally friendly technologies seen as a competitive advantage. Therefore, the aim of our research paper is to closely and critically analyze the modern understanding of the sustainable development conception in the context of increasing competitiveness.

1. Introduction

Long-term sustainable development is a concept that is directly related to the natural environment, therefore everything that creates natural conditions for the existence of organisms, including humans, and is a prerequisite for their further development. This can be understood as a set of conditions, factors that are necessary for the survival of a certain organism, while companies should respect these elements of nature, not only within the framework of statutory regulations, but should protect the environment and undertake activities that do not aggravate it – use natural resources rationally, promote ecological solutions, and introduce environmental principles into its management activities. On the other hand, there are other views, supporters of economic growth that do not support activities that could stop economic growth and thus improve the state of the environment. In general, this can be seen that human interventions in nature are driven by development, and some interventions by individuals that extend the life of humans for a few decades, are unnecessary and pointless. The concept of sustainable development has been defined by the UN's *World Commission on Environment and Development* (also known as the *Brundtland Report* that laid the basis of *Earth Summit Agenda 21*) in the *Our Common Future* report as a development in which the present generation will meet its needs so that it does not limit the possibilities of future generations to meet their needs. There, essentially, sustainable development is understood as a process of change in which both resource use, investment direction; technological development orientation; and institutional changes are in line (United Nations, 2014). According to the European Parliament, sustainable development is improving living standards and the well-being of people within the limits of ecosystem capacity while

preserving natural values and biodiversity for present and future generations – the need to respect nature and its limits challenges society and conservation science. Likewise, the European Commission in its development policies *the 2030 Agenda for Sustainable Development*, defines sustainable development as improving the standard of living and prosperity of the population concerned within the ecosystem capacity while preserving natural wealth and its biodiversity for the benefit of present and future generations (European Commission, 2017). It is, therefore, such a development that preserves the present and future generations of the opportunity to satisfy their basic life needs while not reducing the diversity of nature and preserving the natural functions of ecosystems. Additionally, sustainable society is a society that can last for generations, one that is sufficiently foreseeable, flexible and wise to not undermine both the physical and social systems that support it.

2. Fundamental Pillars of Sustainability

If current economic growth continues, and current trends remain unchanged, it is impossible for future generations to maintain a quality environment in which they can adequately meet their needs. Notwithstanding perceiving the significance of sustainability, the United Nations has been built up key pillars that are noteworthy at worldwide, national and neighborhood and additionally at segment levels, while existing meanings may partially differ and advance one specific measurement, for example, nature (green transport), society (comprehensive transport) or the monetary measurement (effective and focused transport). However, for the most part, the sustainable development aspects mean to adjust the monetary, social and natural measurements of the division in a coordinated way to guarantee cooperative energies, complementarities and intelligence although, sustainability can be seen in several important areas – inclusion of all people and species now and in the future; linking economic, social and environmental goals; equality in the sharing of resources and property rights within and between generations; prudence in estimating potential disasters and environmental destruction; security for people now and in the future to have a safe, healthy and high quality life (United Nations, 2015b). Generally, however, aims to balance the *economic, social* and *environmental* aspects (Scheme 1) of sustainability as a comprehensive set of strategies that enable us to meet human, material, cultural and spiritual needs, using economic means and technologies, with full respect for environmental limitations.

Moreover, in order to be possible on a global scale, it is necessary to redefine their socio-political institutions and processes at the local, regional and global level. For sustainability, as well as its inseparable part, we can place the duty of public authorities to ensure sustainable development and its principles, through a comprehensive set of strategies reflected in economic, legislative and administrative tools, also addressing the process of sustainability. In most of the definitions of sustainability, the term sustainability-related development is understood to be broader than growth itself, which is usually expressed in monetary terms by monetary indicators such as GDP growth; housing starts; industrial production; personal income and outlays; price indexes; productivity vs. spending, etc. Sustainable development, on the contrary, involves the growth of economic wealth, including non-financial components, such as the quality of the environment, the level of health care and the health of the population, the level of education, employment and income distribution, civil and political rights and freedoms etc. This term should therefore reflect in the definitions it is not only a quantitative but above all a qualitative shift forward. Swedish scientist Karl-Henrik Robèrt, a crucial figure in the worldwide sustainability movement, has published a theoretical model of sustainability *The Natural Step: A Framework for Sustainability/Seeding a Quiet Revolution* that should meet the following requirements – it must be based on scientific concepts about this world, contain a scientifically supported definition of sustainability, be simple enough to be implemented by democratic methods, not cause disproportionate resistance, be possible to

implement without major changes in society in advance, be desirable to be used to develop new economic rules; the overall perspective must be applicable on a different scale (individual, family, community, state, humanity); the microeconomic perspective must not require individuals to be forced to act against their own interests (Robèrt, 2008).

Scheme 1
Essential Pillars of Sustainability
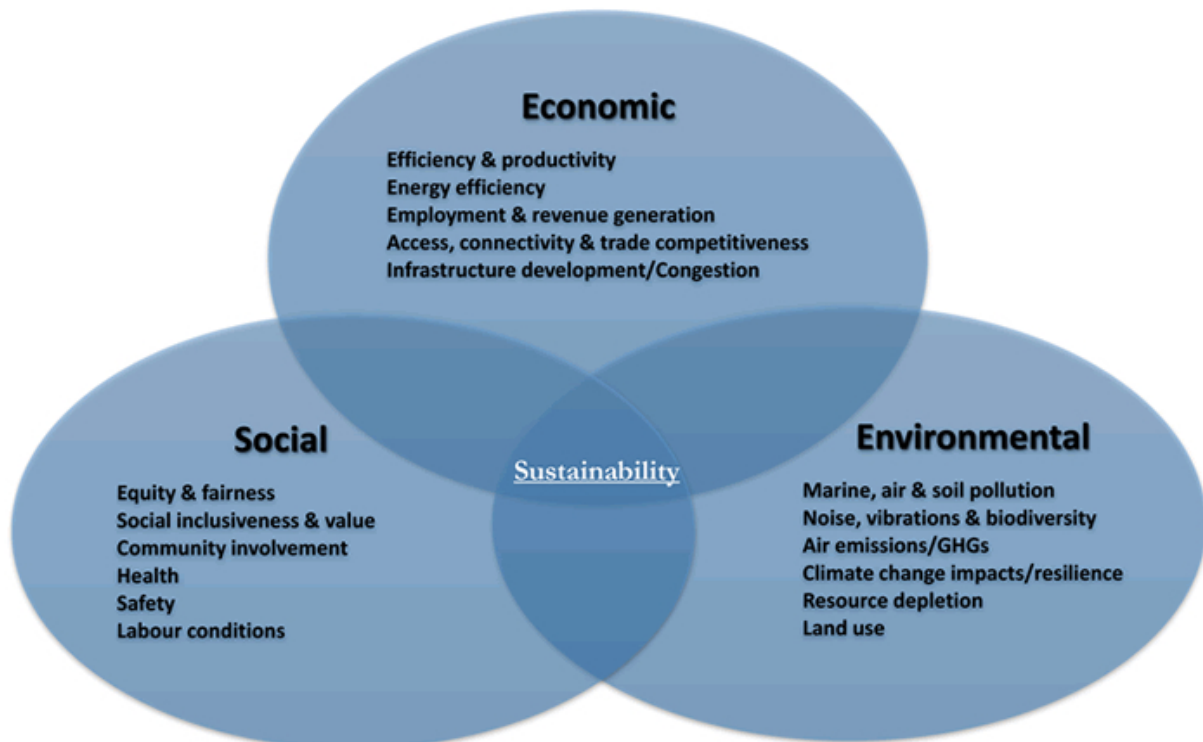
Source: The United Nations, 2015a

As there are a number of different companies, it is likely that there will also be diverse sustainable societies. Consequently, principles of sustainability that will be applicable in different conditions must be formulated and naturally, it is worthwhile to realize that the concept of sustainability became meaningful only when the persistence of permanent unsustainability was revealed. Rationally, the basic principles of sustainability must be formulated rather in the form of prohibitions, that is, what human activities are not allowed to do, while the relevant sustainability model is then formed by the following principles – lithosphere substances cannot be systematically accumulated in the exosphere (this means that fossil fuels, metals and other minerals must not be exploited to a greater extent than their gradual re-deposition in the Earth's crust. In practice, this means a radical restriction on the extraction of raw materials); the substances produced in the company must not accumulate in the exosphere (taking into account the basic meaning of cycles, this condition is evident); the physical basis of productivity and diversity of nature must not be systematically disturbed; for the needs of humans, resources need to be used very efficiently (Blewitt, 2014).

Withal, the human population is steadily growing, thereby increasing its needs and demands for resources to meet these needs. However, resources to meet needs are limited. In addition, the society is affecting the environment, in the context of rising pollution, so rare resources are even more limited, whether it is soil degradation, water pollution, air, biodiversity, etc. and this is initially about access to waste management and the introduction of recycling technologies, for example, the impact of the entire production process on the environment is being assessed, more and more companies are emerging and are trying to

promote voluntary environmental activities into the company's management processes, also known as the sustainable development and innovation goals (Scheme 2).

Scheme 2
Sustainable Development and Innovation Goals

Source: The United Nations, 2017

3. Sustainable Strategic Management

If current economic growth continues, and current trends remain unchanged, it is impossible for future generations to maintain a quality environment in which they can adequately meet their needs. Business process management (operations management discipline) that takes environmental considerations into account is called a sustainable strategic management. This approach encompasses all the processes and innovations needed to integrate sustainability into the strategic core of an organization, referring to internal, strategic, structural and operational processes that are important to organizations that want to operate in a sustainable manner. A strategy promoting environmental sustainability must recognize the interconnectedness of all companies and individuals in the global community. This approach also applies to mutual co-operation and relationships, internal and external alliances that are important for organizations that wish to operate in a sustainable manner. Successful deployment of sustained strategic management efforts requires organizations to pay attention to the same factors, often between strategic growth-based efforts and sustainability-based initiatives; the great philosophical, ethical, operational, structural differences; and the successful implementation of sustainable strategic management in the organization an effort to make basic cultural change (Stead, 2013).

It is therefore necessary to link the processes of business organization management with biophysical processes of the natural environment according to ecocentric management (mainframe that treats environmental-related aspects as a core business concern, rather than an externalit) principles – organizational goals should emphasize the sustainability, quality of life and the benefit of the shareholders, values should reflect the importance of nature's central role as well as the importance of intuition and understanding; products of the organization should be designed to be more environmentally sensitive, production system should use less energy and less resources and produce less waste; structure should be less hierarchical, more participatory, and decentralized, with a lower income gap between managers and workers; environment should be organized to reflect the country's limited, ultimate capabilities to

provide energy and resources and receive waste; the core business functions of an organization such as marketing, finance, accounting and human resource management should reflect consumer education, sustainable long-term growth, full environmental costs and a safe, healthy and satisfying working environment.

Scheme 3
Sustainable Innovation Management
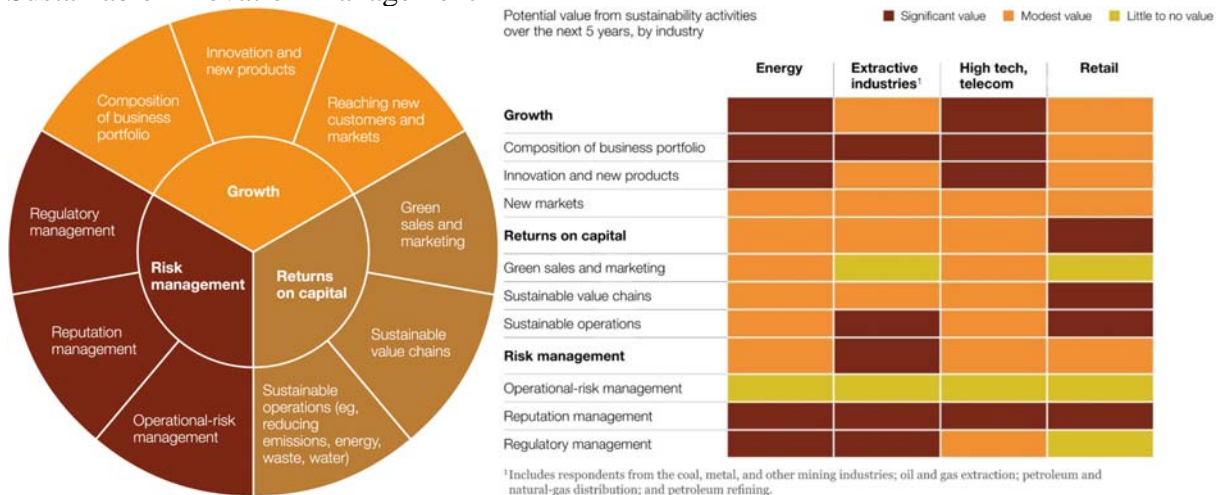
Source: Bonini, 2011

Moreover, the mission and vision of organizations applying ecocentric management should include decisions such as minimizing non-renewable raw materials and non-renewable energy sources, eliminating emissions, waste water, and minimizing the life cycle costs of products and services. These principles are also reflected in voluntary environmental activities that represent a proactive approach to environmental organizations (McDonald, 2014). Likewise, in implementing sustainable enterprise development strategies, it is possible to follow the principles of ecocentric management, where the establishment of sustainable ecocentric management begins with the organization's strategic vision of sustainability. Vision in this case provides the basis for decision-making, which supports a new definition of long-term prosperity of an organization that combines the need to achieve profit with environmental responsibility. Sustainability strategies are not only designed to bring profit and at the same time to minimize ecosystem damage, since these are comprehensive strategies that provide competitive advantages to organizations, while enhancing ecosystem quality and long-term business survival capabilities. These strategies are furthermore divided into process and market sustainability approaches (Hawken, 2010).

Firstly, process-driven sustainability approach provides cost-effective benefits for the company by improving environmental efficiency and it is used to reduce resource depletion, lower materials use, energy consumption, emission reduction and waste water. Additionally, activities in process-driven sustainability strategies include – changes in pollution control and waste generation systems and in production processes to make them more environmentally sensitive; use of recyclable and recycled materials from production processes and / or external sources and renewable energy sources. Secondly, market-driven sustainability strategies provide businesses with competitive advantages in enabling them to distinguish their products from their competitors on the market, since strategy reflects product management and the idea that environmental risks / costs for the entire life cycle of products and services should be minimized. Activities in market-driven sustainability strategies include – access to new environmental markets or parts of markets; presentation of new environmental products; new design of products to be more environmentally sensitive; promotion of benefits for the

environment that new products bring; a new design of product packaging; the sale / reuse of residues that was previously considered waste (Lovins, 2008).

Scheme 4
Mapping Different Sustainable Development Approaches
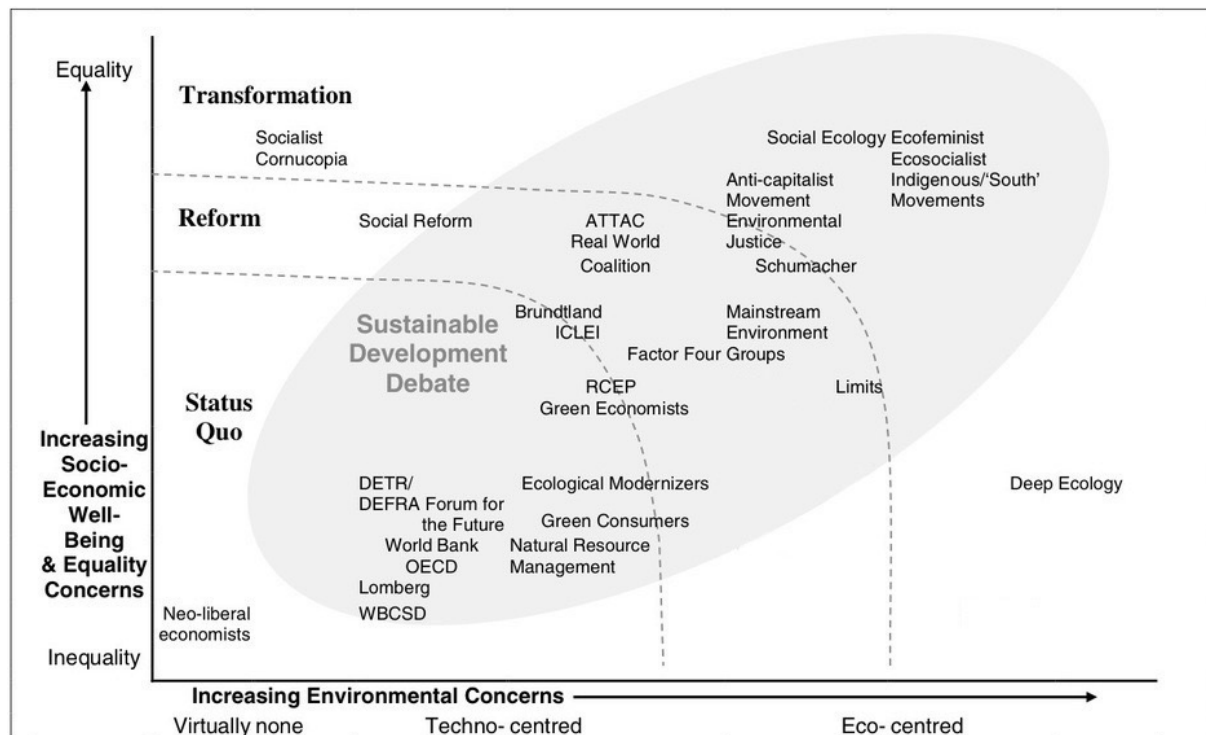
Source: Russel, 2015

In order to successfully implement the sustainability strategy in the organization, conditions must be created to achieve long-term sustainable development that allows for environmental behavior. The conditions are influenced by international treaties, national legislation, regulations, laws and, above all, the attitude of the company to environmental issues. The use of voluntary environmental activities is of great importance both for the enterprise itself and for society as a whole. Preventive focus of voluntary instruments leads to the recovery of the environment and contributes significantly to the realization of sustainable production and consumption, the sustainable development. For the company itself, other benefits are also shown, such as increasing competitiveness, building a better image or saving operating costs. Cleaner production is currently an effective tool for optimizing production processes and preventing waste generation as waste is seen as an expensive purchase of raw materials that have not been transformed into final products, while clean production tries to find the causes of waste, minimize it, and at the same time reduce the necessary input of raw materials. Furthermore, voluntary environmental activities include – environmental management systems; cleaner production; minimization of waste generation; voluntary agreements; environmental management accounting, audit, labeling and life cycle assessment. An enterprise wishing to implement a long-term development strategy should use these voluntary activities as they provide procedures and guidance on how to mitigate the environmental impacts of an enterprise's business. At the same time, these steps reinforce its market position, competitiveness, profitability and has positive impact on its image.

Likewise, companies have the opportunity to take advantage of the possibilities of financing its actions from five significant *European structural and investment funds 2014-2020* (part of the Europe 2020 strategy – EU's agenda for growth and jobs for the current

decade) called *European Regional Development Fund; European Social Fund; Cohesion Fund; European Agricultural Fund for Rural Development; European Maritime and Fisheries Fund* and focused on *regional* and *urban development; employment* and *social inclusion; agriculture* and *rural development; maritime* and *fisheries policies; research* and *innovation humanitarian aid* or *State aid for environmental protection and energy 2014-2020* (European Union, 2017). By submitting a grant application, it is naturally not automatically guaranteed that the subsidy will be allocated to a company, while the main application tool for cleaner production strategy is the methodological process so-called cleaner production assessment, which analyzes the material and energy flows of the system in order to identify the causes of undesirable waste, leakage and pollution, the so-called non-production outputs. Subsequently, the possibilities of eliminating these causes are proposed and assessed, both in terms of technical feasibility and in terms of resulting in economic efficiency and environmental impact. The basic requirement for a successful introduction of cleaner production in an enterprise or organization is the availability of data on material and energy flows. The detailed analysis needed may be very laborious and time-consuming, especially when there is not a high-quality flow of information system in the company, and there is only incomplete technology documentation. In such cases, the data must be measured (practical measurements). If appropriate measurements are not made for technical or other reasons, the material requirement can be determined by a qualified estimate.

Lastly, motivation to achieve long-term sustainable development is important in order to take action that is in line with the new business strategy. Putting the standards of significant worth sharing at the core of plan of action can motivate solid long-haul development over the production network. It's not only for organizations who are solidly settled in the creating scene or a particular division – it's for everybody. Nowadays, organizations have to a greater extent a duty to go well beyond unimportant benefit making models and demonstrate that they can utilize their impact to better the more extensive group. Organizations who open themselves up to this new viewpoint will receive the horde rewards. Employee motivation for organic behavior in an organization is then in the hands of management, while sustainable development, despite the fact that a generally utilized expression and thought, has a wide range of implications and along these lines incites a wide range of reactions. In expansive terms, the idea of sustainable development is an endeavor to consolidate developing worries about a scope of natural issues with financial issues (Stables, 2017). To help comprehension of these diverse approaches our research paper has exhibited a classification and mapping of various patterns of thought on sustainable development, and strategy systems. Sustainable development can possibly address essential difficulties for mankind, now and into what's to come. In any case, to do this, it needs greater lucidity of significance, focusing on sustainable occupations and well-being as opposed to well-having, and long haul natural maintainability, which requires a solid premise in rule that connection the social and ecological to human value, while the concept of sustainable development is conceivably a critical move in understanding connections of mankind with nature and between individuals.

4. Conclusions

Sustainable development is an incomprehensible compound arrangement motto, of a sort logically built to claim all the while to evidently contradicted intrigue gatherings, and is broadly perceived to be a challenged thought. Without a doubt, structuralist and post-structuralist approaches hold that no terms can have uncontested, stable implications even instruction. In any case, ecological instruction has frequently been related with a journey for an all-encompassing perspective. This is in spite of the way that the monological perspective of truth suggested in such a journey, expecting supreme comprehension (and in this manner empowering all out control over nature), has been referred to as adding to the development of

the biological emergency. In modern ways of protecting the environment, the methods still prevail in the so-called reactive strategies. This approach begins to solve problems when they already exist, instead of preventing them. In the case of environmental pollution, the question of how to deal with harmful substances is dealt with when the pollutant arises, hand in hand with the limitation of its impact on the environment. On the other hand, proactive approach means preventing the occurrence of substances and phenomena that have a negative impact on the environment, called the prevention principle – with respect to the environment, while the occurrence of environmental degradation is much cheaper and more efficient than removing it later, suffer its consequences. If the harmful substance does not enter the environment because it has been prevented from occurring at the place of origin, then it is not necessary to seek and install equipment for its disposal, subsequent use or disposal.

Preventing the further introduction of waste into the environment is also the only way to improve it and to reduce the concentration of the substances contained therein. Sustainable development can, in any case, remain a regulative perfect for environmental scientists, as long as it is recognized that it has no outright legitimation. Human reflexivity stays equipped for revamping the social conventions which have formed late innovation with reference to such a regulative perfect, but differently perceived. The mission for comprehensive quality stays one voice in a proceeding with discourse, or arrangement of synchronous and at times covering exchanges, about the earth and the human association with it. The development of such natural skill levels does not, obviously, ensure the sparing of the planet from environmental obliteration, yet nothing does. While the accentuation in much natural instruction to date has been barely teleological, we contend that truly valuable training, in any event in the Western custom, never acknowledges a monological perspective of reality and the reasonable end-focuses one can connect with it, and that genuine individual change – which may, for sure, help to spare the planet from biological pulverization, specifically or by implication by influencing us to act in an unexpected way, must be affected through an instruction that problematizes and recognizes different voices.

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Effective IT Implementation in the Small and Medium Company Segment

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Abstract

The aim of this thesis is to identify the critical processes in SME in the field of Information and Communication Technologies (ICT) with the proposal of the implementation of ITIL (Information Technology Infrastructure Library) in the management of SMEs. The work argues that ITIL is suitable not only for large companies but also for SMEs that need to dynamically adapt to market requirements, making ITIL best practice and more effective in managing ICT in an enterprise, thus the entire company. There exist a lot of software solutions available on the market that are already designed by ITIL. The use of these softwares can greatly simplify and accelerate the implementation of ITIL best practice in SME companies.

Keywords: *SME, ITIL, efectivity*
JEL classification: O31

1. Introduction

Every company that has an interest to work efficiently, to be competitive, and to be able of a long-term development needs an ICT in order to function well. While in large enterprises the ICT is an integral part of an efficient functioning, the provision of information solutions in the SME segment is limited for a number of reasons. Primarily it may be limited financial resources, which subsequently determine the possibility of SMEs to accept and pay for the work of professionals in the necessary areas (such as business, finance, IT services, purchase, etc.) (Duan et al., 2002). One of the biggest challenges faced by the company in the SME sector is the lack of skills and knowledge in the ICT segment (Houghton – Winklhofer, 2004). Nonetheless, the SME sector is one of the most important components of the economy. SMEs are most prominent in job creation or supplying the regional market. It is therefore necessary to analyze the SME segment in ICT implementation in order to make the operation and management of this type of company more efficient. Submitted scientific work primarily focuses on the problematics of ICT sector in the SME segment, whilst suggesting the implementation of ITIL best practice in SMEs. The result of the implementation is ought to make ICT governance more efficient, thus to increase the efficiency of enterprise management.

1.1 Methodology and the purpose of the work

Presented work aims to identify SMEs' ICT processes, which in general reach the critical level in the SME segment. Higher efficiency requires improvement. The result of the analysis is the implementation proposal of the ITIL framework in the SME strategy. The paper argues that ITIL is not only suited for the large company segment, but also for the dynamically developing SME.

The research part of the work corresponds with the following research questions:

- What are the differences between the ICT SME segment and large enterprises and what are the specific needs of SMEs in ICT implementation matter?

- What specific ITIL processes can be implemented to make the SME work more efficient?

Following scientific methods and procedures have been used to achieve the goal and also to answer presented research questions:

The theoretical and methodological basis of the research work is elaborated by the means of several scientific methods: in particular a descriptive as well as an analytical scientific method. The collection of data into the research as a part of the scientific work was carried out in the study form of secondary sources dealing with the studied issue (eg. Antlová, 2009; Houghton – Winklhofer, 2004).

Based on the analysis of secondary resources (the needs of SME in the ICT segment, IT service management in the SME), specific ITIL processes and areas can be defined using the synthetic scientific method, which can be used by SMEs to make the management of ICT more efficient.

2. Company management processes and ITIL

A proper management set-up is essential for effective administration of each company. Prior to the actual implementation of ICT in an enterprise, it is very important to identify individual in-house processes, knowledge of which is important for proper implementation and the subsequent use of ICT. Company's internal problems associated with inadequate identification of internal processes and management mistakes are the main limit for the procurement and implementation of ICT in an enterprise. The most frequent problems of inefficient functioning of ICT are those related to technologies (insufficient infrastructure, security problems), organization of the enterprise (management styles, lack of material or financial resources, insufficiently developed business plan), lack of knowledge about the external environment and competition, non-satisfaction of employees' needs, reliance on their own intuition in the business, as well as individual deficiencies related to the entrepreneur (Antlová, 2009). These SME specifications also have an impact on the ICT needs of these companies.

2.1 The specifics of SME in the ICT area and the need of implementation of ICT in SME

One of the biggest specificities of SMEs in the ICT field is the ability to create their own IT department, a limited ICT budget spent on ICT, the use of outdated technology solutions, and focusing on the use of ICT in the enterprise on profit-generating areas. On the other hand, the needs of ICT implementation to ensure greater efficiency for specific SMEs are of a particular nature and are mainly driven by the area in which a company carries out its business activities (production, trade, services, etc.).

In the field of ICT for small & medium-sized enterprises, the company's ability to create its own IT department is very specific. According to the Computerworld survey, only 60-80% of SMEs have the IT departments. The size of the IT department (including the number of employees) is also proportional to the size of the company. In the SME, IT departments are often subordinated to a business or finance director. This means that the IT departments are not part of the TOP management of the enterprise (Remr, 2005).

Employees working in the IT departments in the SME segment have a more inconvenient situation than the employees of IT departments of large companies. The position of an IT

employee in SME is determined by his wider responsibilities, such as network and servers management, user support or others. Employees of IT departments in large companies are, unlike MS practitioners, specialized in specific areas, for which they are also responsible. Daily work of general nature at IT departments in the SME may ultimately lead to a decrease in the quality of the work performed by the employee, who is unable to perform the activities in depth (Voříšek, 1999).

The IT budget in the SME segment averages 35,000 € per year (Remr, 2005). Among other problematic aspects, the specificity of the SME segment in the area of ICT use is also the neglect of hardware and software used by SMEs. Budgetary constraints hamper the SME segment in acquiring new technologies, which subsequently affects the personal development of the company's employees. There are, however, major differences between particular companies, not only in IT department financing, but also in their management (organizational structure) and in the number of employees. For example, Slovak companies employ fewer employees in IT departments in comparison with foreign companies.

A distinctive feature that is related to the IT department's budget, the number of employees, and the range and quality of the tasks performed is the height of the IT employee's salary. SMEs often cannot afford to compete with large companies in payments for experts in this area. In the end, this leads to the employment of less qualified IT staff in the IT departments of SMEs.

While large companies use ICT as a part of the overall enterprise management, SMEs focus primarily on the use of ICT in areas generating company's profits. These are primarily sales-related activities. In practice, this means that ICT in the SME segment mainly covers the area of production, planning, order optimization, customer delivery and others. These activities are perceived in the SME as primary activities of the company. On the other hand, supporting activities, which include for example procurement of supplies, technological development, internal infrastructure and human resource management, are not adequately protected in terms of using IT. Close links for all activities with respect to the size and structure of SMEs operate independently (as they are linked through ICT), can lead to greater efficiency activities of the company and, ultimately, can give the company competitive advantage (Matejka, 2000).

The implementation of a complete IT solution is costly and technologically challenging. Additionally, the introduction of ICT into the enterprise requires precision based on the specific needs of the enterprise. However, given their size and the limited financial and human resources, SMEs prefer the implementation of cost-effective solutions, resulting in a cost-effective information system being procured at the lowest cost. The information system must be flexible and cannot slow the growth of the enterprise.

In the case of SMEs, it is difficult to find a solution that would be universally applicable to the entire SME segment. Therefore, prior to the actual implementation of ICT in a particular enterprise, it is necessary to know the processes that are carried out on a daily basis in the enterprise, and to design the optimal solution suitable for a specific enterprise and its processes.

2.2 Implementation of the ITIL framework in the SME segment

An option to achieve higher enterprise management efficiency through ICT is the implementation of the ITIL framework, which stands for the Information Technology Infrastructure Library. This is an extensive framework for managing services based on the best practices (Skála, 2005). ITIL focuses on the principles of Service Strategy, Service Design, Service Transition, Service Operation, and Continuous Service Improvement, and it

constantly measures and improves the quality of ICT services. ITIL is based on the practice of other companies. This means that ITIL represents a framework of benefits and techniques that have already been applied to the processes and structures of other organizations (Menke, 2008).

ITIL originated in the early 1980s. It was originally developed for public administration in the UK. This created the impression that the implementation of ITIL is particularly suited for large enterprises and monitoring of their processes. However, the implementation of ITIL is also appropriate for the SME segment. At present, there are several software systems dedicated to the implementation of ITIL in small and medium-sized enterprises, such as KCAE, Numara Software, and Microsoft (Matějka, 2000). At present, ITIL is understood internationally as a standard for managing software and hardware tools for collecting, transmitting, storing, processing, or distributing data. It is a tool that is mostly used in the organization's ICT governance process. Popular is primarily the process-oriented approach used in service management. The process approach is based on the assumption that the basic management object is a structured process with defined inputs and outputs. On the basis of these, ITIL can define processes, process owners, tasks and people responsible for their performance (Grasseová – Dubec – Horák, 2008). The ITIL implementation also offers the following benefits for the SME segment:

1. Improvement of the availability of services, resulting in increased sales and profit for the enterprise.
2. Increase of the customer satisfaction.
3. Reducing the costs incurred by the company in connection with duplication of work, while saving from better use of inputs into individual processes.
4. Optimizing the risk management and making decision-making more effective.
5. Reducing the time needed to bring a new product or service to the market (Cartlidge, 2007).

In implementing ITIL, it is necessary to take into account the fact that ITIL does not relate directly to technology but, above all, to the processes whose implementation is intended to make the company more efficient (Běhávka, 2007). Thus, ITIL ultimately provides a framework for the management of ICT services, not for work methodology, or specific activities. Processes associated with the implementation of ITIL do not affect the ITIL implementation methods itself (Krajča, 2003).

In the past, there have been attempts to create a comprehensive and universal service management methodology. These attempts were unsuccessful. Therefore, developers focused on the possibilities of best practices use, with the implementation of individual process-including tools, and methodology was left directly on the organization. ITIL therefore focused on the identification of processes, not the methodology of their implementation or technology. That is how it gained enough flexibility. Flexible use of ITIL is the result of its use in all institutions and organizations, including the SME segment.

2.3 ITIL Implementation Processes in SME

Business management processes are among the most commonly implemented ITIL processes in enterprises. It is mainly because of their greatest visibility as well as relatively rapid return of costs. Business management processes include following types of management:

1. Event Management.

2. Incident Management.

3. Problem Management.

4. Change Management.

5. Release and Deploy Management.

6. Service Asset and Configuration Management.

7. Service Level Management.

8. Availability Management.

9. Capacity Management.

10. IT Service Continuity Management.

11. Financial Management.

The suitability of the individual processes implementation is determined primarily by the size of the company, hence the size of the IT department. Figure 1 shows the individual ITIL processes and their suitability for implementation into SME companies, divided into IT enterprises and other enterprises. These enterprises are then categorized according to their IT department size.

Figure 1

Implementation of ITSM processes depending on the size of the IT according to ITIL V3

Name of companies	Size of IT department (staff)			
"IT company" (IT)	Small IT	Middle IT	Large IT	
"Business company" (BC)	1-3	4 - 9	10 - 25	> 25
Name of processes				
Event Management	IT	IT	IT	IT
		BC	BC	BC
Incident Management	IT	IT	IT	IT
		BC	BC	BC
Problem Management			IT	IT
			BC	BC
Change Management				IT
				BC
Release and Deploy Management		IT	IT	IT
			BC	BC
Service Asset and Configuration Management		IT	IT	IT
		BC	BC	BC
Service Level Management		IT	IT	IT
	BC	BC	BC	BC
Availability Management			IT	IT
				BC
Capacity Management			IT	IT
				BC
IT Service Continuity Management			IT	IT
				BC
Financial Management			IT	IT
		BC	BC	BC

Source: Author´s customization based on Desiano, L. 2006. *Demystifying ITIL*. [online]. Available at the URL: <http://www.prophetone.com/Portals/0/Documents/Demystifying%20ITIL.pdf>. [accessed 7.12.2017].

The Figure 1 is based on the fact that it is appropriate to implement a particular process in the enterprise only when the IT staff has been trained. However, these are the general relationships that are in practice necessary to adapt for a specific organization, including all contexts of a particular case and the logic resulting from the contexts of implementation itself. An example is an IT enterprise that implements Change or Capacity Management processes before they reach the required IT department size. Another example of practice is the need to implement Change Management prior to the implementation of Problem Management, even though the size of the ICT in the enterprise would correspond to the required state shown in the Figure 1 (Matějka, 2000).

2.3.1 Event Management

Implementation of Event Management for the SME segment is relatively simple, especially if the company has established monitoring tools. There is no need to apply excessive administrative or formal methods to manage events. SME can apply Event Management to it´s administration practically without any major changes. Another advantage of Event Management is its simple and cost-effective operation. For example, Event Management uses freeware or open source tools with event management capabilities. In the case of freeware, it is also necessary to take into account the technical limitations of the software (for example, insufficient "intelligence" of the program). However, there are several possibilities to avoid these problems (Matějka, 2000).

2.3.2 Incident Management

As well as the one of the Event Management, the implementation of the Incident Management within the SME is not challenging. It is standardly implemented with the Service Desk implementation, but its presence is not necessary for Incident Management. This means that Incident Management can be implemented without Service Desk. The follow-up to Event Management is more important, as Incident Management is based on a proactive approach to assessing the occurrence of extraordinary events. In a relatively simple way, it is possible to solve the division of tasks among IT staff in the SME.

Within the Service Desk, it is recommended for the enterprise to use as many communication channels as possible. In the case of SMEs, it is possible to focus only on the use of selected communication channels. A personal contact can be an alternative to the Service Desk.

The organization of Service Desk itself within ITIL can be implemented in three ways: local (suitable for larger companies), virtual (using the Internet environment) or on the basis of specialized Service Desk groups. In the latter case, employees are focused not only on providing service but also on servicing requirements. For the SME segment, it is appropriate to implement the virtual method or create specialized Service Desk groups (Cartlidge, 2007).

2.3.3 IT Operation Management (Technical and Application Management)

IT Operation Management is defined as a separate area within ITIL. However, practically it is a combination of Technical Management and Application Management. Its presence is unnecessary for the SME segment, as this management model can be represented within the technical or application management.

For the technical management of the IT department in the SME segment, it is appropriate to divide the employees according to their specialization (servers, networks, etc.). For SMEs that use a virtual method in the Service Desk or have specialized groups created, there is a supposed first level of support for technical management staff.

Similar terms of implementation as with Technical Management apply to Application Management, but with the difference that Application Management is focused on application and software management, while Technical Management is focused on hardware management (Cartlidge, 2007).

2.3.4 Service Level Management

One of the most important processes is Service Level Management. The goal of this organization management process is to identify, document, monitor, measure, as well as report the level of IT services provided, improve communications and customer business relationships (including monitoring to improve customer satisfaction with the quality of service provided), provide the required level of service expected for their customers. Service Level Management is easier to implement in an SME environment than in large corporate environments. Its advantage is above all an informal communication and organizational culture. At the same time, this type of management does not require any special software for its implementation and can ultimately be performed by one employee.

In Service Level Management, it is important for an enterprise to be able to measure the level of services provided. It needs to have monitoring tools. However, monitoring is unnecessary in some cases, as the monitoring costs can not cover the revenue generated by the service. It is therefore essential that each monitoring tool is thoroughly thoughtful, and its effectiveness is regularly checked (Cartlidge, 2007).

2.3.5 Process Asset Service and Configuration Management

The implementation of Process Asset Service and Configuration Management focuses on controlling activities and providing information on activities that constitute Intra-Enterprise Infrastructure. In practice, the implementation of these processes is linked to certain limitations resulting from the amount of assets, the complexity of the implementation process or the competencies of selected employees. A significant problem with the implementation of the Process Asset Service and Configuration Management tools in the SME segment is usually their high price.

3. Discussion

The work argued that the implementation of ITIL is appropriate for SMEs that need to dynamically adapt to market requirements. Just by using ITIL's best practice, it makes not only the IT management, but also the IT department and the entire company more effective.

The SME segment is characterized by several specificities that determine the position of enterprises in these size-categories as well as the use of SMEs. These include, for example, its own IT department, the limited IT department budget, the use of old technologies (software and hardware solutions), or the focus on implementing software solutions that generate profit. Supporting activities are not addressed in the SME segment. This, however, reduces the effective management of the entire company.

In order to streamline individual SME processes, it is appropriate to implement several ITIL management tools based on previous company experience. Small and Medium Business Management can also choose among tools for more effective management implement in an enterprise management (Event Management, Problem Management, Service Asset and Configuration Management, etc.). Specific tools, such as Event Management, are relatively inexpensive and technically less demanding. On the contrary, more sophisticated tools, such as Process Asset Service and Configuration Management, are technically demanding and affordable especially for larger companies.

Conclusion

The aim of this work was to identify critical SME processes in the field of ICT. At the same time, the work proposed to implement ITIL in the management structure of the SME. The work goal was met. It was found that among the most critical issues of SMEs in ICT-implementation of solutions directed at more efficient operation of the company are in particular included the limitations of resources (low and limited budget for IT departments) and personnel (a small number of workers). The limited number of employees, whose task is to manage ICT in a small or medium-sized enterprise, together with limited financial resources, has an impact also on other attributes of the efficient IT operation in an enterprise, such as IT-enabled activities.

The main limiting factor for SMEs in the implementation of ITIL processes is, above all, the cost and size of these processes. Problematic issues arise in particular from the lack of effort of large companies offering software solutions to implement ITIL in large enterprises and in the SME segment. The most well-known products include software from HP Software, IBM, Microsoft, and others. However, the SME segment may also use software tools from smaller vendors, such as ProcessWorx or Numara Sotfware. There are also software products that are not primarily designed to support ITIL processes but can be used to support and implement ITIL processes in SME management. Therefore, in order to make the company more effective, it is possible to implement ITIL best practices in SME management.

To the overall streamlining of SME's activities and processes, the work has argued that ITIL-related processes should be implemented in SME's internal enterprise management infrastructures. ITIL should also be implemented in the SME. Despite the fact that ITIL is recommended to be implemented primarily in large enterprises, the selected processes can also be implemented within SME management. These include, for example, the technically and financially low-cost Event Management or Incident Management processes. By implementing them into company structures, it is possible to streamline SME activities, resulting not only in an increase in labor productivity but also in an increase in the company's profitability.

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Returns to Human Capital in Case of Slovakia
(Mincerian Approach)

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Abstract
Human capital is undeniable the long run growth determinant, which is according to Mankiw, Romer and Weil (1992) responsible for from 50 till 70 percent of the national income among countries. In this paper we would like to investigate what is the importance of human capital for individuals in Slovak economy. In our case we alter human capital by formal education as the best proxy. Thanks to internship on Institute of Financial Policy of Slovak ministry of finance I had an opportunity to work with unique database The Database of Labour Value ISCP from Slovak Ministry of Social Affairs. This micro dataset allow us to find out what is the real gain from additional year of education and its trend in last 15 years. We use mincerian approach to estimate returns to education by well-known Mincer model (Mincer, 1974) and extend it by available dummy variables to specify clear impact of formal education on future incomes and to compare true wage extras of different levels of schooling in Slovakia. In one chapter we focus on difference in returns to education between men and women.

1. Introduction (Importance of Human Capital)

Human capital is long run determinant of economic growth and development. Becker (1993), Mincer or Schultz started to focus on importance of investment to education in the early sixties of the last century. They have examined mainly the wage differentiation caused by distribution of formal education among the population.

Tinbergen's (1974) and later renewed by Goldin and Katz's (2008) paper Race between Technology and Education points out that the wage differentiation across population with variety of educational levels can change by development of higher education augmenting technology in economy. Technology progress increased demand for higher human capital in the last century what led to growth in the share of higher educated among population in second half of century. Tinbergen claims there is a race between the technology demand for higher educated and educational system supply of qualified labour. He describes two possible situations on labour market. Firstly, when there is insufficient share of university educated, their relative reward will increase. But if the share of the university educated increases on the labour market faster than technology demands, their wage extra gaining from higher educational level will decrease relatively to the rest of the population with lower qualification (Goldin – Katz, 2008).

We would like to apply database from Slovak condition and find out if the previously mentioned Tinbergen's theory could be applicated on our labour market in last 15 years.

Hypothesis is based on two domestic analyses from Martinák (2016) and Habrman (2015). Results of these works lead to assumption that the amount of college graduates has increased more than the market would needed, what caused that college graduates end up on work places suitable to high school graduates on our labour market.

Martinák (2016) uses Survey of Adult Skills (PIAAC) prepared by OECD to show what proportion of the employees is over or under educated. Analysis compares formal education of individuals with the job description of their position. PIAAC database sums up results from 26 countries and describe variety of qualitative statistics. For our use are the most important qualification mismatch (over or under education for employees work position), field of study mismatch (employee is employed in different sector, than the field of study prepared him) and skill mismatch (when the educational system did not prepare employee on workplace sufficiently, or if employee has better skills then those required from him). We focus mostly on Martinák's finding that Slovakia has one of the smallest shares of qualification mismatch among surveyed countries. 23 percent of Slovak employee's work places would require different level of education than they poses. On the other hand 19 percentage points are over qualified individuals. Author claims that 50 percent of first level university graduates end up on work positions described as suitable for high schools graduates. This phenomenon is the biggest problem in sector of services.

The second paper we would like to focus on confirms the previous findings and shows that the mismatch got worse in last decade. Habrman (2015) examined the labour market from different source of data. He used Labour Force Survey by Slovak Statistical Office to create structural matrix to examine field of study mismatch and its influence on qualification mismatch. He claims that there is unequal demand for different professions, what leads into the redundancy of many, mainly social fields of study. Redundant university graduates than replace high school graduates mainly in services sector, because employers prefer overqualified instead of suitable high school graduates.

The main hypothesis of our paper can be formulated as follows: are the above mentioned tensions on Slovak labour market consistent with Tinbergen's theory? We would like to find out if redundant university graduates on the labour market leads to decrease in wage premium of higher educated. Regarding our dataset, the best method to find out if the wage premium or returns to education decreases is the Mincer model.

We would also like to verify validity of two subhypotheses. Dataset allows us to verify if it holds that higher education means small wage extra in the first years of career and later it has impact on the better or faster career trajectory for higher educated following Humphreys's (2013) and partly Card and Ashenfelter (2011). In our paper we expect increasing returns to education by let say workage cohorts with increasing years of experience or career.

Next subhypothesis will refuse or validate Dougherty's (2003) findings about comparing the wage premium from additional year of schooling between genders. He claims, that women will have higher values of this parameter. Psacharopoulos and Patrinos (2002) estimates value of overall mincerian returns to education by gender for men 8.7 percent and for women significantly higher in value 9.8 percent.

1.1 Mincer Model and its Extensions

Well known Mincer model (Mincer, 1974) is broadly used to determine returns to human capital. In the model is used basic OLS method which describes how the formal education acquired by individual influences present wages of the employee. Classic semi logarithmic version of Mincer model is pictured below as equation (1). To explain shortcuts: [ln (AW)] denotes logarithm of average wage, [YW] years of work, we explain later in text, that we use

instead of years of work experiences counted variable as in Montenegro and Patrinos (2013), then square of years worked [YW^2] and [ε] is the random disturbance term reflecting unobservable abilities.

$$\ln(\text{AW}) = \alpha + \rho_s \text{YS} + \beta_1 \text{YW} + \beta_2 \text{YW}^2 + \varepsilon \qquad (1)$$

Parameter [ρ_s] can be described as the average private rate of return of years of schooling to wage (Montenegro and Patrinos, 2013). In other words, parameter of returns to education expresses how many percent would be the increase in average wage if individual would attend the school by one additional year.

1.1.1 Extension of Mincer model by other explaining variables

We extend the classic Mincer model with other explaining influences by adding sets of dummy variables following Chiswick (2013), Montenegro and Patrinos (2013) or Humphreys (2013). Mentioned approach allows us to identify other determinants of the wage level and find the exact returns to education. We estimated and tested more models depending on availability of variables in this by the time inconsistent database. Below is the example of the model (2) which is methodically incorrect because of strong correlation between education and variable ISCO.

$$\ln(\text{AV}) = \alpha + \rho_s \text{YS} + \beta_1 \text{YW} + \beta_2 \sum \text{GEN} + \beta_3 \sum \text{NACE} + \beta_4 \sum \text{REG} + \beta_5 \sum \text{ISCO} + \varepsilon \qquad (2)$$

To explain new shortcuts: [GEN] means gender, [NACE] is classification of industries NACE, [REG] for region and [ISCO] is international standard for classification of occupations.

1.1.2 Extension of Mincer model for gender and for different work experience group

As in the previous Model 2 we used Mincer model extended by other wage determinants using sets of dummy variables. We applied this model on the dataset from year 2015, without the strongly correlated ISCO variable. In this case we changed the way of estimation. We divided dataset on groups according the years of work experiences and estimated special model for each of 5 years work experience groups. We created 5 years groups according to variable years of experience as the first group describes employees working from 1 to 5 years, next from 6 to 10 years etc. To estimate the real common influence of additional year of education and gender on wages, we used interactions of these two determinants, as in the equation (3).

$$\ln(\text{AV}) = \alpha + \rho_s \text{YS\#\#} \beta_2 \sum \text{GEN} + \beta_1 \text{YW} + + \beta_{\text{other}} \sum \text{OTHER} + + \varepsilon \qquad (3)$$

[ρ_sYS##β_2GEN] represents the common influence of the explaining continuous variable years of schooling and dummy variable gender. This way we get results about what is the separate influence of omitted men gender and the difference between men and women impact in the form of common interaction, so we can easily calculate the parameter returns to education for women.

1.1.3 Extension of Mincer model for different Schooling Levels

Following Montenegro and Patrinos (2013) we extend Mincer model also in the way to be able to find the wage extras for different levels of Slovak formal educational system. Instead of continuous variable years of schooling, we used series of dummy variables for each level of education. For example we can compare what is the real percentage difference between

high school and college graduates, taking into consideration other determinants of average wage as describes the equation (4). Abbreviation [$\rho_{EDU}\sum$LEV] represents set of dummy variable for each level of education (in the case of Slovak education system it is 10 levels) and parameters [ρ] separately for each of them.

$$\ln(AV) = \alpha + \rho_{EDU} \sum LEV + \beta_1 YW + \beta_2 \sum GEN + \beta_3 \sum NACE + \beta_4 \sum REG + \varepsilon \qquad (4)$$

As omitted level of education we chose Secondary specialised level of education (level 6). We will compare the rest of levels to the one omitted as on the Figure 3.

1.1 Database description

Database of Labour Value ISCP raised by company Trexima for Slovak Ministry of Social Affairs is in Slovak condition unique. It contains quarterly cross sectional micro data for more than a half of employees in Slovakia. It is raised quarterly for time period from 2000 till 2015. In 2015 there were details about more than 1.15 million anonymised individuals working in Slovakia. Trexima asks employers about their employee's wage characteristics, other benefits, vacations, about taxes, asks for employee's basic description, about employment formal condition, some information about employers and about the work places. We are able to directly connect the level of education with the wage before and after taxation, with the region, where the individual lives and works, with the type of job, the industry in which individual works, about work time and some other work agreement characteristics. All these determinants have some influence on the wage in average. We take many of these influences into consideration to estimate correct results about education importance, but we need to have comparable results between periods, this means that we are able to use just in time consistent data.

This database has some imperfections. Database describes details just about employees, there are no self-employed individuals, which have significant share in Slovakia. Chiswick (2003) claims that the results of returns to education are higher in the case we use just data about employees. Entrepreneurs with lower education use to have higher income than employees with equivalent years of schooling, while among highly educated the difference is not so significant. Regarding this, we can say that our results will be overestimated if we would interpret them as on the whole population (Chiswick, 2003). That is why we interpret results just as the return to education of Slovak employees.

For easier collecting of data Traxima asked bigger companies in bigger proportion at first periods. This means that in earlier years is the proportion of employees from bigger companies higher and their share in next periods slightly decreases as the number of observations raise. Another database imperfection is that it describes just individuals working on the Slovak territory. It is also important for interpretation of results that in database are no Slovak employees working abroad. It is also important to take into consideration, that we are aware just about the present employment of individuals there is no employee's history. We do not know periods of individual's work experience or years of unemployment. Variable of job experiences is necessity in Mincer model. We follow Chiswick (2003) and use proxy for this variable. Years of experiences are created simply as the age minus years of schooling minus preschool age of 6 years.

Last but not least complicacy in database is inconsistency in variable characteristics during the 15 years of survey history. For example between years 2008 and 2009, was changed the classification of industries NACE, before the year 2002 was education classified in different way or some of them are missing in the first 2 years.

The same way as the variable years of experience, we created also the variable years of schooling. In the survey is information just about the highest acquired level of formal education. The years of schooling are obtained as the sum of average number of years needed to pass each level of education. Other limitation is obligatory 10 year school attendance what means, that every employee has at least 10 years of school attendance (what doesn't allow us to compare results with worldwide findings by Weil (2013)). What is more, years of schooling of older population are probably not comparable with present cohorts because schooling system has changed over the last decades.

Regarding the imperfections of the dataset, its advantages are priceless in Slovak condition. The most important is that database captures, in most of years, around the half of the Slovak labour market in 15 years long time period.

2. Estimation of Mincer models

In this section we apply the data described in the previous one to estimate models (1), (2) and (3), interpret results and compare them with findings from literature.

2.1 Model 1

Using program Stata and Database of Labour Value ISCP we estimate the classic Mincer model as in the equation (1). We estimate Model 1 for every quarter of cross sectional data from 2000 till 2015. We use as dependent variable logarithm of average hourly wage and as explaining variables continuous years of schooling, years worked and its squared values. Parameter of returns to education [ρ_s] represents by how many percent would hourly average wage increase in the case of one additional year of schooling. All returns to education parameters in Model 1 were statistically significant in each period and we pictured them on the Figure 1 by red line.

2.2 Model 2

In model 2 we extend the basic Mincer model with sets of dummy variables as in the Chiswick (2003). We use set of dummies for gender, different industries (NACE), region and the type of job classification (ISCO). Values of significant parameter of returns to education are on Figure 2 by blue line.

Figure 1
Returns to education for Model 1 and Model 2
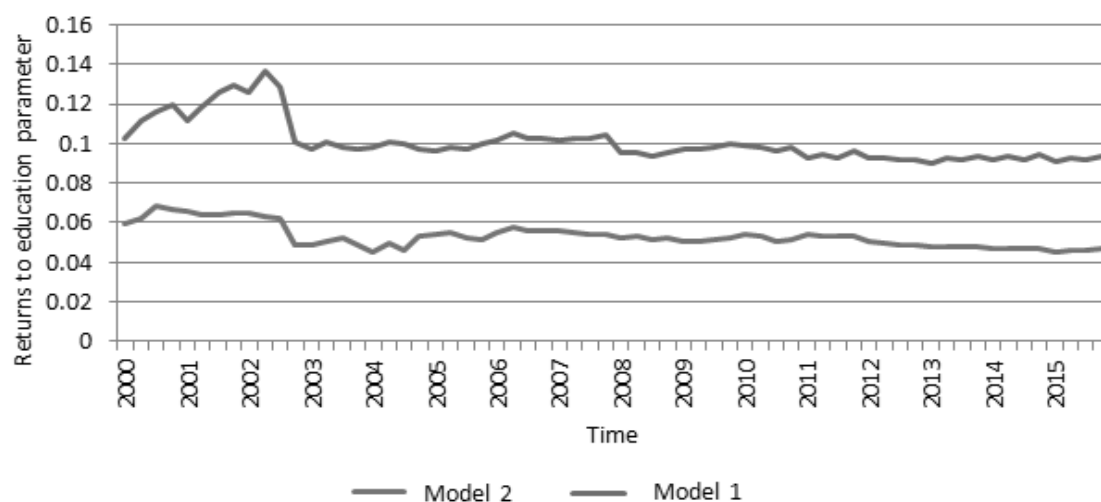
Source: Database of Labour Value ISCP from Slovak Ministry of Social Affairs, with author's calculations

Figure 1 shows that except the first 3 years periods (2000, 2001 and 2002) we get in time relatively stable slightly downward sloping results. First 3 years are affected by inconsistent classification of more variables. That's why we would like to focus only on the results since 2003. When we compare model 1 and 2 we see that parameter of returns to education is approximately the half of the Model 1 parameter. It is caused by strong correlation between years of schooling and the type of job (ISCO classification) that is the reason we tried more extended models and for the rest of paper used the best one.

We can see common feature in both of models from year 2003 till 2008 in Model 2 and till 2006 in model 1 level of returns to education is relatively stable. And from years 2006 and 2008 respectively, returns to education start to decrease. In Model 1 it is from almost 11 percent in 2008 to around 9 percent in 2015. Decrease is 2 percent points in 8 years. This finding supports the hypothesis that decrease in returns to education can be explained by tensions on the labour market after the crisis, when the higher educated, in line with Martinák and Habrman, started to accept work places suitable for high school graduates.

2.2 Returns to education by gender among work experience groups

Our subhypothesis claims that returns to education are lower on the beginning of career with its increasing level in later years of work experience or career. The second subhypothesis is that women have higher wage premium from additional year of schooling than men. To prove subhypotheses we used complex model on the different sub groups of the dataset in the year 2015, as we described in the methodology section.

Table 1
Results for returns to education by gender and work experience groups

Years of work praxes	5	10	15	20	25	30	35	40	45	50
Observations	71550	79660	82697	88724	94989	89850	91841	83562	45786	7842
R^2	0.4513	0.4872	0.4887	0.4723	0.457	0.4387	0.4408	0.4384	0.3745	0.2446
Stat. significance	•••	•••	•••	•••	•••	•••	•••	•••	•••	•••
Ret. to education MEN	0.063	0.0843	0.0982	0.100	0.0881	0.0829	0.081	0.084	0.089	0.046
St. deviation	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0012	0.006
Stat. significance	•••	•••		•••	•••	•••	•••	•••	•••	•••
INTERACTION for women	0.0065	0.0037	0.0012	0.0048	0.0173	0.0217	0.0259	0.0286	0.031	0.0449
St. deviation	0.0008	0.0008	0.0009	0.001	0.0009	0.0009	0.0009	0.0009	0.0017	0.0075
Ret. to education WOMEN	0.0699	0.088	0.0995	0.1048	0.1055	0.1046	0.1069	0.1129	0.1195	0.0906

Source: Database of Labour Value ISCP from Slovak Ministry of Social Affairs, with author's calculations

Figure 2 presents how the education is important mainly for women among years of work experiences cohorts. From results on the Figure 2 and in the Table 1 you can see that the wage differentiation caused by education starts in the first subgroup (from 1 till 5 years of work experience) with returns to education on value 6.3 percent among men and 6.9 percent among women. Values of parameter are lower than in any other subgroup during the rest of work life. This supports findings of Humphreys (2013) that at the first years of career education is not so important determinant of wage as in the rest of work life. Figure 2 further describes that in next periods of career the wage extra from education increases till around 20 years in service reaching 10.5 percent for women and 10 percent for men. This explains increasing importance of education in first 20 years of career. We sum up that this subhypothesis from Huphreys

(2013) was verified. As the career develops, education level or years of education becomes more important. People with higher education will achieve more successful career trajectory and that's why additional year of schooling means higher extra to the wage in later time period.

Figure 2
Returns to education by gender and work experience groups
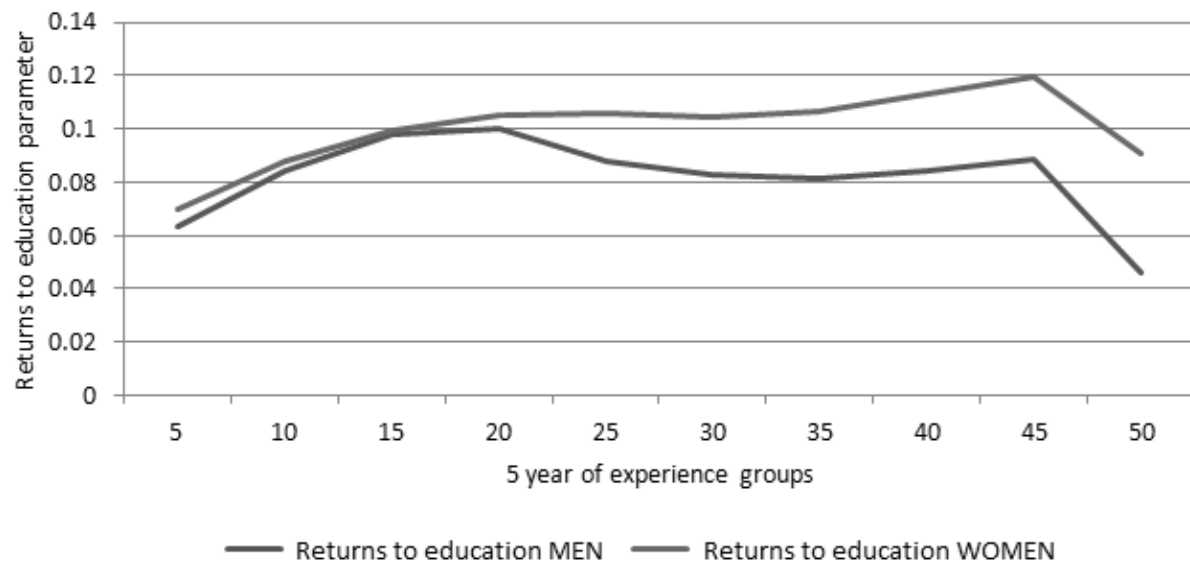

Source: Database of Labour Value ISCP from Slovak Ministry of Social Affairs, with author's calculations

After the 20 years of career occurs big difference comparing men and women. Women's return to education parameter keeps stable above 10 percent or slightly increases till the end of their careers. But return to education of men after the peak in 20 years of work starts to decreases an reaches the bottom at almost 8 percent in 35 years of career. This later periods of the work life probably cause the difference in the overall gap between men and women in parameter of returns to education, estimated by Psacharopoulos and Patrinos (2002) for men as 8.7 per cent increase in average wage by additional year of schooling and for women significantly higher 9.8 percent. In our case we see that this subhypothesis is approved because in our case, parameter for women is higher in each work experience group. This means that women in average gain more wage premium from additional year of schooling than men. Our finding does not mean that men earn less than women in any work life period, but that for women wage is more affected by education.

2.3 Wage premium trends for formal levels of education

To verify the last hypothesis we would like to find out if the situation on the Slovak labour market described by Martinák (2016) and Habrman (2015) can be proved also via returns to education. Both authors claim, that university graduates end up on the work positions originally dedicated to high school graduates. This mismatch would be explained using Tinbergen's (1974) theory means that if it is in economy supply of college graduates higher than demand, or in other words understood as redundancy of them, this would lead to decrease in their wage premium from higher education.

In this section is used model, which we presented in section 1.1.3. We changed extended Mincer model not only with sets of dummy variables, but replaced continuous variable years of schooling by dummy variable of formal education levels. As a benchmark level of education we chose level "secondary specialised with maturita" (translation from SUSR, 2015) which is represented by 0-line on the Figure 3.

There are shown results (significant) from extension of Mincer model for different schooling levels on the Figure 3. Lines represent wage premium development parameters of each level of formal education from year 2002 till 2015. Main finding of this model is convergence of some pairs of formal education level premiums.

Figure 3
Wage premium trends for formal levels of education
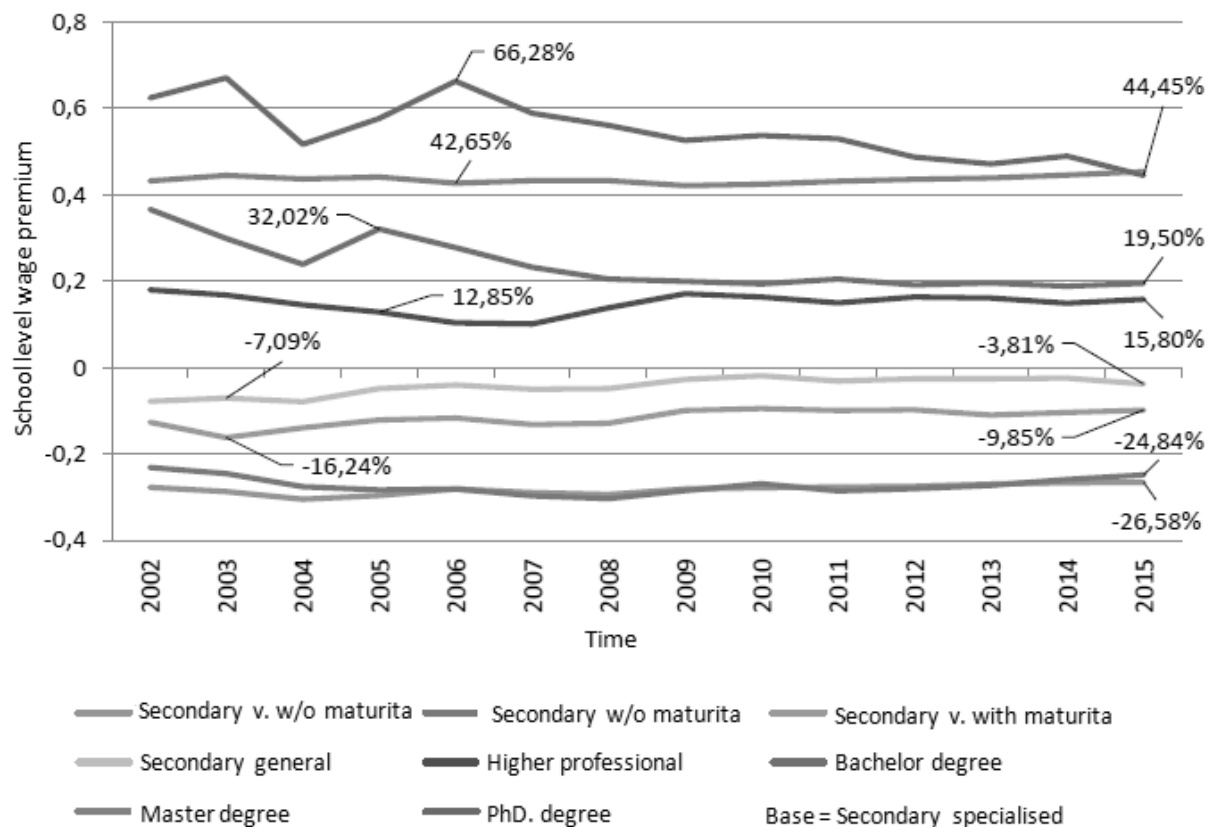
Source: Database of Labour Value ISCP from Slovak Ministry of Social Affairs, with author's calculations

As you can see pair of Secondary vocational level without maturita (purple line) and Secondary with maturita (brown line) keeps stable premium comparing to Secondary specialised level as around -25 percent from norm employee with secondary specialised education. Another pair is Secondary vocational with maturita (light green), which converged to the base of Secondary specialised from more than -16 per cent in 2003 to almost -10 percent in 2015 and Secondary general (yellow line) which converged to the base of Secondary specialised from more than -7 percent in 2003 to less than -4 per cent in 2015. Difference between these two levels has stayed stable.

The most significant and for our hypothesis verification the most important is decrease of PhD. degree as well as Bachelor degree level of education. Regarding to the Bachelor degree graduates, their wage extra decreased from 32 percent comparing to norm level in 2005 to just 19.5 in 2015 over the base. It means decrease of 22.5 percentage points in 10 years. What's more employees of higher professional education converged to bachelor graduates wages

from difference of around 19 percentage point gap to the level just 3.7 percentage points in 10 years. Now graduates of these two levels of education have almost the same wage extra comparing to the base level. The same situation repeated with PhD. graduates, their wage extra has shrink from 66 percent in 2006 comparing to secondary specialised level to just more than 44 percent. In 2015 reached the wage extra of PhD. graduates the same premium as master degree graduates, while the difference was 23.6 percentage points in 2006.

From the above, we can sum up that the most significant decrease in wage premium was noticed in the case of Bachelor degree and PhD. degree graduates. This finding partly supports the hypothesis that in the case when there is redundancy of college graduates on the labour market, their wage premium will decrease. Hypothesis is correct if we take into consideration college education as one mass, but the downturn is caused by PhD. and Bachelor degree fall of wage premium from the gained level of formal education. Master degree graduates wage extra has not changed.

3. Conclusions and policy implications

We conclude that the main hypothesis and subhypotheses were approved. Using the mincerian approach and unique micro database the Database of Labour Value ISCP from Slovak Ministry of Social Affairs we verified the theory according to Tinbergen (1974) and findings of Martinák (2016) and Habrman (2015) that decreasing demand for higher educated on labour market leads to decrease in returns to education. We also pointed on the fact that the decrease was mainly caused by decrease of wage premium of PhD. and Bachelor degree levels of education. This finding is consistent with the theory that University graduates replace high school educated on the work places requiring just high school qualification.

This paper formulated the model to estimate returns to education by gender and years of career. We agree with the conclusions of Humphreys (2013) that employees gain from additional year of education is significantly less in the first years of work experience than in the rest of the career. According to our results from this model, returns to education peak around 10 to 11 percent between 15 and 20 years in service. After the peak in 20 years of work experience importance of education in wage determination decreases among men but stays stable in the case of women. This is the main reason why in general women gain higher advantage by additional year of schooling, what is in the line with second subhypothesis following Psacharopoulos and Patrinos (2002) which claims than women's returns to education are higher than in the case of men, while men in average earn higher wages.

Our paper implications are mainly useful for policy of education. From this paper is obvious that in our condition university degree is becoming less profitable, considering that mainly the PhD. and Bachelor degrees are less profitable. Probably the structure of the Slovak formal education scheme should be changed to improve this situation. But this requires deeper investigation of other educational-labour aspects. One of the aspects could be the field of study mismatch probably affecting the most bachelor and PhD. levels of formal education. Unfortunately in our paper was not enough space for deeper analysis of other aspects. Anyway we would like to sum up findings, that the decline in relative demand for higher qualification leads to decrease of wage premium gained by higher educated.

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Sustainable Tourism: From the Perspective of Mauritius

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Abstract

This research investigates the relation between sustainable tourism and its main indicators (environment, economy and socio-cultural). A survey has been carried out among the 73 hotels in Mauritius that are classified as per the hotel classification standard of Mauritius Tourism Authority with star rating: three star, three star superior, four star, four star superior, five star and five star luxury and the data is collected and is categorised as per their social, environmental and economical perceptions of sustainable tourism. A Multivariate linear regression has been carried out using SPSS 23 to determine the relationship between the dependent variable, sustainable tourism which is derived from the factor analysis of questions pertaining to awareness of sustainable tourism and the independent variables economic, socio-cultural and environmental aspect of sustainable tourism that were also derived by performing a factor analysis. It has been concluded that economical aspect and the social aspect of sustainable is significant which is in line with Neto (2005) and TAO (2002) while the environmental variable is significant which is in contrast with the study of Wunder (2000) and Neto (2005).

Keywords: s*ustainable tourism, economic aspect, social aspect, environmental aspect, multivariate linear regression*
JEL classification: C35

1.0 Introduction

Tourism can be pictured as one of the biggest and most dominant sectors in today's world. This industry is viewed as one of the most important service providers in the world, Schumacher (2007). Tourism is a prominent topic in the government's agenda while discussing social, economic and environmental issues. Governments view tourism as a potential means of fostering development, without affecting the cultural heritage and safeguarding the environment, Liu and Wall (2006). Tourism is usually utilized to boost the economy of a country. The Third World countries promote tourism for their financial growth, Hall (1995). The poor countries expand their towns and villages by promoting tourism. Glasson et al. (1995), governments see tourism as a means of improving local infrastructures, job creation, acquiring foreign currencies, adjusting balance of payment, local advancement and providing benefits to locals. The advancement of tourism may boost earnings for guest countries, Ahn et al. (2002).

According to McVey (1993), the three main factors defining sustainability are – Economic sustainability, which can be interpreted as sustaining development rates such that it can be kept within convenient levels; the promotion of tourism while keeping tabs on the ability to deal with more demand such that the client is satisfied; Social sustainability, which is synonymous to the community's capability to assimilate the escalation in tourist influx without antagonistically influencing or harming the home-grown culture; and Environmental sustainability, relating to the ability of the local natural environment to deal with tourism without harm.

A.   **Objectives of the Study**

➢ To scrutinize the relation of sustainable tourism with economy of the host country

➢ To investigate the social and cultural aspect of sustainable tourism

➢ To analyse the environmental aspect of sustainable tourism

➢ To recommend for a policy agenda towards sustainable tourism

2.0 Literature review

World Tourism Organization (WTO) 1998 interpreted sustainable tourism as "meets the needs of present tourists, host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, and biological diversity and life support systems. Sustainable tourism products are products which are operated in harmony with the local environment, community and cultures so that these become the beneficiaries not the victims of tourism development" and Creaco and Querini (2003) elucidated sustainable tourism as the incorporation of ideal utilisation of resources including biological diversity, minimization of natural, social and cultural effects and also amplify the benefit for protection and conservation of home grown populations. Additionally it alludes to the administration structures that are expected to accomplish above mentioned. According to UNEP and UNWTO (2005) defined sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" and that the latter should use environmental resources efficiently, keep the socio-cultural legitimacy of the host nation and provide economic benefits by sustaining viable and long lasting economic operations.

Yadzi (2012) investigated on sustainable tourism where he found that tourism is one of the biggest and rapid developing industries in the planet which is an undeniably imperative source of income, wealth and employment in numerous nations. Nonetheless, while tourism gives extensive financial advantages to numerous nations, locales and groups, its quick development has additionally had a negative impact on the environment and socio- cultural identity of the host country. In order to handle this negative effect there was the introduction of sustainable tourism with the aim to provide a balance between having a low effect on the environment and socio-cultural aspect as well as aiding in generating forthcoming employment for the local inhabitants.

In addition International Ecotourism Society (2004) has categorised sustainable tourism into three core indicators which is sometimes identified as the "triple bottom line":

1. Environmentally, does not affect the natural resources of the host country significantly in areas where the fauna and flora are protected. Sustainable tourism is concerned with minimizing the damage caused to the environment and aims at benefitting the environment.

2. Socially and culturally, it does not affect the social or cultural schema of the host community. On the other hand, it tends to promote the local culture and tradition by involving all the main stakeholders in planning and development

3. Economically, sustainable tourism helps in generating income for all stakeholders as well as the local communities, thereby contributing to the economic welfare of the host nation. With expanding globalization and extra cash, tourism has in the course of

the most recent years proved to be one of the biggest and quickest developing sectors and according to the UNWTO (2012), this sector created an expected 5% of global gross domestic product (GDP) and 6 to 7 % of jobs worldwide in 2011.

B.   Tourism and Economy

Goodwin (2000) stated that economic profitability has been noteworthy and primordial for the development of tourism in developing nations that occurred in the late 1970's, when tourism was seen as a vital activity for creating foreign exchange and work by both development organizations, for example, the World Bank and governments.

In spite of all the adverse effects of tourism on the local economy, including inflation, exterior intrusion in local market and uncontrolled immigrants which reduces the chances of the locals, including those at the bottom of the social echelon, there is a perpetual demand for the tourism industry. However, there is a substantial chance to improve the profits available by solving all the issues and ameliorating the situation of local inhabitants and local entrepreneurs by focusing mainly on those at the lower ebb of the social ladder as well as at a higher echelon by targeting the national economy. In case of Small Island Developing States (SIDS) and under developed countries where there are regions of natural beauty which appeal to tourists, tourism is their most prominent means of generating revenue for their economies. However, for economies which are solely reliant on tourism, there may be significant fluctuations in income from foreign exchange which may be partly due to '*leakages*' which are mainly due to the influx of construction equipment and goods which are vital for travellers, redistribution of profits reaped by external investors and repayment of external debt sustained in favour of developing the tourism sector (UN, 1998).

Neto (2002) laid emphasis on sustainable tourism, environmental protection and natural resource management by casting aside the income generated from exports and stating that tourism is also responsible for the lion's share of the government's income from taxation. Also, the advent of tourism comes in line with substantial investment and structural improvements in land and buildings, for instance roads, water distribution and disposal networks, communication networks and other public facilities, which in turn proves to be beneficial for the visitors and the locals by improving their quality of life. This expansion in social overhead capital proves to be an essential means of luring businesses to an impeded and under-developed territory and is therefore essential for local economic advancement. The tourism industry is an undeniably essential for the creation of jobs, for example, development and farming basically for incompetent workers, for those who shifted from poor provincial zones, individuals who want to work on a part-time basis and particularly ladies. This sector is responsible for a handful of jobs and investments in tourism leads to the upspring of a larger number of jobs in a smaller lapse of time than equal investment in other economic spheres.

2.2 Sustainable Tourism and the Socio-Cultural

It is essential to consider the socio-cultural aspects and effects of sustainable tourism development, particularly in the case of touristic destinations and activities which are interlinked with nature, history and the cultural legacy of a certain region. As such, if these invaluable properties are tampered with, any development in tourism cannot occur, thus protection of existing local treasures can help locals in defending and protecting their socio-cultural heritage. (TAO, 2005).

Community involvement, Community conflict, cultural change and cultural interpretation have been identified by Yazdi (2012) as being the most notable effects of tourism on the local culture. For instance, community involvement should be promoted to optimize the socio-cultural benefits of sustainable tourism and acts as a predominant component in the

development process, while there is the existence of positive social exchanges of tourists with the locals, which instills the belief in them that tourism has the potential to forge a more flexible society. However tourism may also incidentally lead to clashes in between communities via the advent of new employment and economic opportunities. Since culture has an essential contribution in tempting tourists to visit a certain destination, tourism offers both financial motivations and social support for up-keeping and renewing different socio-cultural endeavors. Changes have been noted, relative to the making of traditional tourist souvenirs and artwork, which has modified the existing cultural heritage of certain places. Cultural interpretation is a way of reducing the negative effects of tourism on a host area's way of life. One of the primary goals of social translation is to help guests in building up a fervent perception, thankfulness and comprehension of the region and culture of the regions they are going to.

2.3 Sustainable tourism and Environment

Neto (2005) inferred that tourism offers impressive monetary advantages to numerous countries, areas and local groups, its fast development harm the environmental and social integrity of the host countries. In regions where tourism activities are conducted, there is usually the destruction of the natural fauna, fauna and resources. When tourists reach their destination, they usually choose to keep their lifestyle. This may prove to be detrimental to the local fauna and flora, especially in regions where there is the absence of a proper way of preserving the natural resource and native ecosystems from the effects of tourism. Not only does tourism lead to environmental dilapidation but also this modification to the environment may in turn deter tourist from visiting that region.

However, Wunder (2000) discussed ecotourism as an alternative which protects the environment as well as providing economic benefits. Monetary motivations are essential for the protection of nature, especially in distant and poorly supervised localities where the state cannot enforce environmental regulations. The paper used information from the Cuyabeno Wildlife Reserve in the Ecuadorian Amazon region to identify and investigate the relationship between tourism, economic benefits and environmental protection and observed that from the economic point of view, it can be shown that the mode of participation proves to be less significant than the characteristics of the touristic attraction, level of specialization and the level of management. The situation in which the relation between tourism, economy and protection of the environment has also been discussed. As such this paper provides a stepping stone for governments to conceive new policies in which environmental protection and tourism development goes hand in hand.

Gössling (1999) contends that ecotourism can promote the protection of the fauna and flora and the biological structures despite the fact that meeting the necessities for ecotourism is troublesome. In this way, tourism can assume a vital part as a motivating force for preservation of the environment. As tourism causes critical outflows, the idea of Environmental Damage Costs is brought and incorporated into the estimations. The number of visits of regions with a delicate environment should be constrained; training, administration, and control measures must be incorporated; and the extent of cash received from visitors must be expanded.

2.4 Barriers towards sustainable Tourism

Thavarasukha (2002) has recognized the following weaknesses relative to ecotourism, which is applicable to sustainable tourism development. The notion of sustainable tourism development is not yet fully mastered and there is a lack of organization between each government associations. Information pertaining to sustainable tourism is not in order and tourism does not favour local involvement at a large extent. There is the absence of policies

and the punishments for disregarding natural laws are low and nothing is done to modify the existing policies. There is absence of bona fide local involvement in the design of policies relative to sustainable tourism. Accreditation programs likewise do not possess the capacity to guarantee sustainable ecological practices from the tourism sector. NTOs don't utilize and have not yet outlined factors for sustainable tourism development. This does not indicate that there are no valuable ecological and socio-social factors. Throughout the years, different types of factors have been proposed, however the factors utilized frequently ended up being diverse, excessively extensive, or with excessive technicity, making it impossible for evaluating tourism's sustainability. The UN Environmental Program (UNEP)/Earthwatch identifies more than 20 factors for sustainability, which have been detailed by UN officials, global NGOs, and local associations. Probably the most well-known models are the Dashboard of Sustainability by the Consultative Group on Sustainable Development Indices, the Pressure-State-Response Model by the Organization for Economic Cooperation and Development, the Environmental Pressure Index by the Netherlands for its National Environment Policy Plan, the Human Development Index (HDI) by the UN Development Program (UNDP), Capability Poverty Measure by the UN, and Cost of Remediation by Harvard University and the Asian Development Bank.

2.5 Benchmarking

    1.   Tourism in Nigeria

    Archibong (2004) who studied the gold mine waiting to be tapped in Nigeria emphasised that the centre of attraction of tourism in Nigeria is largely due to the cultural events as the country has an abundant measure of ethnic groups. In addition to that the presence of the rain forests, savannah, waterfalls and other natural attractions play a major role in attracting tourists in that country. Lately, governments at both elected and state levels have had huge effect on tourism advancement, by exclusively or in specific cases joining forces with the private sector in extraordinary resorts of global standard for vacation spots. Some central point that have a tendency to repress tourism advancement activities of the nation incorporate poor power supply, deplorable condition of streets, religious prejudice, militancy, ceaseless bombings, and kidnappings.

    2.   Malaysia

    Bhuiyan, Ismail and Siwar (2013) studied the tourism expansion in Malaysia from the perception of development plans where they found that for a time period from 2006 to 2010 the Ninth Malaysian Plan was accepted during which vigorous endeavours have made the tourism sector to boost up the Malaysian economy. The main aim was to make Malaysia a well-known tourism destination while encouraging local tourism. The strategy was to develop tourism infrastructure in order to bring innovation and to upgrade facilities for tourism products and services. Moreover the authors emphasises on the Tenth Malaysian Plan which was brought in due to a very high concern of sustainable tourism expansion for the time period from 2011 to 2015. This plan highlights the creation of exciting and famous tourism activities, to rightly manage the current tourism attraction and the promotional activities for the tourists with the sole goal of making Malaysia among the 10 best touristic destination.

3.0 Methodology

    This section emphasises the research methods utilized in the study where the sampling design, the collection of data and the analysis applied to the gathered data within the quantitative research framework. Research methodology is a science that reviews how research is completed in a scientific way and includes the specialist utilizing the various strategies in order to analyse his research problem (Daniel – Sam, 2015).

C.   3.1 Research Questions

The main research question of this research is:

What are the factors contributing to sustainable tourism in Mauritius?

Other research questions are:

1. How does environment relate to sustainable tourism?

2. How does the society relate to sustainable tourism?

3. How does the economy relate to sustainable tourism?

3.2 Hypothesis Formulation

The hypotheses have been constructed from the main research questions and are listed as follows:

H1: Environment is positively correlated with sustainable tourism

H1: Economy is positively correlated with sustainable tourism

H1: Socio-Cultural is positively correlated with sustainable tourism

3.3 Research Approach

Williams (2011) defined quantitative research, *"...can be used in response to relational questions of variables within the research..."* in which this research emphasizes on examining the three main variables, environment, economy and socio-cultural variables with respect with sustainable tourism. Principally, Leedy and Ormrod (2001) indicated that *"…the intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory..."* as such, all things considered in the long run contributing towards the selection of this specific approach as the fundamental research question of this review depends on noting a set of hypothesis.

3.4 Types of data

There are two types of data which can be collected to accomplish the objectives of this research which are:

1. Primary data, data collected to address the specific issue or problem under a study where these data can be obtained directly from first-hand sources by means of surveys, observations, experiments, and simulation.

2. Secondary data Secondary data are information that are obtained from previously published materials such as books, magazines, newspapers and online journals.

3.5 Research Instrument

A survey was designed to collect primary data from the star rated hotels in Mauritius. The questions were formulated such that they solve the research questions. The Questionnaire content will be as follows:

Section A

This section shows the awareness and knowledge of star rated hotels in Mauritius on sustainable tourism. It consists of a set of 8 multiple choice questions which relates to the main topic.

Section B

This part comprises of a set of 6 questions related to the Environmental aspect of sustainable tourism.

Section C

To investigate the Economical aspect of sustainable tourism, a set of 8 questions will be set up.

Section D

This section is made up of 7 questions which relate to the socio-cultural aspect of sustainable tourism.

3.6 Analysis of data

IBM SPSS 23 will be used to carry out the analysis comprising of reliability tests, factor analysis and multiple regression analysis, which will help in the interpretation of results. In addition factor analysis will be used to reduce the variables in to a set of independent factors relative to environmental, economic and social aspects of tourism and a linear regression will be conducted to estimate the significance of each independent variable with sustainable tourism.

4.0 Analysis

This section deals with the interpretation of the outcomes generated from the utilisation of the relevant statistical analysis. Questionnaires were distributed among the 73 hotels in Mauritius that are classified as per the hotel classification standard of Mauritius Tourism Authority with star rating : three star, three star superior, four star, four star superior, five star and five star luxury. There was a response rate 71.2 %.

4.1 Reliability Test

Sage et al. (1980) showed that it is necessary to evaluate the reliability of the collected data before conducting further statistical analysis on the data. Cronbach Alpha is a well-known measure for reliability and indicates consistency of collected data and the relation of items in the same data sample (Hayes, 1998). Using SPSS reliability statistics, Cronbach Alpha was estimated to evaluate the reliability of the collected sample.

Table 1
Reliability Test

	Cronbach's Alpha	No of Items
Sustainable Tourism	0.700	8
Environment	0.791	6
Economy	0.704	8
Socio-Cultural	0.738	7

Source: Author's Computation

According to Nunnaly (1978), for a result to be reliable, the value of the alpha coefficient should be greater or equal to 0.7 and as per the above result it can be noted that there is reliability among the data collected.

4.2 Factor analysis

Factor analysis is performed to investigate the response patterns of the survey and group the responses which are highly correlated under the same variable. Cooper (1983) suggested that factor analysis, a data reduction tool can be used to analyse the independence and dependence of a set of variables and group the variables which are interrelated. This study consists of a host of factors which expose the awareness and attitudes of hotels towards sustainable tourism as well as identifying the effect of economy, social and environmental factors on sustainable tourism. As such, factor analysis will be used to remove redundant factors and group the variables having the same variance together for subsequent analysis.

4.2.1 Summary of components extracted

For this study, 5 factors will be extracted by factor analysis, namely environmental aspect of sustainable tourism, Economic aspect of sustainable tourism and the Social aspect of tourism. To sum up, all the 31 variables or items were analysed under their respective components. More precisely, Factor loadings are based on a measure ranging from -1 to 1, whereby loadings nearer to either value implies that the variable is in strong correlation with the factor while loadings close to 0 signifies that the variable weakly affects the factor.

D.   4.3 KMO and Bartlett's test

For each component, the KMO measure of sampling Adequacy and Bartlett's Test of Sphericity was carried out to check the feasibility of factor analysis. The KMO test verifies the adequacy of variables to be correlated and a minimum value of 0.5 is needed to proceed with factor analysis while the Bartlett's Test checks the relationships between the variable and a significance of 0.5 or less indicates that factor analysis is feasible.

E.   Awareness of sustainable tourism

Table 2
KMO and Bartlett's Test of awareness of sustainable tourism

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.590
Bartlett's Test of Sphericity	Approx. Chi-Square	3.769
	Df	6
	Sig.	.408

Source: Author's Computation

Both the measure of sampling adequacy and the Bartlett's test having a value of 0.590 and a significance of 0.408 shows that data reduction is possible.

Table 3
Component Matrix of awareness of sustainable tourism

	Component
Aware of sustainable tourism	.787
local inhabitant benefit from sustainable tourism	.718
relation between local culture and sustainable tourism	.315
Aware of the relation between environment and sustainable tourism	

Source: Author's Computation

One component was extracted to represent the variable Sustainable Tourism.

F.   Environmental aspect of sustainable tourism

Table 4

KMO and Bartlett's Test of Environmental aspect

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.557
Bartlett's Test of Sphericity		
	Approx. Chi-Square	21.619
	Df	10
	Sig.	.017

Source: Author's Computation

Both the measure of sampling adequacy and the Bartlett's test having an acceptable value of 0.557 and a significance of 0.017 as such implies the applicability of data reduction.

Table 5

Component Matrix of Environmental aspect

	Component
do you recycle water	.730
treatment method for planned and unplanned water discharge	.648
promote scientific research	.641
technology that protect environment	.552
minimize pollution and degradation of local environment	.866

Source: Author's Computation

From the five questions relative to environmental information and tourism, it can be seen that a single components was extracted.

G.   Economic aspect of tourism

Both the measure of sampling adequacy and the Bartlett's test having an acceptable value of 0.612 and a significance of 0.002 as such implies the applicability of data reduction.

Table 6

KMO and Bartlett's Test of Economic aspect

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.612
Bartlett's Test of Sphericity		
	Approx. Chi-Square	27.601
	Df	10
	Sig.	.002

Source: Author's Computation

Table 7

Component Matrix of Economic aspect

	Component
contribute to csr	.803
rooms occupied during off peak season	-.758
investment in infrastructure	.703
increase market for local inhabitants	-.303
rooms occupied during peak season	

Source: Author's Computation

1 component was extracted under the title of 'Economic aspect of sustainable tourism'.

H.   Socio-cultural aspect of tourism

Both the measure of sampling adequacy and the Bartlett''s test having an acceptable value of 0.612 and a significance of 0.002 as such implies the applicability of data reduction.

Table 8

KMO and Bartlett's Test of Socio-cultural aspect

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.892
Bartlett's Test of Sphericity		
	Approx. Chi-Square	2.701
	Df	5
	Sig.	.012

Source: Author's Computation

From the component matrix, it can be noted that one component has been extracted and this component has a high extraction coefficient with each variable.

Table 9

Component Matrix of Socio-cultural aspect

	Component
support local communities	.999
support local communities	.999
support local communities	.999
support local communities	.818
percentage of budget	.777
stakeholders participation	

Source: Author's Computation

1 component was extracted under the title of 'Socio-cultural aspect of sustainable tourism'.

4.4 Regression

Table 10
Multivariate linear Model

R	R Square	Adjusted R Square	Std. Error of the Estimate
.825[a]	.680	.668	.90330270

Source: Author's Computation

  a. Predictors: (Constant), Environment, Economy, Social

The value of R identifies the quality of the prediction of the dependent variable and a value of 0.825 is indicative of a good prediction. The value of R2 shows the variance in the dependent variable which can be accounted for by the independent variables and a value of 0.680 shows that the independent variables account for 68 % of variance in the dependent variable.

Table 11
Anova of Regression

	Sum of Squares	df	Mean Square	F	Sig.
Regression	14.018	5	2.804	3.436	.001[b]
Residual	39.982	49	.816		
Total	54.000	54			

Source: Author's Computation

  a. Dependent Variable: sustainable tourism

  b. Predictors: (Constant), Environment, Economy, Social

The F-value in the ANOVA table is statistical measure which shows whether the regression model fits the data. From the table, $F_{(5, 49)} = 3.436$, $p < 0.0005$ indicates that the regression model fits the data.

Table 12
Coefficient of variables

	B	Std. Error	t	Sig.
(Constant)	8.261E-17	.122	.000	1.000
Social	.070	.129	1.319	.083**
Economy	.323	.150	2.154	.036 *
Environment	.076	.153	1.149	.096**

Source: Author's Computation

From the Table 12, the unstandardized coefficient of the variable Social is 0.070 which means that an increase of 1 unit in Social will result in an increase of 0.070 on sustainable tourism and the variable is significant at 10 %. This shows that the social impact of sustainable tourism is considerable which is in line with TAO (2005). The coefficient of the variable Economy is 0.323 and is significant at 5 %, which indicates that an increase of 1 unit in the variable Economy will cause an increase of 0.323 in the dependent variable. The Economy is also affected positively by sustainable tourism which is predictable as tourism leads to the creation of direct or indirect jobs, promotes investment and upgrading of infrastructures and is similar to the research conducted by Neto (2002). The coefficient of the Environmental variable is 0.076 and is significant at a significance level of 10 %. An increase of 1 unit in Environment will result in an increase of 0.076 in the dependent variable sustainable tourism. Sustainable tourism and environment have a positive relationship, indicating that sustainable tourism preserves and promotes the natural beauty of an area.

5.0 Policy recommendation towards sustainable tourism

There are several measures a government can use to make tourism more sustainable. This sector depends greatly on the long-time development of buildings, services and implementation of new policies to make sure that tourism related activities are performed in a sustainable manner by achieving its economic, socio-cultural and environmental goals. To promote continuous growth in this sector, there needs to be the setting up of a framework at national level to preserve the natural and socio-cultural integrity of certain places without overlooking the economic benefits. This framework needs to be set up in stages and the first stage may include the following:

a) making the visitors aware of the need to saveguard the natural integrity of attractions

b) Promoting knowledge of principles and methods of environmental management, including energy and water conservation strategies;

c) Providing tourism firms with access to market information and financial resources;

d) Enhancing coordination between government departments dealing with tourism and the environment and private investors in the tourism sector;

e) Upgrading infrastructure in isolated tourism sites where private-sector investment is unlikely to go.

Promoting sustainable tourism is far-reaching and involves broad actions, ranging from the adaptation of new technologies and practices to obtain efficiency improvements in energy, water and waste systems, to the implementation of policies to restore biodiversity. This can lead, among others, to energy-efficiency gains in transport and accommodation, fewer health risks or the upgrading of the attractiveness of a destination. To enable stakeholders to move towards more sustainable tourism, there are many elements that are required or must be considered. They may include:

a) Clustering,

b) Linkages with local suppliers of goods and services,

c) Skills and human resources development,

d) Access to finance and investment,

e) Institutional framework and mainstreaming of tourism in national policies,

f) Promotion and marketing,

g) Protection and conservation of cultural heritage.

6.0 Conclusion

This research was carried out to assess the factors, environment, economy and socio-cultural that contributed to sustainable tourism and it can be concluded that the economical aspect and the social aspect of sustainable is significant which is in line with Neto (2005) and TAO (2002) while the environmental variable is significant which is in contrast with the study of Wunder (2000) and Neto (2005).

This study was conducted to investigate three indices environment, economy and socio-cultural which contribute to sustainable tourism in selected star rated hotels of Mauritius. It has utilized data obtained from a questionnaire distributed among 73 hotels in Mauritius, of which 52 responses were collected and were classified as per their social, environmental and economic perceptions of sustainable tourism. This research study has given more transparency in understanding the presence of sustainable tourism among star rated hotels of Mauritius.

A Multivariate linear regression was carried out in SPSS to determine the relationship between the dependent variable, sustainable tourism which was derived from the factor analysis of the questions in Section A of the questionnaire and the independent variables Economic aspect of sustainable tourism, Social aspect of sustainable tourism and the environmental aspect of sustainable tourism which were derived by performing a factor analysis of questions taken from sections B,C and D of the questionnaire. The aim of this sturdy was to investigate the Economic, socio-cultural and environmental aspects of sustainable tourism among selected star rated hotels in Mauritius and empirical evidence shows that the variables representing these aspects are significant with sustainable tourism.

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The Economics of Education: An Efficiency of Educational Systems

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Abstract
The 20th century became a century of human capital thanks to its contribution to economic growth. However, such a contribution in extensive way is no more possible and the quality of education starts to play more important role. The aim of the paper is to create an indicator of educational quality from three different subjects of PISA tests. Thanks to such indicator the performance of 51 countries is computed. Furthermore, the intertemporal analysis suggests the overall convergence of countries and the backward shifts of the frontier between years 2006 and 2015. The last result suggests, that there exists strong relationship between the quality of education, calculated by DEA model and income per capita of the countries.

1.   Introduction

The high difference in income p.c. between countries is regarded to be one of the most fundamental question in economic science. It has been fifteen years since authors came with the first empirical contribution to satisfy the question. The most famous article by Mankiw at. al. has proved Solow's theoretical predictions about the relationship of savings and population growth on income. These factors could explain more than 50 % of total variation in examined variable on cross-sectional data available at the time. However, several shortages occurred. While the direction of factors was examined in accordance with the original model, the magnitude occurred too large. Therefore, the model was augmented by a factor of human capital, which corrected overestimated parameters, within the expectations of directions (Mankiw et.al, 1992). Besides an empirical proof of Solow's model the article settled the basement for human capital as the undeniable factor of economic growth.

There needs to be mention another seminal paper empowering the role of human capital in form of education to economic growth. The conclusion by Barro, that the level of per capita GDP is closely related to the human capital drew attention (Barro, 1991). Moreover, in cooperation with Lee, they fulfilled the gap in existing data, with their crucial dataset of educational attainment for a board group of countries (Barro – Lee, 1993). Several versions since have occurred, however the way of measuring human capital as a school-enrolment ratio defined further research within the topic.

There are several similarities between human a physical capital. Firstly, we use the definition, that the human capital is in fact the quality of labour. Such a quality is like physical capital obtained by investments, furthermore it is a productive factor – enables to boost total production. Third, there is similar way of depreciation, and finally both capitals earn returns, which however differs between the two (Weil, 2013). Particularly, on this field of returns to education the great effort has been made by Psacharopoulos & Patrinos, the recent research

questions are mainly about the difference in private and public contribution, and social benefits (Psacharopoulos – Patrinos, 2004). What brings us to endogenity and spill overs of education. There is clear evidence that the benefits of educated labour are spread and even connected with the innovative process. According to Weil, these externalities are in less developed regions even stronger than the effects of the education on individual level. The whole literature of such attitude is linked to Lucas and his contribution to reproducible nature of human capital.

However, all the above is strongly connected to the quantitative aspect of human capital. This is firstly because of the lack of qualitative data, that where, until recently, not available. School enrolment as the most popular proxy to quality of labour is clearly not satisfying. There is substantial difference between a year of a high school in USA and Egypt, same is true in difference in time (Hanushek – Kim, 1995). Several comparative tests across countries occurred, and allowed for the measuring of educational quality. The strong and positive relationship between qualitive aspect of human capital and economic growth was pioneered by Hanushek and Kimko. Moreover, including such a factor more than doubled adjusted R^2 in explaining of difference between income per capita. In a question of measuring quality, authors offer two approaches: (i) schooling inputs such as educational expenditures or teacher salaries or (ii) direct way - skills of individuals. While the first one is clearly easier to measure, the second one was used in article from 1995. The completed measures were constructed from international tests in the fields of mathematics and science. Two different benchmarks were used to compare the actual values per country. The world average score of 50 and overall means for each of six assessments that vary with US performance. However, there is strong correlation between the results compared with both benchmarks (Hanushek – Kimko 2000).

There exists another reason why quality matters. The 20th century is called the century of human capital because of several facts. Firstly, in the end of nineties even the poorest countries provided some elementary schooling, furthermore the years of schooling almost doubled for developed countries. However, it is clear, that there exists upper limit for years of schooling, simply because of fact, that people need to work in some age and life expectancy is not expected to rise dramatically (Goldin – Katz, 2009). In this case, there is no more space for extensive way of rise of human capital. Simply, there is not expected to get more years of schooling or enrolment. Therefore, the intensive way must be settled – the way of qualitative aspect of education. There is no more question, how many years are people educated, however what and how they learn. "There is no doubt that the quality of education is an important facet of the economic growth and an aspect that has been relatively neglected in the literature due to lack of data on a wide cross section of countries and time periods. This is one of the areas where, in the future, the development of statistical data will allow examination of number of interesting hypotheses", (Savvides – Sengos, 2009).

The aim of the paper is to examine the quality of educational systems across countries using non-parametrical tools of linear programming. Furthermore, thanks to the previous PISA tests we can use so called Malmquist productivity index to evaluate the change in time of the frontier as well as individual countries.

1.1. *Data and methodology*

The most important part allowing to evaluate the quality of education is the PISA dataset. Issued by OECD, PISA tests skills of 15 years old students from three different subjects: (i) math, (ii) science and (iii) reading. Last dataset was release on 6th December 2016 and approximately 80 countries participated. While there are many advantages of the original PISA results, with plenty of suggestions and possibilities for policy implications, the overall

indicator for countries is missing. The OECD researchers are trying to avoid such a conclusion and rather prefer the evaluation of every one subject separately. As a benchmark the mean is used, and then the countries are compared to each other and to such a projection. Because of a deeper focus on the science performance of the last results, an example can be use. Singapore outperformers all other participants. With mean score, equal to 493 points, countries like Japan (538), Estonia (534), Finland (531), Canada (528) and mentioned Singapore (556) are the highest performing candidates. Furthermore, bunch of descriptive statistic is offered e.g. that on average boys score slightly higher than girls, or that the Asian countries outperforming others in math. Also, some relationships are introduced e.g. the correlation between the education of parents and their children. For more see PISA 2015 results vol. I.

However, the fact is that one aggregated indicator of overall performance is not availible. Such a problem is explained by PISA researchers in a way, that there is not one preferred subject to others, then the indicator can't be created. The Data Envelopment Analysis (DEA) as a applicated method of linear programming offers a solution for this problem. The indicator can't be created because a relative "price" on every subject is missing. However, we can optimize such a price to evaluate the total performance of every country. An advantage is that the prices on inputs and outputs are not directly required.

Firstly, we use the slacks-based model originally introduced by Tone (1999). The model directly deals with the input excesses and output shortfalls of every decision-making unit (DMU). DMUs in presented paper are countries. As an output the original scores from PISA are used. In a case of inputs, we use ones (or unity vector), such a method is commonly known as "only output" model. We are not in this case interested in usually used inputs such as investments into education, payments for teachers etc. The aim of the method is simply to sum every of three subjects together using optimized prices and create overall indicator of the educational performance.

There are n DMUs with an input matrix $X = (x_{ij}) \epsilon \mathbb{R}^{mxn}$ and output matrix $Y = (y_{ij}) \epsilon \mathbb{R}^{sxn}$. In general, there are m inputs and s outputs for n DMUs. All inputs and all outputs are non-negative numbers $X > 0$ and $Y > 0$. The production possibility set is then defined as:

$$P = \{(x, y) | x \geq X\lambda, y \leq Y\lambda, \lambda \geq 0\} \tag{1}$$

λ is non-negative vector in $\mathbb{R}^n$. Because further the variable returns to scale (VRS) assumption is applied, additional constraint on λ is necessary. Therefore, $\sum_{j=1}^{n} \lambda_j = 1$. The VRS modification is useful, when the difference of the size of DMU plays its role, what is the exact case when comparing countries like USA and Singapore together.

As mentioned previously, the model used to evaluate the performance of every country is based on slacks. The *slack* can be defined as an excess in inputs and a shortfall in outputs. The o-DMU with set of inputs and outputs (x_o, y_o) can be described via these slacks:

$$x_o = X\lambda + s^- \tag{2}$$
$$y_o = Y\lambda - s^+ \tag{3}$$

Where s^- and s^+ are again non-negative vectors and $s^- \epsilon \mathbb{R}^m$, $s^+ \epsilon \mathbb{R}^s$. Using slacks the definition of index ρ is:

$$\rho = \frac{1 - (\frac{1}{m}) \sum_{i=1}^{m} s_i^- / x_{io}}{1 + (\frac{1}{m}) \sum_{r=1}^{s} s_r^+ / y_{ro}} \tag{4}$$

where $0 < \rho \leq 1$.

To estimate the efficiency of DMU_o , the basic slack-based model is:

minimize $\qquad \rho = \dfrac{1-\left(\frac{1}{m}\right)\sum_{i=1}^{m}\frac{s_i^-}{x_{io}}}{1+\left(\frac{1}{m}\right)\sum_{r=1}^{s}\frac{s_r^+}{y_{ro}}}$

subject to $\qquad x_o = X\lambda + s^-,$

$\qquad\qquad y_o = Y\lambda - s^+,$

(5)

$\qquad\qquad \lambda \geq 0, s^- \geq 0, s^+ \geq 0,$

$\qquad\qquad \sum_{j=1}^{n}\lambda_j = 1$

    DEA models are applications of linear programming, however as can be seen on 4 or 5, the program is not linear. To linearize such a problem Charnes-Cooper transformation is used. However, to simplify the methodology part of the paper, we let the model in the basic non-linear form, all calculations are furthermore made by linearized form of the SBM program. ρ is calculated for every DMU, and is defined as the efficiency or performance.

    The second step is the intertemporal analysis of PISA results between years 2006 and 2015 using so called Malmquist index with its decomposition to catch-up effect and frontier shift. To measure the change in time, we use non-radial Malmquist index built on the same basement as previous SBM model. Firstly, the catch- up effect is explained. The effect that DMU attained for improving its efficiency level. The catch-up effect between two periods for $DMU_o(x_o^1, y_o^1)$ and (x_o^2, y_o^2) is measured as:

$catch - up = \dfrac{Efficiency\ (\rho^*)\ of\ (x_o^2,y_o^2) with\ respect\ to\ the\ period\ 2\ frontier}{Efficiency\ (\rho^*)of\ (x_o^1,y_o^1)with\ respect\ to\ the\ period\ 1\ frontier}$

(6)

if $catch - up < 1$ the DMU made a progress between periods in its efficiency

if $catch - up > 1$ then it indicates regress or not changed efficiency between periods.

The second effect captured by decomposition of Malmquist index is the shift of the frontier. To evaluate the total change one must consider how the overall frontier moved between the periods.

The frontier effect of (x_o^2, y_o^2) is evaluated by

$frontier\ effect_1 = \dfrac{Efficiency\ (\rho^*)\ of\ (x_o^1,y_o^1)with\ respect\ to\ the\ period\ 1\ frontier}{Efficiency\ (\rho^*)of\ (x_o^2,y_o^2)with\ respect\ to\ the\ period\ 2\ frontier}$

(7)

$frontier\ effect_1 = \dfrac{Efficiency\ (\rho^*)\ of\ (x_o^2,y_o^2)with\ respect\ to\ the\ period\ 1\ frontier}{Efficiency\ (\rho^*)of\ (x_o^1,y_o^1)with\ respect\ to\ the\ period\ 2\ frontier}$

The total frontier effect is then evaluated by geometric mean

$Frontier - shift = \sqrt{frontier\ effect_1 * frontier\ effect_2}$

(8)

And finally, the Malmquist index is calculated as

$$Malmquist\ index\ (MI) = (catch - up) * (frontier - shift)$$

The index represents total factor productivity change of DMU, so the progress or regress of the DMU's efficiency compared to the progress or regress of the frontier.

$MI > 1$ means total progress of the DMU from period 1 to period 2 , while $MI < 1$ is vice versa regress or status quo from previous time period. There exist several methods how to calculate efficiency in Malmquist index. As mentioned before we used non-radial model introduced by Tone (2001).

The sample of 51 countries is used. The list includes every OECD member plus sixteen other countries. The sample was reduced due to lack of comparable data in the second phase of the research. The efficiency to evaluate performance is measured on the data from 2015 compared to the scores from 2006 by introduced index. The sample of countries with original score is shown in appendix part of the paper as Appendix C.

2.   Empirical results

Firstly, some statistic of the sample is presented. To evaluate performance of countries in education, tested on 15-years old students we use the score of PISA tests from 2015 from three different subjects. The Table 1 presents the descriptive statistic for every of the tested subject for our selected sample.

Table 1
Descriptive statistics of PISA tests score 2015 for selected sample of 51 countries

	Science	Reading	Math
Mean	475,24	473,04	470,47
Standard Error	5,81	5,80	6,41
Median	493	487	488
Mode	493	503	494
Standard Deviation	41,52	41,44	45,77
Minimum	386	361	367
Maximum	538	527	542
Count	51	51	51

Source: PISA test score 2015, author's calculations

The highest mean score 475,24 is from the subject of science, in opposite the lowest one from math. The best performed countries with maximum score are by subjects: Japan, Canada, Chinese district of Taipei. Minimum score from the sample belongs in every subject to Tunisia with average score of 371,33 what is more than 100 points under the overall mean.

Evaluating the performance of countries using the model (5) described in previous part four efficient countries and 47 inefficient are found. The score of efficient is equal to 1, while every country with score less than one is somehow inefficient. The benchmark countries are Japan, Canada, Finland and Taipei district of China. However, the last mentioned is according to original research statistically insignificant. The table attached in appendix as Appendix A presents the results of the model ordered by calculated score or rank.

In second column – score is presented. The main result of the model is the performance of the countries considering all three tested subjects together. The next one is the rank according to previous results. Columns named Benchmark 1 and 2 present the closest example for inefficient countries. This could be the real suggestion for decision making units to follow and

study these examples. However, in such case deeper analysis and some inputs would be necessary. As can be seen all OECD countries are at the top of the table. The average efficiency is 0,895 and minimum for expected Tunisia is 0,7. The score can be interpreted as percentage of the relative benchmark. In other words, the Tunisian's score is approximately 70% of Japan's. While the best and the worst countries are intuitively visible also from the original results, now the difference in the middle of the sample can be presented and the rank table according to one overall indicator can be created.

After the descriptive statistic and the static evaluation of the score from the most previous test, the intertemporal analysis is needed. Which countries improving its score and which are worse than in 2006? What was the change in overall frontier? Table from appendix B presents the Malmquist index and its decomposition into frontier shift and catch-up effect of every country.

Firstly, the third column should be interpreted - the overall Malmquist index. In 23 out of 51 is regress in score performance between the years or the same distance from the frontier as in previous period. The countries with the lowest Malmquist index, so the countries with the worst change between years are Korea and even the benchmark from the 2015 – Finland. On the other hand, the country with the highest index is Quatar. To evaluate such a changes the decomposition is necessary. The frontier shift is in every country less than one what means that there is negative change in overall performance between the years. What can be seen also on the benchmark – Finland. Such a change in the frontier countries makes the convergence process in quality of education easier. However, the process is even stronger due to positive (green coloured) effect of catch-up almost in every country, with exception of Korea and mentioned Finland. If the catch-up effect is not strong enough the overall Malmquist index is less than 1 even if the frontier change was not positive during the periods.

To answer the last question, if the quality of education matters, deeper analysis is necessary. However, in current phase of the research we would like to point to some results. As mentioned in introduction, the expansion of education in a way of enrolment, or years of total education is not possible. The quality then will play much more important role. To evaluate the relationship between the quality of education and income per capita. Another reduction in sample was necessary due to lack of data on enrolment. The income per capita is obtained from the penn world table database and calculated as the real GDP in ppp. over the number of persons engaged. The data of enrolment are from world bank database. On the next two figures the difference in the relationship between the enrolment and enrolment multiplied by the quality of the education calculated by SBM model.

On the first figure, relative strong relationship between the education (measured as enrolment) and income per capita can be seen. This correlation is nothing new, and there is lot of examples why educations is important. However, we multiplied such a proxy of measuring human capital by calculated score from SBM model to capture not only the quantitative aspect of the education, but also qualitative one. As can be seen, such an application strongly enforced the R-square and the relationship is much stronger. The correlation between original enrolment level and GDP p.c. is 0,64, while editing by its quality adds more than 10 points to the number with the correlation of 0,75.

Figure 1

The relationship of GDP p.c. in ppp and school enrolment
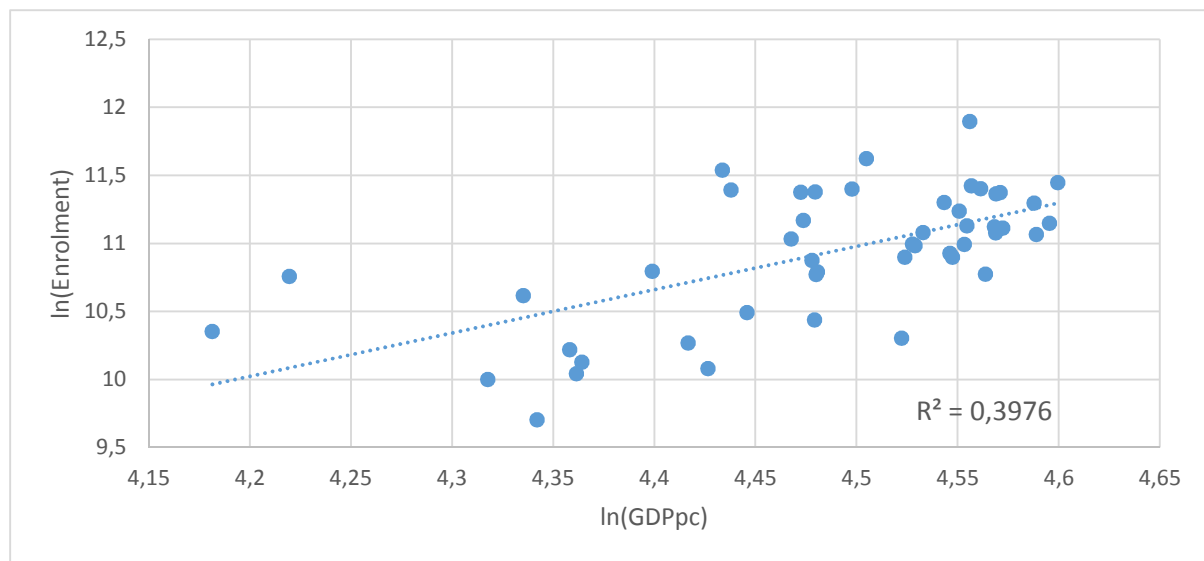
Source: Author's calculations

Figure 1

The relationship of GDP p.c. in ppp and school enrolment edited by the quality of education obtained from SBM
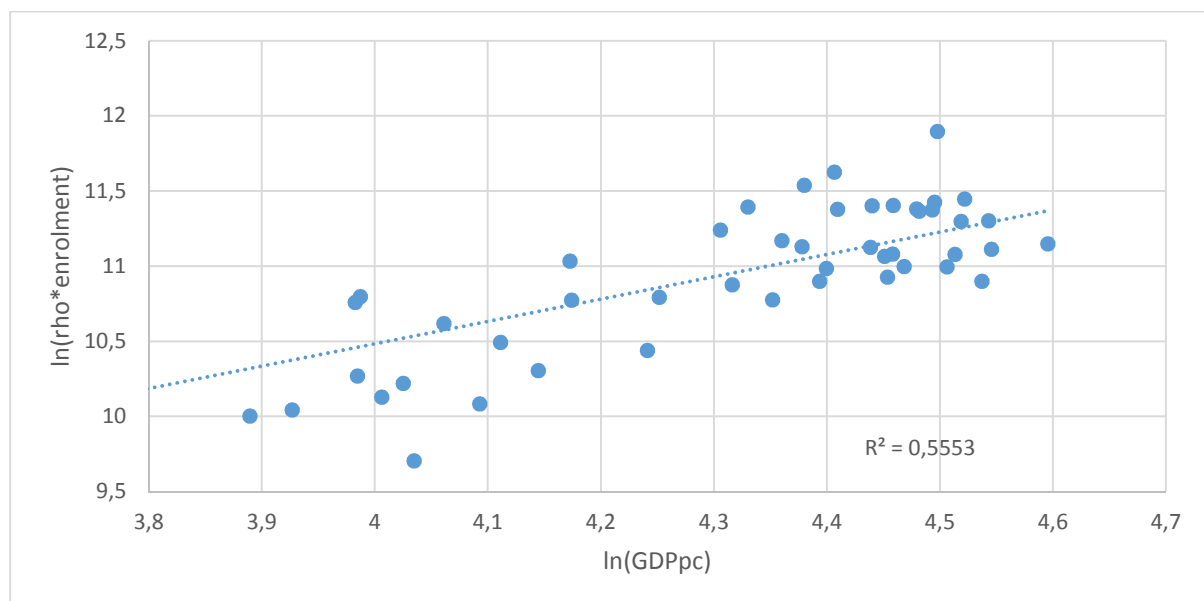
Source: Author's calculations

3.   Conclusion

The last century became the century of human capital. Every country in the world invested into the education and enforced the educational level of their inhabitants. Thanks to such policy, the income level as well as the overall quality of life in these countries raised. However, there is no more space to engage education in extensive way, what means that there is no space for higher enrolment in most developed countries, or for longer education. As mentioned in introduction, people simply must to work in some age. The result of such

hypothesis is, that the policy, mostly in the most developed world, must be aimed on the quality of education. With the quality, however, several questions occurred. Firstly, there is problem how to measure the quality. In this way, the PISA tests, or other forms of testing of students and graduated persons are needed. In the paper, we used the PISA test score from three different subjects – math, science and reading to calculate one overall indicator of the quality of education. The applicated linear programming methods, known as DEA models were used to calculate such a score. Furthermore, the intertemporal analysis has been made, to evaluate the shift of frontier as well as the catch-up effect of every country. There is significant decrease of frontier level between 2006 and 2015 in quality of education, what helped to overall convergence between countries. Secondly, we used the score measured by mentioned model, to multiply the school enrolment, and capture not only the qualitative aspect of the variable, but the quantitative as well. Thanks to such modification, we can conclude that there exists strong relationship between the quality of education and income per capita of evaluated countries.

Moreover, there is a plenty of possibilities for deeper research. One can set much sophisticated indicator for quality of education including more outputs and some actual inputs e.g. investments into education, salaries of teacher, etc. The main advantage of DEA is that the relative prices for every of the input or output are not necessary, and one overall score can be calculated. Furthermore, more sophisticated econometrical tools than simple scatter plot and correlation analysis are available. To reproduce the Mankiw, Romer, Weil methodology, with newer data enhanced by the qualitaive aspect of education is further dimension of our research.

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Appendix A
The score of evaluated countries

Country	Score	Rank	Benchmark 1	Benchmark 2
Canada	1	1	Canada	
Finland	1	1	Finland	
Japan	1	1	Japan	
Chinese Taipei	1	1	Chinese Taipei	
Estonia	0,99	5	Canada	Japan
Korea	0,98	6	Canada	Japan
Ireland	0,97	7	Canada	Japan
Slovenia	0,96	8	Japan	
Netherlands	0,96	9	Japan	
Germany	0,96	10	Japan	
Switzerland	0,96	11	Japan	
New Zealand	0,96	12	Japan	
Denmark	0,95	13	Japan	
Norway	0,95	14	Japan	
Poland	0,95	15	Japan	
Belgium	0,95	16	Japan	
Australia	0,95	17	Japan	
United Kingdom	0,95	18	Japan	
Portugal	0,94	19	Japan	
France	0,94	20	Japan	
Sweden	0,94	21	Japan	
Austria	0,93	22	Japan	
Russia	0,93	23	Japan	
Spain	0,93	24	Japan	
Czech Republic	0,93	25	Japan	
Latvia	0,93	26	Japan	
United States	0,92	27	Japan	
Italy	0,92	28	Japan	
Luxembourg	0,91	29	Japan	
Iceland	0,91	30	Japan	
Croatia	0,90	31	Japan	
Lithuania	0,90	32	Japan	
Hungary	0,90	33	Japan	
Israel	0,89	34	Japan	
Slovak Republic	0,88	35	Japan	
Greece	0,87	36	Japan	
Chile	0,84	37	Japan	
Bulgaria	0,83	38	Japan	
Romania	0,83	39	Japan	
Uruguay	0,81	40	Japan	
Turkey	0,80	41	Japan	
Montenegro	0,79	42	Japan	
Mexico	0,79	43	Japan	
Thailand	0,79	44	Japan	
Albania	0,78	45	Japan	
Colombia	0,77	46	Japan	
Qatar	0,77	47	Japan	
Indonesia	0,75	48	Japan	
Brazil	0,75	49	Japan	
Peru	0,75	50	Japan	
Tunisia	0,70	51	Japan	

Source: Author's calculations

Appendix B

Table 3
Malmquist index of period 2006 and 2015

Country	catch-up	frontier shift	malmquist index
Australia	1,01	0,957	0,97
Austria	1,03	0,956	0,98
Belgium	1,03	0,956	0,99
Canada	1,05	0,949	0,99
Chile	1,08	0,957	1,03
Czech Republic	1,02	0,956	0,98
Denmark	1,05	0,956	1,01
Estonia	1,07	0,955	1,02
Finland	0,98	0,962	0,94
France	1,05	0,957	1,01
Germany	1,05	0,957	1,01
Greece	1,03	0,957	0,99
Hungary	1,01	0,957	0,96
Iceland	1,02	0,956	0,97
Ireland	1,05	0,954	1,00
Israel	1,11	0,957	1,06
Italy	1,08	0,957	1,04
Japan	1,08	0,952	1,03
Korea	0,98	0,964	0,94
Latvia	1,06	0,957	1,01
Luxembourg	1,04	0,956	1,00
Mexico	1,06	0,957	1,02
Netherlands	1,02	0,956	0,98
New Zealand	1,01	0,955	0,96
Norway	1,08	0,957	1,04
Poland	1,05	0,957	1,01
Portugal	1,10	0,957	1,06
Slovak Republic	1,00	0,956	0,96
Slovenia	1,05	0,957	1,01
Spain	1,08	0,957	1,03
Sweden	1,03	0,957	0,98
Switzerland	1,03	0,956	0,99
Turkey	1,03	0,957	0,98
United Kingdom	1,04	0,957	1,00
United States	1,05	0,957	1,00
Albania	1,13	0,957	1,08
Brazil	1,07	0,957	1,03
Bulgaria	1,10	0,956	1,06
Colombia	1,12	0,957	1,08
Croatia	1,04	0,957	0,99
Indonesia	1,05	0,957	1,01

Lithuania	1,03	0,956	0,99
Montenegro	1,09	0,957	1,04
Peru	1,12	0,957	1,07
Qatar	1,31	0,957	1,25
Romania	1,12	0,956	1,07
Russia	1,11	0,956	1,06
Chinese Taipei	1,01	0,968	0,97
Thailand	1,04	0,957	0,99
Tunisia	1,03	0,957	0,99
Uruguay	1,06	0,957	1,02

Source: Author's calculations

Appendix C

The original sample of 51countries with the PISA score

DMU	(I)ONES	(O)SCIENCE	(O)READING	(O)MATH
Australia	1	510	503	494
Austria	1	495	485	497
Belgium	1	502	499	507
Canada	1	528	527	516
Chile	1	447	459	423
Czech Republic	1	493	487	492
Denmark	1	502	500	511
Estonia	1	534	519	520
Finland	1	531	526	511
France	1	495	499	493
Germany	1	509	509	506
Greece	1	455	467	454
Hungary	1	477	470	477
Iceland	1	473	482	488
Ireland	1	503	521	504
Israel	1	467	479	470
Italy	1	481	485	490
Japan	1	538	516	532
Korea	1	516	517	524
Latvia	1	499	488	482
Luxembourg	1	483	481	486
Mexico	1	416	423	408
Netherlands	1	509	503	512
New Zealand	1	513	509	495
Norway	1	498	513	502
Poland	1	501	506	504
Portugal	1	501	498	492
Slovak Republic	1	461	453	475
Slovenia	1	513	505	510
Spain	1	493	496	486

Sweden	1	493	500	494
Switzerland	1	506	492	521
Turkey	1	425	428	420
United Kingdom	1	509	498	492
United States	1	496	497	470
Albania	1	427	405	413
Brazil	1	401	407	377
Bulgaria	1	446	432	441
Colombia	1	416	425	390
Croatia	1	475	487	464
Indonesia	1	403	397	386
Lithuania	1	475	472	478
Montenegro	1	411	427	418
Peru	1	397	398	387
Qatar	1	418	402	402
Romania	1	435	434	444
Russia	1	487	495	494
Chinese Taipei	1	532	497	542
Thailand	1	421	409	415
Tunisia	1	386	361	367
Uruguay	1	435	437	418

Source: PISA score 2015

Forests in Environmental Diplomacy

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Abstract

The paper is focused on the environmental sphere of international relations. It determines global conferences, meetings and events regarding forestry taking place in 2017 and 2016. Forestry was chosen as a topic for discussion as the protection of environment has become the most desired issue of the century. The article is divided into three main parts according to the activities with an international, European or Slovak background. The crucial challenge include general and long-term interest of all countries in protecting the environment, not only those directly affected by climate change impacts. Furthermore, our findings reveal that the world tend to start taking care of the environment just few moments before a disaster is coming.

1. Introduction

According to UNFF (2017), forests presently cover 30% of the Earth's land area, or nearly 4 billion ha. An estimated 1.6 billion people (25% of the global population) depend on forests for subsistence, livelihood, employment and income generation. Forests provide society with wood, food, fuel, fibre, fodder and many more products. They offer ecosystem services (soil, land, water and biodiversity conservation), climate change mitigation and adaptation in a form of clean air or reducing the risk of natural disasters including floods, landslides, droughts, and dust and sand storms (Achard – Hansen, 2016).

The article is devoted to the topic of forestry as it is currently a burning problem in Slovakia. Civil initiative "We are the forest (My sme les)" as well as the Institute for Environmental Policy of the Ministry of Environment of the Slovak Republic confirm that Slovak forests have disappeared by 7% since 2000 (IEP, 2017). This topic is widely discussed, but relevant data sources provide different outputs. On the one hand, official data based on cadastral records do not monitor loss of Slovak forests. Contrary, they register an annual rise. On the other hand, satellite images show receding forests. What is more, Slovakia has lost 12.2% of forest cover in national parks (IEP, 2017).

Arts et al. (2013) argue that non-state governance and international actors are more comprehensive actors in the forest field. A classical system of decision-making does not meet modern interest-led NGO strategies. Therefore, we offer a list of European and international initiatives focused on forestry. These conferences are made of countries including the official representatives from Slovak Republic.

National Forest Inventory in cooperation with National Forest Centre (2016) claim that one tenth of total forest area is assessed every year, therefore it takes 10 years in average to reach a complex set of information in order to compare statistical data and to get final results on the changes in the sector of forestry.

International activities are very important for launching national action plans and countries´ own voluntary contributions. The paper consists of three main parts – International, European and Slovak environmental activities organized worldwide to support both, global and national policies. These events bring new ideas for individual governments in order to protect the environment, to boost international trade and to keep sustainable growth.

In 2017, international community put attention to the financing of global forestry. Countries and organizations tried to mobilize sources, which comprise of public but also private investment. Additionally, they agreed on the most important document to stress the role of forestry in the future *The UN Strategic Plan for Forests.*

Although the year 2016 is seen in Slovakia as the EU Presidency Year, we have witnessed positive efforts towards keeping sustainable growth in the country. Several important international environmental events with an active participation of the Slovak Republic were held in 2016 beginning with profiting from "political leadership" of the Forest Europe process and emphasizing the fact of placing Forest Europe secretariat "Liaison Unit Bratislava" in National Forest Center in Zvolen. In this paper, we try to summarize the most important events in terms of policy developments in European forests and forestry in 2017 and 2016.

2. International Activities

In general, international conferences are often perceived negative because of time-consumption (to reach agreement), travel and organizational costs, bureaucratic format (invitations, agenda, minutes, regulations, recording, quorum requirements), oppression/neglecting of "shy and weak" delegations, misunderstanding or ignorance of national customs and cultural traditions. However, when speaking about global issue, it is not possible to avoid a meeting of all countries together and to prepare a common view of forest benefits, crucial problems and challenges, future forest agenda and the path to overall sustainability. Most of the meetings take place on behalf of the United Nations and its specialized agencies, which ensures its seriousness.

2.1 United Nations Forum on Forests (UNFF)

The United Nations Forum on Forests is a high-level intergovernmental policy forum. The forum includes all United Nations Member States and Permanent Observers. In 2016, the ad hoc expert group UNFF drew up the UNDP Strategic Plan for Forests for 2017-2030 and the UNFF's four-year work program for the period of years 2017-2020. The UN Strategic Plan for Forests provides a global framework for measures for sustainable management of all forest types, stopping deforestation and forest degradation. The Plan combines international procedures, protocols and targets of the International Arrangements for Forests (IAF), the Paris Agreement under UNFCCC, forest Sustainable Development Goals (SDGs) of the Agenda 2030 and other forest and forest-related. The actions and commitments implemented by the UNFF members are a key factor to achieve global forest objectives.

On 20 January 2017, the Special Session of the UN Forum on Forests adopted the recommendations that are summarized under the Strategic Plan consisting of six Global Forest Goals and 26 associated targets to be achieved by 2030, which are voluntary and universal:

1. Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change – connected with forest carbon stocks, natural disasters and climate change.

2. Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people – interconnected with food security and extreme poverty.

3. Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests – protected areas and conservation measures.

4. Mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management and strengthen scientific and technical cooperation and partnerships - incentives to developing countries, private and philanthropic financing, North-South, South-South, North-North and triangular cooperation.

5. Promote governance frameworks to implement sustainable forest management, including through the UN Forest Instrument, and enhance the contribution of forests to the 2030 Agenda - Forest law enforcement.

6. Enhance cooperation, coordination, coherence and synergies on forest-related issues at all levels, including within the UN System and across Collaborative Partnership on Forests member organizations, as well as across sectors and relevant stakeholders - Cross-sectoral coordination.

On 1 May 2017, world's forest delegations met again in New York. The Chair of the twelfth session of the Forum on Forests Peter Besseau from Canada addressed all member countries to handle the drivers of deforestation and forest degradation with the aim to balance economic growth, social progress and environmental sustainability; and to improve governance in order to integrate forest issues (UNFF, 2017). In this meeting, Member States were supposed to report details about their "voluntary national contributions" in the sense of the UN Strategic Plan for Forests.

2.2 The 13th meeting of the UN Convention to Combat Desertification

UNCCD COP 13 was held on 6 September 2017 in Ordos, China. 113 out of 196 member countries met to specify concrete targets with clear indicators, to rehabilitate more land and reverse degradation, which currently affects over a third of the world's land resources (UNCCD, 2017a). The major issue of the event included presentation of the first global private sector fund dedicated to implementing the SDGs "the Land Degradation Neutrality Fund". The fund includes public and private investment to create projects to restore degraded lands and to reduce the social impacts of drought. The Conference was held in China due to successful Chinese Kubuqi model for desertification control, which has achieved massive international recognition so far (Green Business News Africa. 2017).

In the end of the UNCCD COP 13, signatory countries adopted an important document about the future agenda of the Convention. *UNCCD 2018-2030 Strategic Framework* includes following objectives (UNCCD, 2017b):

1. To improve the condition of affected ecosystems, combat desertification/land degradation, promote sustainable land management and contribute to land degradation neutrality.
2. To improve the living conditions of affected populations.
3. To mitigate, adapt to, and manage the effects of drought in order to enhance resilience of vulnerable populations and ecosystems.
4. To generate global environmental benefits through effective implementation of the UNCCD.

5. To mobilize substantial and additional financial and non-financial resources to support the implementation of the Convention by building effective partnerships at global and national level.

The document also presents expected impacts with regard of the national and regional conditions in order to avoid, minimize and reverse desertification/land degradation.

2.3 The 23rd FAO Committee on Forestry

COFO 23 was organized on the occasion of the 5th World Forest Week during 18 – 22 July 2016 in FAO Headquarter in Rome, Italy in order to identify the emerging policy and technical issues in forestry. Key anticipations consisted in uncovering how Sustainable Forest Management (SFM) can purposely contribute to SDGs and to establish a "new" forest and forestry agenda in the context of the key agreements from 2015. FAO committees together with delegations and experts tried to shape the policies and programs of FAO (IFSA, 2017). Even though, there was no COFO meeting held in 2017, the following session is projected to take place in the beginning of 2018 (February).

2.4 UN Climate Change Conference 2017: COP23

The last UN Climate Change Conference was formed during 6 – 17 November 2017 in Bonn, Germany. The most important ideas in the domain of forestry resulted in a final document adopted by all member countries at the COP23 called New National and Corporate Climate Action on Forests. Its initiative came from vulnerable Small Island Developing States (SIDS) as they are most affected by climate change. However, COP23 helped to mobilize all countries to make forest protection and rehabilitation and to set the financing of all forest ecosystems as a priority. Experts confirmed that the Paris Agreement's target to keep an average annual global temperature rise below $1.5 – 2$ ℃ will not be possible without nurturing forests (UNFCCC. 2017b). An urgent message from the Conference called for protecting forests, which daily absorb emissions from the atmosphere, protect biodiversity, and provide livelihoods for forest-dependent peoples. In fact, the world lost forests in the last year equal to the area of New Zealand. However, it is not possible to minimize climate change without forests.

COP23 identified Ecuador as the most impressive country in the sphere of deforestation with annual rate of 3% (about 10 million ha). At this rate the country will be completely deforested within 30 years (Jefferson – Mecham, 2001). In this occasion, COP 23 climate talks started with Ecuadorean initiative to reduce 15 million tonnes of CO_2 emissions and a new commitment to deforestation-free commodities (contain materials that substitute palm oil, soy, beef or pulp and paper) by Walmart (UNFCCC, 2017a).

2.5 Reducing emissions from deforestation and degradation REDD

International initiative aimed at promotion of different ways of forest resources usage. One of its main goal is to support curbing CO_2 emissions through payments for actions that prevent forest degradation (e.g. carbon trading). The importance is given to the developing countries that are a crucial player in this field. REDD funding consists in carbon trading, where economically developed countries offset emissions by transferring funds as carbon credits to emerging markets.

2.6. EU FAO Forest Law Enforcement, Governance and Trade (FLEGT) Programme

FLEGT belongs to the international initiative to prevent environmental, social and economic outputs of illegal timber trade. It was adopted by the EU in 2003, but it covers all signatory countries of FAO as well. Its Action Plan creates series of various measures and

practices to improve worldwide forest management and to secure its long-term sustainability. Funding of FLEGT includes public (governments), as well as private sector (8,000 stakeholders), mainly in developing countries (Africa, Latin America and Asia). FLEGT projects have been introduced in more than 32 countries (Colombia, Ghana, Benin).

3. European Activities

Forests in Europe tend to increase and they offer wide opportunities for mitigating climate change. In the EU28, transition to a green economy is always a priority of all environmental conferences, discussions and strategic agenda. In 2015, the EU-28 had approximately 182 million hectares of forests and other wooded land (Forest Europe, 2016).

3.1 The 4th European Forest Week - Las2017[1]

The official event was hosted by the Ministry of Environment of Poland under the theme: *Forests, our common good* (UNECE, 2017a). It took place on 9-13 October 2017 to celebrate contribution of European forests to people's lives. It was a joint session of the 4th European Forest Week, the UNECE Committee of Forests and the Forest Industry (COFFI) and the FAO European Forestry Commission (EFC). Throughout the Las2017, several national and local activities (exhibitions, talks, a wilderness retreat, lectures, a forestry film festival, workshops and videos) held simultaneously to raise awareness on forests.

Las 2017 included also a Market Discussion where environmental specialists on wood products emphasized the importance of forests and its products to mitigate climate change and to meet society's desire to live sustainably. Iain Macdonald, an expert on wooden buildings said to delegations that it takes five times more energy to produce a tonne of concrete and twenty-four times more energy to produce a tonne of steel, as compared to a tonne of wood (UNECE, 2017b). In regard of this matter, FAO Secretariat invites delegates to specifically address the following issues of the country market statement (FAO UN, 2017):

➤ The status of trade restrictions on forest products, the main objectives of these measures and the effects that they are having.

➤ Information on initiatives and policies that relate to the use of wood in construction.

In 2017, the annual Market Discussions of the COFFI (former Timber Committee) about the current and next year's forest products markets includes developments in specific forest product market sectors, e. g. sawn softwood and sawn hardwood, wood-based panels, wood raw materials including wood energy, pulp and paper and certified forest products.

What is more, UNECE/FAO, UNDA National Coaching Workshop met several times in 2017 in order to evaluate criteria and indicators for sustainable forest management (SFM), namely for Kyrgyzstan on 15 - 17 March 2017 in Bishkek, on 28 - 30 June 2017 in Astana (Kazakhstan), on 2 - 4 August 2017 in Tashkent (Uzbekistan), in September 2017 in Yerevan (Armenia) and in the end of November in Tbilisi (Georgia).

4. International Activities on the ground of the Slovak Republic

Long-term monitoring of forests and forest ecosystems is carried out annually in all countries. The Slovak Republic organize special research with several important aspects, primarily climate change, air quality, biodiversity, sustainability of forest management. Slovak experts regularly check bioclimatic conditions of forest vegetation and ensure forest conservation status assessment. The final outcomes are presented at the conferences.

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[1] In Polish, las means "forest".

4.1 A workshop on Promoting Green Jobs in the Forest Sector

From our point of view, a special focus is put on the meeting organized by Forest Europe, UNECE, FAO Timber Section and the Minister of Agriculture and Rural Development of the Slovak Republic. A joint workshop "Promoting Green Jobs in the Forest Sector" took place on 27—28 June 2017 in Bratislava, Slovakia. It was aimed at transition to a greener economy, which belonged to the main part of the SK PRES Agenda. All in all, the most important ecological conference during SK PRES was organized by the Ministry of Environment of the Slovak Republic and was named Transition to Green Economy (T2gE).

Panel discussions of the workshop *Promoting Green Jobs in the Forest* Sector (Forest Europe-UNECE-FAO UN, 2016) were aimed at current situation and complexity of green jobs (mainly types of green jobs, progress towards green jobs, challenges and ways of improving the situation of people who work in forests) and challenges and opportunities for more green jobs in the future (global megatrends, innovative technologies to boost bioeconomy and the circular economy).

The main topic of the workshop included Occupational health and safety of forest workers, Education and training for new skills development in the forest sector, Social equity and gender issues and Creating green job opportunities in the forest sector.

4.2 Slovak Presidency of the Council of the European Union (SK PRES)

The ambition of SK PRES was to prepare and adopt a common position of the European Union at meetings of intergovernmental multilateral organizations and to take a clear position on the current developments in the international forest dialogue. At the meeting of the FAO Forestry Committee in Rome in July 2016, SK PRES prepared a draft, which was approved at the level of the EU Forestry Council working group (F.16). On the basis of the approved mandate, SK PRES represented the whole EU at the meetings. Slovakia also prepared a statement of the EU on the draft United Nations Strategic Plan for Forests for the years 2017-2030. On the basis of the agreed mandate, SK PRES represented the EU at the UNFF Expert Group in Bangkok in October 2016 (MH SR, 2017, p. 21).

The implementation of the EU Forest Strategy was dealt with by the Directors General responsible for forests in the EU at the informal meeting in Bratislava on 7-9 November 2016. It successfully resulted in creating "*The Bratislava Forest Declaration*".

SK PRES initiated the resumption of the EU's internal debates on a possible legally binding forest agreement in Europe. First suggestions were said at the informal discussions at the meetings of the Forest Directors-General, then at the EU Forestry Council.

In the field of forests and climate change, SK PRES co-organized a seminar on the role of forests and forest-wood complexes on 15 November 2016 in the European Parliament. It was primarily focused on the fight against climate change in the period after COP21.

4.3 OECD Scheme for Certification of Forest Reproductive Material in international trade

The most important material of The Organization of Economic Co-operation and Development is named *The OECD Scheme for the Certification of Forest Reproductive Material*. The last annual meeting took place on 31 January - 2 February 2017 in Paris and on 26-30 June 2017 in Prague, Czech Republic but did not bring dramatic changes.

However, during the SK PRES, it was the Slovak Republic that ensured the coordination of the common position of the EU28 for the annual meeting of the OECD Forest Reproductive Material Scheme. The meeting took place on *4-5 October 2016* in Paris. The scheme supports production and use of forest tree seeds and plants that have been collected,

processed, raised, labelled and distributed in a manner that ensures their trueness to name. This "certified" material is intended for use in a variety of forestry functions, including timber production, soil protection and environmental criteria (OECD, 2017). Until the end of 2017, 25 participating countries[2] implemented the Scheme.

The SK PRES ambition to streamline the coordination of EU member states in the OECD was accomplished. In addition, the representative of the Slovak Republic took part in the meeting of the Technical Working Group of the OECD Scheme held in Hungary on 26 and 27 April 2016.

4.4 Forest Europe

The Ministerial Conference on the Protection of Forests in Europe is the pan-European voluntary high-level political process for dialogue and cooperation on forest policies in Europe. It was founded in 1990. Even though this event is a European activity, we organized it under the International Activities of the Slovak Republic as it has been a chair during the period of the year 2016-2020. As of 2014, the Slovak Republic was in the position of its Vice-Chairman.

The basic objective of the dialogue is to formulate common strategies on current forestry and forest protection problems in Europe in order to ensure the sustainable management of the forest resources of the region and their further development. Political decisions on the strategic direction of forestry in Europe, most often in the form of political declarations and resolutions, are being adopted as part of this process.

Function and tasks of *The Liaison Unit Bratislava* (Secretary) began to be performed by a separate organizational unit created within the NLC (National Forestry Centre = Národné lesnícke centrum). During its mandate (until the 2020 Ministerial Conference in Bratislava), The Liaison Unit Bratislava and General Coordinating Committee (GCC)[3] will organize and arrange meetings and workshops, prepare reports and all the necessary documentation for the need of the association.

The design of the FOREST EUROPE Work Programme for the years 2016-2020 was proposed at the Madrid Ministerial Conference in 2015 and was approved at the Expert Level Meeting in Bratislava on 11-12 May 2016. The Programme has 7 main objectives (Forest Europe, 2016):

1. further development and updating of policies for sustainable forest management (SFM),

2. forest monitoring and reporting (indicators and criteria for SFM),

3. enhancing the role of sustainable forest management in a green economy,

4. incorporating the value of forests ecosystem services in a green economy,

5. protection of forests in a changing environment and their adaptation to climate change,

6. enhancing the social dimension of SFM in the context of the benefits of forests to human health and well-being,

7. communication and outreach (global and regional fora to raise awareness).

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[2] Austria, Belgium, Burkina Faso, Canada, Croatia, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Madagascar, Netherlands, Norway, Portugal, Romania, Rwanda, Serbia, Slovakia, Spain, Sweden, Switzerland, Turkey, United States.
[3] A current GCC members are Germany, Slovakia, Spain, Turkey and Sweden.

In green economy, they implemented activities related to the creation of new "green jobs" in the forestry, including the development of new skills and competencies of the workforce. The Slovak Government has undertaken to cover the preparation of an analysis of different approaches, methods and practical examples of valuation and payments for forest ecosystem services that have been successfully implemented in the signatory countries of the FE process. It will be served by experts from NLC and Slovak Ministry of Agricultural and Rural Development.

First meeting of the Task Force on the Future of the Forest Europe was held in Bratislava in October 2016. Slovak forest specialists decided to conduct a questionnaire survey to identify the attitudes and expectations of signatories and observers. About 11 more events took place throughout the year 2017. Liaison Unit Bratislava created a new FE website, intensified communication through social media, set up and launched a communication platform to discuss the main issues concerning the individual points of the work program with invited experts (MH SR, 2017).

Conclusion

According to FAO, forest is defined as land and spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. However, there cannot be one single definition as the forests differ according to different biomes and regions of the Earth. Due to this natural feature of forests, we seem FAO´s definition as satisfactory enough as it considers all the phases of the forest growth in variety of conditions. It means that the official data also works with forests after clearcut or windblowns of natural forest fires, when there is a recognition that forests naturally regenerates themselves in particular time, so it means small trees (invisible for the satellites) growing on open places will reach the FAO given thresholds in situ, so there is no meaning to see them as „lost" in that year.

In summary, we provide evidence that there are important consequences associated with forestry in Slovakia and in the world. Even though official statistics by the Ministry of Agriculture and Rural Development of the Slovak Republic says that forest land represented 2,016,729 ha in 2016 (stand land 1,944,123 ha) and is annually increasing, Institute for Environmental Policy of the Ministry of the Environment of the Slovak Republic contrary claims that satellites have monitored loss of Slovak forest land by 7% since 2000. In our opinion, it is necessary to resolve the dispute of measuring the data and defining basic terms. Then we can move on to responsibly taking care of the nature and protected species in order to keep environmental sustainability.

It remains a more open question whether organizing conferences is satisfactory to protect our forests and the environment, but they certainly serve as a base for international community to start their own national actions. Once the delegation agrees on a new action plan or convention to combat deforestation, the country is obliged to fulfil membership commitments.

Many forest-related events are interconnected and member parties often have overlapping mandates in several international and national environmental organizations and conferences. Therefore, even an informal voluntary workshop may be beneficial as it leads up to the forest contact network (Maguire, 2013, p. 102). What is more, meeting experts at the conference is usually useful in the form of received advice based on long-term professional experience and potential cooperation for the future.

Hoogeveen, H. & Verkooijen (2010, p. 111) stress the importance of forest functions defined by FAO in 2005. They are shown in the table below. We can see that multiple purpose create a big part, thus the global governance of forests is very important.
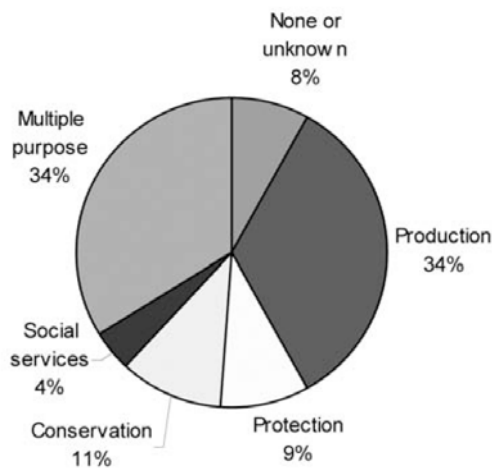
It is worth noting that the Slovak Republic participated in all the international and European activities mentioned in the article. Moreover, the country is highly involved in the domain of forestry globally and is keen to organize international environmental conferences on the domestic ground. We perceive placing Liaison Unit Bratislava in Zvolen as an important step towards increasing attractiveness of the country in the international background and towards creating forest-friendly country image.

What is more, EU institutions awarded SK PRES for successful results reached in the fight against unfair agricultural commercial practices and a joint EU document "Bratislava Forest Declaration". Slovak forest diplomacy underlined the importance and irreplaceable role of forests and forest-wood complexes in the context of current challenges such as the shift to bio-farming, the Paris Climate Agreement, or the Energy Union.

Acknowledgement

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ICAO and the United Nations Sustainable Development Goals

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Abstract

Air transport is a fast growing, dynamic and integral part of the world's path towards sustainable development. This article is giving an overview about the United Nations Sustainable Developments Goals (SDGs) in the matter of the international aviation and concrete measures taken by the International Civil Aviation Organization (ICAO), which is the specialized UN agency taking care of standardizing and harmonizing global principles of civil aviation on behalf of its parent body. This article focuses on the Economic and Environmental ICAO Strategic Objectives of the four SDGs (SDG 8, 9, 11 and 13), the achievement of which are directly aided by the benefits States realize through ICAO-complaint air transport systems. The article also includes a discussion on the obstacles to effective implementation of the relevant strategies supporting the SDGs.

1. Introduction

Climate change is a defining challenge of our times. All States and sectors of the economy have to contribute their fair share in order to avoid devastating consequences. The international community agreed in Paris to make all necessary efforts to limit the global temperature increase well below 2°C compared to pre-industrial levels and to pursue efforts to further limit the temperature increase to 1.5°C above pre-industrial levels. This can only be achieved through adequate and urgent action by all sectors generating green-house gas emissions, including international aviation. Following COP21, it is now for the aviation sector to contribute to achieving these objectives. To address the climate impacts of aviation, the International Civil Aviation Organization (ICAO) agreed on a "basket of measures" (ICAO, 2016), including technological advances in green aircraft technology and standards, operational improvements, sustainable alternative fuels and global market-based measures scheme (ICAO Environmental Report, ICAO, 2016).

Today, the sector of air transport plays a major role in driving environmental, economic and social development. It directly supports the employment of 9.9 million people, indirectly 11.2 million people, contributes over \$2.7 trillion to global Gross Domestic Product, and carries over 3.8 billion passengers and 53 million tonnes of freight in 2016 (Aviation Benefits, ICAO, 2017). Aviation accounts today for approximately 2 per cent of global man-made CO_2 emissions, with international aviation representing about 1.3 per cent. However, the projected growth of air transport, with the doubling of global passengers and flights by 2030, must be managed responsibly and sustainably, to limit its effects on the global climate. The year 2016 started with a milestone for the aviation sector, the recommendation for a new global CO_2 certification Standard for aircraft, the first of its kind. Continuous investments in air traffic management and operational improvements by the aviation sector not only ensure that carbon

intensity gains are not lost due to inefficiencies in the global aviation system but helped reduce emissions. Technology and operational improvements have allowed for 40 per cent improvement in the past 20 years. Regarding alternative energy, sustainable drop-in alternative fuels have the potential to be a game-changer for the sector: a technically sound solution which does not require any change in infrastructure or to the aircraft, with a life-cycle CO_2 reduction potential of up to 80 per cent compared with traditional jet fuel. Five pathways for the production of these fuels for use in aviation have already been approved and Oslo airport recently became the first hub in the world to deliver biofuels to all its airlines. It is now time for Governments to deploy adequate energy policies to reduce regulatory barriers, increase availability and make sustainable aviation biofuel more affordable (ICAO, 2016).

The United Nations Sustainable Developments Goals (SDGs), adopted in 2015 under the title *Transforming our World: The 2030 Agenda for Sustainable Development*, to be implemented over 15 years, are 17 in number which have 169 targets. If one creates a link between the SDGs and aviation, the lead player can be identified as the United Nations as well as the ICAO, which claims that its 5 Strategic Objectives (enhance global civil aviation safety; increase the capacity and improve the efficiency of the global civil aviation system; enhance global civil aviation security and facilitation; foster the development of a sound and economically-viable civil aviation system; and minimize the adverse environmental effects of civil aviation activities) are strongly linked to 13 of the 17 UN SDGs and ICAO is fully committed to working in close cooperation with its member States and other UN Bodies to support related targets. In furtherance of these aims ICAO supports the SDGs in its capacity as an official observer on the UN Inter-agency and Expert Group on Sustainable Development Goal Indicators. ICAO's current overarching philosophy is anchored on two commitments, the first being its support of the SDGs and the second being the alignment of work so that no country is left behind. The latter essentially involves assistance to needy States in bringing them up to speed in the areas of safety, security, environment protection in the aviation context, capacity building and sound economic policy in air transport, so that all (191) member States are aligned. This is a straight forward objective although there is no clear path so far identified as to how the "no country left behind" plan can be implemented. However, it remains a laudable goal which requires the support of member States which could enable ICAO to achieve its goal. In pursuance of the "no country left behind" aim, ICAO is stepping up its technical cooperation program which is conducted by ICAO's Technical Cooperation Bureau (TCB) under the supervisory eye and policy guidance of the ICAO Assembly and of the Council, with a view to "providing advice and assistance in the development and implementation of projects across the full spectrum of civil aviation aimed at the safety, security, environmental protection and sustainable development of national and international civil aviation". ICAO claims that: "since its establishment in 1952, TCB has implemented civil aviation projects with an accumulated value in excess of US\$ 2 billion. With an average annual program size of over US\$ 120 million, it is involved in approximately 250 projects each year with individual project budgets ranging from less than US\$ 20 000 to over US\$ 120 million. To date, TCB has provided assistance to over 115 countries, deploying annually approximately 1200 international and national experts".

The Assembly Resolution A39-23 – *No Country Left Behind (NCLB) Initiative* which in its preambular clauses recognizes *inter alia* that the successful implementation of the NCLB initiative will enhance States' air transport systems and align with the achievement of the SDGs and, in pursuance of this recognition inter alia encouraged Member States to include within their aviation infrastructure development projects elements of training and capacity building aimed at strengthening their civil aviation authorities to enable an effective oversight of such infrastructure; and to establish partnerships with other Member States, industry, fi-

nancial institutions, donors and other stakeholders through ICAO to enhance their civil aviation systems and oversight capabilities. The Resolution also calls upon all member States and relevant partners able to do so to provide States in need with financial and technical resources to assist them in enhancing their civil aviation systems by implementing Standards and Recommended Practices (SARPs) contained in the Annexes to the Chicago Convention which is the constitutive multilateral instrument that sets global standardization and harmonization of civil aviation, by fulfilling their oversight responsibilities (Abeyratne, 2016).

2. Relevant SDGs to Aviation

We will focus on the Economic and Environmental ICAO Strategic Objectives of just few of the SDGs, the achievement of which are directly aided by the benefits States realize through ICAO-complaint air transport systems. Beginning with **SDG 8**, which calls on governments to *Promote inclusive and sustainable economic growth, employment and decent work for all.* Aviation generates some 63,5 million jobs directly and indirectly while contributing 2,7 trillion US dollars to global GDP. Air transport is also a reliable source of economic and job growth, given the historic trend which has seen the global flight and passenger volumes double every fifteen years – even when other areas of the economy are beset by recessionary downturns. This very dependable economic activity and employment provides governments, whether national, regional or municipal, with a much robust tax base and the confidence to establish and move forward on the long-term planning which truly sustainable development demands (ICAO, 2016; Statement by the Secretary General of the International Civil Aviation Organization).

Multilateralism in air transport which ICAO promotes through its Resolution A39-15—*Consolidated statement of continuing ICAO policies in the air transport field* which also recognizes that the basic principles of sovereignty, fair and equal opportunity, non-discrimination, interdependence, harmonization and cooperation set out in the Convention have served international air transport well and continue to provide the basis for and contribute to its future development (Abeyratne, 2017).

ICAO is developing a Global Air Transport Plan (GATP) that will solidify ICAO's leadership in harmonizing the air transport framework in all Member States and that will set the strategy to foster the development of a sound and economically-viable civil aviation system globally through targeted economic policies and supporting activities. The implementation of the GATP contributes to SDG by encouraging sustainable tourism and supporting diversification, technological upgrading and innovation of the aviation industry that will ultimately contributes to the achievement of higher level of economic productivity, sustained economic growth, particularly in developing countries, and reduction of unemployment rates, including for the youth. ICAO develops new policies and guidance material to facilitate availability of funding and financing to implement air transport development projects, safety, security and economic oversight functions, as well as analysis of public-private partnerships.

ICAO supports inclusive green growth as a pathway to sustainable development for the aviation sector, and as a mean to improve resource efficiency in consumption and production while decoupling economic growth from environmental degradation. ICAO fosters green economy initiatives as enablers of improvements in new green technologies and clean energy for the aviation sector, and investments in aviation biofuels produced through sustainable agricultural practices and processing processes, creating green jobs. A green economic growth for the aviation sector, among other effects, has the potential to generate significant social benefits, including safe and secure working environments for all workers, and sustainable tourism that creates additional jobs and promotes local heritage, culture and products. These actions contribute to SDG 8 by promoting higher levels of economic productivity through

diversification, technological upgrade and innovation (see on the https://www.icao.int/about-icao/aviation-development/SDGEN/ENV8.pdf).

Turning now to **Goal 9**, it is a key priority for ICAO today to *Build resilient infrastructure, promote sustainable industrialization and foster innovation*. An important caveat here, however, is that public finance alone will not be sufficient to meet the total financing needs for aviation infrastructure. A mere 4.2 per cent of annual Official Development Assistance (ODA) financing is currently earmarked for air transport infrastructure, and accordingly ICAO is striving to forge strong, long-term partnerships between States, international and regional organizations, industry, the donor community, and financing institutions (ICAO, 2016).

The implementation of the GATP will facilitate aviation infrastructure and air transport operations improvements and the availability of funding for aviation infrastructure financing. ICAO conducts studies on airport capacity constraints, Aviation System Block Upgrades (ASBUs) cost-benefit analyses, effectiveness and impact of economic regulation and the implementation of air navigation and safety standards. ICAO develops guidance material on air cargo services, conducts studies on aircraft leasing and on business and general aviation services. These activities contribute to SDG 9 by developing quality, reliable and resilient infrastructure, promoting innovation and sustainable industrialization, by supporting economic development and human wellbeing on the long term, by enhancing scientific research, and by leading to an upgrade in the technological capabilities of the aviation sectors concerned (see on https://www.icao.int/about-icao/aviation-development/SDGEN/ED9.pdf).

ICAO recognizes the need to consider adaptation as the consequences of climate change that need to be anticipated and effectively addressed. ICAO's work on adaptation to climate change includes: improving the resilience of aviation infrastructure in cooperation with WMO and EUROCONTROL; the work programme of the Committee on Aviation Environmental Protection (CAEP) Working Group 2 (Airports and Operations) and the Impacts and Science Group (ISG); as well as a scoping study on adaptation in the North Atlantic, to serve as a starting point for further work to identify the potential impacts of climate change on international aviation operations and related infrastructure and adaptations measures to address the impacts, contributing to SDG 9. he organization is also coordinating with financial institutions, such as the World Bank and other international Development Banks, to facilitate access to financing infrastructure development projects (see on https://www.icao.int/about-icao/aviation-development/SDGEN/ENV9.pdf).

SDG 11 aims at *Making cities and human settlements inclusive, safe, resilient and sustainable*. ICAO is already working very closely with the UN and other international organizations to integrate aviation development into a broader methodological framework, balancing the needs of multiple transport modes with urban development. A good example of ICAO's recent outreach and partnership to this end is the joint pilot project ICAO has begun with UN-Habitat (see on https://unhabitat.org/, https://www.icao.int/ESAF/Pages/un-habitat-icao-2016.aspx) to promote synergies between airport and urban development, and ICAO has also extended great efforts toward mitigating aircraft noise and emissions around airports. ICAO has also developed guidance to facilitate transport for persons with disabilities, among the many other contributions air transport delivers in aid of more sustainable and culturally diverse urban settings.

ICAO is developing a methodological framework document on the Aviation Satellite Account to measure the size of aviation-related direct GDP and to evaluate the economic contribution of aviation safety and air navigation related projects. The Organization also publishes an Annual Economic Contribution Report (see on https://www.icao.int/sustainability/Pages/

eap-fp-economic-contribution.aspx), quantifies the impact of liberalization on traffic, fares and economies, develops, updates and customizes licensed personnel requirement and long-term traffic as well as air navigation planning forecasts, provides fuel consumption data that enable reports on CO_2 emissions to the United Nations Framework Convention on Climate Change (UNFCCC) and harmonizes traffic databases. With these activities, ICAO contributes SDG 11 by facilitating access to safe, affordable and sustainable transport systems for all, that will contribute to enhancing inclusive and sustainable urbanization as well as integrated and sustainable human settlement planning. These actions are also consistent with the sustainable aviation development linkages contained in the New Urban Agenda.

ICAO develops and maintains guidance on eco-friendly airports, evaluates policies for aircraft recycling and establishes Clean Development Mechanism (CDM) methodologies for aviation, which will allow aviation projects to qualify for the generation of carbon credits under the CDM of the UNFCCC. These activities, along with the development and update of SARPs addressing local air quality, through the maintenance of Annex 16 – *Environmental Protection*, Volume II, the update of Doc 9501, *Environmental Technical Manual* and Doc 9889, *Airport Air Quality Manual*, as well as the work undertaken by the Committee on Aviation Environmental Protection (CAEP) working groups, allow ICAO to contribute to SDG 11 by supporting sustainable urbanization and human settlement planning at the national level, support the establishment of positive environmental links between regions and thus, reduce adverse environmental impacts of cities through improvements in air quality and waste management (see https://www.icao.int/sustainability/Pages/eap-fp-economic-contribution. aspx).

Taking urgent action to combat climate change and its impacts is a key priority for every responsible citizen or organization today, and this brings us to air transport's contribution in aid of **SDG 13.** ICAO conducts studies on the economic, environmental and social impacts of aviation and share the results with another international organisation. ICAO also works support States in dealing with emergency situations by providing economic data for disaster relief activities. Through data reporting and preparedness activities, the organization contributes SDG 13 by raising awareness, educating and building institutional capacity on climate change mitigation and consequent impacts reaction (https://www.icao.int/about-icao/aviation-development/SDGEN/ED13.pdf).

ICAO provides Member States with internationally-agreed policies, Standards, guidance and tools, aimed at reducing or limiting the environmental impact of CO_2 emissions from international aviation, including the development and implementation of a "basket of measures" to meet the global aspirational goals of a 2% annual fuel efficiency improvement, and carbon neutral growth from 2020. Significant progress has been achieved on the implementation of all the elements of the basket of measures, namely innovative aircraft technologies, more efficient operational procedures, sustainable alternative fuels for aviation, and a global market-based measure. Regarding aircraft technologies, ICAO adopted in March 2017 the first-ever CO_2 emissions *Standard for Aeroplanes* (see on   https://www.icao.int/Newsroom/Pages/ ICAO-Council-adopts-new-CO2-emissions-standard-for-aircraft.aspx). In this regard, this new aeroplane CO_2 emissions Standard represents the world's first global design certification standard governing CO_2 emissions for any industry sector. The Standard will apply to new aircraft type designs from 2020, and to aircraft type designs already in-production as of 2023. Work is also being undertaken with respect to operational improvements to minimize fuel consumption and CO_2 emissions, as reflected in the 5th edition of the *Global Air Navigation Plan* endorsed by the 39th Session of the ICAO Assembly. While technical and operational improvements are well under way, cleaner and more sustainable energy sources will be a real game-changer for aviation emissions reduction and alternative fuels are essential to ICAO's environmental strategy. While the technical feasibility, environmental impacts and safety of

biofuels have been well-demonstrated, ICAO is now fostering their large-scale deployment. ICAO launched the Global Framework on Aviation Alternative Fuels (GFAAF). This online platform provides a continuously updated database of activities and developments in the field of alternative aviation fuels, as well as useful documentation and links, to support information sharing and dissemination for the benefit of the aviation fuels community. The GFAAF also includes an on-line map illustrating, as a live feed, flights operating with alternative fuel. Following the historic and landmark agreement by the 39th Assembly in 2016 on a global market-based measure, in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), ICAO is undertaking preparatory activities for the CORSIA implementation, including the development of new SARPs, which are anticipated to constitute Volume IV to Annex 16 – *Environmental Protection*. CORSIA complements the many other efforts ICAO and its Member States are pursuing to mitigate CO_2 emissions, including driving greater innovation in aircraft technologies, more streamlined operational procedures and sustainable alternative fuels. As of November 2016, 66 States representing more than 86.5 per cent of international aviation activity intend to voluntarily participate from the outset in the CORSIA – a clear testament to its design and intent (ICAO, 2016). The new SARPs will define methodologies related to Monitoring, Reporting, Verification (MRV) of CO_2 emissions and carbon credits. ICAO is currently working on issues related to the adaptation to climate change impacts on aviation infrastructure and operational procedures, through the development of new guidance material on this subject. ICAO also assists States to integrate and implement CO_2 reduction measures included in their state Action Plans, in particular in developing States and Small Island Developing States (SIDS), with the aim of providing technical assistance, including with resources from the ICAO – UNDP and Global Environment Facility (GEF) and from ICAOEU assistance projects, and through capacity building strategy for effective climate change-related action.

The Assembly also adopted Resolution A39-25 – *Aviation's contribution towards the United Nations 2030 Agenda for Sustainable Development* which recognized that air transport is a catalyst for sustainable development and that it represents an essential lifeline for Least Developed Countries (LDCs), and especially for Landlocked Developing Countries (LLDCs) and SIDS to connect to the world; and that air transport connectivity is of utmost importance for the economic, social and territorial cohesion of Member States and their populations. The Resolution goes on to recognize that the benefits enabled by air transportation can only materialize if States have a safe, efficient, secure, economically viable and environmentally sound air transport system and that to this end the NCLB initiative aims at assisting States in effectively implementing ICAO SARPs, plans, policies and programs, as well as addressing Significant Safety and Security Concerns so as to ensure that all States have access to the significant socio-economic benefits of air transport. In this context ICAO makes mention in the Resolution of the 2030 Agenda for Sustainable Development that balance the economic, social and environmental dimensions of sustainable development. Resolution A39-25 further recognizes that a global partnership comprising governments, the private sector, civil society, the United Nations system and other actors would be collectively needed to mobilize all available resources for the implementation of the SDGs which are quite extensive in the scale and ambition. It is also said in the Resolution that ICAO Strategic Objectives contribute to the attainment of the SDGs. As for action, The Resolution *inter alia* urges Member States of ICAO to enhance their air transport systems by effectively implementing SARPs and policies while at the same time including and elevating the priority of the aviation sector into their national development plans supported by robust air transport sector strategic plans and civil aviation master plans, which in turn would lead to the attainment of the SDGs. It directs the Secretary General of ICAO to continue monitoring and reviewing, when applicable, the contributions made towards the attainment of the SDGs through the implementation of ICAO

Strategic Objectives and work programs and to ensure that ICAO participate, when applicable and in alignment with its Strategic Objectives, in appropriate mechanisms put in place to support the implementation of the 2030 Agenda for Sustainable Development so that aviation is recognized and prioritized as such by Member States in their development plans (Abeyratne, 2016).

3. Renewables and Alternative Fuels

On the subject of alternative fuels, the Assembly adopted the Resolution A39-2 (*Consolidated statement of continuing ICAO policies and practices related to environmental protection— Climate change*), which endorsed the use of sustainable alternative fuels for aviation, particularly the use of drop-in fuels in the short to mid-term, as an important means of reducing aviation emissions. The Resolution requests States *inter alia* to consider measures to support research and development as well as processing technology and feedstock production in order to decrease costs and support scale-up of sustainable production pathways up to commercial scale, taking into account the sustainable development of States; recognize existing approaches to assess the sustainability of all alternative fuels in general, including those for use in aviation which should achieve net Greenhouse Gas emissions reduction on a life cycle basis, contribute to local social and economic development; competition with food and water should be avoided; and adopt measures to ensure the sustainability of alternative fuels for aviation, building on existing approaches or combination of approaches, monitor, at a national level, the sustainability of the production of alternative fuels for aviation, and work together through ICAO and other relevant international bodies, to exchange information and best practices, including for the harmonization on the sustainability criteria of aviation alternative fuels. This having been said, the most relevant requirement of Resolution A39-2 in the context of work by the Council is that it should encourage States to cooperate in the development of predictive analytical models for the assessment of aviation impacts; continue evaluating the costs and benefits of the various measures, including existing measures, with the goal of addressing aircraft engine emissions in the most cost-effective manner, taking into account the interests of all parties concerned, including potential impacts on developing world. Photovoltaic cells and wind turbines are rapidly coming into use and alternative fuels are also gaining ground. ICAO records that 2500 commercial flights have already been flown with the use of alternative fuels pursuant to commercial flights operated by airlines that have signed alternative fuel purchase agreements.[1] Economists are already calling for a revision of the policy to go exclusively to renewables (in terms of solar powered aircraft) and alternative fuels with a view to evaluating the potential of fixing markets and toning down or balancing subsidies (Abeyratne, 2017).

4. Obstacles to ICAO Supporting the SDGs

The trouble with ICAO is that, as already discussed, it is guided by jumbled maze of generalized concepts that create a rag tag collection of ideas on cooperation towards supporting the SDGs. Even when one looks at Resolution A39-25: *Aviation's contribution towards the United Nations 2030 Agenda for Sustainable Development* it merely urges Member States

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[1] Those agreements are: United Airlines and KLM flights departing from Los Angeles (LAX); Lufthansa, SAS, and KLM / KLC flights departing from Oslo (OSL); and SAS, KLM, and BRA flights departing from Stockholm-Arlanda (ARN). At an ICAO Seminar on alternative fuels held in February 2017, an FAA presentation revealed that 1.1 million gallons in 2016 had been produced by one commercial producer. At the same event Virgin Australia announced the programme on alternative fuels it had launched in March 2016 had been successful in that 200 million litres of fuel are projected to be produced in Australia or New Zealand for 10 years from 2020 and that responses from all parts of the supply chain had been received with strong interest from the region and internationally. *In:*

to recognize the significant contributions of aviation to sustainable development realized by stimulating employment, trade, tourism and other areas of economic development at the national, regional and global levels, as well as by facilitating humanitarian and disaster response to crises and public health emergencies. The action called for is a watered-down direction to the Council and the Secretary General, within their respective competencies, to demonstrate that ICAO continues to serve as an advocate for aviation by raising awareness among Member States, including relevant authorities beyond the air transport sector, the United Nations system, the donor community and all relevant stakeholders about aviation's contributions to sustainable development and the attainment of the SDGs. As for Member States, they are requested to enhance their air transport systems by effectively implementing SARPs and policies while at the same time including and elevating the priority of the aviation sector into them national development plans supported by robust air transport sector strategic plans and civil aviation master plans, thereby leading to the attainment of the SDGs.

As Abeyrante states that the reason behind ICAO's impotence in playing an active role in supporting the SDGs with purpose, direction and specificity has two dimensions. The first is that ICAO has shown reluctance in fulfilling its obligations under the Chicago Convention in certain crucial areas, for example, Article 55 d) of the Chicago Convention identifies as a permissive function (non-mandatory) of the ICAO Council to *"study any matters affecting the organization and operation of international air transport, including the international ownership and operation of international air services on trunk routes, and submit to the Assembly plans in relation thereto"*. Thus far, no study has been conducted on how Member States could support the SDGs except the adoption of an Assembly resolution. All that one sees on the ICAO website is a grid which identifies the various programmes of ICAO that are relevant to each SDG. A dedicated study could reflect how exactly the ICAO programmes could be applied by States in supporting the SDGs. Such a study could be in the form of a roadmap such as the safety roadmap developed in safety. The second dimension is that, when one links the relationship between ICAO and the UN with its conduct as a toothless tiger, one observes that ICAO has developed no concrete plans on both its initiatives relating to the UN SDGs and its NCLB. It has merely exhorted States to take measures in supporting the SDGs. The reason is clear: ICAO has only aims, and objectives as provided by Article 44 of the Chicago Convention, which are *"to develop principles and techniques of air navigation and foster the development of air transport"*. This clearly shows that while ICAO has an authoritative role in the technical field, it has absolutely no coercive role in the air transport field. The SDGs that are related to ICAO's work are mostly in the air transport field where ICAO is effectively precluded by Article 44 from developing principles that would have a coercive effect on their compliance by Member States. This has led to the unfortunate situation where neither ICAO nor its Member the States can meaningfully contribute to the SDGs in the context of aviation, and they need more purpose and direction from ICAO than mere resolutions which are couched in ambivalent and overarching statements and requests. It is time a concrete plan is drawn up by ICAO to show a creative way forward for States in the various areas covered by the SDGs which would use innovation and creativity to address the trends that are showing. The sooner this is done the better (Abeyratne, 2017).

5. Conclusion

ICAO has shown that it is, as a UN organization quite responsible and adept at implementing actions prescribed by its Assembly Resolutions. However, there are two considerations that need to be ironed out for this to happen. One is that ICAO must be mindful that Assembly Resolutions are results of political compromises and arrangements to which no legal force can be ascribed and therefore ICAO may have an uphill task in implementing the two

resolutions. The other is that "no country left behind" has been perceived by many as an ambivalent "concept" that has not shown a sense of direction or purpose so far. ICAO claims that NCLB "highlights ICAO's efforts to assist States in implementing ICAO SARPs. The main goal of this work is to help ensure that SARP implementation is better harmonized globally so that all States have access to the significant socio-economic benefits of safe and reliable air transport". ICAO goes on to say that it "should provide more direct assistance to developing countries by playing a more active coordination role between States and by helping to generate the political will needed for States to pool resources, participate in regional efforts, earmark voluntary funds and build capacity". How would this be done? This would also have to be ironed out (Abeyratne, 2016).

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Macroeconomic Determinants of Non-Performing Loans
in the Slovak Banking Sector

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Abstract
This paper attempts to examine the impact of selected macro economic variables on the non-performing loans (NPL) in the Slovak banking sector. Using multiple regression analysis, the paper investigates the relationship between NPL and the GDP growth, inflation rate, lending interest rate and unemployment rate for Slovakia for the period from 2010Q1 to 2017Q4. Among the macroeconomic variables, the results suggest that the unemployment rate is a significant factor; a higher unemployment rate leads to a higher NPL ratio in the Slovak banking system.

1. Introduction

The ratio of non-performing loans to total loans (NPL ratio) is a common indicator of credit risk which provides information about the asset quality in the loan portfolio. The rising ratio may signal deterioration in the quality of the credit portfolio. Deterioration of asset quality may lead to problems in the banking system. A large increase in NPL could be used to mark the onset of a banking crisis (Reinhart – Rogoff, 2010).

The NPL ratio is also part of the set of the Financial Soundness Indicators (Národná Banka Slovenska, 2017a) and is considered as one of the factors that have an impact on the financial and banking stability. Therefore, it can be viewed as one of the indicators for monitoring vulnerability of the banking system. The National Bank of Slovakia (NBS) closely monitors the development of the NPL ratio and it is included in the set of the macroprudential indicators of the Slovak financial sector (Národná Banka Slovenska, 2017b).

As per the latest Financial Report Stability of the NBS (Národná Banka Slovenska, 2017b), there is a continuous strong growth in both household and retail loans in Slovakia. Mainly the rapid growth in household debt poses a risk to the stability of the Slovak financial sector. The rising household indebtedness makes households more vulnerable to worsening of the economic situation. Moreover, several empirical studies claim the excessive debt growth make financial crisis more likely. Therefore, it is not only important to monitor the quality of banks' loan portfolio but also to know the determinants of rising NPL in order to minimize it.

There are many empirical studies investigating the factors that influence the NPL. Most empirical studies look at it from the macroeconomic point of view. They try to examine relationship between the NPL ratio and macroeconomic variables such as the GDP growth, inflation, interest rate, unemployment rate or effective exchange rate.

Using quarterly data from 2010Q1 - 2017Q4 in a regression analysis, the aim of this paper is to estimate the impact of four selected macroeconomic variables - the GDP growth, inflation rate, lending interest rate and unemployment rate - on the NPL ratio in the Slovak banking system.

2. Literature review

There are many papers studying the factors that have an impact on the evolution of non-performing loans. Especially, the outbreak of the financial crisis in 2007 has brought a great interest in this topic. The literature identifies two sets of determinants of the NPL ratio: macroeconomic and bank-specific determinants. Either researchers examine the determinants for one specific economy or they use panel data for several countries and banks.

One of the earliest empirical studies was done by Keeton and Morris (1987) who investigated the causes of loans losses in the US banks. They found that the local economic conditions have a substantial impact on the variation of loan losses. Baboučak and Jančar (2005) used VAR methodology for Czech Republic and showed that there is a positive correlation between the NPLs and unemployment rate and inflation. Jimenez and Saurina (2006) studied the determinants of NPL in Spain and suggested that a rise in NPL is caused by the GDP growth, a decline in real interest rates and a rapid credit growth. Quagliarello (2007) indicates that a decline in GDP growth and an increase in the unemployment rate have a negative effect on the NPL ratio for a large panel of Italian banks over the period 1985–2002. The results of this study are similar to results of a research conducted on the quality of loans separately for households and firms in Italy over the period 1990 to 2010 by Bofondi and Ropele (2011). According to these authors, the quality of loans of households and firms can be explained by the changes in macroeconomic conditions such as the growth rate of GDP and unemployment. The researchers at the National Bank of Slovakia, Zeman and Jurča (2008), tried to investigate the link between the quality of the aggregate bank portfolio - NPL ratio and macroeconomic environment in Slovakia using data from 1996 to 2006 in a multivariate regression model. They identified the real GDP, exchange rate SKK/EUR and 3-month BRIBOR as the most important variables. Louzis, Vouldis and Metaxas (2010) used dynamic panel data methods to examine the determinants of the NPL for each loan category in the Greek banking sector. Mainly the macroeconomic variables such as the GDP growth, unemployment, interest rates, public debt and management quality have an effect on all loan categories. The impact of macroeconomic factors is different among loan categories, with non-performing mortgages being the least responsive to changes in the macroeconomic conditions.

There are many empirical researches based on panel analysis. Using single panel regressions on a sample of 26 advanced countries from 1998 to 2009, Nkusu (2011) found that deterioration of macroeconomic environment - GDP growth and unemployment – leads to rising NPL. Mileris (2012) applied logistic regression, factor analysis and probit methods using data for 22 European countries and he states that the macroeconomic conditions, especially the unemployment rate and interest rates have a strong influence on the quality of loans in the banks. Using panel data for a sample of 85 banks in Italy, Greece and Spain, Messai and Jouini (2013) find out that the NPL ratio is negatively correlated with the growth rate of GDP, the profitability of banks' assets and positively with the employment rate, the loan loss reserves to total loans and the real interest rate. Klein (2013) investigates sensitiveness of the NPLs to both macroeconomic conditions and bank's specific factors in the Central, Eastern and South-Eastern Europe in the period from 1998 to 2011. The author found that the level of NPLs tends to increase when the unemployment rate rises, the exchange rate depreciates, and the inflation is high. The banks' specific factors were found to have a

relatively low explanatory power. Škarica (2014) used a panel data to estimate the determinants of the changes in NPL ratio in seven Central and Eastern European countries, including Slovakia, between 2007 and 2012. His results suggest that the primary causes of high levels of NPL are the real GDP growth, unemployment and the inflation rate. Using a panel data set for 75 countries from 2000 to 2010, Beck, Jakubik and Piloiu (2015) identified that the real GDP growth, share prices, the exchange rate and the lending interest rate significantly affect the NPL ratio. Anastasiou, Louri and Mike (2016) study the determinants in the euro-area banking system for the period from 1990 to 2015 and found out that unemployment rate, GDP growth, output gap and tax on personal income exert a significant influence on the NPL. Using a cross-country analysis from the sample of 25 emerging countries for the period from 2000 to 2011 the empirical study of Radivojevic and Jovovoic (2017) shows that NPL ratio can be mainly explained by macroeconomic factors (such as the GDP growth and inflation rate), bank-specific factors and the lagged NPL ratio.

3. Data and Methodology

The literature analysis indicates that the changes in the quality of the loan portfolio in banks depend mostly on macroeconomic conditions. Based on the literature review, we assume that the macroeconomic factors play also a big role in the development of the NPL in the Slovak banking sector.

In this paper we try to estimate how the NPL ratio is affected by certain macroeconomic variables. Based on the literature review, we selected four macroeconomic determinants which seemed to be the most significant. We used the real GDP growth, inflation rate, lending interest rate and unemployment rate as explanatory variables in our regression model. Compared to the paper of Zeman and Jurča (2008), our econometric analysis is based on a different period and is using less macroeconomic variables. However, the unemployment rate was not included in the study of Zeman and Jurča.

The data for GDP growth, inflation rate and unemployment rate are seasonally adjusted. The monthly data for lending interest rate were converted to quarterly figures by calculating an unweighted average of the corresponding three months.

The dependent variable is a percentage change in the NPL ratio. As per the methodology of the NBS, the loans are non-performing when the payments are past due by 90 days or more, or a bank thinks that it is not likely that the debtor will pay the debt without realization of collateral (Národná Banka Slovenska, 2007).

This econometric analysis uses quarterly data from 2010Q1 to 2017Q4 extracted from the database of the National Bank of Slovakia. The sample includes 32 observations. We excluded the crisis period 2008/2009 since the Slovak economy was also hit by the economic and financial crisis. We wanted to avoid the volatile period, especially in 2009. The Slovak economic recovery was already relatively strong in 2010 so we chose to use data from 2010Q1.

We assume that the development of the NPL ratio is related to the economic growth and this relationship is negatively correlated. A rise in GDP growth will to lead to a decline in NPL.

The relationship between the inflation rate and NPL ratio is ambiguous in the literature. Some empirical studies demonstrate that a rise in inflation leads to a higher NPL ratio because it reduces the borrower's real income when wages are fixed. On the other hand, there are empirical researches that demonstrate a negative relationship because the inflation reduces the real value of loans. Thus, debt servicing is easier for the debtors.

Changing lending interest rate affects borrower´s lending capacity, more so if loan interest rates are variable. When the interest rates on loans rise, borrowers with variable rate loans will face higher debt payments. Higher debt might induce a rise in the NPL ratio. Thus, the correlation between the NPL ratio and lending interest rate is expected to be positive.

Increasing unemployment rate is anticipated to have a negative effect on the NPL ratio because it will lead to a decline in the households' incomes and more borrowers are unable to repay their debts.

The Figures 1, 2, 3, 4 and 5 show the development of the NPL ratio, GDP growth, inflation rate (based upon the percentage change in harmonized consumer price index HICP), the lending interest rate and unemployment rate in Slovakia for a period from 2010Q4 to 2017Q4.

Figure 1
Development of NPL ratio
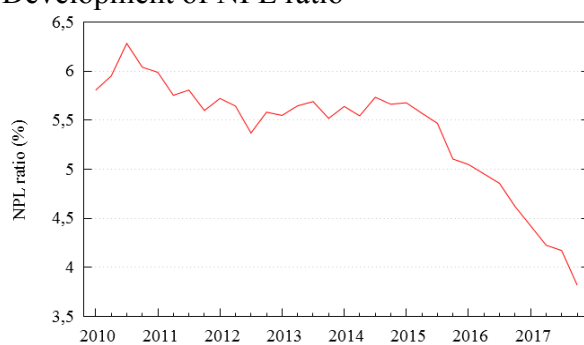
Source: author's construction based on NBS data

Figure 2
Development of GDP growth
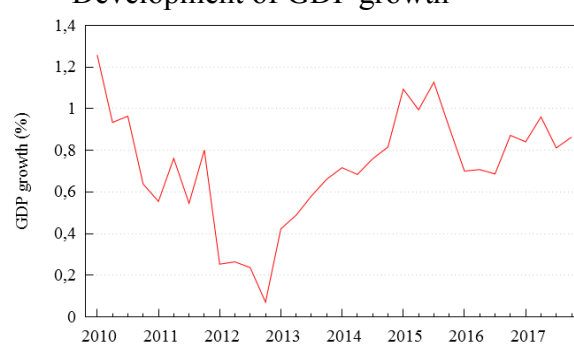
Source: author's construction based on NBS data

Figure 3
Development of inflation rate

Source: author's construction based on NBS data
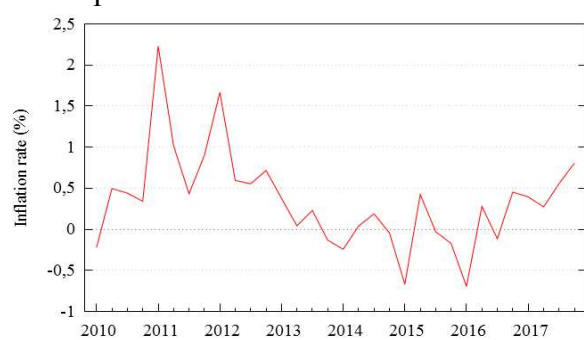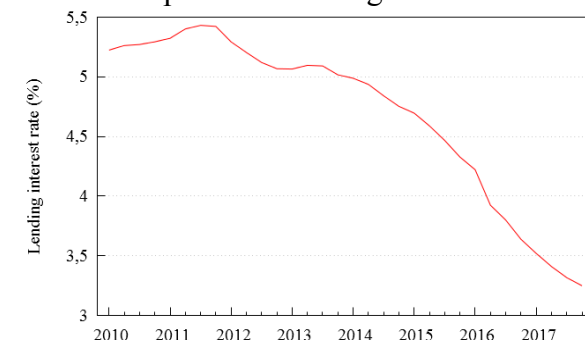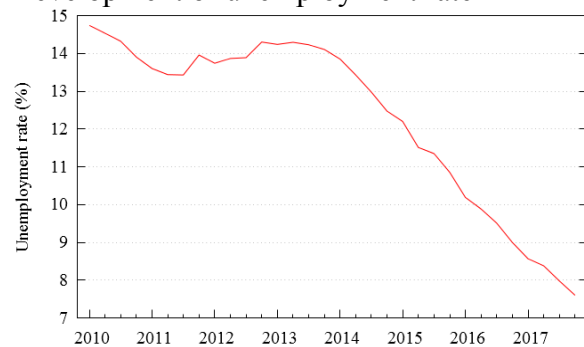
Figure 4
Development of lending interest rate

Source: author's construction based on NBS data

Figure 5
Development of unemployment rate

Source: author's construction based on NBS data

In order to use the ordinary least squares (OLS) regression, the time series have to be stationary. There are several tests for stationarity or unit roots. In this paper, we use the KPSS test. We took the difference of logs of the NPL ratio, GDP growth and unemployment rate and we calculated the first difference of the lending interest rate in order to ensure their stationarity. After the transformation, the KPSS test confirms that the time series for all variables are stationary. The Table 1 shows the results of the stationarity testing of each variable.

Table 1
KPSS test - Stationarity test

Variable	p-value	Test statistics	Critical values		
			10%	5%	1%
NPL	$> .10$	0,0876	0,1220	0,1490	0,2100
GDP	$> .10$	0,1023	0,1220	0,1490	0,2100
Inflation	$> .10$	0,1177	0,1220	0,1490	0,2100
Lending interest rate	$> .10$	0,0616	0,1220	0,1490	0,2100
Unemployment rate	$> .10$	0,0819	0,1220	0,1490	0,2100

Source: author's calculation based on NBS data
Notes: Lag truncation parameter = 4
The null hypothesis for the test is that the data is stationary. The alternate hypothesis for the test is that the data is not stationary. The null hypothesis is rejected if p-value is less than 0.05.

The variables in the econometric analysis are defined as follows:

 ➢ NPL: the log difference of non-performing loans to total loans,

 ➢ GDP: log difference of growth rate of real GDP,

 ➢ Inflation rate: proxied by the percentage change in HICP index (index 2015=100),

 ➢ Lending interest rate: the first difference of lending interest rates, and

 ➢ Unemployment rate: the log difference of unemployment rate.

The Table 2 presents a summary of the descriptive statistics for each variable after their transformation.

Table 2
Descriptive Statistics

Variable	Mean	Median	Std. deviation	Minimum	Maximum
NPL	-0,0094	-0,0132	0,0393	-0,0882	0,1176
GDP	-0,0206	0,0207	0,4806	-1,214	0,0542
Inflation	0,3474	0,3587	0,5852	-0,6957	2,228
Lending interest rate	-0,0616	-0,0711	0,0759	-0,2970	0,0782
Unemployment rate	-0,0190	-0,0201	0,0274	-1,2140	1,7930

Source: author's calculations based on NBS data

Then, we run multiple OLS regression in the software Gretl. The explanatory variables are lagged in the model. The following equation is estimated:

$$d.ln(NPL_t) =$$

$$\alpha + \beta_1 d.ln(NPL_{t-1}) + \beta_2 d.ln(GDP_{t-1}) + \beta_3 \Delta\%(I_{t-1}) +$$

$$\beta_4 \Delta(IR_{t-1}) + \beta_5 d.ln(U_{t-2}) + \varepsilon_t \tag{1}$$

with t = 1, 2,..., 32

Where:

$d.ln(NPL_t)$ denotes the log difference of the NPL ratio at a quarter t,

α denotes the constant,

β denotes the estimated coefficient,

$d.ln(NPL_{t-1})$ denotes the log difference of the NPL ratio with one lag,

$d.ln(GDP_{t-1})$ denotes the log difference of the GDP growth with one lag,

$\Delta\%(I_{t-1})$ denotes the percentage change in HICP index with one lag,

$\Delta(IR_{t-1})$ denotes first difference in lending interest rate with one lag,

$d.ln(U_{t-2})$ denotes the log difference of the unemployment rate with 2 lags,

t denotes the quarter,

ε_t denotes the error term.

4. Results

The Table 3 shows our results with the estimated coefficients of the explanatory variables and corresponding standard error and p-values. The determination coefficient R-squared shows that the independent variables in regression explain 57.15% of the variation of the dependent variable – the percent change in NPL ratio.

The Table 3 shows also the tests which were taken for the model. There is no autocorrelation of residuals. The variance of residuals is constant and therefore, there is no heteroskedasticity in the model. The residuals are normally distributed. The multicollinearity test suggests that the macroeconomic variables are not correlated. The Ramsey's RESET test indicates that the functional form of the regression is appropriate.

The results suggest that only the unemployment rate with a lag of 2 quarters has a significant impact on the NPL ratio. The findings indicate a strong and positive relationship between the change in the unemployment rate and change in the NPL ratio. If the unemployment rate rises by 1%, the NPL ratio will rise by 0.9091%. This finding is consistent with other empirical studies and supports the view that unemployment rate reduces households' income and weakens borrower's ability to repay their loans.

The GDP growth has a positive sign of the coefficient but the results indicate that this macroeconomic variable is not significant in the model.

The change in inflation rate has a negative sign of the coefficient estimate but the result suggest that it does not have a significant effect on the NPL ratio.

The lending interest rate has positive value of the coefficient in the model but it was found not to have a significant impact on the NPL ratio.

Table 3
Estimation results for Slovakia, 2010Q1 – 2017Q4

	Model		
	coefficient	std. error	p-value
Intercept	**0,0031**		0,0078	0,6932
NPL$_{t-1}$	**-0,2732**		0,1791	0,1392
GDP$_{t-1}$	**0,0060**		0,0114	0,5977
Inflation$_{t-1}$	**-0,0114**		0,0095	0,2398
Lending interest rate$_{t-1}$	**0,0152**		0,0775	0,8456
Unemployment rate$_{t-2}$	**0,9091**	***	0,1884	<0,0001
R-squared	0,5715		
Adjusted R-squared	0,4891		
Breusch-Godfrey LM test	0,5340		
Breusch-Pagan test	0,7422		
Normality of residual	0,6737		
Multicollinearity	2,1830		
Ramsey's RESET test	0,2060		

Source: author's calculation based on NBS data
Notes: The *** denotes significance at 1%.
We use a 5% significance level for all hypothesis testing. The significance level of 5% is mostly used in the reviewed literature.
Breusch-Godfrey LM test for autocorrelation up to order 4 with the null hypothesis that there is no autocorrelation.
Breusch-Pagan test for heteroskedasticity with the null hypothesis that heteroskedasticity is not present.
Test for normality of residual with the null hypothesis that the error is normally distributed.
VIF>10.0 may indicate a multicollinearity problem. The maximumVIF value in the table.
Ramsey's RESET test for specification with the null hypothesis that specification is adequate.

5. Conclusion

The credit risk is one of the main risks in commercial banks. Higher credit risk affects banks' quality of the loan portfolio. The ratio of non-performing loans to total loans is often used as a proxy for the asset quality and helps to identify problems with the quality in the loan portfolio. The deterioration of the NPL ratio affects not only the liquidity and profitability of banks but it may also endanger the banking stability. Thus, the NPL ratio is one of the relevant indicators of the financial soundness of the banking sector and investigating the determinants of credit risk is important for both regulation authorities and banks.

In this paper, we tried to estimate an impact of four macroeconomic determinants on the NPL ratio in the banking sector of Slovakia. We used a multiple regression approach to analyze the impact of the GDP growth, inflation rate, lending interest rate and unemployment rate for the period from 2010Q1 and 2017Q4. The result of our analysis indicates that the

change in the unemployment rate is a significant determinant of the dynamics of the NPL ratio in the Slovak banking sector. This finding is in line of many empirical studies. However, our model does not indicate a significant relationship between the GDP growth, inflation rate, lending interest rate and the NPL ratio.

This research has several limitations. Firstly, the determinants of the NPL ratio are limited to four variables. Our model with the chosen variables do not explain the total variation of the NPL ratio. We have not incorporated other macroeconomic variables such as nominal effective exchange rate or share price index or any bank-specific variables such as profitability or liquidity in our model. Moreover, the NPL ratio includes both household and retail loans that have a different dynamics in Slovakia. Further research could be focused on estimating a model separately for household and for corporate NPL.

Acknowledgement

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Open Educational Resources @ the Estonian Council Presidency

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Abstract
In the period 1 July – 31 December 2017 Estonia held the Presidency of the Council of the EU. The last amongst the Baltic States to do so, Estonia showed stability and focus even though it has experienced the nemesis of all Presidency organisers: 'expect-the-unexpected' situation in this case occurred even before the actual Presidency begun. Namely, the popular vote that opened up a process of the United Kingdom's disintegration from the EU has also shaken the Council Presidency structure. Presidencies are undertaken in groups of three EU Member States (MS) that form a common Trio programme and are bound to hold the helm of the Council of the EU for 18 months where each MS presides for 6 consecutive months. Estonia was planned to be the second partner in Trio 8 represented by the United Kingdom – Estonia – Bulgaria, however shortly after the Brexit vote the UK has excused itself from the Presidency Trio leaving the later two 'new' EU MSs without an experienced partner. Nevertheless, Estonia's level of preparedness and concentration marked its Presidency as successful. In line with our previous paper "Open Educational Resources Development and its Infancy in Slovak eLearning" in which a summary of the state-of-affairs in development of Open Educational Resources in the Slovak Republic is presented we shall now deal with the Digital Single Market so passionately promoted by Estonian Council Presidency. Our focus will be laid upon the Open Educational Resources and the positive impact Slovak Republic might gain in this particular context.

Keywords: *Estonian Council Presidency, open educational resources (OER), Slovakia*
JEL classification: *F55, O19, O34*

1. Introduction

In the environment where (developed parts of) the globe experience micro industrial revolutions almost on a monthly basis one often wonders about the application of accessible technological innovations in the academia, in particular Open Educational Resources (OER). Without a doubt there are numerous examples of the stated (Jhangiani, 2017), however we are focused primarily on the case of the Slovak Republic. Bearing in mind the OER's noteworthy impact on the educational level of a nation (Bednárik, Adamová, 2015), it is therefore having significant influence on economic development in the context of, on the one hand, the European Union (EU) in general and the Digital Single Market (DSM), as well as

competitiveness of an EU MS (in this case Slovakia), on the other. In line with EDAMBA 2014 and 2015 titles, "Trends and Innovations in Economics and Management" and "The Era of Science Diplomacy: Implications for Economics, Business, Management and Related Disciplines" respectively, the topic of the Council Presidency has already been dealt with in respect to agenda-shaping depending on the crisis as well as interests of the Visegrad Four and Mediterranean countries (Kovačević, 2014; Kovačević 2015). We have now set our focus on the OER in the context of the DSM and its ardent endorsing during Estonian Council Presidency held in the period 1 July 2017 – 31 December 2017. Having in mind Estonian national interest in promoting DSM and, therefore indirectly, OER we perceive it as the window of opportunity for the Slovak Republic profiting from the application of Digital Single Market to Open Educational Resources, and vice versa as the development of OER will surely have a positive impact on educational level of Slovak/EU citizens, therefore on competitiveness of Slovakia/EU, too. The *leit motif* for our research has been a summary of the *state-of-affairs* in development of the OER in the Slovak Republic, its development in the EU as well as worldwide published in the paper *Open Educational Resources Development and its Infancy in Slovak e-Learning* (2017).

Open Educational Resources emerged as a scientific experiment some 15 years ago but officially the term was first used at the UNESCO's 2002 Forum on Open Courseware. In the course of time it has efficiently progressed being used and endorsed by not only academia, but also non-profit organisations, companies as well as governments where the existence of Internet has *de facto* changed education and knowledge from being a commodity of the elite to a public good heavily supporting the concepts of public schools and libraries (Pišútová – Kovačević, 2017).

For more than six decades Council Presidency has retained its ungrateful role of persistent consensus broker striving to harmonise requests and interests of the EU MSs, on the one hand and common goals of the EU, on the other. Somewhere in-between the lines successful Council Presidencies managed to achieve the abovementioned at the same time seizing the opportunity and advocate for topics of a major interest to their own nation. This was especially in the case of the so-called 'small' MSs, whose voices tend to be abated by their 'large' counterparts, therefore achieving the balance of power within the EU (Bunse, 2009; Bunse – Nikolaïdis, 2012).

We have been witnessing a very turbulent and sensitive decade in the history of the EU. Global financial, banking and migration crisis at the time when the EU was at its largest in the context of EU28 and yet challenged by its possible contraction to EU27 as a result of Brexit and United Kingdom seizing to exist as an EU Member State. British public vote has set course on many events and Council Presidency was one of those. Council Presidency trio to assume the helm of the Council of the EU in the period 1 July 2017 – 31 December 2018 was initially planned in the composition of the United Kingdom – Estonia – Bulgaria. However, UK's withdrawing from this position has left the trio without its larger and most experienced partner only a year prior to the beginning of the Presidency. Solution seemed easy to make yet complex to organise – the planned order of presiding MSs was moved forward, therefore forming a new Presidency trio: Estonia – Bulgaria – Austria. Regardless of the reshuffle, Estonia took a self-assured posture claiming to be prepared for its presiding task, where the agenda of fully operating (Digital) Single Market remained as one of the key parts of the Presidency programme.

Therefore, based on analytical and synthesis-seeking "zoom-in" and "zoom-out" monitoring of lately released relevant academic sources, the aim of this paper is to point out accomplishments of the Estonian Council Presidency in terms of both developments as well

as challenges that lay ahead of the EU in the context of Digital Single Market and possibilities it opens in the sphere of Open Educational Resources.

2. OER in the context of the 2017 Estonian Council Presidency

"Since the signing of the Treaty of Rome, the free movement of goods, services, capital, and people has been the cornerstone of the European Union. But if we want to ensure that every European is free to enjoy what Europe has to offer in the digital age, Europe must keep up with technological progress and make it work in our favour.

With good reason, the Estonian Presidency has been called a 'digital presidency'. Promoting the digital dimension in all EU policy areas was our main priority. In addition to telecommunications infrastructure, the market, and cybersecurity, the idea that our future will be digital also underpinned legal cooperation, energy, internal security, defence, agriculture, space and many other areas. I hope that this approach will also appear in the next budget of the European Union and in other activities over the next few years."

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Ratas, J. (2018). Estonian Council Presidency.
Speech by Estonian Prime Minister Jüri Ratas: a review of the Estonian Presidency.
https://www.eu2017.ee/news/

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2.1 Presidency of the Council of the European Union

Council Presidency is a well-established veteran institution of the European Union, now accounting for more than six decades of balancing between requests and interests of the EU MSs and common goals. While constantly brokering consensus between the two sides Council Presidencies, especially the ones perceived as successful, managed to actively balance between the supranational and intergovernmental institutions in the EU, whilst at the same time grabbing the opportunity and promoting the topics of a major interest to their own Member State. Looking back at the beginnings of the Council Presidencies, MSs initially presided the Council in 3-month terms according to alphabetical order (with Belgium being the first in line). Nevertheless, over time the Council Presidency term has increased to 6-month period also reaching the role of a significant stakeholder of the EU internal and external affairs. As the European integration process has evolved and the number of MSs risen, in 2007 a series of 6-month rotating presidencies have been introduced in the form of so-called *troïkas* or trios therefore having strong impact in achieving the balance of power within the EU (Bunse, 2009; Bunse – Nicolaïdis, 2012). This was especially the case of the so-called 'small' MSs and particularly strong in the period before the Lisbon Treaty. It is not surprising, than, that Council Presidency was advocated and promoted by the 'small' MSs of the EU. However, instalment of trios in line with other novelties introduced by the Lisbon treaty, has also taken significant part of manoeuvre space for MSs to promote their own national agendas as the common one, since its programmes must be coordinated with the trio preparing for presiding, but also the trio that will continue afterwards. The list of interested parties involved in the agenda-setting also includes the President of the European Council, the High Representative for the Common Foreign and Security Policy, the EC (Bunse – Rittelmeyer – Van Hecke, 2011; Bunse – Klein, 2014).

Trio Presidency that is holding the Council Presidency in the period of 1 July 2017 – 31 December 2018 is the eighth in line since troïka-system was established in 2007. Trio 8 Council Presidency was initially arranged as trio set of the United Kingdom, Estonia and Bulgaria. Nevertheless, results of the referendum held in the United Kingdom in June 2016 have not only set the UK towards Brexit path, but have also disintegrated the planned Trio 8 due to UK's abandonment of the arrangement. Consistent to the new situation, restructured Trio 8 based its programme on the future of the EU of 27 MSs, the Strategic Agenda of the

European Council and the Joint Declaration on the EU's legislative priorities for 2017 initiatives (Estonian Council Presidency official website, 2017e). According to the Trio 8 Programme (Estonian Council Presidency official website, 2017e) it will, thus, deal with issues concerning the following five thematic areas: a Union for jobs, growth and competitiveness; a Union that empowers and protects all its citizens; a path towards an energy Union with a forward-looking climate policy; a Union of freedom, security and justice; and the Union as a strong global actor. Their focus will mainly be kept on: implementation of the European Agenda on Security and the European Agenda on Migration; fight against radicalisation and violent extremism; implementation of the EU Global Strategy; Western Balkans enlargement; tackling the root causes of flight and irregular migration in cooperation with partners in the Mediterranean region; continuation and finalisation of Digital Single Market proposals; efficient taxation, fight against tax fraud; support for young people especially in the form of education and training; further implementation of the UN "Agenda 2030" for sustainable development that include 17 Sustainable Development Goals; investment in growth and jobs, including research and innovation; fight against poverty and social exclusion; continuation of the work on a sustainable, resilient and effective energy union; implementation of the Paris climate agreement and the EU's 2030 targets for the reduction of greenhouse gas emissions (Estonian Council Presidency official website, 2017d).

Estonian Council Presidency

Estonia's historically first Council Presidency started on 1 July 2017 and was finished on 31 December 2017, therefore being the last of the three Baltic states to hold this particular position. Within the Trio 8 it was the one to begin trio's 18-month presiding period sharing the responsibility with Bulgaria - a 'new' MS and Austria - an 'old' MS. Estonia was planned to start Trio 8 Presidency cycle as the second in line after the United Kingdom with significant plans and preparations to use its centenary[1] during Council Presidency in order to stress the existence of the country's statehood that is far longer than generally perceived. Nevertheless, as already mentioned the UK excused itself from its presiding role just one year before the actual Trio 8 was set to start. Estonia (and other partners) found itself in the presiding limelight six months sooner than anticipated.

With its presidential motto 'Unity through Balance', Estonia set a priority list that included: an open and innovative European economy; a safe and secure Europe; a digital Europe and the free movement of data; and an inclusive and sustainable Europe (Estonian Council Presidency official website, 2017c). These priorities were to be reached by designing a suitable environment for openness and innovative flourishing but also by fighting against, both terrorism, as well as organised crime, finding appropriate solutions for migration crisis, intensifying connection with the Eastern countries of the European Neighbourhood Policy. Striving to develop the EU defence cooperation is added to this list, including efforts of evolving and expanding modern and secure cross-border e-commerce and e-services throughout the EU. Facilitating equal prospects for acquiring both high-quality education and high-quality skills for employment purposes with enabling access to services and better life-quality in cleaner environment will also serve in the process of reaching the abovementioned priorities.

Regardless of the fact that Estonia experienced fundamental changes before kicking off its Council Presidency in the context of Brexit, alongside its centenary celebration of the Republic of Estonia, the Council Presidency organisers as well as executives can also

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[1] Estonia was declared an independent republic on 24th February 1918, when the Estonian Salvation Committee released "Manifesto to the Peoples of Estonia" (A Hundred Years of Republic of Estonia official website, 2018, https://www.ev100.ee/en/story-estonian-state's-birth).

celebrate their success. In his speech, the presidency of the European Commission J.-C. Juncker openly praised Estonian Presidency, underlying his opinion according to which 'small' MSs are better in managing of Council Presidencies than their 'large' counterparts. He even perceived Estonian Council Presidency as a model for future Council presidencies as this was, according to him, the best one he had witnessed (Cavegn, 2018). The accomplishments of the Estonian, also called *Digital Presidency*, are numerous be it on a smaller or a larger scale. Hereby follow the most important of the Estonian Presidency's accomplishments: strong push for the long-term competitiveness of the EU by accomplishing a common understanding on the next EU-level step for creating e-state, the infrastructure for the technology of the next generation (i.e. G5) and the DSM; several agreements were reached with the MSs in the context of fighting the climate changes, such as significant increase in reusing of waste, switching energy market to renewable sources of electricity with stricter emission quotas; brought Europe on a higher level of defence cooperation with notable improvements in both traditional and cyber defence cooperation; concentrated on finding the root causes of migration, and used support of IT as well as fast data exchange in order to make the EU's external borders safer (Estonian Council Presidency official website, 2017b).

Pursuing the line established by our previous paper *"Open Educational Resources Development and its Infancy in Slovak e-Learning"* (Pišútová – Kovačević, 2017) in the context of the draft Ph.D. thesis of D. Kovačević titled *"Reflection of V4 interests in the context of V4 Presidencies in the enlarging and reforming European Union as a prerequisite for agenda shaping in terms of the Netherlands – Slovakia – Malta (2016-2017) Presidency troïka"* as well as a long-term research on the topic of OER by K. Pišútová this paper now streamlines its focus on achievements of the Estonian Council Presidency in the context of DSG and OER and its potential application to reality of the Slovak Republic.

2.2 State of Open Educational Resources in EU and the World

In 2017, the Commonwealth of Learning[2] (COL) published Global Report on the state of Open Educational Resources (COL, 2017). COL and UNESCO joined efforts in conducting a large survey involving government officials and stakeholders from 105 countries around the world. They collected detailed questionnaires and conducted regional consultations in an effort to gain more detailed information.

The Report states, that during the last 5 years a number of countries adopted OER policies (41% of countries participating in research now has national OER policies). Only 41% of respondents thought that there are enough OER materials available in their national language.

Main benefits of OER found by this worldwide survey were:

1. OER lower the cost of learning materials for students;
2. OER assist developing countries in accessing higher quality materials;
3. Open licensing of OER enables continuous quality improvement.

Main barriers to mainstreaming OER found by this survey were:
1. Insufficient inclusive and equitable access to quality content;
2. Lack of appropriate policy solutions;
3. Lack of users capacity to access, reuse and share OER.

In Europe, the Report notes significant development of OER and state policies in the last few years. According to the report universities and teachers are the ones mostly pushing OER

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[2] The Commonwealth of Learning is the world's only intergovernmental organisation solely concerned with the promotion and development of distance education and open learning with seat is Burnaby, Canada.

movement in Europe forward. This fact makes need for government policy and support towards OER even more important. It is true, however, that diversity of languages and cultures across Europe does make creating regional OER policies a bit more complex.

2.3. Open Educational Resources in Slovakia

Slovak Government started steps towards OER only in 2015, when they proposed an Action Plan for the Initiative for Open Governance for Years 2015-2019 (Bednárik – Adamová, 2015). Main goals concerning OER in this Action Plan were focused on mapping situation in OER in Slovakia. The efforts discovered few repositories, mostly focused on high school level. The Slovak Government then approved a new adjusted Action Plan on 1 March 2017 as the Action Plan for Open Governance for years 2017-2019 (Government of the Slovak Republic, 2017).

In the part concerning Open Education Resources, the Action Plan was presented to the Minister of Education, Science, Research and Sport of the Slovak Republic (website) and it included follows tasks and deadlines:

1. Create and run an OER repository where OER can be kept accessible for a long term (deadline: 30 June 2018);

2. After the repository is created, continue to publish resources within the repository under the Creative Commons (CC) simple Attribution licence (continuously);

3. Contact partner organisations that have been supplying educational resources for the Ministry of Education in the past and propose to have all future resources supplied with the CC Attribution licence (deadline: 31 July 2017);

4. Ensure that all new contracts made by the Ministry of Education for educational materials will include a condition, that the materials need to be released under the Attribution CC licence (continuously, starting on 1 March 2017);

5. Support translation of appropriate OER (mainly videos and short movies) into state or minority languages of Slovakia (deadline: 30 June 2018);

6. Create and pilot-test a policy that will enable creation of accessible university textbooks and materials as well as scientific journals under the Attribution CC licence (deadline: 31 December 2018);

7. Suggest legislative proposal that will introduce clear rules for open publishing as well as an obligation of public funds to support publishing of open educational material (deadline: 31 December 2018);

8. Analyse options for all final and qualification theses that are registered in the Central Registry to be accessible under the Attribution CC licence (deadline: 31 December 2018);

9. Continue to increase knowledge of teachers, other employees in teaching process and students on OER (continuously);

10. Publish information on selection process for support of educational resources on the Ministry of Education website (continuously).

So far, significant positive results of this initiative have not been noted.

2.4 Open Educational Resources in Estonia

Very soon after Estonia gained independence in 1991, its technological infrastructure needed improvement and soon started changing (Lossenko, 2018). According to Krull (2003) there were 6 crucial factors that drove rapid development of Information Society in Estonia:

1. Building up modern infrastructure;
2. Tiger Leap project – initiative that provided Internet connection to all schools in the country in the late 1990s;
3. Adopting regulations for Information Society;
4. Government IT programmes;
5. Collaboration between the government, private sector and non-governmental initiatives;
6. Luck.

The Tiger leap project also played an important role in making IT popular – through schools among the children and through children among their parents spreading to the rest of the population.

Estonian government adopted the first Principles of Estonian Information Policy in 1998. According to Roonemaa (2016), in July 2016 91.4% of Estonians use the Internet while in 2000 this number was only 28.6% of population.

Estonian universities created the Estonian e-University consortium in 2003 and vocational schools created Estonian e-Vet consortium in 2005. Innovation Center for Digital Education was created as a department of the publicly funded Information Technology Foundation for Education to coordinate activities of the two consortia. Innovation Center for Digital Education also manages a repository of Open Educational Resources for both universities and vocational schools. Over 4,500 materials were available in the repository in February 2018 (Innovation Center for Digital Education website). There are also repositories with OER materials for both primary and secondary schools.

3. Discussion

"In addition to the changed nature of work Estonia has focused on the modernisation of education and the labour market to ensure that knowledge and skills, including digital skills, are keeping up with these changes. In order to strengthen Europe's competitiveness, it is essential to invest in the development of skills and to move forward with the initiatives triggered by the New Skills Agenda and subsequent Commission initiatives on youth and education. As the holder of the Presidency of the Council of the EU, Estonia has focused on creating better links between education and the labour market; and reviewed the Europass Decision to achieve better implementation and synergy between digital tools designed for documenting people's skills and qualifications and to modernise these tools for the digital age."

> Estonian Council Presidency. 2017a. *Digital Europe and the Free Movement of Data.* https://www.eu2017.ee/news/insights/digital-europe-and-the-free-movement-of-data

Efforts of the Estonian Presidency in respect to the set priorities of achieving an open and innovative European economy, of having a safe and secure Europe that is digital with free movement of data, therefore being both inclusive and sustainable, strongly imply the need for broad development and usage of open educational resources throughout the European Union,

not solely its most developed regions. Zoom-in analysis of the Slovak Republic as one of the potent 'new' EU Member States, has confirmed that the current situation is rather alarming in this context. Constructive approach of all stakeholders (government, citizens, employers, union, students, teachers, etc.) that advocates joint effort and prompt actions is required. Needless to say, if OER remain ignored Slovakia might experience decrease in number of highly educated labour force, stemming from the increased costs of education. That way Slovak labour force will have a disadvantage at both, local, as well as at the (Digital) Single Market within the EU and wider, that can eventually have economic, political and social consequences.

Taken as a best-case, Estonia can serve as an example how embracing digitalisation and modernisation can bring sustainable achievements. However, this is feasible in the medium- and long-run, therefore a substantial amount of political will is needed – if Slovak political leaders were able and willing to turn Slovak patriotism and nationalism towards common goal instead of benefiting from encouraging paranoia (Deegan-Krause, 2004), Slovakia has all the potential to achieve similar progress as Estonia. Nevertheless, joint efforts of all other stakeholders (citizens, employers, union, students, teachers, etc.) can act as a wind in the back to a country from position close to the bottom, in the context of open educational resources, all the way to the top.

Acknowledgement

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Culture of Education in Company and its Impact
on Attractiveness of Job Position

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Abstract

Nowadays we know multiple educational processes handling all levels of management from executive management to regular worker. Even different forms and methods of educational processes are chosen depending on which work position given worker/workers is fulfilling. The main reason for education for the company is increasing professional and personal qualification of its employees and therefore increasing its human capital. Employees, on the other hand, see the opportunity for career growth and accomplishing of work goals and challenges. That is also a reason why education is inseparable part of culture in many companies nowadays. The purpose of this entry is to point out how culture of education impacts on attractiveness of job position and points out on increased importance of education in the present world influenced by globalization. Education can be understood as one of the main factors upon which potential employee decides his job position.

Keywords: *culture, education, job position*
JEL classification: M12, E24, I29

1. Introduction

Today's situation is different on labor market than it used to be years ago. Employees are much more demanding regarding the conditions of work which they will do. It's not about getting a job, getting paid and leave at 4 pm anymore. When we take a look at today's generation of people we can see that their main goal in work is to achieve something, to increase their professional and personal credit, to become valuable source for the company, to gain the feeling of importance and that is also reason why the situation today is that potential employees are much more critical toward what the company or job position has to offer.

Employers have adapted to this trend. In ads of all sorts we can find „possibility of career growth" or „active education in profession" as one of the main benefits to which companies are trying to appeal on employees. Yes education is directly related to career growth a that is also the reason why education is so appealing to (mainly) young people today. Even during the interview applicant is expected to direct his interest right there to the possibilities of career growth and education. It is much more simple and cheaper for the company to keep the old employee than to go through the process of recruitment, selection and training of new employee and even then there is no guarantee that after this process new employee will stay in work position.

This phenomenon is, in our opinion, closely related to school system and educational process in our country since it is far from ideal. Universities cannot effectively prepare students to actual practice, to labor market our educational system is not interconnected to the requirements of businesses. In case that fresh graduate will decide to find employment in same line of work as he studied he is forced and self-determinated to search for those companies which will offer him those educational processes which he could not graduate in during his time in school and which will have additional value for his professional life.

1.1 Methodology

Basic scientific methods such as analysis and synthesis, induction and deduction, abstraction, comparison and generalization used in all phases of the scientific problem solving were used to study this issue. Based on the findings, a theoretical knowledge base for culture of education in company and its impact on attractiveness of job position.

2. Company culture

It is hard to define company culture as a term. Although it has been in professional literature since the age of 70-80, the opinions of the authors are dissolving. We tend to think of Armstrong as a system of values, norms, beliefs, attitudes and beliefs that are not formulated anywhere, but they shape the way people behave and act, and how to work (Armstrong et. al,, 2008).

Company culture directly effects performance of company, form of educational processes, satisfaction of employees etc. It truly has wide range. Issue of company culture is young matter however in the present world there is a huge emphasis on its importance because of its connection to performance of company. It is important to realize that company culture is closely tied to management of company and to country in which the company functions and that it is not a matter of day, but it is long and demanding process.

Company culture is closely tied to company since its creation and it is possible to state that it follows the company during the whole time of company's operation or function. Company culture is very important in trying to understand not just what company has and wants but it also reflects inner management processes and therefore it reflects company's inner force which is mainly about human capital (Flešková, 2010).

Image 1
Elements elucidating company culture
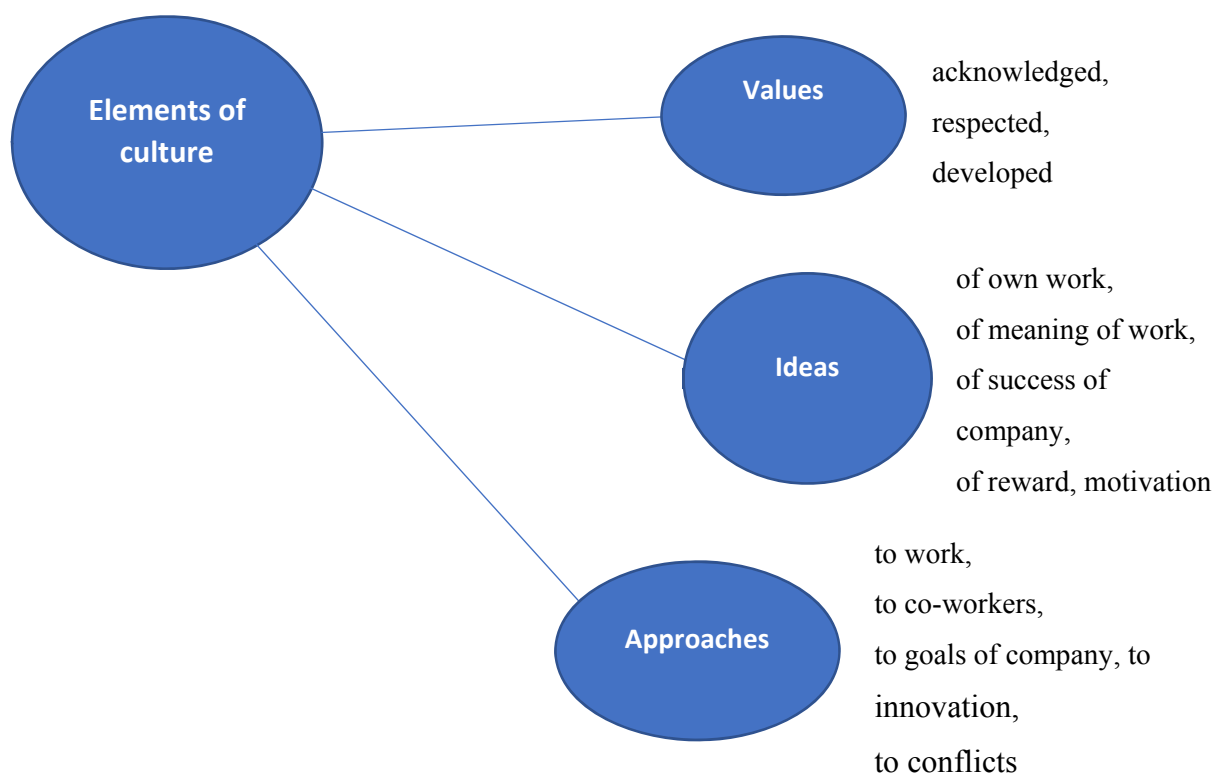
Source: Self processed on the basis of Pfeifer (1993)

2.1 Education in company

Nowadays it is not true anymore that man will manage on the labor market just by knowledge gained in school. Therefore companies play important part in developing skills and abilities of individual workers and they have direct impact on the possibilities od reaching their individual work goals (Koubek, 2007).

Multiple people take part in education in company from human resources to workers themselves. Some companies even invite external specialists to education processes within expert comities. However emphasis and attention is not placed on education everywhere. Some companies educate only new employees in order to incorporate them to work process and familiarize them with company culture. Other companies educate only when they receive money. Education in this case is random and usually only formal matter without appropriate feedback nor additional value. Luckily many of the companies realize importance and value their employees and so they have educational processes defined in their company culture hence it is something „common". Therefore they give sufficient attention to their employees (Dvořáková, 2015).

2.2 Impact of company culture on educational processes

Companies in present market economy realize that the requirement for their lead to competition is effective and professional workers. Education of workers plays important part in the company culture because it directly impacts what the company wants to achieve and where it wants to lead. People are the basic, workers as intangible asset of company which helps reach set goals. Important factor in educating employees is strategy of directing company but also directing inner human resources. If the company can set education in a way that employees will create individual active approach towards education with ability to use gained knowledge in practice in the final result it means for company reaching set goals and lowering expenses which would occur in the process of recruitment. Therefore companies should not lay obstacles to their employees in education and increasing their qualification but on the contrary they should lead them towards the approach that they should become active element in educational processes (Burger, 2009).

2.3 The job position analysis as a source of information

The essence of the job position is the creation of value and therefore added value for the customer and the owner of the company or shareholders (Stýblo, 2005).

For the quality and efficiency of the work, it is necessary to have not only adequate working tools but a suitable worker and sufficient information. Job analysis provides information, among other things, about the need to further educate an employee for this position. We do not find out whether, for example, employee stagnation is caused by insufficient education, what type of education has helped to increase work efficiency. The most commonly used methods for job analysis are workflow methods, activity analysis, FLEISCHMAN system, functional analysis, PAQ method, MPDQ, occupational work and job catalog analysis, job screening, or functional position assessment. According to Koubek, it is of utmost importance to have a precise and actual job description for the management of the workforce and their relationships with subordinates and superiors. It facilitates the situation in receiving and entering work assignments, facilitating work organization and other activities aimed at increasing work productivity (Koubek, 2007).

2.4 Job position from the perspective of the candidate

According to Gallup, up to 51% of respondents are currently looking for a new job or waiting for a new job to open (Mann, 2017).

Therefore, companies should pay attention to building the employer's brand, considering what their future employees are looking for.

High-quality jobseekers are deciding based on the market position and its advantages over the competition. Working for a reputable company increases the value of the candidate in the future when he/she is free again on the labor market. Based on a study by the Gallup Institute, such employees are willing to spend more time exploring the company. They monitor their customers, what activities they are doing and what the work atmosphere is in the business. Last but not least, career growth and the development of their skills are important for them. This type of high-quality jobseeker is interested in "career growth opportunity" included in the job advertisements. Trainings are therefore becoming more and more communicated on social networks. The companies inform about the development of their employees, activities at schools or other educational institutions. This kind of nonprofit activity is perceived positively by high-quality jobseekers also in terms of Corporate Social Responsibility (CSR).

On the other hand, the lower-quality candidates, potential employees in lower positions are deciding on the place of work or the benefits presented. This type of candidate has also described the ideal job in the study as having a high income, freedom, flexible working hours, the ability to work in a good and good work team. This description is, of course, also attractive to high-quality job seekers, but it is not the key factor for them (e.g. Houle – Campbell, 2016).

Companies should answer when creating a bonus system, whether the benefits offered correspond to their corporate culture. Currently, for example, ping-pong tables are used in companies, which can be used by employees to relax alongside work. The reality, however, is that such a table is located inappropriately within the offices, thus removing the rest of the team and therefore nobody will play it, or the employees have so many duties that they do not have time. In the end, such a benefit may have a negative impact. Another important question that the employer should answer is whether the offered benefits reflect the changing needs of employees. They want to present intense team building activities, but in the case of employees with families and young children, this benefit is not perceived as positive and would rather benefit from other kinds. Companies should follow trends as well as respect the life stages of their employees. Education can be a response to such a question. To be effective, it should be actual and reflecting the current job position and the future direction of the employee.

Flexibility as a benefit is used very often. There is a need of clear company rules in the case of such an advantage. It can happen that the employer and the employee have the concept of flexible working time as something different and unnecessary job misconduct. Such conditions should be defined in the company's guidelines to which the employee has access. Also, flexible working hours should not be confused with 24/7 working time. Every employee should have a rest time.

It is in the employer's interest that its employees are adequately informed about the benefit package they provide. If employees have a sense of increased care, their interest in the company will also increase and should also reduce the turnover rate. The most widely used forms of company benefit reporting are, for example, newsletter, regular meetings, face-to-face meetings with senior staff, internal social networks and others.

2.5 Barriers of employee education

Employees mostly do not leave company just for benefits and other benefits. The main reasons for leaving work are salary, supervisors, company management and career growth (Mann, 2017).

Competition can appeal directly to employees if they do not feel sufficiently involved in the company, or competitor's offer seems to be better. Nowadays, employees are most of the time ready to change their jobs if a better job offer comes in. This may be the reason why employers do not want to increase the qualifications of their employees through education. In this case, the business owner can use it as an advantage. Employee education increases their value in the labor market as well as the enterprise that provided the education. It can therefore be part of the employer's branding strategy that attracts new employees.

Another obstacle could be for example, lack of interest from employees. In some companies, they consider education to be a matter of course, or the necessity to get a bonus. Employees are not interested during trainings, don't listen properly. Money spent on education are useless and trainings don't lead to more efficient processes or other predetermined goals. The solution is to involve only those employees who are genuinely interested in development in the education process. Alternatively, combine the next barrier with high costs and introduce in-house training. The procedure for such training uses existing knowledge of individual employees who share with their colleagues. It is possible to develop such an activity for the external training of one employee who is undergoing external training and then preparing a presentation for colleagues. In this case, it will be ensured that the employee has to pay enough attention to the training and at the same time increases his value as an expert on the issue in front of his colleagues. This type of education in the company has a significant impact on employees from several points of view. They perceive education as a benefit to the company more intensively, as it takes place at their job position, increasing the involvement of employees in educational activities, positively influencing the perception of the expertise of individual colleagues, especially those who do not often come in contact and have a superior, or other competent person, education directly under control. This kind of education comes with lower costs than other kinds.

Employers can also perceive as a barrier the lack of competence of local experts on the issue. Such a situation can occur in businesses that are operating in particularly specific segments and rapidly growing business areas. In this case, businesses can find appropriate training abroad and save on the cost of education rather than focusing on online training, webinar and other forms of e-learning.

3. Conclusions

The company represents constantly developing organism based on employees. Current situation on the labor market brings new challenges for business owners, managers and HRM. We can see big difference between job offers and jobseekers. That's why is important for employers to keep existing and motivate new employees to work in the company. Educating and increasing qualifications as a carrier of career growth is one of the most effective incentives for employees. Enterprises looking to develop skills of their employees are attractive to the labor market. It is not just about career growth itself, but also about prestige of company. If the company is not afraid to educate future employees into their competition, it seems to be more powerful on the market. Education is also one of the benefits that can be tailor-made for every employee to create the necessary value for him/her. For education to be effective, it must always be addressed, and meaningful feedback must not be forgotten. Although the application of learning processes is accompanied by certain barriers, it is always up to the company to realize its value and benefit in their case. There is no general way for all companies to help them effectively make jobs more attractive. However, studies show that education and career growth is very important for current employees. Therefore, we recommend to the companies that wants to be successful in the long run to choose a suitable employee development method for them and thus increase value not only in the labor market.

Acknowledgement

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Hospital Performance Indicators. Comparative study: Slovakia and Australia

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Abstract
Assessing the quality of health care has become increasingly important for different stakeholders. One of the possibilities for performance evaluation is the assessment of hospitals based on performance indicators. Several hospital performance studies use the performance indicators to evaluate hospital performance. The indicators can be quantitative or qualitative. The aim of this paper is to compare Slovak and Australian hospital performance indicators via two national projects of hospital performance and government indicators of performance and identify the differences and problems that these countries face.

Keywords: *performance indicators, hospital performance, hospital quality*
JEL classification: H 51, I 18

1. Introduction

Despite the scientific and technological development, health care systems in individual countries compete with several problems, such as patients' dissatisfaction and inefficiency of service provided. The hospital is an important part of the public sector providing health care services. In every country, hospitals absorb large percentage of resources that must be used effectively. The assessment of hospital performance is then critically important, not only for achieve the goals of a hospital, but also to assist the managers in promoting quality of performance and control. One of the possibilities for performance evaluation is the assessment of hospitals based on performance indicators. The assessment of the hospital performance depends on the choice of appropriate indicators and their adequacy. Indicators help evaluate individual performance of the hospital and then complex performance of the whole sector. The indicators are used to raise and support the performance of hospitals and health system as a whole. They reflect the results of the hospital and therefore need to be examined and compare regularly.

1.1 Literature review

Hospital performance and efficiency is nowadays a very discussed topic. The authors started to deal with the issue in the eighties of the 20th century when the first studies of hospital efficiency were published in United States. Lot of hospital performance studies uses the performance indicators to evaluate hospital performance. The indicators can be quantitative or qualitative. Rahimi et al. (2014) reviewed 23 articles and found 218 indicators used in literature. In their study they stated that the most useful indicators are: average length of stay, nosocomial infection rate, patients' satisfaction, bed occupancy and bed turnover rate. The average length of stay is simple and important indicator. It is practically a useful indicator for quality control, care management and care effectiveness in the hospital. Nosocomial infection rate and patients' satisfaction are also very important indicators. The authors found

out that evaluators were mostly interested in quantitative indicators for hospital performance assessment.

The aim of the study of Nikjoo et al. (2013) was to identify and to select key hospital performance indicators. The authors classified hospital performance indicators into three groups: Quality-Effectiveness, Efficiency-Financing and Accessibility-Equity. Total number of studied indicators was 16. Among performance indicators of first group, the high priority indicator was the rate of hospital infections. Hospital incidents break out rate placed as a second priority and third key performance indicator was the pure rate of hospital mortality. Fourth key performance indicator was patients satisfaction percentage. Selected indicators in second group were average length of stay, beds occupation ratio, relationship between private income and total costs. Average outpatients waiting time and average inpatient waiting time had the priority in third group of indicators.

The OECD in 2001 initiated a project called Health Care Quality Indicators (HCQI) Project. The aim of the project is to measure and compare the quality of health service provision in different countries. The long-term objective of the HCQI Project is to develop a set of indicators that reflect a robust picture of health care quality that can be reliable reported across countries using comparable data. An Expert Group made up of representatives from 23 OECD countries (including Australia and Slovak republic) has developed a set of quality indicators at the health system level, which allows assessing the impact of particular factors on the quality of health services. The most commonly used dimensions were effectiveness (key performance dimension), safety, responsiveness, accessibility, equity, efficiency. On the other hand the less used dimensions were acceptability, appropriateness, competence or capability, continuity, timeliness. Three groups of indicators were distinguish – structure indicators, process indicators and outcome indicators (OECD, 2006). HCQI are divided into 8 areas: Primary Care, Acute Care, Mental Health Care, Cancer Care, Patient Safety, Responsiveness and Patient Experiences, Strengthening Health Information Infrastructure, Cardiovascular Disease and Diabetes.

2. Hospital performance indicators in Slovakia

Slovak hospital performance indicators can be divided into two large groups – Government indicators and other indicators.

The Government of the Slovak Republic issued in 2004 by Slovak Government Regulation no. 752/2004 by which are issued quality indicators for the assessment of health care provision. This Government Regulation contains 46 indicators with their detailed description. The following table contains the list of first 36 indicators. The rest of the indicators are economic indicators to evaluate the quality of health care.

Table 1
Quality indicators for the assessment of health care provision

No.	Name of the indicator
1.	Cervical cancer screening
2.	Prevention
3.	Management of chronic care – diabetology
4.	Management of chronic care – pneumology
5.	Unanticipated admission to inpatient care through day surgery
6.	Tooth decay among insured persons under the age of 18
7.	Tooth decay among insured persons over the age of 18
8.	Mortality rate – total
9.	The mortality after percutaneous coronary intervention

10.	Mortality after a fracture of the femur
11.	Deaths from myocardial infarction after urgent adoption (age 35 – 74 years)
12.	Deaths due to acute cerebrovascular accidents
13.	Deaths after hip replacement
14.	Mortality after interventional procedures
15.	Mortality after surgical interventions
16.	Maternal mortality
17.	Mortality at the intensive care unit
18.	The share of turnovers on intensive care unit
19.	On inpatient mortality after turnover from the intensive care unit
20.	Rehospitalisation – total within 30 days
21.	Rehospitalisation total within 90 days
22.	Re-surgeries
23.	Rehospitalisation for J45.0 (pneumonia)
24.	Decubitus
25.	Nosocomial infections
26.	Surgeries
27.	Patient satisfaction
28.	Prevention index of insured adults
29.	Patients examined in outpatient medical first aid for adults
30.	The level of attendance of insured adults
31.	Management of acute care
32.	Prevention index of insured under one year old
33.	Prevention index of insured persons aged 11 to 17 years
34.	Patients examined in outpatient medical first aid for children and adolescents
35.	The level of attendance of children and adolescents
36.	Management of acute care of children and adolescents

Source: own processing according to *Slovak Government Regulation no. 752/2004*

The indicators of quality are not sufficiently comprehensive and about quality of most health care providers do not provide sufficient information. That is why a pilot project of INEKO Institute (Institute for Economic and Social Reforms) called "Comparison of hospitals" was established. INEKO Institute is a non-governmental non-profit organization established in support of economic and social reforms, which aim to remove barriers to the long-term positive development of the Slovak economy and society. The Institute's mission is to support a rational and efficient economic and social reform process in Slovak Republic, through research, information development and dissemination, advice to senior government, political and self-governing officials, and promotion of the public discourse (INEKO, 2000). In 2014 INEKO Institute launched the test mode of an Internet portal comparing hospitals using the indicators of quality and efficiency. Portal can be found at <http://nemocnice.ineko.sk> and includes data for more than 60 indicators for more than 150 in-patient facilities in Slovakia, even at the level of individual departments or expertise. The portal can be use to rank the providers within comparable categories in the ranking by selected indicators. The visitor can also view profiles of individual facilities and their expertise and directly compare the development of indicators over time or the average for comparable categories of providers (INEKO, 2014). Portal contains more than 470 000 data on in-patient facilities and their departments (excluding health centres and outpatient departments). Data are from Slovak health insurance companies (Union, Dôvera, Všeobecná zdravotná poisťovňa), Ministry of Health of the Slovak Republic, Health Care Surveillance Authority, Higher Territorial Units, municipalities, Transparency International Slovensko, and their own analysis. Some data may be distorted with a small sample of the abundance and

may not correspond to reality in the health care facility. A user of the portal can search health care facilities by region or district or by category of the health care facility. Portal includes a map of facilities where the facilities are colour coded into 8 categories: University and Teaching Hospitals, General Hospitals, Cardio Centres, Cancer Institutes, Psychiatric and Drug Facilities, Other Facilities, Care for elderly and chronically ill, Spas and Sanatoriums. In addition, portal enables user to search facilities according to extended list of facilities – 15 possibilities. User can choose all facilities or one of the following categories:

- State University and Teaching Hospitals
- Children's Teaching Hospitals
- General Hospitals
- Cardio Centres
- Cancer Institutes
- Psychiatric Hospitals and Drug Sanatoriums
- Centres for Drug Treatments
- Other specialized hospitals, institutes and centres
- Sanatoriums for chronically ill
- Nursing Homes
- Hospices
- Natural Health Spas and Spas Sanatoriums
- Other Sanatoriums
- Other facilities (resp. suitable for multiple categories).

Together portal contains the information about 165 health care facilities – 17 from Bratislava, 11 from Košice. Portal contains the overview of 130 indicators with their explanation and resource. The indicators are divided into 10 categories:

1. *Patients' satisfaction* (overall patient satisfaction, the behaviour of the physicians in the department)
2. *Waiting times*
3. *State quality indicators* (nosocomial (hospital) infection, decubitus (bedsores))
4. *Other quality indicators* (average length of stay (days), number of beds)
5. *Economic management* (debt overdue, debt to the Social Insurance Agency at 1 bed)
6. *Transparency* (index of transparency, published employee code of ethics)
7. *Awarded and nominated in the survey TOP PHYSICIANS of Slovakia and in the competition Nurse of the year*
8. *Other indicators* (the amount of the fines for 1 000 beds, the number of complaints to the facility to 1 000 beds)
9. *Achievements and further information* (awards over five past years, completed procedures with the greatest experts)
Selected operating data (total revenues, current liabilities).

With the innovation in the field of quality indicators in the Slovak Republic has come the network of hospitals "Svet zdravia". Specifically, there are *volume indicators of quality*. These quality indicators are based on a certain minimum number of outputs in the various specializations to be performed for a certain period of time in a particular hospital. Volume indicators of quality thus determine how many outputs need to be done annually at each hospital unit to maintain safe health care (PENTA DOBRÉ ZDRAVOTNÍCTVO, 2018). According to the minimum volume indicators of quality, for example, the minimum annual number of births in the specialization obstetrics is 500 (PRO CARE, 2018). There is currently a large amount of Evidence Based Medicine that suggests that more outputs increases patient safety. In order for the network Svet zdravia to be able to maintain quality of health care and

continuously increase patient safety the most demanding outputs have begun to centralize and stratify their hospitals. For example, a newly opened hospital in Michalovce is supposed to become a superregional center for acute medicine where Svet zdravia wants to move the most demanding surgical interventions such as colorectal cancer or oncogynaecological procedures. It is precisely where there is centralized the state-of-the-art instrumentation and the best specialists in this field of medicine. Svet zdravia reminds that the debate should not only end in the future by meeting the minimum volume criteria, but should also be expanded by other quality indicators, such as the number of complications, mortality, infections or hospitalization (PENTA DOBRÉ ZDRAVOTNÍCTVO, 2018).

3. Hospital performance indicators in Australia

To measure the performance of Australian hospitals performance indicators are used. In general, we can distinguish six national hospital performance indicators under The National Health Performance Framework. These indicators are presented in the following table (AIHW, 2014).

Table 2
Performance indicators according to The National Health Performance Framework

Name of the indicator	About the indicator
Effectiveness	Care/intervention/action provided is relevant to the client's needs and based on established standards. Care, intervention or action achieves desired outcome.
Safety	The avoidance or reduction to acceptable limits of actual or potential harm from healthcare management or the environment in which health care is delivered.
Continuity of care	Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organizations and levels over time.
Accessibility	People can obtain health care at the right place and right time irrespective of income, physical location and cultural background.
Responsiveness	Service is client orientated. Clients are treated with dignity, confidentiality, and encouraged to participate in choices related to their care.
Efficiency & sustainability	Achieving desired results with most cost-effective use of resources. Capacity of system to sustain workforce and infrastructure, to innovate and respond to emerging needs.

Source: AIHW. 2014. Australian hospital statistics 2012-13: private hospitals. Health service series no. 57. Cat. no. HSE 152. Canberra: AIHW. 176 pp. ISSN 1036-613X.

The problem with the indicators in Table 2 is that the most of them cannot be used when assessing a performance of private hospitals. They are primarily determined for performance evaluation of public hospitals.

In addition to the above indicators, in Australia there is a portal called "MyHospitals". The website <http://www.myhospitals.gov.au> was established in 2010. MyHospitals is a government-owned website that has been established to ensure the entire Australian community has easy access to nationally consistent and comparable performance information for public and private hospitals. The information on this site is for members of the public, clinicians including doctors and nurses, academics and researchers, hospital and health service managers, journalists and others. The site allows user to view the performance of more than 1 000 public and private hospitals against indicators such as waiting times in emergency departments or for some types of surgery, rates of bloodstream infections acquired in hospital, the length of time patients spend in hospital after being admitted for various conditions or procedures, and other indicators (NHPA, 2015a). User can use the portal to:

- Search for a hospital by state/postcode,
- View a hospital's profile and the services a hospital offers,
- See how a hospital performs against health performance indicators,
- See changes in results for a hospital over time,
- Compare a hospital's results with similar hospitals or peers,
- Download Hospital Performance reports[1] published by the National Health Performance Authority (NHPA).

The statistics presented on this website are the most up-to-date nationally consistent data available at the hospital level. Individual states and territories may have more recent hospital statistics available, but they are not necessarily comparable between jurisdictions. The website includes information provided by Australian hospitals that is routinely collected through a variety of administrative arrangements, contractual requirements and legislation. The data are largely provided to the NHPA by data custodians, such as Australian Institute of Health and Welfare (AIHW), which collect data from state and territory health authorities. The data are then supplied to NHPA to analyse and create nationally consistent information on the comparable performance of public hospitals. Participation in MyHospitals by private hospitals is voluntary and the portal currently includes information for more than 200 private hospitals. Private hospitals include acute care and psychiatric hospitals as well as private freestanding day hospital facilities. Data from private hospitals are supplied directly to NHPA upon request (NHPA, 2015b).

User can search for public and private hospitals across Australia by the name, type (public/private) or state. Website includes a map where orange colour represents public hospitals are private are represented by purple colour. Actually website provides information about 1 073 hospitals. The user can view profile for each hospital, which includes information on whether a private or public hospital, what is the number of beds (size of a hospital), whether emergency department or services are available at this hospital and services provided at this hospital. He or she can also browse hospitals by private hospital group.

The indicators are divided into five groups:

1. *Hospital services* (number of beds),
2. *Safety & quality* (number of cases of healthcare-associated *S. aureus* bloodstream infection),
3. *Waiting times for care* (number of surgeries for malignant cancer, time spent in the emergency department, median waiting time for elective surgery),
4. *Times spent in hospitals and emergency departments* (average length of stay),
5. *Financial performance* (comparable cost of care, total units of activity).

4. Results and discussion

The performance indicators of Australia and Slovakia for the purpose of this paper can be divided into two groups – government indicators and indicators included in national projects (project of INEKO Institute and MyHospital project). Problem of government indicators in Slovak Republic is that although they are established and has to be used to assess the quality and performance of hospitals but does not provide the comprehensive view of the hospital performance. It is because of non-transparent data collection, the lack of data from the state health insurance company (Všeobecná zdravotná poisťovňa) and on the basis of incomplete data quality rankings of hospitals are made. On the other hand the problem with the Australian government indicators is that the most of them cannot be used when assessing a

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[1] Hospital performance reports can be found on the website: < http://www.myhospitals.gov.au/our-reports >.

performance of private hospitals. They are primarily determined for performance evaluation of public hospitals. One solution could be a development of new performance indicators (along already established) for private hospitals. Private hospitals would pursue the indicators and government institutions to evaluate private hospital sector would collect the indicators.

In the second group of performance indicators a number of differences can be found:

- Slovak portal was established by non-governmental non-profit organization while Australian portal is a government-owned website.
- Slovak website provides the overview of 130 indicators with their explanation and resource while Australian not. MyHospital website contains only a description of some of the indicators but does not contain a comprehensive overview.
- Slovak website works only one year and is still in the test mode while Australian is fully operational already 5 years.

Both portals also have a common problem – the problem with some data. In the case of Slovakia it is already mentioned lack of relevant data, especially from the state health insurance company. Australia has the problem with data from private hospital sector. It is because the participation of private hospitals in MyHospitals is voluntary and the portal currently includes information only for more than 200 private hospitals.

5. Conclusion

Health care systems in individual countries compete with several problems, such as patients' dissatisfaction and inefficiency of service provided. Therefore countries need to monitor and increase the performance, efficiency and overall quality of service provided. A number of studies of effectiveness in the world use performance indicators to assess the quality and performance of hospitals. The most commonly used performance indicators are: patients' satisfaction, waiting times for intervention, number of beds, nosocomial infections, average length of stay, time spend in the emergency departments. The performance indicators of Australia and Slovakia for the purpose of this paper was divided into two groups – government indicators and indicators included in national projects. Both national projects fight the problem with the data. When we compare hospitals portals, Australian portal works longer and in full mode, includes all public hospitals but there is a lack of an overview of all used indicators with their explanation and resource. On the other hand Slovak portal provides the overview of 130 indicators with their explanation and resource but is only in test mode. One of the major differences is that Australian portal is a government-owned that indicates that the government is directly participated in the performance evaluation of hospitals, while Slovak portal was established by non-governmental and non-profit organization. We can conclude that both countries still have a lot of to improve in this area.

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Confucian Thoughts and Culture in East Asian Business Environment

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Abstract
Western and East Asian cultures have grown in very different geographical environments as well as thinking incubators that impacted their thinking inclinations, worldview perceptions and conceptual approaches. The study contributes to broader conceptualization of understanding Confucian heritage of East Asian countries in modern times. The method of comparison of basic features of Western and Confucian cultures is used to highlight conceptual differences in both cultures. The focus is given on their manifestations in governance patterns, social constructs, economic models and predominantly in business culture, specifically of Korea, the country with strongest Confucian influence at present. The analysis comes to conclusion that behavioral modes of Confucian heritage in East Asian countries are so deeply engrained in people´ minds that even facing process of globalization and growing impact of Western culture, the Confucian heritage will still be present for a long time as a part of their social and business culture. Understanding the cultural background of East Asia helps to bridge misunderstandings in social and business interactions.

Keywords: *Confucianism, East Asia, business culture*
JEL classification: Z1

1. Introduction

Though living in today´s era of globalization is somewhat removed from a dichotomous structure of the East and the West, and this makes it possible to gradually accept each other´s specific features, still, cultural shock over differences between Eastern and Western culture occurs. In some cases, cultural differences are so striking that can result into misunderstanding of counterparts´ behavior in social as well as business interaction.

Growing economic gravity of East Asia provokes the need to study apart economic aspects also cultural background that helps to contribute more light on its socio-economic and business models. The study focuses on cross-cultural comparison of the Western and Confucian East Asian region in the view of their basic cultural habitual modes and manifestations in socio-economic life and business environment. South Korea is taken specifically as the country with the strongest Confucian heritage at present.

The term East Asia in this study is used for the countries with Confucian cultural background such as China, Japan, South Korea, Taiwan and Hong Kong. The term Confucianism is referred to the teaching of Confucius (551-479 B.C.) related to the governance principles of society and people´s relationships based on ethical rules and hierarchical order.

2. Methodology

The study belongs to cross-cultural political studies and uses comparison methods of basic features of Western and East Asian Confucian cultures. For better understanding of

conceptual differences and their manifestations in social and business environment of these two cultures, the study brings examples of extrapolations and versus methods.

3. Western and Eastern though incubators

Both Western and East Asian Confucian cultures were born in very different geographical conditions, different institutional framework and social environment that have gradually impacted over two millennia their basic worldviews, conceptual approaches, patterns of governance, economic models, thinking inclinations, business mentality and social behavior. While the Western cultural basics emanate predominantly from early Greek civilization, East Asian culture is based on Confucian teaching that was born approximately the same time as the early Greek intellectual "products" started to be generated (5th century B.C.).

3.1 Western thinking modes

The Western thinking was born in the Greek "thought incubator". The tradition of the debate itself acted as a key institute. Critical attitudes to authorities were common, loyalty of students to the teacher remained only while his reputation lasted. Open disagreements and questioning of teachings authorities were common practice. Reputation was obtained by reasoning with rivals and not through the position in the administration. Early Greeks were investigators of nature and were seeking truth via explicit knowledge. Their quest for the truth and knowledge is admirable. In order to obtain true knowledge, they resolved to think causally, rationally, analytically, using the logic and dismissing knowledge that was based only on sensory experience. They thought deeply about thinking itself and pondered the "what" questions – what is the truth, what is world made of, what is real. These questions were strongly engrained into their thinking modes. Ancient Greeks wanted finally to get to the bottom line, to establish facts, principles, theories that characterize the way things are. In terms of philosophical approach, they were "truth seekers" (Hall –Ames, 1998; Tai, 2007).

There is also a strong ontological aspect in the Western thought. Greeks with their perseverance and insistence in search for the truth through logical procedures adopted ultimately idealistic dualism as an important philosophy of life and the religion that has lasted thousands of years in various forms. The dualistic thinking and dichotomy of mind-body and material-transcendent worlds have continued to affect the Western attitudes. As a result, the western approaches and preferences have become more abstract, theoretical, atomic, rational, seeking substance of things.

In socio-political terms the Western culture created an individualistically oriented man with abstract reasoning, tendency to theorize, analytical inclinations, strong spiritual domain and religious structure inside system of societal governance. Therefore, the western cultural "product" can be labeled roughly as *Homo-Spiritus-Religiosus* (Choi, 2015).

3.2 Eastern thinking modes

Institutional framework of the birth of Chinese thought was completely different from the Western hemisphere. The Chinese long accepted the fact that the only constant in the world is the change or ever-changing processional regularity. This was for them the apparent reality and they were seeking the way to accommodate this phenomenon. The Chinese were not preoccupied with the goal of providing rational accounts of reality. In contrast to the Greeks, Chinese thinkers considered the thinking not as a process of abstract reasoning, but more as an activity whose immediate result should yield into practical use to society. Their logical approach was balanced by intuitive and instinctive aspects. They did not asked questions "what" is the essence of the world but rather "where" questions, where is the Way to harmony

with the Nature in order to get the effective functioning of the society. From prototypal mode of doing philosophy they were „way seekers" (Hall – Ames, 1998; Tai, 2007).

There is an absence of ontological imperatives in Chinese mind. Chinese wisdom has no need for the idea of God, they were too practical, too involved with everyday life to be religious. For them, there were too many things on earth to tackle to think beyond material world. Chinese thinkers do not perceive any "Being" behind the tangible reality, for them there is only one universe of all things, the phenomenon that is universal and omnipresent. Chinese mind has no tendency to theorize and is neither analytically nor theoretically inclined but rather very pragmatic, prone to see things contextually and to do considerations with respective analogies. In contrast to Western "casual thinking" mode, Chinese structured thinking depends upon a type of analogy or metaphor, which may be called "correlative thinking", in which a key element was termed by conceptual polarity of two complementary extremes "yin –yang".

Following these thinking inclinations, Confucius teaching created pragmatic model of governance of society based on hierarchical organizational structure and ethical imperatives, targeting harmony of relations. Subordination according to the acknowledged social roles was highlighted as "the must" while anything that would pose a danger to the harmony including individual interests, was considered as violation. Due to the decisive role of ethical codex in the governance system, Confucianism created, in socio-economic terms a man who can be labeled as *Homo-Ethico-Politicus* (Choi, 2015).

4. Confucian manifestations in governance practices

Different thinking modes impacted conceptual patterns of the basic worldviews, relations of the man to the nature as well as the relations among the people. Western culture created individualistic oriented *horizontally structured society* with rebelling mentality that brought through the history changes in governance models and socio-economic systems. The Europe experienced slavery, feudal despotism, monarchies, republics, capitalist institutions with market economy and democratic systems, attempts to communism and in between also some other governance derivatives. East Asian Confucian culture created uniformity oriented *vertically structured society* emphasizing solidarity and the group mentality, and in contrast to the Western culture, subduing individual rights and interests for the sake of the good of whole society. Confucian culture was oriented on conserving status quo and harmony in the society as the main imperative. This governance pattern has been keeping Confucian societies and their governance system for millennia without changes.

4.1 Role of ethics in Confucian society

People´s relations in Confucian societies are totally different from the Western world. Confucian culture instilled ethics in human relations for the maintenance of the order in society without any institution of supernatural being and without religion. On the other hand, the West and Christianity with the concept of the law of God and the faith in the afterlife brought to their civilization theological character and religion institutions. Western culture demonstrated a dynamic ambivalence between the deed and the faith, and quite often relationship between humankind and God took precedence over man-man relationship. Contrary to the Western "dualism", the East exhibited "unitarianism" based on the deeds only (Choi, 2015).

These principles transformed both cultures into very different mechanism of maintaining social order. In the Western society it was an invisible hand of the God, the authority above the people, who delivered the moral codex to humans and who was the guardian of ethics. The human being was enforced to confront his/her behavior to his/her consciousness and to

confess his/her deeds to the God. The human – God transcendent interaction resulted in the feeling of being guilty for bad deeds in front of God. Thus, Westerners created the "guilt culture" (Ruth, 2006). In Confucian society with the absence of the transcendent "One", it was people themselves who played the role of ethics´ guardians. It was not the invisible Being but the people around who represented a mechanism that the human being had to be afraid in case of crossing the ethics´ line. The ethic codex was created and guarded by people themselves. This resulted in case of ethics violations into the feeling of shame in front of people. Thus, Confucian society created the "shame culture" (Ruth, 2006) or "face-keeping culture".

4.2 Hierarchical order in social construct

The basic unit of ancient Chinese society, in contrast to the West, was a family, rather than individual. The family is the most important aspect of a person´s life in East Asia, the foundation of one´s identity, one´s morality, and the source of the meaning of the life. The ideal Confucian "Six Relations" (ruler/subject, parent/child, husband/wife, older/younger brother, teacher/pupil and friend/freind) are considered as the basis of all social connections. Three out of six are found within the family that is a kind of testament to the importance of family in Confucian society. Subordination of one subject to the other one is the backbone of harmonic relationship (younger to older, wife to man, pupil to teacher etc).

Confucian world, society and the state are modeled as an extension of the family. Governance of the state follows this model – the leader functions as the father, the head of the family, and all citizens as his children. Identification with the social role, acceptance of the hierarchical societal order, subordination according the ethical rules, highlighting harmony at the cost of individual interests became the main guiding principles of Confucian culture.

Suppression of individual interests to the interest of the group is the natural moral ethics of Confucianism. Therefore, Confucian societies did not understand the emphasis of individual freedoms when they were confronted with the Western culture. They understand only the interest which requires a functioning unit, to which everything should be subordinate. The society is seen as an analogy of the human body. This works only if every human body-organ performs its duties properly. Once the body organs begin to function without control (analogy of expression of individual freedom) the human body as a whole will collapse. To keep harmonized relations in Confucian minds means predominantly implementation of the obligations of all individuals and groups within the established hierarchy relations. Therefore, the concept of individual human rights "does not fit" the so-called Confucian tradition.

4.3 Relations-based culture

Social life and business activities do not operate in a vacuum. They are rather shaped by the governance environment. Though East Asian Confucian societies have been influenced for over centuries by Western culture and during the last decades by globalization trends, Confucian heritage of relation-based culture has left its impact to certain extent to nowadays.

Western societies, based on individualistic approach, tend to follow public rules, such as law government regulations and public information. They rely on formal contracts, legal courts, lawyers and accountants to carry out transactions and protect their interest. One can call it "rule-based governance" (Li, 2015). Confucian societies in difference to the West relied still in recent past on personal relations to conduct business. Contracts were secured more through gentleman agreements than through written paper, disputes were settled privately, public information was not regarded as trustworthy as personal contact. This is called "relation-based governance" (Li, 2015). Rule-based communication and agreements are explicit and formal, they can be verified by third parties, documents and procedures are

standardized. Relation-based communication and agreements are informal and implicit, yet each party perfectly understands what it entails. It is difficult to be verified by third party and can´t be enforced in a court of law.

Rule-based and relation-based governance represent two types of governance environment that involve different social and business costs. For rule-based governance to work effectively, society must make investments to establish a large complex political and legal infrastructure. In economic terms, rule-based system has high fixed costs but once the infrastructure is established, the costs will always remain approximately the same. In contrast, relation-based governance involves low fixed costs, requires a minimal legal infrastructure but has rising incremental costs because it relies for protection on their private connections, not the public legal system. Low fixed costs of relation-based governance system of East Asian countries was one of elements that contributed to their economic success though the system was flawed, non-transparent and with a lot of room for corruption.

Dynamics of growing international business impacted East Asian relationship-based economies. This process moved them to embrace more rules into the governance and gradually transformed them into certain level of rule-based economies. However, old traditions have remained still deeply vested in East Asian societies until todays and relation-based systems work in parallel as the "shadow eminence factor" in their business culture.

5. Confucian manifestations in East Asian business models

Confucian heritage has left its imprints on business models in all East Asian countries. Despite some differences they all commonly share the features of "network economy" (Orrú – Biggart – Hamilton,1997). Particular forms of social networks of each society have subscribed to different organizational business designs. That is reflected in types of companies, their management and organizational strategies, giving every economy a distinctive character.

In Japan, inheritance habits played a major role in forming private businesses. Inheritance practices in Japan were based on "primogeniture", that means the entire inheritance goes to the oldest son. This practice allowed merchant family´s fortunes to remain intact under stewardship of the heir. Successful families thus had huge sums of money available to finance the business of affiliated branches under the "badge" of the "mother house". The reliance on own finance resources represented an important element in forming Japanese business model. In a post-war period, the business model was under the US influence reorganized from family-based businesses (pre-war "zaibatsu") to networks of companies with interlocking shareholding businesses, based on "communitarian logic" (post-war "keiretsu"). They continued to rely on their own finance sources too. These market networks constitute a kind of "intercorporate alliances" or "alliance capitalism" (Gerlach, 1992). Many large companies are members of such networks (Mitsubishi, Mitsui, Sumitomo, Fuji etc.). In addition to "*keiretsu"* there are also other linking market forms of Japanese businesses, such as affiliations of a major manufacturer with its subcontractors (Toyota "independent group") or common investments groups of small neighborhood retailers.

South Korean economy resembles on the surface Japan´s market networks, but in terms of decision-making processes has some substantial differences. South Korean economy is dominated by "chaebols", networks of conglomerates owned and controlled by single persons or families and organized vertically through "central staff", which may be holding companies or mother firms. In difference to communitarian logic of Japanese businesses, Korean chaebols have "patrimonial logic" of business structure, where all powers belong only to the leader of chaebol. Patrimonialism has deep historic roots in South Korea and on the related logic of vertical hierarchical arrangements are organized various types of social relations as

well. Companies such as Samsung, Hyundai Motor, SK, Lucky-Goldstar represent major chaebol networks that control around 90% of economic activities of top thirty chaebol conglomerate.

Taiwan network economy is ruled by family firms and family owned conglomerates, which are called "jituanqiye" (entrepreneurial integrity groups). Taiwanese business structure is based on "patrilineal logic". In difference to Japanese and Korean economies ruled by networks of medium sized to very large firms, Taiwanese networks link less numbers of smaller firms and occupy less central position than "keiretsu" or "chaebols". They often cross-invest in businesses, hold multiple positions throughout the network and act as suppliers or upstream producers to downstream firms. Chinese societies practice "partible inheritance" that means the division of a family estate equally among all sons. As a result, families divide their fortunes every generation which does not allow accumulation of large sums of money. Instead, there is a great pressure within families to develop multiple businesses so that at the death of the family head each son can claim an independent enterprise. Strong social norms dictate that family members or close friends assist financially each other and system functions as alternative institutional finance arrangements. Due to this system there is relatively weak formal banking system in Taiwan. Ironically, strong family system produced the strength of Japanese banks.

Japan, South Korea and Taiwan economies demonstrate diversity of institutionalized business networks and differing logics behind their structures but all of them are based on network relationships. Japanese firms enact *communitarian logic,* Korean firms represent *patrimonial logic* and Taiwanese firms reflect *patrilineal logic*. This has important implications for the ways of business organizations, character of subcontracting relations between firms, investment patterns and other business activities.

6. Sources of Korean business culture

Korea business culture has evolved from three basic sources – Confucianism, Japanese and American influence and militarily style (command method) of industrialization.

6.1 Confucian background

In Korea, Confucianism was adopted during the Joseon Dynasty (1392-1910) as the state "religion" and became the central ideological force in Korean society. It is generally believed that at present, South Korea is the most Confucian country in the whole East Asian region and Confucian ethics was not only adopted in full scale but also applied onto society with much more intense level than other countries of the region.

Confucian ethics dictates hierarchical relationships, requires subordination, identification with social roles and relies heavily on the self-control of individuals. Proper functioning of the Confucian "cosmos" depends on the loyal obedience of inferiors to superiors in the social order and the carrying out of role-defined duties. Not individual freedoms but duties and social status affiliation is an imperative. Confucian social arrangement integrated human activities at all levels and manifested also in market patterns, companies´ management and business culture.

South Korea is a country with high power distance and hierarchy. Korean society traditionally and strongly emphasizes the group over the individual and through Confucian thought elevated particularly one specific dimension of human relationship – hierarchical social structure with high respect to the older as well as to the higher positioned individuals (Tudor, 2012). Koreans became accustomed to building hierarchical relationships based on their age not only within the families but also in other social relationships including

corporates. According to this logic an older person is always in a superior position in a relationship with younger person who has to pay respect to the former. This pattern of relationship is strongly present in the Korean business culture where an individual rank within organizational hierarchies including companies is extremely important. Superiors have much stronger leverage over their subordinates than in Western culture. Lower ranked individuals find it very difficult or outright impossible to challenge or defy the orders given to them by their superiors.

Strong family orientation of Korean society is another important aspect and family-like relationships are often applied to no-family context. Korean companies often liken their organizations to families in which they are members and routinely position themselves as elder or younger siblings in their firms. Analogically, the head of company takes a role of "farther" who has almost unlimited authority over his "family members".

The value of education is strongly emphasized by Korean-style Confucianism. Korean educational zeal is outstanding even by East Asian standards. Education and studies are considered a proper way to qualify for leadership in business environment. Education is first of all considered as a tool for the better life and only then as a tool for knowledge.

6.2 Japanese and American influences

Japan annexed Korea in 1910 and Korea remained under Japanese control until the end of WWII in 1945. Japan built centralized state bureaucracy in Korea and introduced many institutions of modern capitalism through successive reforms. That largely influenced Korean economy and business management in numerous aspects - codification of a civil law, tax system based on cash payments, juridical system separated from executive powers, land reforms, financial and commercial infrastructure in a variety of industries as well as in transportation. Japanese business groups dominated Korean economy but when Koreans got capital opportunities for modern business activity they studied modern management system by observing activities of Japanese companies and transposed best practices to their companies.

The significance of US influence on Korea mainly stems from the dominant presence of US military on southern half of Korean Peninsula during the first decades after liberation from Japanese occupation. On the administrative level, a very important reform was carried out by American guidance - the second land reform that redistributed land from landowners to peasants. Reconstruction and US development aid also played a major role on Korea´s economy. Moreover, Korea got preferential treatments and Korean managers were induced to seize whatever business opportunity was given to them. American influence went also in indirect way through strong military, political and economic ties and US became a benchmark for professional management. American mindset to compete and to strive for efficiency and effectiveness has been steadily permeating into management of Korean firms.

6.3 Military command of making business

Strong aspect of Confucian thought in South Korea is loyalty to the leader and to the country. Labor force show tendency to a discipline and enthusiasm for the company and the nation. During post-war industrialization period the dictatorial command culture was strongly developed and employees behaved as "industrial soldiers". Hierarchical social behavior has been reinforced among others also through the country´s military service.

7. Korean business management

Based on cultural fundamentals of Confucian values as well as under foreign influence of Japan and USA, the Korean companies created a unique management blend culture utilizing different parts from these foundations and eventually becoming strong and formidable competitors globally.

One of the most important factors in the management of South Korean corporates is the promotion of sharing the same values in the company. Large Korean conglomerates organize for their employees training camps including education for discipline and loyalty. In all areas of society including the business community, there is strong hierarchy and austere formalism, career advancement is possible only with increased age, people´s interaction avoids showing directly negative attitudes and strict subordination is at every social and managerial level.

The pride is often a question of people´s own perception, but with the focus on "saving face" in Confucian concept it is all about how others perceive that person. There is probably no person in the world who would not attempt to protect his/her pride, but Koreans consider the pride and preserving their face as extremely important (Chaiy, 2012). In this respect they keep a certain social distance also in the business interaction, a typical feature of Confucian business culture that the West sometimes confuses with the coldness of the person.

One of distinctive traits of Koreans is their ability to unite and bring private sacrifices to the benefit of the country. Korean vitality of unity and of the joint work is unique when being compared to many advanced nations that favor individualism. This kind of cohesion is reflected especially in times of crisis. Koreans, for example, were able to carry out individual collections of gold to help the country to pay off debt and redeem the restrictive measures of the IMF in the years of financial crisis in late nineties. Employees of companies in case of company´s financial difficulties got used even to return their salaries to contribute to the revitalization of the company. In such cases, Koreans put the state/country to the level of their family and they perceive it as a common goal.

8. Korean business practices

Korean business culture differs from Western business approaches from the first moment of interaction. Koreans converse comfortably with business partners mostly only after building a common ground and knowing where each party stands in the relationship. The first meeting in business contacts is for Koreans extremely important. Koreans tend to identify themselves as members of the group and from the very beginning they show efforts to find points of contact (kinship, school, hometown, college). They construct their identity typically in relation to people with whom they have close ties, and tend to worry when they feel isolated. This is in stark contrast to Western businessmen for whom individuality plays a high role in constructing their identity (Chaiy, 2012). The factor of homogeneity of South Korea plays in this issue an important role. Western countries are mostly multi-cultural and may not be as concerned about where the other person is from. For Koreans it is important to raise questions to find some connection link with the partner. Foreigners can find it hard to understand why Koreans ask such personal questions that are unrelated to the business but for Koreans is important "getting acquainted process", to know the age, position, title of a business partner, place of birth, university, countries travelled, everything what can be in certain sense common. They are "checking" their partner during the first meeting also due to the need of setting up mutual relationship in terms of hierarchy. It is essential for them to build mental hierarchy of the relationship because it will give them appropriate guidance for proper language and actions because the hierarchy determines Korean´s manners with others.

Koreans do not like to hear bad news, or they would wait until the late afternoon to deliver the bad news if they have to. Thus, the recipient will not have the whole day disrupted. Besides delivering the bad news later, Koreans avoid giving negative information outright. They may announce the negative news in an indirect and ambiguous way. This sometimes can mislead foreigners and needs to learn carefully to get the hidden meaning of the related report. The same goes with writing letters when disagreement is needed to be expressed. Polite wordings fulfill majority of the text and only the last sentences give understanding of the real position of the author of the letter. This kind of behavior is connected with Korean concept *kibun* (pride, face, mood, feelings), one of the core factors in Korean culture related to harmonious relationship.

Cultural differences between Asian and Western cultures may seem particularly pronounced when people of these areas meet for the first time. Even the way they greet is different. Generally, Westerners shake hands when greeting or hug or put their cheeks together if they are close to each other. Asians greet by bowing to one another. To hug Asian on first acquaintance the Asian will feel probably uncomfortable. Ethics and communication play in South Korea much more important role comparing to Western cultures and misunderstanding can cause the mistrust, disruption at work and even conflicts.

9. Synthesis of cultures

Korean culture gradually meets the synthesis with Western culture through historical and cultural exchanges. Christianity was introduced to Korea in 18th century, the Bible was translated into Korean and in 19th century a lot of US missionaries tried to evangelize Koreans. Western music played on heptatonic scale came to Korea changing musical patterns of artistic expression while Korean music before was played only on pentatonic scale. Confucian traditions began to crumble as Korea established Western style schools. Western modern literature and sports were introduced. The end of the Cold War and subsequent economic development have brought about a number of changes in Korea. With changes in traditional culture, food, clothing, and housing, younger people now enjoy the benefits of innovation and modernization. Today, Korea absorbed a lot of elements of Western life style and highly educated Koreans are displaying their talents and abilities around the world. Korean young generation is gradually absorbing individualistic approaches, consumer culture and is trendy oriented to western influence. The diffusion of English language has made it easier to communicate among the people between east Asian region and the Western world.

East Asian vertical culture and Western horizontal culture have started interaction that is strongly supported by globalization. East Asian countries started to move away from Confucian hierarchical world absorbing western lifestyle but Confucian traditions are still deeply ingrained in their habitual behavior and seated deeply in their social construct. "Confucian soul" will influence their social and business culture still for a long time.

10. Conclusions and policy implications

Trying to fully understand each other´s culture is the ultimate goal of improving people´s welfare and a useful exercise to avoid conflicting situations in growing world interaction. East Asia arises general interest not only as the growing global economic center but also as the region of different hierarchy of values that are manifested in different organizing patterns of society, economic models, social civility and business culture. The study analyzes, in broad context, the roots of East Asian Confucian culture, starting from thought incubators while further demonstrating Confucian heritage through manifestations of governance practices, business models and business culture, especially in Korea, the most Confucian society in East Asia at present. Using comparison method of basic cultural features between the West and

East Asia, the study highlights many differences in business environment that could have practical use in business undertakings for both cultural hemispheres.

Acknowledgement

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Consolidated Annual Report as an Instrument
for Sustainable Development

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Abstract

The concept of corporate social responsibility as a starting point for sustainable development is a global matter. Sustainable development is a trend or philosophy to meet current needs without compromising the ability of future generations to meet their needs. This responsibility towards future generations can also be identified in the activities of individual entities in the consolidated group. Consolidated groups disclose information on sustainable development in their consolidated annual reports. By disclosing corporate social responsibility information in the consolidated annual report, the consolidated entity will provide a wide range of users with information on the application of corporate social responsibility as a prerequisite for sustainable development that a social, economic and environmental environment is forming in the consolidated group. The purpose of this paper is to define the content of the consolidated annual report in terms of sustainable development.

1. Introduction

After the completion of the individual financial statements, the process of preparing the consolidated financial statements begins as part of the consolidated annual report. The primary objective of the consolidated annual report is to provide information about the consolidated group as a single economic unit in order to ensure better management of the consolidated group, its assets and liabilities, costs and revenues. Consolidated financial statements as part of the consolidated annual report have emerged as a tool for practical decision-making in the management of capital-linked enterprises. (Hvoždárová – Sapara – Užík, 2014)

Just like the annual report, the consolidated annual report also provides opportunities to present the company's results not only to internal users but to external users as well. As a result, it represents a significant source of information to be communicated. There is evident interest on the part of the owners of the group's parent and on the part of many external entities, banks, capital market institutions and business partners of group's companies, in obtaining information about the assets and financial position of the group as a whole. Information from the individual annual report of individual companies in the group is not sufficient as a source of information for these users the consolidated annual report is a better source of information.

In terms of the purpose of using the information in the consolidated annual report, we can say that the consolidated annual report as a tool is significant:

• as a communication tool,

• as a strategic tool,
• as a marketing tool,
• as another type of tool.

At the same time, it is also an important tool in managing capital-linked enterprises that recognise social responsibility, which is the basis for sustainable development, and therefore this information is becoming an integral part of the consolidated annual report.

The concept of sustainable development is a global matter. Governments, businesses, employees and individuals, everyone contributes to sustainable development. According to the United Nations, the concept of Sustainable Development (Trvalo udržateľný rozvoj, 2017) allows us to meet current needs without compromising the ability of future generations to meet their needs. Sustainable development is based on corporate social responsibility. Corporate Social Responsibility (CSR) is one of the core objectives of the Europe 2020 strategy and contributes to meeting the objectives of the European Union Treaty on Sustainable Development. CSR is based on three core areas (pillars), called the triple-bottom-line (Kunz, 2012):

1. social (people),
2. environmental (planet),
3. and economic (profit).

These three areas should be implemented by businesses reporting CSR in their business processes and should become an integral part of their strategic plans. Five goals (Table 1) are set out to implement the Europe 2020 objectives, which companies should implement in their plans. Consolidated group companies can report about the implementation of these objectives into their strategic plans in the consolidated group, as well as the extent of their fulfilment, in both their annual reports and consolidated annual reports.

Table 1
Objectives of the Europe 2020 Strategy

	Objective	Objective description
1.	Employment	Increase the employment rate of the population aged 20-64 to 75 %.
2.	Research & Development	Increase the level of R & D investment to 3 % of EU GDP.
3.	Climate change and energy sustainability	Climate / energy should achieve the 20/20/20 targets (20 % emission reduction, 20 % renewable energy, 20 % reduction in energy consumption).
4.	Education	The proportion of early school leavers should be reduced to less than 10 % and at least 40 % of young people should have a university degree.
5.	Combating poverty and social exclusion	Reduce the number of people at risk of poverty by 20 million.

Source: based on VIDOVÁ, J. 2015. Hospodárska politika Európskej únie. Bratislava: Vydavateľstvo Ekonóm. ISBN 978-80-225-4161-9.

In September 2015, the document Transforming our World: Agenda 2030 for Sustainable Development (Agenda 2030) was approved at the extraordinary United Nations (UN) Summit in New York. Agenda 2030 sets the general framework for countries in the world to eliminate poverty and achieve sustainable development by 2030. Agenda 2030 also includes an action program from Addis Ababa approved by the UN in July 2015. (Enviroportal, 2015) Agenda 2030 for Sustainable Development contains 17 sustainable development objectives and 169

related sub-targets for the period 2015-2030, balancing three aspects of sustainable development, which are social, environmental and economic.

In view of these factors, it is essential that the consolidated annual report also present, along with other information, information describing the specific bases, principles, methods, procedures and rules adopted in their particular setting by the consolidated group, which at the same time become important for the management of the consolidated group in terms of the adoption of an adequate decision on sustainable development.

At present, the business situation is becoming increasingly complex. This is due to the development of the market economy and the efforts of companies to move to transnational markets as well. To this end, it is important that companies whose business activities are not limited to meeting local needs are able to plan and carry out the reorganization of their business activities on a Community scale. To achieve such plans, the consolidated annual report is also helpful in managing the individual companies that are part of the consolidated group.

1.1 Methodology

The purpose of this paper is to define the content of the consolidated annual report in terms of sustainable development. Several methods of scientific research have to be applied in the processing of the acquired knowledge and information. The starting point of the study was the analysis of the transnational and national legislation on the content of the consolidated annual report. We applied the deductive approach to processing the selected significant information about the consolidated annual report and we defined the main specific requirements characteristic of the content of the consolidated annual report from the individual areas of sustainable development. Through synthesis, it was possible to identify specific areas for the consolidated annual report from a CSR perspective as a basis for sustainable development.

2. Legal regulation of the consolidated annual report

On 6th May 2015 the Slovak Parliament approved the Act No. 130/2015 amending and supplementing Act No. 431/2002 on accounting (hereinafter the Accounting Act). The changes to the Accounting Act arose from the transposition of two directives, as depicted in Scheme 1.

Scheme 1
Amendments to the Accounting Act due to the transposition of directives
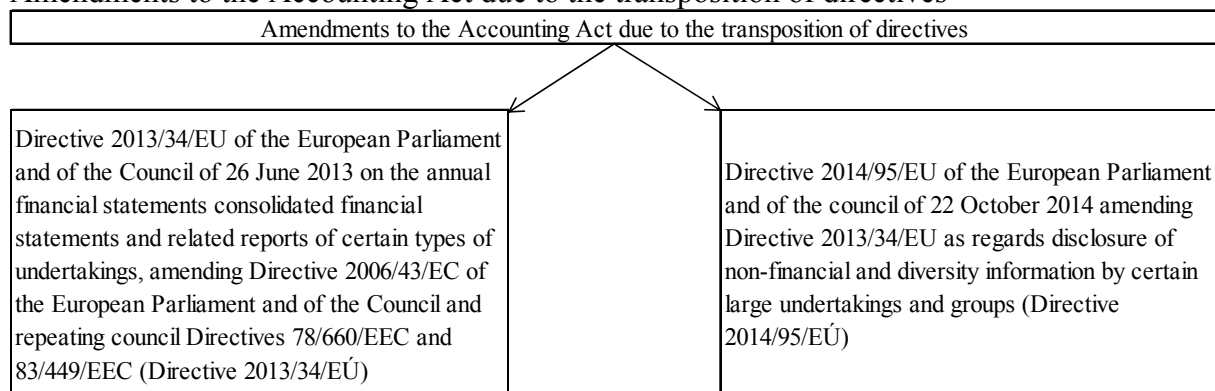
Source: own processing by the Author

The adoption of directives into the national accounting legislation also ensures harmonization within the European area as regards the consolidated annual report. (Pakšiová,

2014) Some changes to the provisions regarding the content of the consolidated annual report came into force on 1 January 2016 and some on 1 January 2017.

The parent enterprise, which is required to prepare the consolidated financial statements, shall prepare a consolidated annual report. The Accounting Act does not explicitly specify the content of the consolidated annual report but only generically specifies what information the annual report should contain.

The annual report under the Accounting Act contains, in particular, the information given in Table 2.

Table 2
Information disclosed in the annual report

	Information disclosed in the annual report particularly concerns:
a)	the development of the enterprise, its condition and the significant risks and uncertainties the enterprise is exposed to. The information should be in the form of a balanced, comprehensive analysis of the status and development forecasts and contain important financial and non-financial indicators, including information on the impact of the enterprise's business on the environment and on employment, with reference to the relevant data in the financial statements,
b)	events of particular importance that occurred after the end of the accounting period for which the annual report is being prepared,
c)	the expected future business development,
d)	the cost of research and development activities,
e)	the acquisition of own shares, interim share certificates, ownership interests and shares, interim share certificates and shares in the parent enterprises,
f)	proposal for profit distribution or loss settlement,
g)	the data required by special regulations,
h)	whether the enterprise has a branch abroad.

Source: own processing by the Author based on the Act 130/2015 amending the Act on Accounting.

The current need for comparability and transparency of information provided through accounting requires knowledge of the generally accepted principles and principles of international accounting, which are the internationally acclaimed International Financial Reporting Standards (IFRS). IFRS represents the rules designed primarily for reporting and contains general requirements for information presented in the financial statements. The incorporation of IFRS into the European Union's accounting legislation and into the accounting legislation of Slovakia, i.e. into the Accounting Act, was carried out on the basis of Regulation (EC) No. 1606/2002 on the application of international accounting standards. This means that accounting units follow a set of valid standards and related interpretations. However, the IFRS does not contain requirements for the content and structure of the annual report and for the consolidated annual report. Entities continue to be guided in compiling and publishing information in the consolidated annual report under the Accounting Act. Despite the fact that the IFRS does not contain precise requirements for the content and structure of the annual report or the consolidated annual report, it indirectly incorporates some of the content requirements by means of:

- International Accounting Standards - IAS,
- International Financial Reporting Standards - IFRS,
- interpretations of the Standing Interpretations committee standards - SIC and
- interpretations of the International Financial Reporting Interpretations Committee - IFRIC.

3. Content of the Consolidated Annual Report in terms of Sustainable Development

For the Consolidated Annual Report, it is necessary to report information with respect to the fundamental adjustments resulting from the specific parameters of the consolidated annual report compared to the individual annual report in order to facilitate the assessment of the situation of the undertakings included in the consolidation as a whole (Directive 2013/34/EU). The following may in particular be considered information with specific parameters that characterize the consolidated annual report:

- identification of the group,
- the definition of the activities of the consolidated group,
- principles and methods of consolidation,
- information about the undertakings included in the consolidated group,
- valuation of equity interests,
- transactions in the consolidated group,
- risks and their impacts on the consolidated entity,
- verification of the consistency of the consolidated financial statements and the consolidated annual report,
- a proposal for the distribution of the consolidated financial result.

By presenting the information with these specific parameters, which characterize the content of the consolidated annual report, the firm preparing the consolidated annual report is able to provide sufficient information on the assets and financial position of the undertakings included in the consolidated group. However, in terms of sustainable development information should be included, that a socially responsible environment is forming in the consolidated group.

It should be clear just from the identification of the consolidated group, that the entity as a whole recognises sustainability. From the point of view of sustainable development, information on the implementation of strategic plans in the individual CSR areas of the consolidated group should form an integral part of the consolidated annual report. CSR can be defined as a business concept that reflects business objectives and strives to meet the economic, social and environmental aspects of activities where corporate governance exceeds legal standards (Németh, 2016).

The essence of CSR should be designed to create business value and positive societal change and be part of everyday business culture and business activities (McElhaney, 2008). The decision-making processes of the consolidated should reflect operating results of the individual undertakings in the consolidated group that benefit not only the individual companies or the consolidated group, but offer far-reaching benefits as well. The responding to an increasingly complex situation is to take appropriate decisions in the area of sustainable decision-making and to link sustainable development to the strategy of the enterprise. Each enterprise should strive to choose the appropriate strategy to achieve its goals, depending on its different needs, and focus only on the segments that are the most strategic in terms of the consolidated group. Results from key activities provide information only for a specific company and the individual companies may see as advantageous completely different segments than those seen as advantageous by the consolidated group. It can be said that CSR is one way in which enterprises are connected to the community and environment and they can use the CSR concept to their advantage. In the national implementation of CSR or Sustainable Development Strategy, consolidated units are becoming key.

The concept of sustainable development can be summarized by companies in their consolidated annual report into the three mentioned areas of CSR - social, economic and

environmental. Under these three areas of CSR, each enterprise can determine which goals and information they publish from a sustainability perspective.

1. Social

The social area is mainly related to the wellbeing of employees and the creation of suitable conditions for them. If businesses approach their employees responsibly by creating an appropriate work environment, providing benefits or career growth, it has positive impact employees' satisfaction whilst at the same time increasing productivity. Information in the Consolidated Annual Report on the protection of the life and health of employees has a positive impact on the environment of the consolidated group. It is even becoming a priority, and consolidated entities that recognise social responsibility favor a systematic approach that results in continual improvement of health and safety at work. Consolidated groups that take into account the world around them and strive to create the conditions for a better future aim at supporting children and youth, their education and health, promoting science, culture and sport.

2. Economic

Profits can then be used in other areas of CSR. In the economic area, in their consolidated annual reports businesses, usually share information on customer relationships, along with other information. The disclosure of information about building long-term customer relationships may be beneficial to the consolidated group.

The main objective described by companies in this area was to provide customers with high quality products, resulting in a reduction in customer complaints. In the context of technology development, new products are constantly entering the market to make businesses more efficient and more competitive, with the result that supply continuously exceeds demand. The desired situation is to bring all market players into a continuous effort to constantly improve products and services by reducing the impact of products and services on the environment.

If consolidated groups want to achieve this goal, they must constantly endeavour to comply with business conditions. Even here information may be broken down by segments, e.g. sales by individual companies in the consolidated group in individual countries, regions and practises.

3. Environmental

An enterprise that looks at the world around us tries to create the conditions for a better future. In particular, large manufacturing enterprises that are included in the consolidated group use annual reports, as well as consolidated annual reports, as a way to report on their environmental activities. Although the main activity of significant numbers of consolidated groups is the exploitation mineral wealth, they are seeking to achieve sustainability that is based on responsible approach to people and the environment.

The position of the enterprise as well as of the consolidated group can be improved by indicating this information in annual reports:

- permitting processes for building changes on the site of an enterprise to determine whether or not the change has a significant impact on the environment,
- the research and development achievements of the consolidated group,
- whether the development of new technologies and innovations has an impact on the environment, because the idea of responsible innovation lies in the fact that new products should not harm the health of consumers and the general public, new procedures should be safe for workers and all those involved, and none of them should pollute or damage the environment in any manner. Innovation management is

understood to be the process of regulating the creation and implementation of innovation that attempts to take account of the risks of innovation and technological development (Voegtlin– Scherer, 2017),

- other information on environmental protection includes information on air protection. How leakage of chemicals is controlled, how emissions are reduced,
- information on whether the firm will provide environmental remediation after completion of the work,
- whether water quality and water monitoring is ensured. Consortium companies should also disclose information on established water purifiers or on how they provide reliable and optimal use of drinking water supplies,
- information on waste management is also an essential piece of information.

By publishing CSR information in the consolidated annual report, a consolidated group will provide a wide range of users with information on the application of CSR as a prerequisite for sustainable development.

4. Conclusions and policy implications

At present, the business situation is becoming increasingly complex. This is due to the development of the market economy and the efforts of companies to move to transnational markets as well. To this end, it is important that companies whose business activities are not limited to meeting local needs are able to plan and carry out the reorganization of their business activities on a Community scale. To achieve these plans, the consolidated annual report is also helpful in managing not only the individual companies that are part of the consolidated group but also of the entire consolidated group.

One way to cope with the trend of meeting current needs without compromising the ability of future generations to meet their needs is to take appropriate decisions to ensure the balance of all three attributes of the CSR strategy. The social, environmental and economic aspects of CSR entrepreneurship provide the starting point for sustainable development.

By publishing CSR information in the consolidated annual report, a consolidated group will provide a wide range of users with information on the application of CSR as a prerequisite for sustainable development and that a social, economic and environmental framework is forming in the consolidated group. At the same time, the disclosure of CSR information in the consolidated annual report becomes evidence that the consolidated group not only speaks about but also acts in the area of social responsibility.

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Contribution of Small and Medium-Sized Enterprises to GDP

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Abstract
Small and medium-sized enterprises have an irreplaceable place in the country's economy. In spite of the European Commission's effort to ensure consistency in the definition of a SME category or the use of uniform methodologies to quantify the impact of SMEs on individual macroeconomic aggregates, we are confronted with problems concerning the diversity of legal forms and financial statements in individual EU countries. One of the most commonly used macro aggregates is a gross domestic product. Quantification of the impact of small and medium-sized enterprises on the country's GDP is, however, unknown to many countries. The paper focuses on the methods of calculating GDP and the quantification of the impact of SMEs on GDP in Slovakia.

Keywords: *SMEs, GDP, macroeconomic aggregates*
JEL classification: E01, E10, G30

1. Introduction

The performance of any emerging economy is to a large extent dependent on the performance of small and medium-sized enterprises. Small and medium-sized enterprises currently play an important role both in the economy and in regional development across countries. Their importance is also evidenced by the contribution of small and medium-sized enterprises to basic macroeconomic indicators - employment, value added, gross production or GDP. Despite the constant emphasis on the importance of small and medium-sized enterprises for the economy, in some countries there are still no methodological approaches to quantifying the impact of small and medium-sized enterprises on selected macroeconomic aggregates. Given the diversity of accounting standards, legal forms, sources of information, or legislative conditions within the European Union, the proposal for a uniform methodology for quantifying the share of small and medium-sized enterprises in macroeconomic indicators is a complex process requiring full harmonization.

2. The contribution of SMEs to GDP

2.1 Definition of GDP

Gross domestic product is often considered the best measure of how well the economy is performing. It is defined for a particular geographic area – usually a country, but possibly a region or a city, or a group of countries such as the European Union. It is also defined over a time interval, usually a year or a quarter. This is because the GDP is a flow variable. A country´s GDP is a measure of its productive activity. As defined by the World Bank, GDP represents the market value of all final goods and services produced within a country´s borders during the course of one year. According to Mankiw, the purpose of GDP is to summarize in a single number the value of economic activity in a given period of time. Burda and Wyplosz distinguish three complex definitions of GDP:

- *sum of allfinal sales of goods and services -* this definition specifically refers to final sales – goods and services sold to the consumer or company that will ultimately use them. For example, the purchase of a car by household is a final sale. In contrast, a car sold to a dealer which is subsequently resold during the measurement period or a car bought by a company to be used as part of its own production process, are not final but intermediate sales. Intermediate sales are excluded from GDP to avoid double counting – for example the car bought and later sold again by a dealer. For that reason, GDP should never be confused with total sales, or turnover. In contrast, exports are counted as final sales regardless of how the foreigners use them, because they leave the national economy;

- *sum of value added created within a given geographic location during a period of time* - the second definition of GDP recognizes that each final sale of a good or service represents the ultimate step that validates all the efforts that have gone into producing and making it available to the buyer. It encapsulates a chain of economic activities which are each seen as commercial value added. A company creates value added by transforming raw materials and unfinished goods into products it can sell in the market place. The company´s value added is the difference between its sales (turnover) and the costs of raw materials, unfinished goods and imports from abroad. If the company produces intermediate goods, its sales are costs to its customers who themselves are producers. This value added is not counted twice as it is deducted from those customers´ own sales. When the final consumer purchases a good or a service in the market, the price includes all the value added created at each stage in the production process. The value added produced within an economy is the source of income for the factors of production employed by the company. In the course of their economic activities wage-earners, stockholders and other factors of production are all compensated for their contribution to increasing the value of goods and services. Without value added it would not be possible to pay wages, salaries, interest and profits;

- *sum of factor incomes earned from economic activities within a geographic location during a period of time* - the GDP includes all incomes earned within a country´s borders – by residents and non-residents alike. Because one person´s spending must be someone else´s income, the third definition of GDP is also consistent with the first. GDP statistics are quoted daily in the financial and political press. The GDP is generally considered to be the most important indicator of an economy´s health and its evolution is closely watched by managers, economists and politicians. Yet the definition of GDP contains a fair amount of arbitrariness and it is open to debate whether every positive movement in GDP constitutes and improvement in national well-being.

2.2 Measuring and interpreting GDP

GDPs are difficult to measure, they are meant to cover the whole economy. The task is generally carried out by official statistical offices which draw on various sources of information. One natural source is the tax authorities. Companies report sales (first definition of GDP), individuals report incomes (third definition) and in most countries (all EU countries, but not the USA) value added taxes are collected by intermediate and final sellers who then report their value added as they pay the tax (second definition).

The fact that GDP figures are collected through tax returns immediately raises the suspicion that individuals and companies may be less than candid about their finances to the fiscal authorities. Such unreported incomes form what is referred to as the underground economy. Another shortcoming associated with the magnitude of the task is the time it takes to get reasonably accurate numbers. Furthermore, data from tax returns are processed with considerable delay. Usually at the end of the first month of each quarter, figures for the preceding quarter are released. The inaccuracy of these estimates is unsettling because they are frequently used by governments when setting policy, by investors assessing the value of their assets and by companies deciding on hiring or firing workers and on acquiring equipment. This is why other indicators are often used to supplement the GDP figures. It is also why analysts tend to concentrate on growth rates rather than levels. As long as the distortions do not change much over time, measured GDP growth rates are fairly accurate. It is tempting to compare GDPs across countries. Most often we look at GDP per capita or the average income earned within a country´s boundaries. Such data must be regarded with caution, however. First, GDP is a measure of income, not wealth. Income is a flow, while wealth is the stock of assets accumulated over longer periods of time. The second caveat is that in developing countries a large number of transactions are not recorded. They belong to what is sometimes called the informal economy. For example, much food can be produced within the extended family (a non-market activity) or exchanged for other food (a non-reported market activity). Very low reported per capita income levels in LDCs underestimate true value added and income. Finally, GDPs are measured in the country´s local monetary unit or currency and are then converted into a common currency using the exchange rate. But local costs are often much lower in poor countries. To correct for this effect, we use GDP figures corrected for purchasing power.In general, there are three approaches of calculating GDP (based on individual definitions):

- *production (output) approach* – consists of quantification of production, intermediate consumption, product taxes and product subsidies. This method includes all the final goods and services produced in the economy during a period of time (typically one year). When applying this method, we do not include intermediate products in GDP. GDP is then obtained after deducting intermediate consumption from production by industry or institutional sector. After adding net taxes to products, we get GDP at the national economy level. This method of compiling GDP leads to counting the production by sector of activity. Most countries using this approach extrapolate value added with tools such as the Index of Industrial Production (IIP), physical quantity indicators or sales type statistics for estimates of value added in manufacturing. While most countries still use the production approach since 1979, one major drawback of this method is the difficulty to differentiate between intermediate and final goods. This is why some countries such as the United States and Japan prefer other methods, like the income or the expenditure approach. The calculation of GDP by the production method can be expressed as follows:

$$GDP = \sum value\ added + product\ tax - subsidies$$

- *expenditure (consumption) approach* – is the most widely used approach, which is based on aggregate expenditures representing the sum of the expenses of all market entities for the purchase of goods and services in the given period. Total consumption is therefore the sum of the private and public consumption respectively sum of individual and collective consumption. The formula for calculating GDP, using the expenditure approach is the following:

$$GDP = C + I + G + (X - M)$$

C = private consumption expenditure;
I = investment expenditure;
G = government consumption expenditure;
X = value of exports;
M = value of imports;

- ***income approach*** – is based on the rewards of the owners of the production factors (incomes). Thus, we calculate the sum of the incomes of the individual entities they obtain for the services of the production factors in their ownership. This method of calculating GDP refers to compiling data from employment and earnings surveys to estimate salaries and wages by industrial activity. However, there are sectors of activity for which it is not easy to measure compensation. Therefore, many countries such as Canada, the United States, Japan or Australia use the income approach through trend extrapolation to estimate GDP. Income approach includes following:

  - compensation of employees (wages, salaries etc.);
  - proprietor´s income (unincorporated business income);
  - rental income (property owner income);
  - personal income;
  - disposable income;
  - corporate profits (from corporate business);
  - net interest (paid interest by business);
  - indirect taxes – subsidies (salestax, custom duty and other fees);
  - net business transfer payments;
  - surplus of government enterprises.

The Statistical Office of the Slovak Republic currently applies all three methods of estimating GDP when publishing annual data. The quarterly estimate is based on two approaches - production and expenditure. The income approach is a secondary method. Through all three measurement methods, one gained GDP figure.

2.3 Quantification of the contribution of SMEs to GDP in Slovak Republic

The quality of the statistical data needed to calculate the SME contribution to GDP in some countries is greatly constrained not only by capacity, but also by the data sources. Although there is an international standard for measuring national income, poorer countries report a lack of financial resources to implement good practices. Differences in country wealth are expressed in terms of GDP per capita per person - from $ 105,882 per person in 2016 in Luxembourg to $ 5,334 per person in Moldova. However, given the significant differences in the size of the country's income, the different quality of economic statistics is understandable. As countries of the European Union are charging national income under harmonized Eurostat standards, problems can be encountered mainly by non-EU countries accounting according to another methodology. Apart from the above-mentioned problem with a lack of resources and capacities, we encounter other problems in quantification of gross domestic product:

- use of different national income accounting standards;
- a different level of recording the shadow economy;
- use of obsolete historical data.

Small and medium-sized enterprises are a significant part of the Slovak economy. They represented 99.9% of the total number of business entities in Slovakia, employed circa three quarters (74.1%) of the active labour force in the corporate economy, and contributed to the added value generation by more than a half (52.7%) in 2016. As there is no indicator of the contribution of SMEs in GDP in the Slovak Republic, it is difficult to determine the extent to which they contribute to the performance of the economy. The purpose of our research is to estimate the contribution of SMEs to GDP in Slovakia. In our research, we used a production method that consists of quantifying production, intermediate consumption, product taxes and product subsidies. This method includes all the final goods and services that have been produced in economy over certain period of time. When applying this method, we do not include intermediate products in GDP. By subtracting intermediate consumption from production, we get a gross value added, which accounts for 90 % of GDP. In estimating the contribution of SMEs to GDP in Slovak Republic, we focused mainly on quantifying the value added of all SMEs in the economy. The basis and subject of our research are selected items of financial statements of entities accounting in system of simple and double-entry bookkeeping and entities drawing up financial statements according to international standards. As part of our research, we used data from the Statistical Office and the Datacenter in the structure (Table 1).

Table 1

Data sources to categories of business entities

Category	Source
Non-financial legal persons (including IFRS)	Statistical Office SR
Financial legal persons	Datacenter
Natural persons - actually demonstrable expenditures	Datacenter
Natural persons – lump sum expenditures	estimate
Natural persons without the obligation to file a tax return	estimate
Entities accounting according IFRS (financial)	estimate

Source: own processing by the Author

To estimate value added for categories of subjects for which we do not have information about value added, we used mathematical-statistical methods – the mirror-comparison method and the estimation method based on a group of similar respondents. In our research, we obtained information about value added of the non-financial sector in aggregated form from the Statistical Office of the Slovak Republic. However, as this figure does not provide information on the value added of financial corporations, it was necessary to add value added of financial corporations from financial statements provided by Datacenter. Business entities accounting in the simple bookkeeping system need to be divided into natural persons – entrepreneurs, who apply real demonstrable expenditures and those, who apply lump sums.

Since there is no value added in the Income and Expenditure Statement, it was necessary to propose a simplified methodology for its quantification through existing items that were available in an anonymized form from Datacenter. The value added of natural persons – entrepreneurs applying lump sum expenditures and other natural persons without obligation to file a tax return were estimated using the mirror comparison method and the estimation method based on a group of similar respondents. Missing financial corporations reporting under IFRS were estimated on the basis of similar respondents from the group of financial corporations. We add the total value added for SME segment by counting all the categories. The results for 2016 divided into mentioned categories are shown in the Table 2.

Table 2
Estimated value added of SMEs in 2016

Category	Number of entities	Value added
Non-financial legal persons (including IFRS)	N/A	19 999 312 752
Financial legal persons	601	129 851 459
Natural persons – actually demonstrable expenditures	115 473	2 110 392 689
Natural persons – lump sum expenditures	179 982	669 347 119
Natural persons without the obligation to file a tax return	51 537	17 476 042
Entities accounting according IFRS (financial)	90	153 492 024
TOTAL of SMEs	**N/A**	**23 079 872 085**

Source: own processing by the Author

According to the data of Statistical Office of the Slovak Republic, the value added of whole economy reached 72,933 mil. € and GDP reached 81,154 mil. € in 2016. The contribution of SMEs to value added of whole economy represented 31,65 % and the contribution of SMEs to GDP 28,44 % according to our calculation.

Quantification of the contribution of SMEs to the tax and subsidies is quite complicated. By the difference in the level of GDP and the value added of the whole economy, we obtain the remaining items of the production method. However, given the lack of information sources, it is not possible to precisely determine the contribution of SMEs in taxes and subsidies. For this reason, the contribution of SMEs to total value added is often identified with the contribution of SMEs to GDP.

3. Conclusion

One of the long-standing problems in the reporting of aggregate results in the conditions of the Slovak Republic is the absence of a methodology for quantifying the contribution of SMEs to gross domestic product. However, when quantifying the impact of SMEs on the GDP of the country, we encounter several problems arising from the different nature of the financial statements or the lack of information resources. For this reason, it is necessary to estimate categories of SMEs for which no data is available. However, despite the successful implementation of the value added of the entire SME segment, it is necessary to refine the estimate by quantifying the contribution of SMEs to taxes and subsidies, which make up approximately 10 % of total GDP.

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Approaches to Relative EVA, Cost of Equity at Zero EVA as a Solution

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Abstract
This article is focused on the economic value added (EVA), particularly on its practical application in intercompany comparisons. One part of this article consists of a draft of an indicator that is based on the concept of economic value added and an appropriate tool for inter-comparison using the principle of EVA. This indicator also eliminates gaps of similar relative indicators, which are mainly due to the complicated determination of the cost of equity.

1. Introduction

Economic Value Added is an indicator that has for many years attracted financial theory and practice representatives. Many Slovak companies are trying to apply this ratio in their analysis and performance evaluation systems with different results.

The aim of this article is to highlight the most important reasons that prevent owners and managers from using this indicator in their decisions and trying to eliminate these deficiencies that may ultimately contribute to the expansion of the application of Economic Value Added in our environment.

Among several possible approaches to the EVA that could be found in Slovakia, this article itself is primarily focused on an adjustment of EVA indicator to the relative expression in order to increase the possibility of comparisons Economic Value Added with other enterprises.

2. Theoretical approaches of Economic Value Added

The ideological basis of this indicator can be found in micro-economics, which states that the purpose of business is to maximize profits (Kislingerová, 2000). It is not about accounting profit (the difference between accounting income and expenses), but the economic profit. The difference is that the economic profit is the gap between the revenues and economic costs. In addition to the financial costs, economic costs include opportunity costs. Opportunity costs are value of goods or services which have been waived in favor of the most favorable possible alternatives. In the case of EVA indicator there are mainly inputs (such as capital, labor) that were made to the best alternative use - especially the potential return on invested equity of entrepreneur, including rewards for risk and possibly his loss of wages. The comparison is expressed in the following equations:

Accounting profit = accounting revenues – accounting costs

Economic profit = total return on capital – costs of capital

Economic profit arises only when its size exceeds the so-called normal profit derived from the average cost of capital spent by creditors (interest expense), as well as the owners - the shareholders (which represent the opportunity cost).

The basic design of the EVA indicator is expressed as follows:

$$EVA = NOPAT - C \times WACC$$

NOPAT   –   net operating profit after taxes,
C   –   long-term capital invested (sometimes defined as equity plus interest-bearing external sources),
WACC   –   weighted average cost of capital.

The company is successful when the indicator value of EVA is positive. This is the only case that shareholder's wealth is increasing because they earn more that they invested. If EVA = 0, the company produced only what was invested in it, and if EVA is negative, there is a loss in value for shareholders (owners).

It can be concluded that the primary problem in quantifying EVA indicator is the definition of the variables that are used. Stern Stewart & Co stated that for the objectification of calculation more than 150 corrections need to be done. Taking into account the differences between Slovak accounting procedures and U.S. GAAP, Slovak firms are forced to make more changes. It is because they need to fulfill the equation that was developed for American companies. This factor greatly affects disinterest of Slovak entrepreneurs to use economic value added to measure performance of their businesses. Details of the performance of businesses are presented in the financial statements that are prepared in accordance with accounting model. This model is "…*primarily designed for the needs of creditors. This is reflected in the application of the prudence principle and verifiability. Effects can then be seen in the valuation of assets, where the historical cost is used (acquisition cost, conversion cost) and revaluation is possible, but usually only downwards. EVA indicator is designed for owners of the enterprise. So as a base is used "creditor model", adjustments to the economic model are necessary…*" (Mařík, 2007).

2.1 Choosing the appropriate NOPAT indicator for Slovak companies

Following the original intention of the authors as a NOPAT indicator can be used Slovak operating profit[1] (Kislingerová, 2000). This profit is influenced by the accounting methods that are commonly used, and which have a direct impact on its quantification. In order to correctly calculate the NOPAT value of the indicator, it is necessary to take into account provisions, accruals/defferals and other items. According to Mařík it doesn't matter if the NOPAT is calculated from operating profit or profit from ordinary activities. Modifications should in one and in the second case reach the same amount of NOPAT.

Generally, there is no single instruction on which items to include and which to exclude. Consideration by the analyst is irreplaceable. He will assess the nature of the items that enter into the calculation of this indicator. Zalai et al. (2016) notes: "…*By its quantification all items that aren't related to the main activity of the enterprise should be excluded (e.g. revenue from the sale of non-current assets and raw materials)...*" .

Similarly, the determination of the tax burden is not easy, it is recommended to calculate the effective tax rate.

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[1] Some reputable consulting companies use instead of operating profit the profit from ordinary activities, but then the workflow should be modified accordingly.

Table 1
Editing Operating profit for NOPAT indicator

1)	**Operating profit**
2)	(-) operating income from non-operational property
	(+) financial income from financial assets included in the NOA
	(+) operating costs of non-operational assets
3)	(+) goodwill amortization, if goodwill has permanent nature
4)	(+) the original cost of an investment nature
	(-) amortization of intangible assets created by activating these costs
5)	(+) lease payments (lease expense)
	(-) depreciation of assets leased
6)	(-) unusual gains
	(+) unusual loss
7)	Elimination of creation or drawing of provisions
8)	**Adjust the taxes on NOPAT level**

Source: MAŘÍK, M. et al. 2007. Metody oceňování podniku. Praha: Ekopress. ISBN 978-80-86929-32-3.

2.2 Determination of the value of capital invested

There are two methods how to calculate the amount of capital invested. First is reducing total equity and liabilities of short-term liabilities. The second method is by the sum of the fixed assets and net working capital. The aim is to take into account the assets that are used for operating activities of the company. However, there is a current problem, how (not only for what items, but also to what point in time) to define invested capital. There are items which are difficult to determine, e.g. overdraft lending, or operative leasing, where the property is not included in the balance sheet.

The difficulties are associated with the determination of the equity. For correct quantification of the basis on which the expected return for owners should be calculated, it is necessary to know the market value of equity (in its simplest form, expressed as the product of the number of issued shares and the market price of the share). In Slovakia, where there is no efficient capital market, however, this value cannot be easily obtained. Using the book value of equity resulting to distorts of EVA.

2.3 Determination of the cost of own and borrowed capital

The last but not the least problem is the calculation of the WACC. The formula shows that it is essential to

- determine the costs of liabilities. In Slovakia, it is most common to order the bank loan, so the costs of liabilities could be set as weighted average of interest rate of all loans. The problem may arise when entrepreneur took credit in foreign currency. The interest rate is usually different and it is also paid in foreign currency. Is it possible to use such a rate of interest or not? According to E. Kislingerová difference will lapse after time and therefore it favors the use of interest rates prevailing in the home country. There are also exchange rate risk and transactions costs that could eliminate advantage of foreign loans. Vlachynský states that it simplistically can be also used as the share of interest on interest-bearing liabilities (Vlachynský, 2009),

- determine the market value of debt on total equity and liabilities ratio (D / C) in Slovakia is common use book values due to the absence of relevant market values;

- determine the cost of equity. Common is CAPM model[2] (Krabec, 2009).

It is difficult to determine the value of beta (business risk component, which cannot be eliminated through diversification) (Levy – Sarnat, 1986). For example, in the case of companies those shares are not traded in the capital market. Measuring market systematic risk can be considered quite reliable in those cases where the shares of the capital market are high liquid. It is not possible in Slovak capital market conditions.

By the determination of the cost of equity it may be used a different methodology, but each is with some complications:

- **average ROE** - substituting the value of Return on equity (ROE) for the cost of equity leads to penalization of successful firms (yielding high values of this indicator) because of less successful subjects.

- **dividends** - a share dividend paid to the equity value of the company. Assumption is that the share of profits paid to meet the requirements of owners since it themselves agreed to the meeting. This approach usually leads to relevant data about how the income is received by the owners from capital invested. Paid dividends are often associated with business life cycle phase in which it is located, so the following facts and figures may not correspond to the real needs of the owners (e.g., if the enterprise is in the growth stage, and usually does not pay dividends, it does not mean, that the owners would give up their money, only to put off the payment at a later time);

- **build-up model** – its essence lies in the quantification of sub-components of the cost of equity, and their subsequent aggregation into a single number.

The problem is that once again it is only an estimate of the requirements of the owners. One of the variants of calculating the cost of equity using this model is available on the website of the Czech Ministry of Industry and Trade as: "Benchmarking diagnostic system of financial indicators INFA." This is the result of collaboration between government (Ministry of Industry and Trade) and academic sphere (University of Economics in Prague – Neumaierová and Neumaier - authors of INFA methodology) (Ministerstvo průmyslu a obchodu ČR, 2007). It is also possible to use the risk-free rate plus the risk premium (the source for the calculation can be, for example rating of company) (Marhefková – Markovič, 2011).

Also, according to analysts from Trend Analyses emphasis should be placed on the correct determination opportunity cost of equity when calculating the EVA indicator. They recommend "…using the interest rate, which reflects a comparable level of risk. This may be for example bonds yield similarly rated company or in extreme cases risk-free government bond rate. The EVA indicator must be positive valued to satisfy the owner's needs. Only in this case is a new economic value created…" (Žilka, 2004).

Some companies (Pavelková – Knápková, 2005) can even set a constant WACC rate or cost of capital, which is the same for all the strategic business units of the group.

2.4 Proposal for modification of construction EVA indicator adapted to Slovak conditions

For correct quantification of the value EVA indicator is to decide what should be regarded as NOPAT, and the revenues and expenses should be included into it. Intention of the authors of this indicator is operating profit, that revenues and costs, which are not one-off nature and related to the main (productive) activities of the company.

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[2] This model is used in the theory and practice as well, despite some shortcomings (mainly due to the assumptions based) or criticism of the professional community.

Individual items of the income statement were analyzed and were attributed to operating and non-operating in nature. For items for which it was not possible to clearly identify the decisive criterion was overwhelmingly the nature of costs and benefits that are part of them. Based on the assumption that the analyst has a financial statement that is audited, the information contained in the statement of profit and loss is not affected by significant creative (or incorrect) accounting practices.

Summarizing all of the information has been processed the algorithm to calculate the indicator that is based on data presented in the financial statements to get the probable operating profit. Its design recalls the newly created value, of which was deducted the item "taxes and fees". For a better understanding (added value, minus depreciation, taxes and fees and take into account any other income and expenses of an operational nature) the name net newly created value (NNCV) will be used. The calculation can be illustrated in the Figure 1 (using Slovak income statement):

Figure 1
Calculation of net newly created value (NNCV)
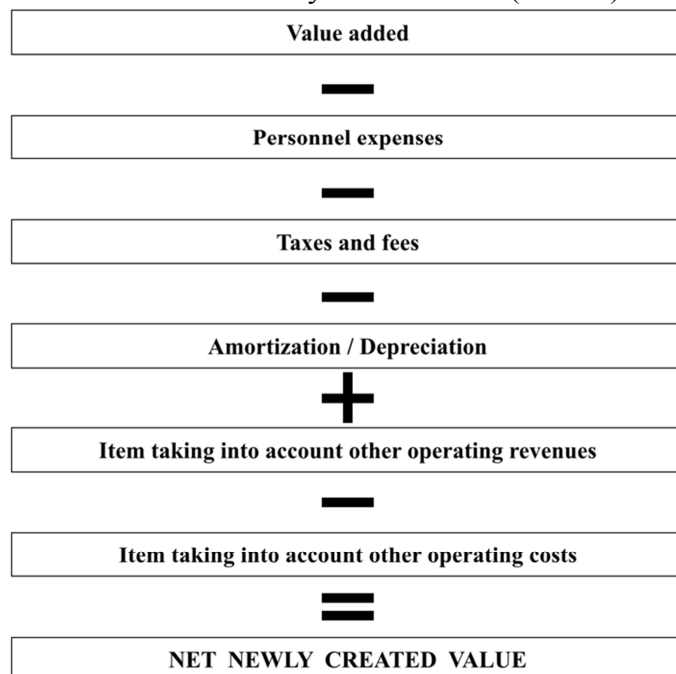
Source: own processing by the Authors of paper

Now it is possible to quantify the indicator that aggregates almost all operating costs and revenues. It is necessary to emphasize that the objective of this work was not to construct a formula that will calculate the economic value added in compliance with all intentions of the authors of this model. On the contrary, the aim was to design an indicator that is fully compatible with domestic accounting procedures, and will be based on the accounting information in financial statements prepared in accordance with Slovak legislation. At the same time this indicator should include elements of economic value added, that the intention was to be as close as possible.

The inclusion of other costs and revenues of either economic or financial activity is left to the analyst's assessment, but it is always necessary to clearly justify why the cost or revenue was counted.

The advantage of net newly created value (NNCV) is also the fact that management of the company is (in case of correct rewarding system) motivated to eliminate non-operating

activities (and their costs as well). For example, ownership of surplus property leads to an increase in depreciation, causing a decrease NNCV hence EVA indicator. This means that it is in the interests of company managers such property exclude from the company. The value of personnel costs can affect managers partly by reducing redundant jobs (because actual wage rates are usually depended on the collective agreement). Similarly, in case of the other costs included in the calculation of the indicator NNCV the main task of managers is to avoid all unnecessary items that make NNCV lower than would be under optimal conditions.

As mentioned, NOPAT is the net operating profit after tax therefore it is necessary to subtract tax from NNCV. There are several ways to proceed. First is to use nominal tax rate, second is to use effective tax rate or the best way is to count real income tax rate that regards all operating revenues and costs as well.

If the analyst does not have detailed information on the amount of tax non-deductible items or deductible items arising from the costs and revenues involved in NNCV he can use an effective tax rate or the nominal tax rate, which is currently at 19%. Tax rate in case of negative NNCV is zero.

3 Relativization of EVA indicator

The primary problem that leads to poor use of economic value added for benchmarking is the fact that calculated values are expressed in monetary units (for example in euros). This expression of EVA is largely influenced by the size of the company. Large companies have better opportunities to achieve higher levels of EVA than their smaller competitors. It's a similar situation to when comparing companies based on achieved profit. Companies with a higher level of quantitative indicators (such as sales, property etc.) have greater potential to achieve a higher level of profit. This situation led to creating several indicators of profitability (e.g. ROE, ROA, ROS).

Similar approach can also be applied to an indicator of economic value added. Construction of proportional indicator will lead to the possibility to compare the analyzed subjects and evaluate their performance.

Modern financial theory has for many years tried to construct a relative indicator of EVA. Among the many proposals are now the following stabilized approaches.

3.1 Value spread

Value spread is based on the assumption that the value of EVA should be monitored and compared with net operational assets (NOA), respectively with invested capital (C), provided that NOA = C.

$$Value\ spread = \frac{EVA}{NOA}$$

By editing this relation we obtain the final formula:

$$Value\ spread = \frac{NOPAT - WACC \times NOA}{NOA}$$

$$Value\ spread = \frac{NOPAT}{NOA} - \frac{WACC \times NOA}{NOA}$$

$$Value\ spread = r - WACC$$

Where:

r – return on net operating assets (NOA).

According to Mařík (2007), value spread is a crucial variable to measure the return on risk adjusted capital. Using this indicator it can be compared businesses of different sizes, equipment, capital, capital structure and primarily risk profile (Mařík – Maříková, 2005).

Value spread shows the real picture of the relative amount of return on invested capital that exceeds the costs of capital. By its calculation it is necessary to know the value of EVA and Net Operating Assets (NOA). The question is whether it is necessary to quantify return on Net Operating Assets (r) and count it down from the weighted average cost of capital (WACC), since the identical result is achieved by dividing EVA by Net Operating Assets.

Comparing businesses which are labor-intensive (e.g. business services) and those that are capital-intensive (e.g. production companies) may lead to significantly different calculated Value spreads. This situation is caused by the fact that an essential component of business services is human capital, which is not contained in the NOA and thus reduces the cost of capital. Therefore, specialists from the London Business School came up with a different structure of relative EVA indicator.

3.2 Relative EVA according to London Business School

In this case EVA is divided by sum of personnel costs and total cost of capital:

$$Relative\ EVA\ according\ to\ LBS = \frac{EVA}{Personal\ expenses + WACC \times NOA}$$

This approach is preferred by some German authors. They assume that relative EVA allows you to compare and work with different companies and capital intensity.

The question is whether the value created by company is the same as sum of personal and capital cost (i.e. the denominator in the formula). If so, such a comparison of manufacturing, trading and service companies makes sense. However, in practice, analysts should especially compare companies with other subjects in their industry or in similar industries.

3.3 EVA ROS (Return on sales)

Another alternative in order to construct a relative EVA indicator is called EVA ROS. The construction of this indicator follows:

$$EVA\ ROS = \frac{EVA}{Sales}$$

Compared with the traditional indicator of return on sales, EVA ROS has one interesting advantage. It is based only on operating profit (NOPAT). Thus we get a kind of operating margin, which has better reporting ability than return on sales (Mařík – Maříková, 2005).

Also the disadvantage of this indicator is similar to ROS. Companies with high turnover ratio and low margin (e.g. trade companies) achieve lower values of EVA ROS than those ones where the situation is reversed (e.g. service companies). Therefore, we should compare only companies operating in related sector and performing identical operations. Sometimes in case that production company decides to increase its operating profit by buying and selling goods, it may threaten its value of EVA ROS. Therefore the analyst using this indicator has to be very careful when drawing conclusion based on it.

3.4 EVA Momentum

Another approach says that annual changes of EVA should be monitoring in relation to sales:

$$EVA\ Momentum = \frac{EVA_1 - EVA_0}{Sales_0}$$

As the EVA Momentum explores the relation between EVA and sales, its final value is affected by the same factors than EVA ROS.

Another disadvantage of this indicator is common with other approaches. It is necessary to specify the cost of equity in order to calculate EVA. Incorrect determination of the cost of equity can have huge impact on the amount of EVA and thus the actual value of the relative indicator.

3.5 Cost of equity at zero EVA

The main problems associated with traditional EVA relative indicators is either difficult to quantify variables NOPAT, WACC × C or inadequate reporting ability. Even after the application of the modified calculation, there remain a number of issues that prevent the effective use of a relative indicator.

Even after obtaining the value of invested capital the analyst still can't easily quantify indicator EVA. The cost of equity remains as the problem. It is very difficult to determine its height. To eliminate this disadvantage, we made a mathematical modification of the original equation:

$$EVA = NOPAT - C \times WACC$$

$$EVA = NOPAT - C \times \left(\frac{E}{C} \times R_E + \frac{D}{C} \times R_D \right)$$

Where:
E   – equity,
D   – debt,
R_E – cost of equity,
R_D – cost of debt (after interest tax shield),
C   – capital (C = E + D).

In the equation above, after substituting data from financial statement, two parameters (EVA and cost of equity - R_E) are unknown. Let's consider the value of EVA. It can be positive, negative or zero. From these values only one can be described as a "turning point". It's when EVA is equal to zero, i.e. a situation in which the company doesn't create or destroy shareholders value. Zero EVA is very interesting from the analyst's point of view. It is a break-even value at which we stop to evaluate the company as prosperous and vice versa.

We also think of the conclusion drawn from this consideration. If zero EVA is break-even value and interesting from analyst's point of view, it is possible to modify equation in such a way that we substitute EVA by zero:

$$0 = NOPAT - C \times \left(\frac{E}{C} \times R_E + \frac{D}{C} \times R_D \right)$$

In this case, we obtain an equation containing only one unknown – the value of the cost of equity (R_E). When we express this value, we get:

$$Cost\ of\ equity\ at\ zero\ EVA = \frac{NOPAT - D \times R_D}{E}$$

Expressed cost of equity can be interpreted as the level of the cost of equity at which the value of indicator EVA is zero. That means that if the real cost of equity of analyzed company is less than the calculated value, the company achieved a positive EVA. On the contrary, if the real cost of equity is higher than calculated value, the company achieved a negative EVA.

This indicator also allows companies to compare their performance on EVA-basis even when we don't know the exact value of the cost of equity. If two competing companies

achieve different level of Cost of equity at zero EVA, the one with the higher level will be more productive. That company can carry higher requirements of shareholders' wealth appreciation.

This approach is not unique in the field of financial management. Internal Rate of Return (IRR) works on the same principle. IRR is used in the allocation of capital to fixed assets. In this case, there is value, according to which we can decide, whether project can be accepted or not. This value is the Net Present Value (NPV), which compares the present value of net revenues with present value of capital expenditures. If the NPV is greater than zero, the project can be accepted. The analogy between IRR and Cost of equity at zero EVA is therefore obvious.

In addition, the amount of the Net Present Value is affected by the discount rate. It is expressed as a percentage and is used for discounting future cash flows that an investment or project will yield. Its exact expression is problematic because it has to respect the demands or expectations of owners of capital (this is similar to Cost of equity). Therefore, IRR indicator, which calculates the discount rate at which NPV of the project is zero, was created. And for the similar reason, Cost of equity at zero EVA was created too.

4 Conclusions and policy implications

In the article we analyze the possibility of modification of the EVA indicator and we have proposed a modified calculation, in which the Net Operating Profit After Tax is subtracted by costs of equity and debt in absolute amount. In its simplest form this calculation allows the use of data from financial statements, which increases the potential usefulness of the modified calculation in practice, especially in the context of current legislation, under which companies will be required to store their statements in public register. It can be assumed that it will increase the need for financial indicators, which will be able to provide interesting results and will use information from financial statements. Therefore, we recommend using the described modified calculation of EVA and proposed relative EVA indicator called Cost of equity at zero EVA especially in benchmarking. It should be emphasized in this context, that the reporting ability of this indicator rises and falls in direct proportion to the quality of accounting information.

The more detailed the information about the incomes and costs and requirements of shareholders the analyst will include in the calculation, the more the resulting value of EVA indicator will approximate the original intention of the authors.

Modified EVA calculation can be used for performance evaluation, company benchmarking, determining the value of the company and management remuneration. In case of remuneration we should emphasize that it can't be used as a single indicator, because for shareholders it is very important to keep track of managing the company's non-operating activities too (e.g. at what prices company sells excess assets).

Acknowledgement

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Structural Changes in the Slovak Banking Sector Capital Adequacy in the Context of Basel III

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Abstract

The main goal of the article is to assess changes in the capital and risk structure of Slovak banking sector in the context of Basel III rules which were introduced as the reaction of world regulators on challenges identified during latest financial crisis. In the first part of the paper we introduce and theoretically define the concept of capital adequacy in the context of Basel framework. In the second part we present the results of Slovak banking sector capital adequacy analysis, where we focus on the main drivers in the change of bank capital and risk structure. Further on we investigate the current state of Basel III implementation and the readiness of Slovak banks to meet regulatory requirements. The assumed contribution of the article is the understanding of capital and risk structure of Slovak banking sector and its readiness to meet the 2019 Basel III goals of banks stronger capital position.

Keywords: *capital adequacy, banking, Basel rules*
JEL classification: G32, G21

1. Introduction

Strong and resilient banking system is a cornerstone of a good and stable economy. During last two decades we have witnessed significant changes in financial sector and its growth in almost all countries all over the world. Banking can be also characterized as one of the most dynamically growing industries while financial market is an essential element to support economic growth and stability. Banks nowadays play a very important role not only in financing consumption and investments, but they also represent a significant tool of monetary policy and integral part of payment mechanism.

The globalization of trade and services enabled banks to internationalize its business which led to the increase of international banks that have conducted more business abroad than at domestic market. Rapid development of new technologies provided more effective way to store, process and analyze data and speed up the communication worldwide. All these changes resulted in the shift of an approach how banks distribute its products and services and how they measure and manage its risks.

At the same time many countries worldwide, experienced severe banking crisis accompanied by the increase of credit risk and costly banking collapses which disrupted global economic activity. Banking crisis in the combination with changes in banking industry turned the attention of market participants towards the appropriate role of banking regulation and supervision. The financial and economic crisis pointed out the fragility of financial system with its obvious imbalances, including the insufficiency of regulatory mechanisms.

2. The concept of portfolio risk management and capital adequacy in context of Basel rules

Asset and liability management is an important part of bank portfolio management. Understanding changes in the bank portfolio and the liquidity structure is the essential part of the bank decision-making process. Banking institutions are expected to actively maintain a healthy liquidity structure of their balance sheets which is a prerequisite for obtaining stable sources of funding. The decision how to use these resources in the form of credit lending should consider the credit risk associated with the debtor's ability to repay the loan provided by the bank. Given the nature of the Slovak banking sector, to explain the concept of risk and capital management, we focus on the credit risk which represents the major part of the risk exposure of the Slovak banking sector. The second most significant category of risk in the Slovak banking sector is Operational risk followed by Market risk.

2.1 Basel rules on bank regulation and supervision

Basel rules represent agreements which provide the basic framework of banking regulation and supervision in the world. Tarullo (2008), since 1985 almost all countries of the Basel Committee based its regulation on a specific calculation of the capital ratio which was based on risk-weighted assets. At that time a significant difference in approach and details of capital regulation remained and there was only a little interest of regulators in the rules harmonization. However, over time there has been a gradual merging of the individual rules, which resulted in the Basel Capital Accord Basel II that was established in 1988 and focused only on banks' capital.

Babouček et al. (2005) indicate that Basel I at the end of 90's did not adequately cover the risks of the banking business and therefore the Basel Committee on Banking Supervision decided to develop a new system of rules for banking regulation and supervision. Shortcomings of Basel I consisted mainly of insufficiently sensitive approach towards risk identification and lack of operational risk measurement. In 1999 Basel Committee issued the first consultative draft of regulation followed by the second one in 2001 called the New Basel Capital Accord. In 2004 after incorporation of final comments, there was published the final version of the New Basel Capital Accord, Basel II which in comparison to Basel I was more risk sensitive and more complex, extending the scope of acceptable reinsurance deductible for purposes of determining capital requirements.

In response to market failures during the financial crisis, the Basel Committee (2011) introduced into the international regulatory framework several fundamental reforms. These changes are on the one hand aimed to reinforce the micro-prudential regulatory rules which should help to increase the resilience of individual banking institutions in times of crisis. On the other hand, the reform has macro-prudential dimension which focuses on the problems associated with the systemic risks that may affect the stability of the whole banking system. Both approaches are closely linked and thus are meant to contribute to greater resilience of individual banks reducing the risk and spread of system-wide shocks.

Belás (2011) says that introduction of the Basel III regulatory rules was motivated by the global financial and economic crisis which has also been reflected in the final form of the regulatory system. Basel III is built upon old regulation systems while tightens some of its criteria and foster previous weaknesses. Basel III also represents a comprehensive effort to counter-cyclical regulatory framework; however the implementation of its individual tools is planned for a longer time period.

Basel III rules bring changes in liquidity area, better structure of internal bank capital, the introduction of the leverage ratio indicator, extension in risk coverage, new approaches to

bank management rewarding, new supervisory architecture and approach to systemically important institutions, united application of the rules of regulation and supervision, as well as counter-cyclical measures to mitigate the effects of the economic downturn.

To measure and monitor the size of risk which is banking sector exposed to Basel rules introduced the concept of Capital Adequacy which can be written as follows.

$$Capital\ Adequacy = \frac{Tier\ 1 + Tier\ 2}{RWA} \geq 8\%$$

(1)

Where Tier 1 represents the bank internal capital of highest quality such as bank shares or retained profit, Tier 2 represent additional level of capital such as subordinated debt. RWA is the measure of risk which bank is exposed to doing its business. The approach towards capital adequacy calculation has evolved in the time, especially in Tier capital definition. Meanwhile Basel II recognized Tier 3 layer of capital, Basel III is strictly focusing on the Core Equity Capital which represents the bank resources of highest quality. The concept of internal capital and RWA is in more detail discussed within following section.

2.2 Internal Capital and Risk Weighted Assets

Capital Adequacy ratio as the ratio of bank own resources and measure of risk can be increased in two ways, either by increasing capital stock or decreasing the stock of risk weighted assets. The main goal of Basel III regulation is to increase the stock and the quality of internal capital and at the same time to improve the quality and accuracy of risk measurement.

2.2.1 Internal Capital

In addition to the minimum capital requirements, two types of capital buffers were introduced by Basel III, Basel Committee (2017). Capital Conservation Buffer which has been designed to absorb banking sector losses conditional on a plausible severe stressed financial and economic environment and Countercyclical Buffer. The idea of Countercyclical buffer is to extend the capital conservation range during periods of excess credit growth or other indicators deemed appropriate by supervisors for their national contexts. The Basel III changes in the internal capital are summarized in the Table 1.

Table 1
Evolution of Basel III Internal Capital Requirements

Internal Capital Ratios	2011	2012	2013	2014	2015	2016	2017	2018	2019
Common Equity Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.6%	1.3%	1.9%	2.5%
Common Equity + Capital conservation Buffer			3.5%	4.0%	4.5%	5.1%	5.8%	6.4%	7.0%
Minimum Tier 1	4.0%	4.0%	4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Capital	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Capital + Conservation Buffer	8.0%	8.0%	8.0%	8.0%	8.0%	8.6%	9.3%	9.9%	10.5%
Min. Capital + Cons Buffer + Contercyclical Buffer (upper bound)					10.5%	11.1%	11.8%	13.0%	13.0%

Source: PWC. 2011. Risk & Capital Management under Basel III. [online] 2011. Available at the URL: <https://www.pwc.com/gx/en/banking-capital-markets/pdf/workshop_session_1.pdf>. [cited 9.1.2018].

2.2.2 Risk Weighted Assets

Risk Weighted Assets represent the measure of a risk, which bank is exposed to, doing its business. Since the most of Slovak banking sector risk is steaming from credit risk we primarily focused on the credit risk RWA(risk weighted assets) quantification. The concept of RWA was introduced by Basel I and significantly improved by Basel II which defined Internal Risk Based (IRB) framework for risk weight calculation. Currently banks use two

main approaches for RWA quantification. Standardized approach which assigns a risk weight to bank exposures according to regulation rules and debtor characteristics, and more advanced IRB approach that is based on Merton and Vasicek model and relies on bank ability to assess obligor credit quality.

The theoretical credit risk model is based on postulates of general economic theory that deals with credit risk measurement in the form of an expected and unexpected loss of the banking portfolio. The principle of measuring expected and unexpected losses (RWA's) represents the basic tool for both banking institutions and regulators to manage the bank portfolio from risk perspective.

The Expected Loss is based on the measurement of the average loss due to the failure or deterioration of the obligor's credit quality and should be in line with bank provisioning process.

The expected loss can be calculated as follows:

$$Expected\ Loss\ =\ PD \times LGD \times EAD \qquad (2)$$

where PD represents probability of default, LGD is loss given default and EAD stands for exposure at the time of default.

While the expected loss represents the mean value of the loss distribution, the unexpected loss focuses on estimating extreme losses in the tail of the distribution. The unexpected loss principle is based on an estimate of the overall loss that is not exceeded given a certain probability.

There are several approaches how to estimate an unexpected loss. The relatively common method, especially in market risk quantification, are models based on Monte Carlo simulations. These models, due to their complexity, are mostly used by large banking institutions as part of the internal risk management or the calculation of economic capital within the Pilier II.

The most common approach, which also forms the basis for the Basel II regulatory calculation of the IRB RWA, is the ASRF model derived from the Merton and Vasicek approaches, Basel Comitee (2005).

The mapping function used to derive conditional PDs from average PDs is derived from an adaptation of Merton's 1974 single asset model to credit portfolios. According to Merton's model, borrowers default if they cannot completely meet their obligations at a fixed assessment horizon (e.g. one year) because the value of their assets is lower than the due amount. Merton modelled the value of assets of a borrower as a variable whose value can change over time. He described the change in value of the borrower's assets with a normally distributed random variable. Vasicek (2002) showed that under certain conditions, Merton's model can naturally be extended to a specific ASRF credit portfolio model. With a view on Merton's and Vasicek's ground work, the Basel Committee decided to adopt the assumptions of a normal distribution for the systematic and idiosyncratic risk factors.

The Unexpected Loss (RWA) can be calculated as follows:

$$Unexpected\ Loss = EAD \times LGD \times N((1-R)^{-0.5} \times G(PD) + \left(\frac{R}{1-R}\right)^{-0.5} \times G(0.999)) -$$

$$PD \times LGD \times \left(1 - 1.5 \times b(PD)\right)^{-1} \times (1 + (M - 2.5) \times b(PD) \qquad (3)$$

where N represents standard normal distribution, G represents the inverse of the standard normal distribution, R is asset correlation, PD stands for probability of default, LGD is loss

given default and EAD represents exposure at the time of default. The relationship between Unexpected Loss and RWA can be express as follows; RWA = Unexpected Loss x 12.5, where 12.5 constant is derived from Cook ration defined by Basel I.

If a banking institution decides to optimize its RWA structure it can do so by the change in its portfolio risk profile. The RWA is derived from the probability of default as explained above. Lending to low risk obligors is decreasing the overall portfolio PD which results in lower RWA and higher capital adequacy. The decision of optimal RWA structure is however closely linked to bank pricing and profitability, where the general rule, the better obligor quality the lower the price of the loan, applies.

2. Analysis of capital adequacy of Slovak banking sector

The analysis of capital adequacy has been done on the sample of four major Slovak banks which together represent vast majority of total credit exposure of the whole Slovak banking sector. The main goal of the analysis is to understand the drivers of capital adequacy change, especially after the crisis period, and to assess if these changes have been in line with expectations outlined by Basel III regulation. Figure 1 displays the time series of capital adequacy ratio in the period between 2008 and 2017. The data used for the analysis have been extracted from bank's consolidated financial reports. Due to the insufficient reporting of capital adequacy ratios and risk weighted assets, CSOB (Československá obchodná banka) was excluded from overall comparison, however its individual results can be seen in Appendix 1 on the Figure 8.

Figure 1
Capital Adequacy Evolution and its Drivers
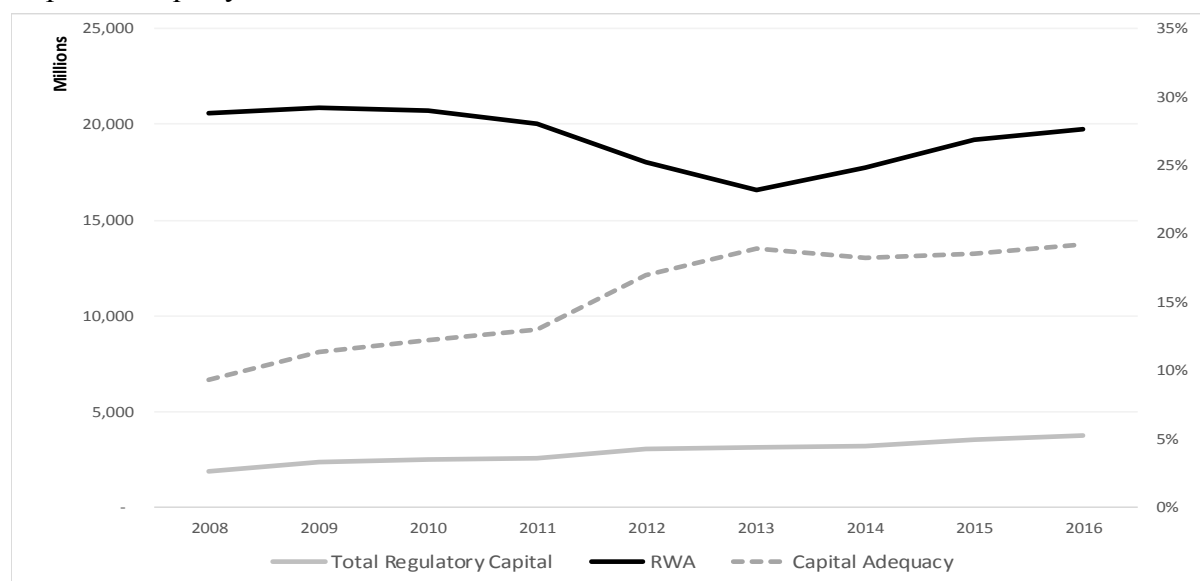
Source: author's calculations based on bank's annual reports

From Figure 1 it is obvious that the average capital adequacy ratio has been continually increasing from its initial level of 9 % in 2008 to almost 20% in December 2016. The relatively rapid increase up to 2013 is caused by the increase in the capital base which was amplified by significant decrease in sector risk weighted assets. The increase of total regulatory capital is in line with Basel III expectations and is further explained on Figure 3. The relatively significant decrease of RWA indicates the structural risk changes in banks portfolios. This decrease can be driven by two primary factors, either reduction of total credit exposure or structural changes in lending towards better quality obligors. The evolution of

total credit exposure which consists of On-Balance and Off-Balance sheet items is displayed on the Figure 2.

**Figure 2**
Evolution of Banking Sector Exposure
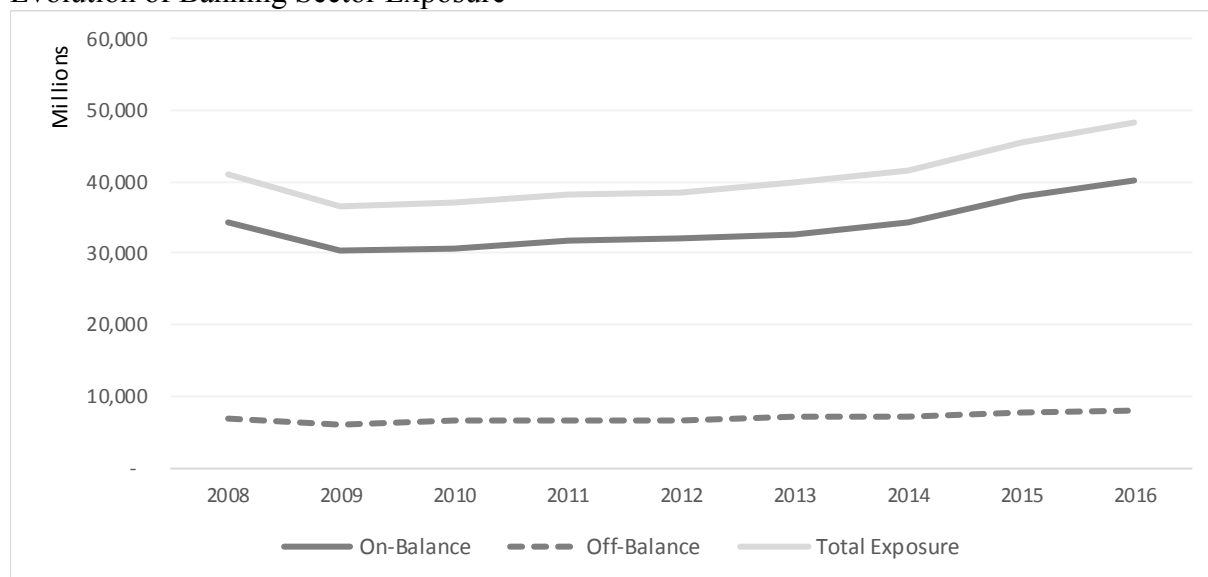
Source: author's calculations based on bank's annual reports

The credit exposure analysis shows the decrease in sector exposure in the first years of crisis with a relatively fast recovery and continuous growth from 2010 onwards. This indicates that the aforementioned decrease in RWA is driven by the initial decrease in exposure with consequent improvement in the risk structure of bank portfolios. Off-balance sheet items account only for a minor part of the overall exposure.

Figure 3 displays the evolution of bank's regulatory capital which mainly consists of high quality Tier 1 capital. The Tier 2 capital is built of Subordinate debt and it has been relatively low with slow increase since 2012.

Figure 3
Evolution of Regulatory Capital
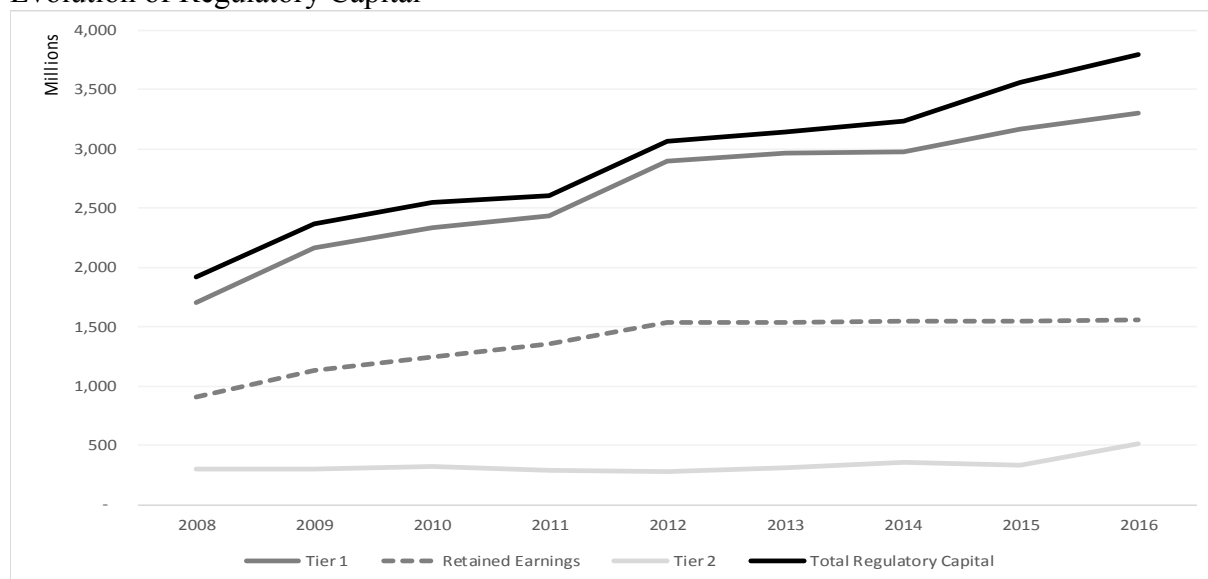
Source: author's calculations based on bank's annual reports

The sector Tier 1 capital consists of high quality instruments such as capital shares, premium and retained profit which are part of Core Equity Tier 1 introduced by Basel III. The current structure of internal capital is a very strong indicator of banking sector stability. The Slovak banking sector is meeting Basel III criteria (CET1+ Conservaton Buffer > 7%) with significant reserve. From the analysis of regulatory capital, it is also obvious that the increase in Tier 1 is in great extent driven by increase in retained earnings. A good profitability of Slovak banks allows them to foster its capital base from its own profit rather than from external financing via capital markets.

Figure 4
Banking Sector Profitability
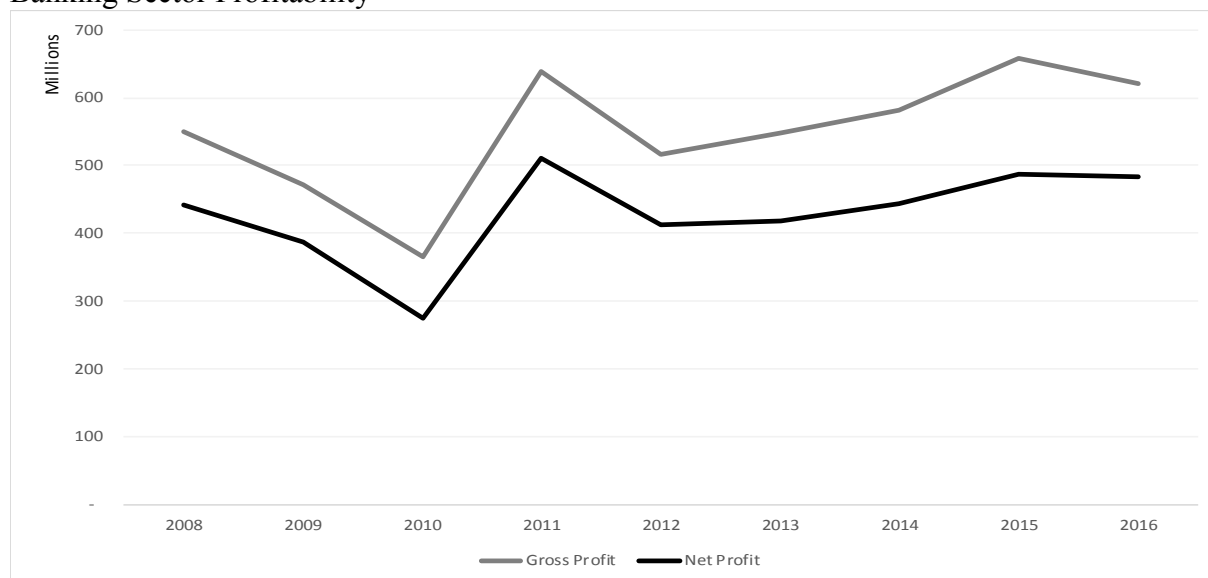
Source: author's calculations based on banks annual reports

The aggregate analysis of Slovak banking sector shows a strong continuous increase of capital adequacy which is in line with Basel III expectations. The analysis also provides an interesting view on the strategy of each institution to improve its capital adequacy ratios. The example of TB (Tatra banka) and SLSP (Slovenská sporiteľňa) indicates a combination of RWA optimization with retained earnings growth. These banks reduced and optimized its RWA structure which created a space for dividends payout. On contrary VUB (Všeobecná úverová banka) retained most of its annual profits which allowed for credit expansion and continuous balance sheet growth. All banks in the sample report strong capital position and stable profitability.

Conclusion
Banking sector is one of the fastest growing and most regulated industries that due to financial crisis has been facing many challenges which required adequate, timely and appropriate response from banks and regulators. The main goal of the paper was to analyze and assess changes in the capital adequacy of Slovak banking sector in the context of Basel III rules. The analysis proved a strong capital position which has been significantly fostered during last ten years. The analysis also indicates the readiness of main Slovak banks to meet capital requirements with significant capital reserve. Sector average capital adequacy ratio has been continually increasing from its initial level of 9 % in 2008 to almost 20% in December 2016. The sector Tier 1 capital consists of high quality instruments such as capital shares, premium and retained profit which are part of Core Equity Tier 1 introduced by Basel III. At the same time different capital adequacy optimization strategies were identified. The example

of TB and SLSP shows a combination of RWA optimization with retained earnings growth. On contrary VUB retained most of its annual profits without significant RWA reduction which allowed for credit expansion and continuous balance sheet growth. We believe that this paper contributes to better understanding of bank capital as well as shows different strategies how banks approached the challenge of capital adequacy increase. The analysis proved a good condition of Slovak banks and its readiness for application of Basel III rules, which casts a good light the whole Slovak financial sector.

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VÚB. 2018. Annual Reports 2008-2016. [online]..2018]. Available at the URL: <https://www.vub.sk/sk/financne-ukazovatele/vyrocne-spravy/>. [accessed 21.01.2018].
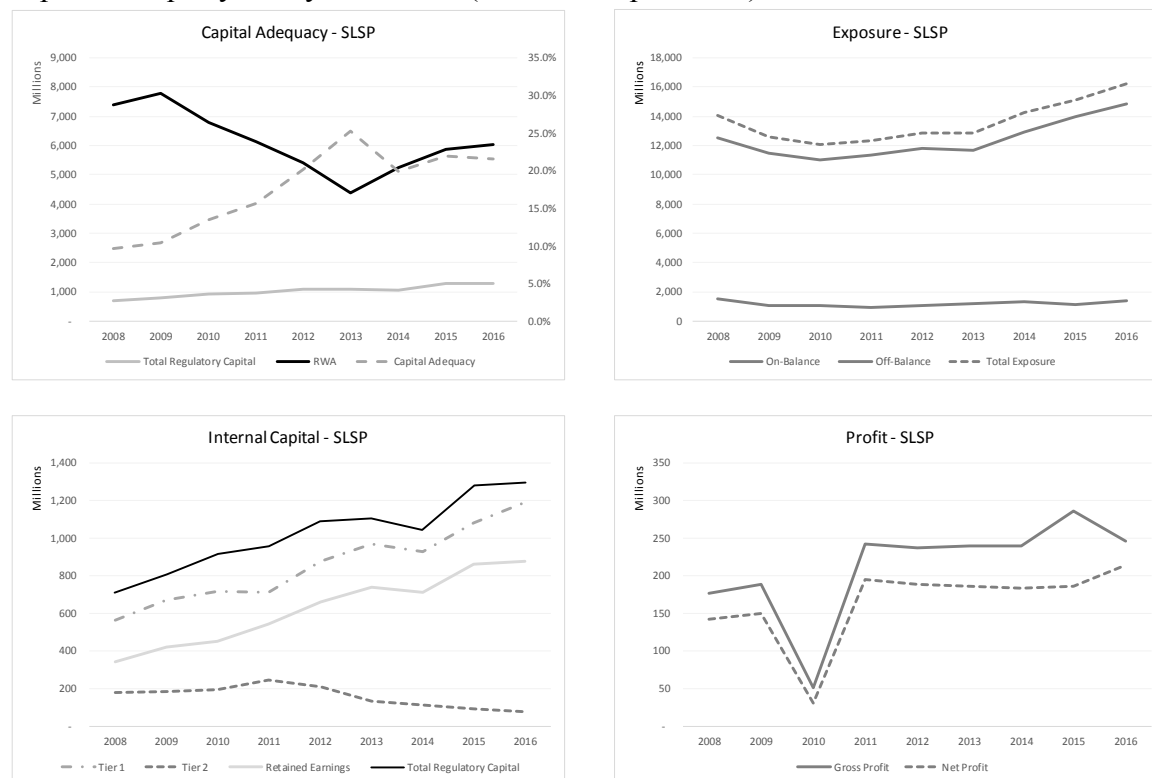
Appendix 1

Figure 5
Capital Adequacy Analysis - TB (Tatra banka)
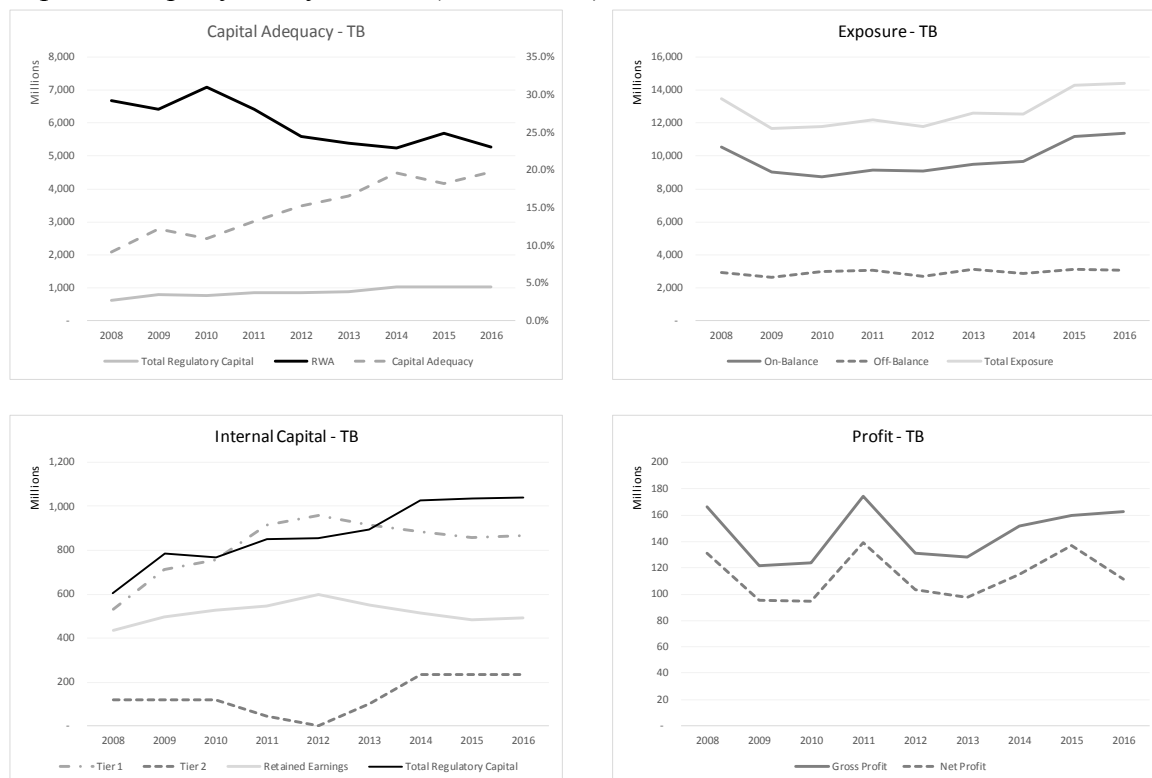
Source: author's calculations based on bank's annual reports

Figure 6
Capital Adequacy Analysis – SLSP (Slovenská sporiteľňa)

Source: author's calculations based on bank's annual reports

Figure 7
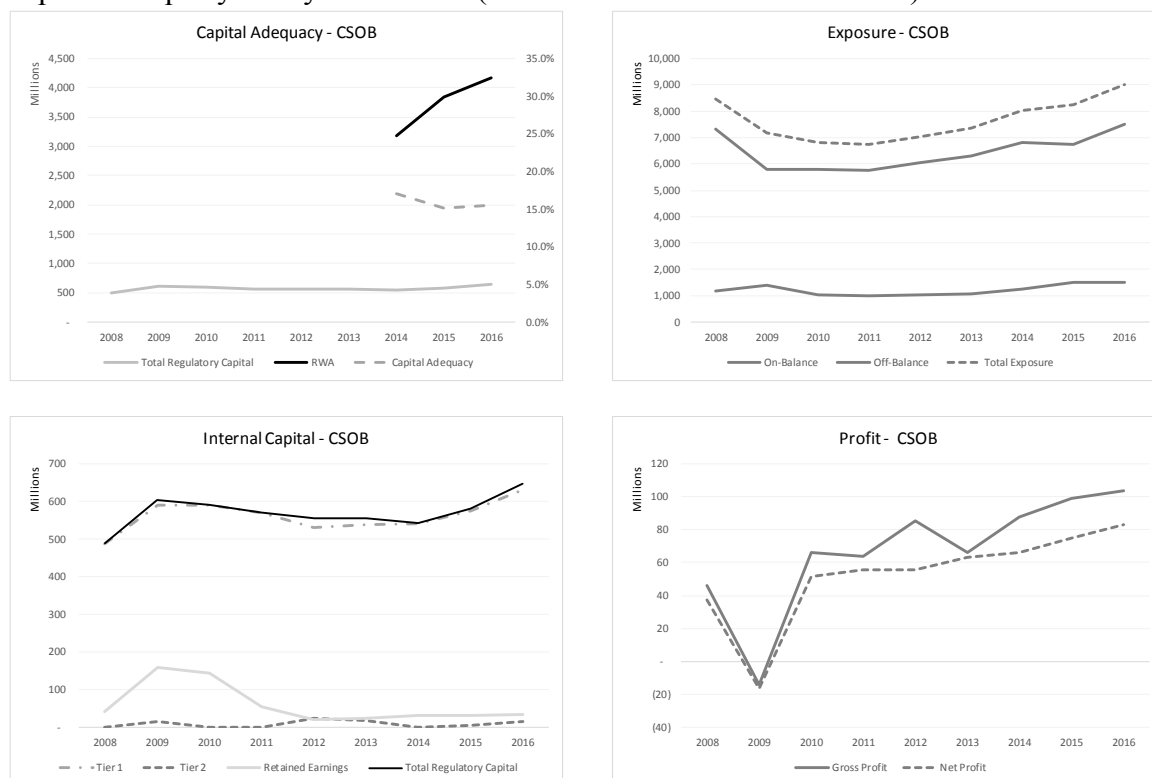Capital Adequacy Analysis – VÚB (Všeobecná úverová banka)
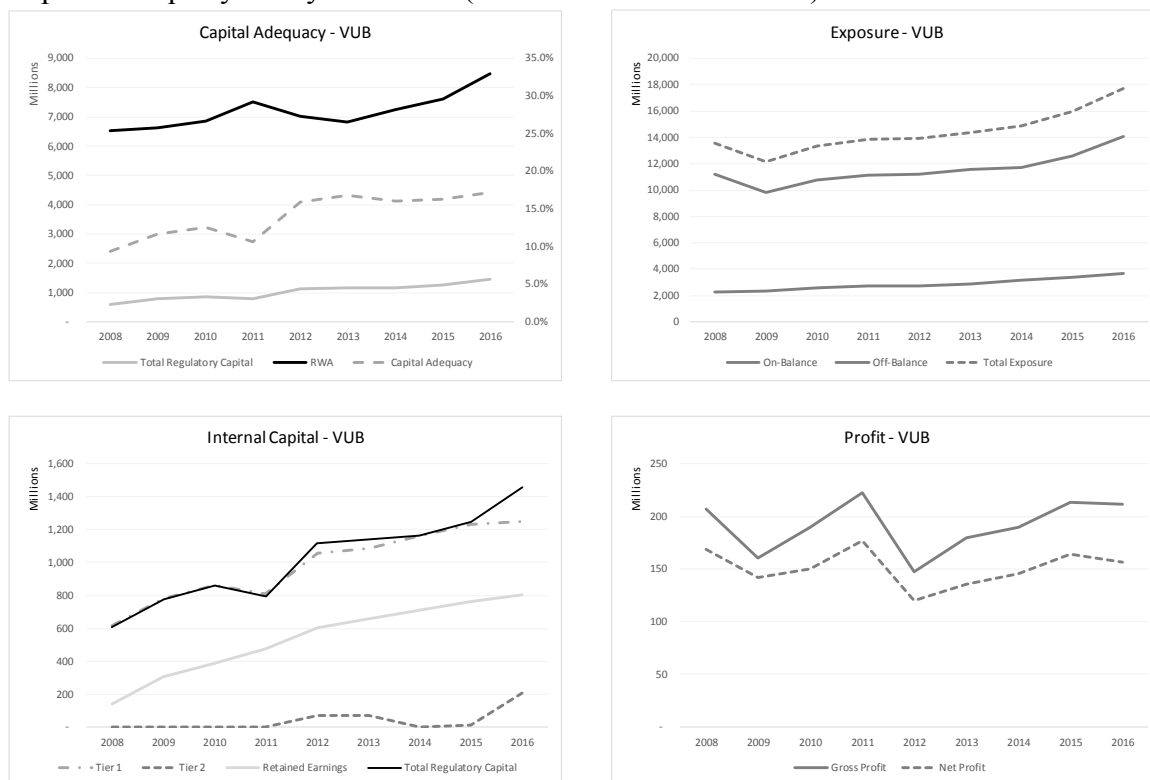
Source: author's calculations based on bank's annual reports

Figure 8
Capital Adequacy Analysis – ČSOB (Československá obchodná banka)

Source: author's calculations based on bank's annual reports
Note: Annual reports pre 2014 does not contain information about Capital Adequacy and RWA

Education and Training for Labor Market Efficiency

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Abstract
The aim of this paper is to evaluate efficiency of labor offices in Slovakia in implementing chosen labor market policy – Education and training for the labor market. We build on existing microeconometric and macroeconometric research in this field. We try to present new approach how active labor market policies can be evaluated. We found out that there are large differences between efficiency of labor offices. We also concluded that efficiency of labor offices is dependent only on labor office itself, not on local labor market characteristics or specificities.

Keywords: *Active labor market policy, DEA method, Tobit model*
JEL classification: C5, C6, J2

1. Introduction

Spending reviews and efficiency of public spending evaluations are becoming more and more popular in EU countries recently. To maintain long-term sustainability of public finances, it is important to have expenditures under control and spend them efficiently. In this paper we will try to introduce new approach, how Active labor market policies can be evaluated.

Active labor market policies are important tool in the fight with unemployment. Since government budgets are very tight, it is important to evaluate Active labor market policies efficiency. Especially in Slovakia, where long-term unemployment is one of the highest in European Union.

There are several ways how to evaluate Active labor market policies efficiency. Most evaluation studies focus on the microeconometric treatment effect using individual data. These studies ignore indirect effect (like substitution or deadweight effects) so many authors recommend combination micro and macro approaches. In this paper, we try to extend existing research with new approach, based on non-parametric DEA method.

Unlike existing studies, we will not focus on Active labor market policy effects on unemployment, but we will examine efficiency of labor offices implementing chosen policy – specifically *Education and labor market training*.

In last few years there were several studies evaluated effectiveness of active labor market policies, mostly from microeconomic perspective. Harvan (2011) concluded positive effect of Contribution for graduate practice, but negative effect of Contribution to activation activity.

Relatively more broad analysis provided Štefánik et al. (2014). In this analysis authors concluded that Education and labor market training has negative effect on probability of participants to find a job – in comparison with non-participants.

Institute of financial policy (Hidas – Vaľková – Harvan, 2016) combined microeconomic approach of active labor market evaluation with DEA analysis of labor offices efficiency.

Analysis of efficiency of labor offices in this paper is focused on total efficiency – operating efficiency of labor offices and efficiency of implementing all active labor market policies together. Results suggest negative effect of higher workload of labor office employees and long-term duration of unemployment on efficiency of labor offices.

We will try different approach in this paper. We will focus only on efficiency of labor offices in implementing single active labor market policy – Education and labor market training.

2. Model and Data

There are two approaches for the estimation of frontiers in economics – the parametric and nonparametric. In this paper we try to extend existing parametric research with new approach, based on non-parametric method – Data envelopment analysis. Furthermore, we will test relationship between efficiency of labor offices and external characteristics of given local labor market using tobit regression.

2.1 DEA

DEA represents the nonparametric approach for frontier estimation in the sense that it does not require any assumption about the functional form. Any deviation from the frontier is treated as inefficiency. It provides single measure of efficiency even when dealing with multiple inputs and outputs (Luptáčik, 2010).

The advantage of this method is, that it allows us to evaluate efficiency of subjects using inputs without market prices (measured in physical units) or subjects using multiple inputs and outputs.

There are two basic types of DEA models with respect to envelopment surfaces, referred to as constant returns-to-scale (CRS) and variable returns-to-scale (VRS) surfaces. We will work with CRS in this paper, since we assume that increase in inputs will lead to proportional increase in output.

Another characteristic of DEA is, that we can choose either input or output orientation of the model. Input-oriented model minimize inputs while producing at least the given output levels. Alternately, output orientation focuses on maximizing of outputs for given inputs. Since in our model we will have 3 inputs and only 1 output, we will use input-oriented model.

2.1.1 Slack-based model

Slack-based model is one of the additive types of DEA model. In additive models, a projected point on the frontier is represented in terms of the vector of output slacks s^+ and vector of excess inputs s^- (Luptáčik, 2010).

$$\rho_i = \min 1 - \frac{1}{m} \sum_{i=1}^{m} s_i^- \big/ x_{i0}$$

$$subject\ to$$

$$x_0 = X\lambda + s^-$$
$$y_0 \leq Y\lambda$$

$$\lambda \geq 0, s^- \geq 0.$$

Inputs:

x_1 - total expenditures on *Education and training for labor market,*

x_2 - average price,

x_3 – average duration.

Output:

y_1 – placement on the labor market until 6 months after finishing course.

2.2 Tobit regression

In the beginning of this section we mentioned few advantages of DEA method. Unfortunately, our specification of model does not take characteristics of local labor markets into account. Hence in next step we will use tobit regression to estimate effects of external factors and labor office characteristics on efficiency of labor offices. We also test relationship of inputs and efficiency.

$$\rho = \beta_0 + \beta_1 Z_i + \beta_2 X_i + \varepsilon_i$$

where X_i is vector of inputs from DEA model and Z_i is vector of variables concerning characteristics of local labor market (share of women in unemployment, number of vacant positions in given local labor market, number of unemployed people to labour office employees ratio, index of regional characteristics and number of participants of *Education and training for labor market.*

2.3 Data

All data used in this paper are from Central office of labour, social affairs and family of the year 2014.

3. Empirical results

3.1 Efficiency of labor offices – DEA method

We evaluated the efficiency of labor offices in implementation chosen active labor market policy – specifically *Education and training for labor market* using Data envelopment analysis described in previous chapter. In our model we used 3 inputs (total expenditures, average duration of course and average price per hour of course) and 1 output – placement of participants on labor market 6 months after finishing the course. Descriptive statistics of our data is shown in the Table 1.

We can see that there is large variance in applying *Education and training for labor market* between labor offices, especially in Total expenditures and Average duration of course. Total expenditures in 2014 vary from 1 035 (in Ružomberok) to almost 156 thousand (in Zvolen). The shortest average duration of courses was in Michalovce (40 hours), the longest duration of courses was in Liptovský Mikuláš, over 650 hours.

Table 1
Descriptive statistics on used data

	Total expenditures	Average duration	Average price	Labor market placements
Maximum	155 906	652	3,31	171
Minimum	1 035	40	1,22	5
Average	36 327	327	2,11	46
Standard Deviation	32 208	161	0,53	35

Source: Calculations based on data from UPSVAR

Table 1 contains results from input-oriented SBM model described in previous section for 5 most efficient and 5 least efficient labor offices. In the table we can see efficiency scores

and projections of inputs – that means how much can DMU (in our case labor office) reduce it´s input while producing at least same level of output. Results for all labor offices are shown in Appendix 1.

There are 3 relatively efficient labor offices in implementation *Education and training for labor market* – in Pezinok, Senica and Trnava. With respect to other labor offices, they can´t decrase their inputs while producing same output. The rest 39 labor offices are inefficient.

The least efficient DMU in implementation *Education and training for labor market* is labor office in Banská Bystrica. It is efficient only on 5 % and projections on efficiency frontier suggest, that it should decrease total expenditures by almost 14 thousands euro, average price by 2,25 euro and average duration of course by 193 hours while placing same number of unemployed workers on labor market to become relatively efficient.

Average efficiency score is 0,37 – that means that labor offices in Slovakia in 2014 were efficient only on 37 % on average. Thus there is significant space for improvement. If all labor offices implemented *Education and training for labor market* policy with same efficiency as our reference set (DMU´s Pezinok, Senica and Trnava), they could decrease total expenditures by 827 thousands euros.

Based on projections to effieciency frontier, average possible decrease in expenditures is over 20 thousands eur, average price almost by 1,3 eur and average duration by 237 hours.

Table 2
Effectiveness scores and projections for chosen labor offices (5 most and 5 least efficient labor offices)

DMU	Score	Projections		
		Total expenditures	Average price	Average duration
Pezinok	**1,00**	0	0,00	0
Senica	**1,00**	0	0,00	0
Trnava	**1,00**	0	0,00	0
Martin	**0,92**	-3 204	0,00	-22
Nové Zámky	**0,74**	0	0,00	-389
Malacky	**0,16**	-35 052	-2,89	-130
Komárno	**0,12**	-23 541	-1,63	-288
Rimavská Sobota	**0,11**	-40 305	-3,09	-239
Stropkov	**0,11**	-27 765	-1,87	-406
Banská Bystrica	**0,05**	-13 947	-2,25	-193
Average	**0,37**	**-20 179**	**-1,28**	**-237**
Total		**-827 322**		

Source: Calculations based on data from UPSVAR

3.2 What influences efficiency of labor offices? Results from Tobit regression

Our DEA model in the previous section does not take local labor market characteristics into account. In the next step we will use Tobit regression to estimate effects of external factors and labor office characteristics on the efficiency of labor offices.

Results from tobit regression are shown in Table 3. The share of women participants has a significant large effect on the efficiency of labor office in Model 1. That means, the more female participants, the more effective labor office. Number of vacant positions, index of labor market characteristics or number of unemployed to labor office employees ratio have no effect on efficiency in this specification of model.

In Model 2 we added variable for the number of participants of *Education and training for labor market.* This variable is in this model significant, what suggests that increase in number of participants will increase efficiency. Since this variable is strongly correlated with total expenditures (coefficient of correlation 0,8), it is no surprise that it is significant. Little surprising is although sign of this effect – since it is strongly correlated with input, we would expect that increase in input will lead to decrease in efficiency. Sign of index, which became significant is as expected negative – increase in index, which means worse conditions on labor market will lead to decrease in efficiency.

As we can see in Model 3, where we added variables representing inputs in original DEA model (in the Table 3 with notation (I)), all these variables are strongly significant. But while Average duration and Average price have negative effect as expected, Expenditures have positive effect.

Negative effect for first two variables is expected, because the higher input, the lower efficiency. But how can we explain positive effects of Expenditures or Number of participants (from model 2 and 4)?

As we said earlier, expenditures are strongly correlated with number of participants. Negative sign of effects of these variables can have 2 explanations. First is, that labor office can provide education more efficiently when there is higher number of participants, when they are in larger group. Or that labor offices that have better know-how how to implement this policy will put more and more participants here. Second is simpler and more straightforward – the more participants, the higher the chance that they will find position on labor market so the higher number of placements on labor market.

It is also noticeable that share of women is in Model 3 significantly positive. This result suggests that women are more suitable for this policy. Vacant positions, index of local labor market characteristics or workload of employees does not have effect on efficiency of labor offices.

Table 3
Results from Tobit regressions

Variables	Model 1	Model 2	Model 3	Model 4
Average duration (I)			**-0.0504****	**-0.0370****
			(0.0214)	(0.0182)
Average price (I)			**-27.56*****	**-17.91*****
			(6.522)	(5.501)
Expenditures (I)			**0.000342*****	
			(0.000125)	
Women	**0.131****	**0.0494**	**0.0915***	**0.0609**
	(0.0552)	(0.0599)	(0.0526)	(0.0542)
Vacant positions	**0.0129**	**-0.00534**	**0.0111**	**-0.000296**
	(0.0335)	(0.0318)	(0.0292)	(0.0290)
Index	**-0.308**	**-0.371***	**-0.174**	**-0.242**
	(0.199)	(0.186)	(0.173)	(0.170)
Unemployed/employees ratio	**-0.125**	**-0.0937**	**-0.0472**	**-0.0638**
	(0.132)	(0.122)	(0.112)	(0.108)
Number of participants		**0.0911****		**0.105*****

		(0.0349)		(0.0322)
Constant	**60.62*****	**54.74****	**107.9*****	**90.38*****
	(22.22)	(20.70)	(22.74)	(20.88)
Observations	41	41	41	41

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1,
(I) – variables used in DEA model as inputs

4. Conclusions and policy implications

The aim of this paper is to evaluate efficiency of labor offices in Slovakia in implementing chosen labor market policy – *Education and training for the labor market*. Unlike existing studies, we used non-parametric method – Data envelopment analysis. This approach enables us to examine efficiency of implementing this Active labor market policy, instead of efficiency of policy itself.

Results from SBM DEA model suggest, that there are relatively few efficient labor offices in implementing *Education and training for the labor market*. Labor offices are efficient only on 37 % on average. Thus there is significant space for improvement. If all labor offices implemented *Education and training for labor market* policy with same efficiency as efficient DMU´s, they could decrease total expenditures by 827 thousands euro per year.

We can also say that there are large differences in efficiency between labor offices. The question is, wheter this policy is not suitable for certain local labor markets, or the problem is in implementing this policy by labor office.

The most interesting finding from our regression is, that number of participants (so also expenditures) has positive and significant effect on efficiency. It is counter-intuitive, since increase in input should lead to decrease in efficiency. The question for further research is, whether this positive relationship is due economies of scale (increasing returns to scale) or whether more efficient labor offices focus unemployed to this policy because of better know-how how to implement it.

Interesting finding is also that women are more suitable for this kind of active labor market policy. Vacant positions, index of local labor market characteristics or workload of employees does not have effect on efficiency of labor offices. It seems that efficiency is dependent only on labor office itself, not on local labor market characteristics or specificities.

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Appendix I.

DMU	Score	Projections		
		Total expenditures	Average price	Average duration
Pezinok	**1,00**	0	0,00	0
Senica	**1,00**	0	0,00	0
Trnava	**1,00**	0	0,00	0
Martin	**0,92**	-3 204	0,00	-22
Nové Zámky	**0,74**	0	0,00	-389
Veľký Krtíš	**0,73**	-6 392	-0,64	-35
Stará Ľubovňa	**0,53**	-35 346	0,00	-317
Bratislava	**0,51**	-3 820	-1,68	-67
Dunajská Streda	**0,45**	-7 417	-0,73	-265
Vranov n/Topľou	**0,42**	-5 325	-1,27	-52
Ružomberok	**0,39**	-256	-1,24	-35
Nitra	**0,38**	-13 668	-0,49	-368
Poprad	**0,38**	-33 734	-0,99	-160
Žilina	**0,37**	-24 825	-1,58	-202
Levice	**0,36**	-65 470	-1,40	-496
Košice	**0,36**	-21 479	-1,09	-205
Rožňava	**0,35**	-14 489	-0,73	-375
Dolný Kubín	**0,35**	-3 942	-0,96	-314
Nové Mesto n/Váhom	**0,33**	-23 499	-1,29	-241
Galanta	**0,33**	-20 822	-1,27	-174
Zvolen	**0,32**	-94 530	-1,80	-485
Liptovský Mikuláš	**0,30**	-33 716	-0,80	-536
Bardejov	**0,30**	-7 590	-0,99	-194
Humenné	**0,29**	-13 240	-2,26	-78
Považská Bystrica	**0,29**	-20 468	-1,13	-396
Lučenec	**0,27**	-26 500	-2,36	-267
Michalovce	**0,25**	-1 111	-2,08	-27
Trenčín	**0,24**	-10 218	-0,75	-365
Prešov	**0,22**	-31 449	-1,22	-379
Partizánske	**0,22**	-31 537	-2,15	-264
Čadca	**0,22**	-52 841	-1,24	-525
Revúca	**0,22**	-18 868	-1,44	-112
Spišská Nová Ves	**0,21**	-21 766	-1,79	-227
Piešťany	**0,20**	-14 441	-1,20	-428
Brezno	**0,18**	-15 889	-2,59	-187
Topoľčany	**0,16**	-8 859	-1,60	-261
Malacky	**0,16**	-35 052	-2,89	-130
Komárno	**0,12**	-23 541	-1,63	-288
Rimavská Sobota	**0,11**	-40 305	-3,09	-239
Stropkov	**0,11**	-27 765	-1,87	-406
Banská Bystrica	**0,05**	-13 947	-2,25	-193
Average	**0,37**	**-20 179**	**-1,28**	**-237**
Total		**-827 322**		

Source: Calculations based on data from UPSVAR

Internal Audit and External Audit Cooperation in EU Countries

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Abstract
There are positions of oversight authority and professional bodies that cooperation between internal and external auditors leads to benefits as efficient and effective of audit, decreases audit fee, minimizing disruption to the audited entity, improving and maximizing audit coverage based on risk assessments and identified significant risks. The profession of internal audit is younger then profession of external audit and start to develop after the World War II with progress of management science. The more attention to relationship between to profession become after Financial Crises in 2007-2009 where according to Arndorfer (2015) the internal audit become a partner for "three lines of defense model „the interaction between corporate governance and internal control systems. This paper compares the role of internal audit with the role of external audit on the one hand and the efficient and effective cooperation of both professional bodies as a benefit for company management.

Keywords: *internal audit, external audit, cooperation, ISA 610*
JEL classification: M42

1.   Introduction

There are discussions within EU, professional institutions and entrepreneurs on the role of internal audit and the role of external audit, cooperation between both the profession and the benefit of their cooperation. In this paper we will examine the differences in the profession and work of the internal and external auditors and the potential field of cooperation of both professions.

Internal audit assists the board in the effective operation of the company and the reviews the non-financial process. The external audit expresses an opinion on the financial statements addressed to the board and the markets. Each type of audit has its well-defined role, scope and responsibilities.

The work of internal audit has a much broader mission, covering risk and governance including internal financial control. Internal audit focus on improving the effectiveness and efficiency of internal control within a company by making recommendations based on objective analyzes and assessments of its processes.

The internal audit provides reports to board members or senior managers, provide assurance on internal control and procedures and the mitigate risk of the company.

According to IAASB (International Auditing and Assurance Standards Board): "The external auditor shall express an opinion whether the financial statements are prepared, in all material respects, in accordance with the applicable financial reporting framework. The external auditor´s responsibilities are to identify and assess the risks of material misstatement

of the financial statements, to perform audit procedures and to obtain sufficient and appropriate audit evidence that represent basis for the auditor´s opinion" (IAASB).

Potential lenders, banks, the stock exchange and investors often require externally audited financial statements before doing business with a company. They make a decision on their investment, granting a loan or starting a cooperation based on an audit opinion of an external auditor.

Both professions are regulated by a professional organization which sets up a standard for the profession, including definition of cooperation. However, the reporting of external auditors is used by third parties, therefore the profession becomes more regulated by law and supervised. This is the most important difference between internal and external audit professions.

2.   Differences between Internal and External Audit

The one of the reason different role of internal and external auditor raised from historical development.

Auditing has its history determined by the history of accounting which begun by about the 400 BC where the ancient Egyptians and Babylonians had auditing systems for checking movement in and out for storehouses, including oral "audit reports". But development audit start to explore in the modern way when stock companies established in the USA (railway and etc.). Fitzpatrick (1939) opined that the audit objective in the early period was primarily designed to verify the honesty of persons charged with fiscal responsibilities.

On the other hand the Internal Auditing profession is continuously exploring after the World War II with the progress of management science. The author, Sridhar Ramamoorti, in the book Internal Auditing, named the first modern internal auditing theory, was made by Lawrence Sawyer (1911-2002) in the USA.

The Institute of Internal Auditors (IIA) has developed international qualifications, as Certified Internal Auditor (CIA) and other specific certifications (CRMA, CCSA) to standardize knowledge and skills required to become an internal auditor. In Europe it is ECIIA who members are 24 EU countries out of 28.

We can conclude that profession of internal auditor is younger then profession of external auditor.

There are many differences between these professions as:

a) Recipient of reports

The first difference is the output of the auditor who is the recipient. The recipients of reports made by internal auditors are Board members and senior managers, Audit Committee and Shareholders or Supervisory Board or Board members are recipients of reports from the external audit.

b) Objective(s)

From the recipient of reports is possible defined also objectives for each profession.

Global IIA has set out the formal definition of internal auditing in its International Professional Practices Framework which define by internal audit output requirements, to Board members and senior management that help to fulfill their duties as: "Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk

management, control and governance processes." (IIA International Professional Practices Framework, 2017).

In 1991, the IAPC's[1] guidelines were recodified as International Standards on Auditing (ISAs) where in ISA 200 par 3 audit is defined as: "The purpose of an audit is to enhance the degree of confidence of intended users in the financial statements. This is achieved by the expression of an opinion by the auditor on whether the financial statements are prepared, in all material respects, in accordance with an applicable financial reporting framework." This mean adding credibility and reliability to reports from the organization to its shareholders by giving an opinion on them. The other users of audit opinion are financial institutions, the stock exchange, suppliers and etc. and based on this they start long term relationship with the audited company. They rely on auditor´s opinion that company is in good shape, good financial health and that company is able to fulfill its payables.

c) Coverage

The auditor's objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes the auditor's opinion. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements according to FRC.

Definition of fraud is in ISA 240: "*The Auditors Responsibility Relating to Fraud in an Audit of Financial Statement; places the responsibility to prevent and detect fraud squarely on management. As for internal audit, its main function is to ensure reliable reporting process, hence they assess high-risk aspects of the internal control environment and recommend the design of a system of internal control that will mitigate the risk of fraud to below materiality level.*"

d) Status and authority

Additional International Professional Practices Framework, which includes a Code of Ethics and International Standards for Professional Practice of Internal Auditing (International Standards) requires the Head of Internal Audit to establish an internal audit charter that sets authority for the function and present this to the audit committee and board or senior management. Internal auditors rely on the support of the audit committee to maintain their status and authority.

The role of the Audit Committee is the control of the overall business of the company. The members of the Audit Committee are experts and independent professionals. The Audit Committee has an internal audit and a tool that they use and rely on their work that they mitigate the risks of the company through an efficient and effective internal control environment. They provide assurance of company activities to senior management and board.

Many countries have Professional auditing standards which require that audits be planned and performed to obtain reasonable assurance that financial statements are free of material misstatement. Auditors also examine, on a test basis, underlying transactions and records supporting financial statement balances and disclosures. The other assessment, done by auditors, is the accounting principles used and significant estimates made by management and evaluates the overall financial statement presentation.

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[1] International Auditing Practices Committee (IAPC) then known as the International Auditing and Assurance Standards Board (IAASB) was founded in March 1978.

The precise role of external auditors and the processes is different. Therefore EU, the European Commission gets goal to unified role, scope and framework of external audit in May 2008 has introduced Recommendation on External Quality Assurance for Statutory Auditors and Audit Firms Auditing Public Interest Entities (European Commission 2008). These recommendations are the consequence of international efforts to introduce external system for quality assurance of auditing that is independent from auditing profession and where oversight is conducted by persons who are not active auditors and not provide auditing practice. Such measures were one of tools to prevent financial crises started in 2007.

The other tool of EU to improve quality of external audit in EU was set up the European Group of the Auditors´ Oversight Bodies (EGAOB) as advisory body to European Commission on statutory audit matters, also to facilitate coordination of new public oversight systems for statutory auditors and audit firms within the European Union.

EU legislation to reform the statutory audit market was adopted in April 2014 and laws are expected to apply from mid June 2016. The key issues impacting the statutory audit included in the new EU audit reform legislation and, in particular, the requirements for public interest entities (mandatory rotation, new requirements regarding reporting by the statutory auditor, additional restrictions on the provision of nonaudit services to PIE audit clients, new requirements for audit committees relating to their oversight of the performance of the audit).

e) Timing and frequency

As internal auditor is mostly part of organization their work is ongoing during whole year and external auditor visit the organization twice time as preliminary audit and final audit into financial reporting cycle, focused on objective of audit opinion.

The scope of internal auditors differs from external auditors, they share in evaluating the internal control system as a common goal for both of profession, and their aims from this evaluation are different. The external auditor aims to implement the second standard of field work standards, evaluate risk control, and identify the audit sample while, internal auditor aims to provide recommendations that assist to develop and improve the internal control system. This share in some goals increases the importance of, and the need for coordination and cooperation.

3.   Common characters for internal and external audit

One common character is professional standards established by professional organization as IIA and the International Federation of Accountant (IFAC). They have Code of Ethics, International Standards for Professional Practice and documents related to profession. Based on this codification standards, the both profession are transparent, the work and outputs are measurable and control.

Peter Wilson, the IIA president (1988) confirms that cooperation between the external and internal auditors is necessary to ensure the most appropriate coverage of all major systems, and effective reporting of results.

This is also supported by Lin, Pizzini, Vargus and Bardhan (2011) who based on data collected from 214 U.S. firms found that, the disclosures of material weaknesses reported under Section 404 of the Sarbanes-Oxley Act of 2002 are positively associated with coordination and cooperation between internal and external auditors.

There is common objective also in the work of the both internal and external auditors, as they have to evaluate the internal control system. The internal control system is stone for the work for internal audit, for external audit is part of work which should be done before audit

opinion is issued. It is necessary to mention that external audit regards the internal control system look from the materiality perspective, which permits them to eliminate those errors that aren´t significant, because they don´t have influences over the financial statements.

However, the remark on materiality principle is not in the context if the external auditor makes a decision to rely on the work of the internal auditor. In accordance to ISA 610 the external auditor should determine whether the internal auditor´s work is adequate for the purposes of the audit. The external auditor shall evaluate the objectivity of the internal audit function, the technical competence of the internal auditors, whether the work of the internal auditors is likely to be carried out with due professional care and whether there is likely to be effective communication between the internal and the external auditor (ISA 610, par.9).

Morrill et al. (2003) consider the coordination of external and internal auditors can provide total audit coverage more efficiently and effectively. Also Gras-Gil with Marin-Hernandez and Garcia-Perez (2012) found that greater involvement of internal auditors in reviewing financial reporting leads to improved quality financial. The main benefit of coordination between auditors is increasing the effectiveness of audit and decreasing the audit´s cost according to Schneider (2009).

There are continuous growth in the innovation of IT technologies and both internal and external auditors are recommended by using similar techniques, methods, and terminology that both help to achieve their work and depend on each other.

Professional bodies IFAC (ISA 240), IIA (sec 1210) have required both internal and external auditors for the importance of fraud detection (Coram – Ferguson – Moroney, 2006). According to Schneider (2009), internal auditors´ knowledge about the environment and control system in the organization is more than the external auditors, so internal auditors are more able to discover the fraud compared to their external auditors. This is confirm by Hilison, Pacinl and Sinason (1999) confirm that internal auditors can be an entity´s main line of defense against fraud, in contrast, external auditors often unable to detect and report the occurrence of employee fraud. This is also support by the KPMG´s Fraud Survey (2003) which found that 65% of fraud discovered in government and industry in the United States by internal auditors and only 12% by external auditors. Despite the results of the research, there is importance of existence a high level of coordination and collaboration between internal and external auditors that lead to reduce fraud risks according to Panel on Audit Effectiveness (2002).

4.   Cooperation between internal and external auditors

The external audit perform cooperation with internal auditors based on ISA 610 Using the Work of Internal Auditors in which defined the activities of the internal audit function and may include one or more of the following:

• Monitoring of internal control.
• Examination of financial and operating information.
• Review of operating activities.
• Review of compliance with laws and regulations.
• Risk management.
• Governance.

In order for the external auditor to use specific work of the internal auditors, the external auditor shall evaluate and perform audit procedures on that work to determine its adequacy for the external auditor's purposes (ISA 610, A11). The nature, timing and extent of the audit procedures performed on specific work of the internal auditors will depend on the

external auditor's assessment of the risk of material misstatement, the evaluation of the internal audit function, and the evaluation of the specific work of the internal auditors. Such audit procedures may include examination of items already examined by the internal auditors; examination of other similar items; and observation of procedures performed by the internal auditors.

IIA has adopted Implementation Guide 2050 – 1, Coordination and reliance which requires that the chief audit executive should share information, coordinate activities, and consider relying upon the work of other internal and external assurance and consulting service providers to ensure proper coverage and minimize duplication of efforts.

The more attention to relationship between to profession become after Financial Crises in 2007-2009 where internal audit become a partner for "three lines of defense model „the interaction between corporate governance and internal control systems. The oversight body which were established based on EU regulation started to review independent the work of external auditor and their reliance to work of internal auditors. They are interested in assessment work, experience and quality of internal auditors. A recent Public Company Accounting Oversight Board (PCAOB) inspection report mentioned critically that, in many instances, the external auditor does not have a sufficient basis to rely on outsourced work.[2]

In some countries, external auditors are required by the supervisory authorities to provide a specific assessment of the scope, adequacy and effectiveness of a bank's internal control system, including the internal audit system.

Notwithstanding the changes occurring in the role of the internal audit function, there is still need to provide assurance services. Business scandals such as World Com highlighted the issue that the internal auditors were focused on value added activities, and had failed to evaluate control effectiveness (Blackburn et al., 2002)

A high level of professionalism in the core services internal audit provides to management, the audit committee and external auditors will win the respect which will open the door to greater coordination with these entities. A primary area of focus for internal audit in this coordination drive is education. To gain commitment it is important that managers, the audit committee and external auditors all understand the need for coordination not just with the internal auditors but also with each other.

Communication is vital for any organization as it provides networking between people and organizations (Zineldin, 2000). For coordination to be effective, it is important that the entities have the right information at the right time. In this digital age characterized by rapid convergence of information and communication technology, there are many innovative options for communication which internal audit needs to explore.

Typically, internal auditors are employees of the entity, though in some cases the function may be outsourced. The communication become highly important in the case of outsourcing the function of internal audit to international accounting company and usually could be different reasons as for example (Salamasick, 2012): lack of capital or resources, lack of time-requirements to get things done more quickly, lack of labor, lack of technical knowledge about the process, increased pressure to reduce costs, opportunities to expand market share and increase revenues and opportunity to increase focus on core competencies or value-added activities.

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[2] The PCAOB is a non-profit corporation established by Congress to oversee the audits of public companies in order to protect the interests of investors and further the public interest in the preparation of informative, accurate and independent audit reports.

The mainly area which fit to outsourcing of internal audit is IT due to present development of IT technology which required highly specific experts. Managers look for ways to come to market quicker with more cost effective and efficient ways of doing things. Business processes also must change to adapt to the more global environment and both internal and external auditor are all the time in the process of development.

Benefits of coordination:

a) *Support of Transparency and Accountability*

Thanks to the support of transparency and accountability, coordination has the advantage of deterring managers from committing fraud or providing a means of early detection of fraud.

"Enron debacle is a wake up call… It shows good governance will not come by writing best codes, we needed to create a culture of transparency." (Mehra, 2nd International Conference on Corporate Governance, cited in Berghe, 2002).

b) *Results in a more Effective Reporting*

Coordination with management ensures that recommendations made by internal audit are relevant, timely and add value to the organization. The involvement of the audit committee helps that there can be follow up on the implementation of audit recommendations and also follow up unresolved audit issues with management on a timely basis (Steinberg – Bromilow, 2000).

c) *More efficient Operational Processes*

Cooperation between the internal and external audit results in more timely and cost effective work by the external auditors as it prevents duplication of effort. Additionally, by using internal auditors in the execution of the audit the organization can save tremendously especially in the case of large multinational corporations (O´Regan). This results in a more effective use of the total audit resource (Redrup et al., 1999).

d) *Support the Image of Internal Audit*

In addition, they felt that the role of the external auditors was superior to that of the internal auditors who were simply concerned with issues of compliance (Moeller, 2002). With reference to the introduction of the Financial Expert on the audit committee, Moeller (2002) put it this was, "The designated accounting and financial expert on the audit committee needs the help of internal audit to explain internal control issues within the organization to better assess audit risks and to plan and perform effective internal audits."

The function of the internal audit does not exclude the need of external auditors, but rather it complements and contributes to their work. Internal audit, properly complemented by external audit, creates a comprehensive audit function which maintains the necessary internal controls and the proper performance of the overall banking activities. External auditors have an important influence on the quality of the internal control systems through the performance of their controls, the regular conversations with the Governing Body, the Board of Directors or the Audit Committee, as well as through the recommendations for improving the internal control system.

In determining the procedures for operation and in planning the audit, the major benefit is the operation of the Internal Audit. However, one should emphasize that the responsibility for the opinion on financial statements is an obligation of the external auditors. The external auditors should be familiar with, and have access to, the reports of the Internal Audit Services, as well as to be aware of things that can affect their conclusions. Also, the external auditors

should inform the internal auditors on any significant matters that may affect the work of the Internal Audit Service.

Mutual communication between internal and external auditors provides exchange of information on matters of common interest, such as exchange of opinions on audit techniques, methods of operation and interpretation of terminology, exchange of audit reports or letters to the Board of Directors, Audit Committee and Oversight Body.

Coordination among the audit committee to the board of directors, executive management, external auditors and the internal audit function is year another chance for the department to demonstrate its true worth to the organization.

Engle (1999) indicated to the following three main benefits which are: a) meaningful audits has a significant impact on achieving organizational objectives, b) the external auditor who depends on internal auditors´ work has a significant ability to decrease his fee, and c) reduce the disagreements between the external auditor and senior management that may occur regarding the application of accounting principles.

Conclusions

There is possible to do conclusion of some differences in the work of internal and external auditor as:

- Internal auditors can be used to provide advice and other consulting assistance to employees, while external auditors are constrained from supporting an audit client too closely,

- Internal auditors will examine issues related to company business practices and risks, while external auditors examine the financial records and issue an opinion regarding the financial statements of the company.

- Internal audits are conducted throughout the year, while external auditors conduct a single annual audit. If a client is publicly-held, external auditors will also provide review services three times per year.

However, regulatory bodies recognize the importance of a good working relationship between internal and external auditors, thus a position paper published by the European Confederation of the Institute of Internal Auditing (ECIIA, 2013), recommend more frequent meetings between internal and external auditors and mutual respect and confidence through the recognition that they both perform their work with relevant professional standards.

If the external auditor decide to use the internal auditor´s work in arriving at their opinion, the process will be regulated by ISA 610.

The risk information gathered by external auditors is typically limited to financial reporting risks, and does not include the way senior management and the board/audit committee are managing /monitoring the origination's strategic, business and compliance risks. However, internal audit function can provide assurance on these areas to senior management as well as the governing body.

The main coordination role has the Audit committee which should define and manage the scope of cooperation between internal and external audit. The minimum both should exchange their reports of the work and benefit from this. The relationship between internal audit and external audit will facilitate the work of both sets of auditors, avoid duplication and ensure the maximum coverage of the risks faced by the entity.

At present, there is no possibility that both professions will come closer to standards, but also professionals who will move from internal to external audit, and vice versa.

In the present time of quick IT development, communication, coordination and cooperation are an important element of added value that both professions can give to companies that form the basis of a healthy economy and a stable.

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Level of Self-Control Depending on Level of Control

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Abstract
Nowadays, there is increasing emphasis placed on the optimization of all business processes and the functions of management. Managers´ goal is optimize the progress of these processes to minimize costs or increase benefits. Depending on the increasing importance of employees and their acceptance of corporate culture and the values of the company, the importance of self-control in the work of employees is increasing as well. Employees, by using self-control in their work, can reduce their supervisor´s control. But also a higher engagement of the employee is needed towards the enterprise, as employee is more responsible. For this reason, the self-control and its use is depending on the level of management. The aim of the paper is to summarize the theoretical knowledge about self-control and management levels and to compare this knowledge with the partial results obtained from the self-control survey.

Keywords: *controlling; self-control; self-management.*
JEL classification: M10, M19

1. Introduction

One of the trends in management, during the past decade is also the increasing emphasys towards employees and their share of the company's results. A large part of the management literature is devoted to the human factor and nowadays it is starting to be mentioned in relation to self-regulation and self-control. The employee should primarily be responsible for his or her work performance and for the quality of the work tasks and achieving goals. Employee should be able to motivate, acquire sufficient skills and knowledge to perform his or her work, and last but not least, to know how to control and check his or her own results. Competencies, as a prerequisite for proper control, depend on various variables - such as job content, objectivity, employee motivation, but also the level of management depending on employee's position. Different competencies as well as the rate of self-control in their work will be given by the CFO and Marketing Director or CEO and line manager.

As part of the ongoing self-monitoring survey in Slovak enterprises, we have also collected and analyzed data from the field of self-monitoring use in the work of employees at individual levels of management. In relation to the given issue, we are also trying to find the number of years worked in the selected business and the impact of this indicator on the use of the self-control rate in the work of the employees.

1.1 Theory of self-control and level of management

In general, control is divided into internal and external control. The Eastern approach understands internal control as a control where subject and object come from the same system, the external control is a control where subject and object are from different systems. Western approach considers internal control as a type of control where both the subject and the control object are the same system or individual. From the perspective of Western

approach to control splitting, we mean self-control in internal control (e.g. Mišún – Mišúnová-Hudáková, 2016).

According to Oláh et al. (2011) self-control belongs to every activity that a person performs, to every decision he has to make, to the feedback of each process and its effectiveness. Using self-control increases the responsibility of a person in a work process, increases the quality of management and minimizes management costs.

Kračmár et al. (2013) states, that self-control is an integral part of self-assessment, which is a component of self-regulation, ie. self-management and self-fulfillment or fulfillment of goals or tasks. An important prerequisite for successful self-regulation is the objective relationship to self and continuous comparing behavior with the planned behavior or comparing its own values and standards with the values and standards of society. According to Bezáková (2003), there is a self-regulating theory that makes it possible to continuously increase worker professionalism based on the 6S model. It has the following components: self-reflection, self-esteem, self-confidence, self-control, self-defense and self-creation. When employees focus on all the different components of this model and improve them, their overall skills in self-regulation will be improved and will gradually improve themselves as a person.

The term "self-control" is part of the self-management area and, as the Porvazník (2014) stated, self-control is the ability of a person to determine their own goals and tasks, to fulfill them so that the person becomes better and more useful. Such a person, has greater assumptions to deal with more challenging tasks and goals.

According to Manz and Sims (1980) the self-management and self-control are an alternative to formal structures of organizations. In this approach, team members set their own standards, monitor and measure their performance, and draw conclusions or remedial action based on evaluations. Self-management is one of the most common and basic forms of behavior, and through self-control we can use it efficiently.

According to Porvazník and Ladová (2011) the competent manager should be one who has the necessary social qualities, professional knowledge and practical skills. Majerčák and Farkašová (2005) have a different opinion and at the current requirements of the manager, they also consider high professionalism, ability to be self-reliant, self-confidence, self-motivation, creativity, entrepreneurship, management and leadership based on acquired knowledge and experience, working conditions.

Jackson and Schuler (2003) have defined skills such as the knowledge, abilities and other individual characteristics of an individual that an individual needs to effectively carry out their work.

Increasing skills and competencies are also part of career management, which enables employees to be more effective in the work process and to gradually build a career. A gifted employee begins to work on himself, gradually acquiring the necessary practical experience, knowledge and skills. It goes along with the phenomenon of career growth and employee gets a higher level of control and will need less control and higher level of self-control (Bridgstock, 2009). The higher the level of management is, the more competent the manager should be in the levels required for a given level of control.

Figure 1
Management Levels: A hierarchical view according to Robbins and Coulter (2012)
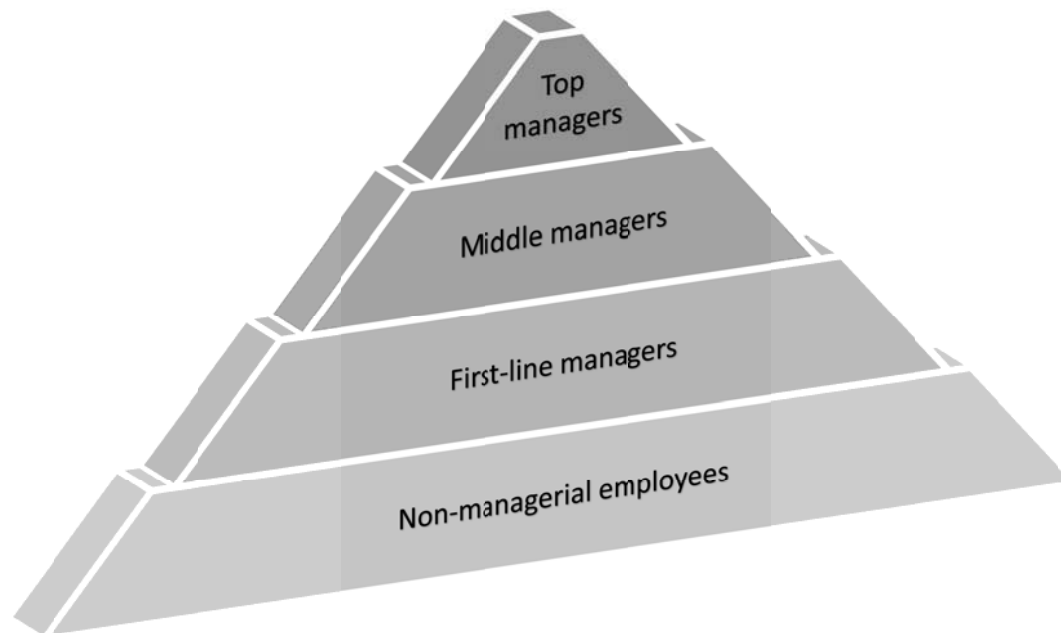
Source: Own work.

According to Bates et al. (2005) the top management is a relatively small group of people who are responsible for the general management tasks and conducts strategic planning for the business, takes responsibility for the direction of business, and sets long-term goals and tasks for the enterprise. They constantly monitor the business environment and set a vision and direction for the future. The middle management has the task of managing specific functional areas, often a larger group of people than top managers. Mid-level management implements top management decisions and is responsible for medium-term planning of the company. It transforms strategies from top management into partial goals and action plans for lower levels of management. Monitor the business environment that affects the functional area. Management of 1st line typically controls small segments in a specific department or management function. It focuses on day-to-day tasks and short-term goals assigned to a higher level of management.

1.2 Methodology

The presented partial results were obtained through a questionnaire survey that took place during three months at the end of 2017, with data collected from an electronic questionnaire on the GOOGLE website. The questionnaire was filled in by respondents who were given a URL, so they were not accessible to the wider public.

The questionnaire was aimed at determining the extent of self-control in the work of managers as well as non-managerial workers in companies operating in the Slovak Republic. The questionnaire had 22 questions, 10 of which were identifying, for the classification of respondents, 12 questions focused directly on the self-review, the degree and the level of use and the supplementary answers to the evaluation questions. The rating ranges were set in the whole questionnaire from 1-6 points to avoid averaging values for quantitative responses.

The survey sample currently has 106 respondents, and we will continue with the collection of data. In the evaluation of the questionnaires were used following methods: analysis, synthesis, induction, deduction, comparison and research interview.

The first question was analyzed on the level of management of the respondent's position in the selected enterprises. The respondents are:

- 21.69% top managers,
- 27.37% middle managers,
- 33.96% first line managers,
- 16.98% non-managerial employees.

Thus, all surveyed levels of managers as well as non-managerial staff were represented in the questionnaire, with the largest number of managers represented and the least represented by top managers.

Figure 2
Levels of management
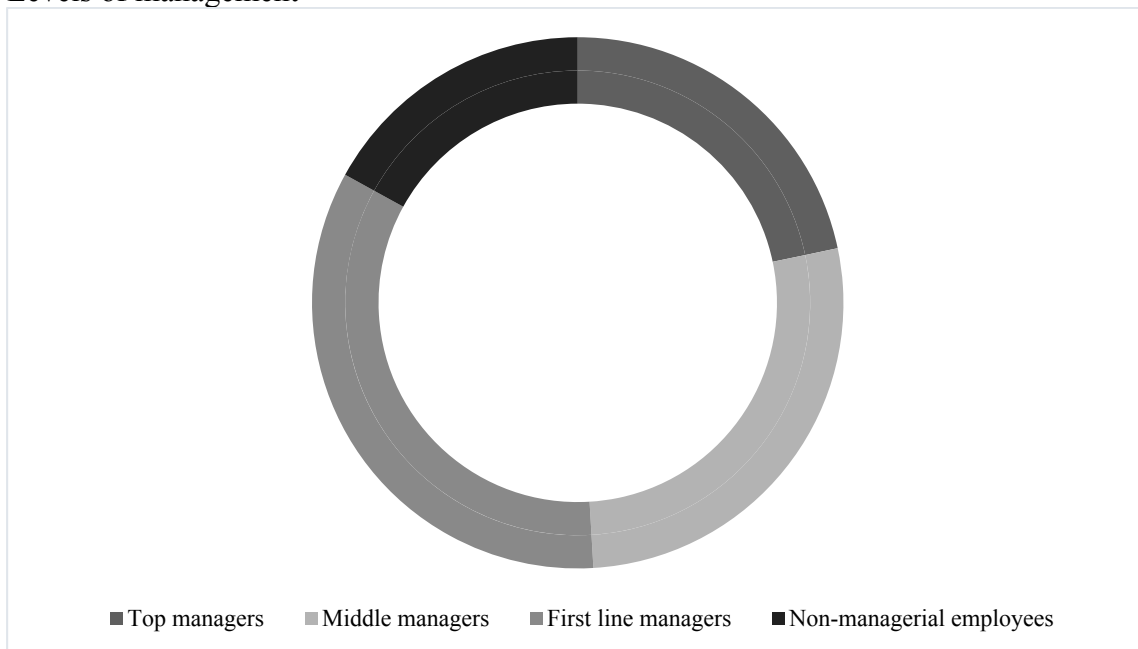
Source: Own work.

The average age of each category of respondents is as follows:

- non-managerial employees – 21-30 years,
- first line managers – 31-40 years,
- middle managers – 31-40 years,
- top managers – 41-50 years.

The age of managers towards a higher level of management is rising due to the need for higher practical skills and experience, as well as the expertise and other competencies that are critical to the performance of the top management function and are related to the gradual career growth and career management.

The number of years worked in the selected enterprise for which respondents filled in the questionnaire was on average the following:

- non-managerial employees – 3,22 years,
- first line managers – 6,7 years,
- middle managers – 8,29 years,
- top managers – 11,32 years.

Given the current state of the labor market, it is not uncommon for senior managers to alternate jobs as well as the business they work in, which can also be caused by political changes or business outcomes and their impact on middle and top management of the business and jobs. At lower levels of management, rotation of job positions or business is common, as organizational changes or changes in employee preferences and retraining often occur in the current turbulent business environment.

2. Research results

The rating scale to determine the current level of self-control was set from 1 (I do not check for any of my own tasks / activities) to 6 (I myself / we are checking the performance of our own tasks / activities). After the questionnaire, the questionnaire included additional questions as to which work activities and tasks are specifically controlled by the respondents themselves in their work, which has resulted in a number of qualitative responses complementing their assessment.

Figure 3
Evaluation of the level of self-control using the rating scale at each level of management
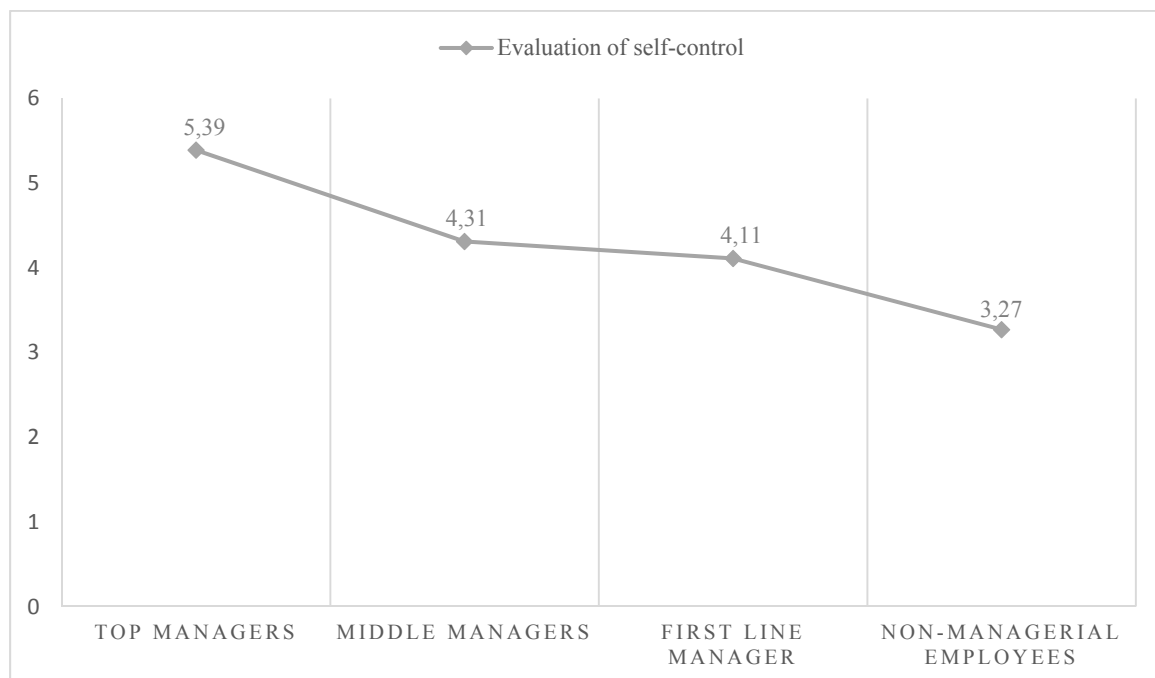
Source: Own work.

The degree of self-control in the work of non-managerial employees was rated on average by 3.27, from qualitative responses we can summarize tasks or activities into the following categories, which were checked exclusively by the respondent himself:

- office operation (booking of meeting rooms, mail checking, organization of meetings, invoice registration);
- satisfaction and customer service, shop supervision;
- operation (refilling, sorting and valuation of goods, operation order);
- operations with money (record of payments and cash liability);
- checking the accuracy of data (on invoices, systems, customer data);
- fulfilling of assigned tasks by senior managers.

The qualitative responses of non-managerial employees show that, although they feel they have an average degree of self-control in their work, they themselves control mostly minor

tasks that do not have significant negative effects on their failure or inadequate performance and control.

The level of self-control in the work of the 1st line managers was scored on average at 4.11, and from the qualitative responses we can summarize the activities and tasks into the following categories that the respondents controlled exclusively by themselves:

- certain managerial functions (planning, personnel, organization, control of subordinates);
- informing customers, employees and superiors about selected information from the company's activities or from its own work activities;
- management and control of people and their control (distribution of changes, attendance monitoring, control of the work of subordinates);
- functionality of the systems and processes allocated, their smooth operation.

First line managers in comparison with non-managerial employees have higher powers and responsibilities as well as more demanding and complicated tasks and activities to meet the needs of higher levels of competency and self-control in their work.

The degree of self-control in the work of middle managers was averaged 4.31 on the basis of qualitative responses, we can summarize the tasks and activities into the following categories, which the respondents surveyed exclusively control themselves:

- all managerial functions (planning, organizing, checking, staffing, leadership);
- long-term decisions, plans and their implementation;
- management and development of subordinates, their quarterly evaluations;
- delegating tasks to subordinates and controlling their performance;
- preparing reports and presentations of the results of subordinates;
- meeting established targets, sales plans and subsequent corrective actions.

The work and tasks of middle-level managers are of medium-term importance rather than lower levels of management. They control the achievement of set goals that are important for the enterprise, such as fulfillment of the sales plan, strategic planning or presentation of the results achieved to the superiors and members of the board of directors or the supervisory board. The degree of self-control in the work of top managers was averaged 5.39 on average, and based on qualitative responses, we can summarize work tasks and activities into the following categories, which are exclusively controlled by the respondents themselves:

- searching for new market opportunities and company development;
- development of new products and services marketed;
- signing contracts and negotiating details of contracts;
- management and control of subordinate headquarters or departments;
- economic indicators of the company and their planning, budgeting and bid finalization;
- control all company activities as needed.

Top managers and their work tasks and activities exclusively subject to their own control and have strategic and long-term nature. In their work, they strive to achieve a higher market position, minimize costs, search for new business opportunities, and advance the business. Due to the nature of the tasks, high engagement of the enterprise, internal motivation, but also greater competencies needed to perform more challenging tasks and activities without detailed guidance and control by superiors.

3. Conclusions and policy implications

The partial survey results show that the highest level of control by the supervisor or co-workers should be made by general staff, the higher the levels of management the manager is, the lower the level of control by his supervisor should be. Top managers should have the highest degree of self-control in their work, as the external control of their work performance and the performance of their job tasks is carried out to a lower extent.

The difficulty and complexity of the tasks and activities controlled by self-control increases with the level of management and the level of the manager. Top managers generally control more difficult tasks and activities that often have a strategic and long-term character. At the same time, these tasks and activities are often related to the prosperity of the enterprise itself and are aimed at increasing or maintaining the market share and competitive advantage of an enterprise or finding new business opportunities. The lower we move in the management levels, the tasks and activities controlled by self-control are for shorter terms, more routine and without significant impact on the functioning of the business.

In relation to the tasks and activities that managers themselves control, it is important to mention the necessary competencies for the efficiency of the control process as well as the fulfillment of the tasks and activities themselves. These competencies also vary depending on the level of management - the lower the level, the lower of the complex competencies is needed, and vice versa. The higher the level of control, the higher the level of self-regulation in the manager's work.

We will complement the questionnaire survey with other respondents, and in the future we will reconcile the findings with the results of the survey.

In the future, we plan to pay more attention to the selected issue:

- create a theoretical knowledge base of self-control and self-supervision based on domestic and foreign literature and their comparison;
- search on the use of self-supervision and the utilization rate of employees and managers in Slovak companies as well as the impact of using self-supervision on the company itself;
- statistical processing of acquired data, creation of hypotheses and their testing;
- research on further trends in internal control of Slovak companies and further investigation of identified trends and changes in internal control.

Acknowledgement

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Increasing the Quality of Distribution by Introducing
Regional Distribution Centers

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Abstract

The distribution channel is a very important part of each company. It is the vendor's area that plays a crucial role in the market place position, since covering its scope is often the main requirement of clients for the future cooperation. Also, it is important for the existing supplier's customers to have a sustainable delivery quality in order to increase their quality and optimize their costs for the future. We can divide the distribution channel from a quality point of view into several categories. The first is the quality of the work done by the employees in the given positions and which greatly affects the overall delivery quality. The second important part is the distribution and planning of the distribution routes and the optimization of their design in order to reduce the time of vehicle transfer and reduce the total costs associated with the distribution. In this paper we will deal with the second mentioned part, which is the optimization of the distribution route, and specifically we will focus on its proposal of the introduction of new distribution centers of the selected company. We will show on a particular case the benefits, advantages and disadvantages of implementing such a solution in a particular company.

1. Introduction

A separate part of increasing the quality of distribution is a build of a regional distribution center or a network of regional distribution centers. The correct location of such a distribution center, as well as their number within the given area, is an important step for a supplier and it is therefore necessary to think and plan it well.

Implementation itself, ie. the establishment of the distribution center is therefore preceded by a thorough analysis of the customer portfolio in the given area, the number of shipments, the size of the orders and the average order, Due to the constantly evolving market within Slovakia, companies are forced to think about the decentralization of their scope, their premises, warehouses, etc. However, it is a question of where it is appropriate to set up a distribution center, how much to set up within the country and under which conditions.

In the following sections, we will approach distribution center issues, show their types and dividing. We will look also at the conditions for setting up such a center, both in terms of costs and in terms of increasing the quality of distribution. Then, on a concrete example, we will show an example of establishing a distribution center in the selected company, specifically quantifying the costs associated with such a step and pointing to its benefits as well as difficulties.

2. Dividing and types of distribution centers

Before we begin with the design or any solution of the distribution center, we will show their types and dividing. This information is often very important before selecting the type and location of such a center.

From the point of view of ownership, distribution centers can be divided into:

- private,

- public,

- mixed (combination of private and public ownership).

Another important dividing is based on the size of the storage area:

- small: with an area of up to 10,000 m2,

- middle: an area of 10,000 m2 to 35,000 m2,

- large: an area of more than 35,000 m2.

The last important dividing is based on the connection to the transport infrastructure:

- monomodal: it is one type of transport used (eg road, sea, air),

- multimodal: more than one type of transport used (eg road and ship),

- intermodal: more than one mode of transport is used and the possibility of handling combined transport cost units (different ISO containers, etc.).

As can be seen from the above dividings, the first and very important step in the decision making process is the ownership of the distribution center, that is, whether we want to have our own distribution center or leased.

In the case of its own distribution center, there are several disadvantages. They include, in particular, the initial investment and the associated capital, the other is the full responsibility for the object and also the personal question. However, this solution brings with it several benefits, including: lower total costs, better overview, communication, and so on.

In the case of a leased distribution center, it is important to decide whether we want to have a leased center together with the services that are available to them: employees, internal transport, etc., or we only want to rent a distribution center as a building and other things we can provide ourselves.

In the case of the first solution, the following are the benefits: lower operating costs, no entry capital needed for establishment, more flexible solution of situations, no need for personal issue. The disadvantages are in particular: choice of suitable center (partner), price, etc.

If we look at the second proposal, it will bring about the disadvantage of self-employed workers and their management, our own space facilities and so on. The advantages are the way of solution that allows the fact that we have a building available and we can design everything for ourselves: working time, number of employees, etc.

2. Setting up a distribution center in terms of increasing the quality of distribution

In the next section focusing on the distribution center view as a tool to improve the quality of delivery process, we will say more about its influence to the customer and the supplier on the other side.

Setting up a distribution center is primarily a shortening of the logistics route between the customer and the warehouse. As a result, the goods can be delivered to the customer earlier or at selected times. The second positive point is that there is no need to use external carriers, but in this case we can use our own employees with the supplier's company logo. The impact on the supplier is also considerable in addition to the financial side, and it can be seen in several ways: employees can work from the location of the distribution center to increase their comfort and the center can provide its services in a longer time range. Furthermore, it is the fact that the premises in the center can be used not only as a store for goods but also as a warehouse of bulky and numerous types of goods which are delivered on a daily basis and will therefore not need to be filled daily from the central warehouse. In this case comes increasing of the coverage of the territory supplied by the supplier through his own drivers. The aim and the fundamental point of setting up such distribution centers is to provide a service provided by its own staff from instead of combined supply service (internal/ external). The reason is the higher loyalty of these workers and the relation to the company, which means higher quality of goods delivery.

However the basic premis still remains a sufficient number of customers and a sufficient number of shipments per day/month/year.

3. Setting up a distribution center in terms of costs

In the next section we look at the setting up a distribution center in terms of its impact on the costs of the logistics process. This fact is very important because the purpose of establishing such a center is, in addition to improving the quality of the service provided, to optimize the costs of the logistics process.

The basic structure of total distribution costs, which is used in the proposed cost model, consists of four basic cost items:

- transport cost of products delivered from the distribution center to the customer,

- transport costs of products delivered from the central warehouse to individual distribution centers,

- operating costs of distribution centers,

- cost of keeping stocks in the distribution network.

N = Ndz + Ndd + Np + Nuz = (min)

where:

N - total distribution costs, Ndz – total costs of delivering to the customer, Ndd - total costs of delivering to the distribution centers, Np – total operating costs of distribution centers, Nuz – total cost of keeping stocks in the distribution network.

4. Solution recommended to a selected company

In the following section we will provide a proposal of setting up the distribution center in the selected company as a practical example.

Figure 1 shows coverage, respectively the ratio between the company's own transport and the contracted external company. This kind of dividing will help us in the initial consideration of the distribution center location.

To supplement the information we have realised that from the only existing central warehouse in Bratislava are delivered customer´s orders by our own drivers up to 150-200 km

from the central warehouse. Subsequently, outsourced services of external companies are used for more remote areas.

Figure 1
Own and external transport coverage within the Slovak Republic

Source: own processing by the Author

Once the individual cost areas have been created, it will be possible to calculate the difference between the cost level at the current distribution setting and the introduction of the proposal of the distribution center, respectively networks of distribution centers. In the next analysis we will need to add some data necessary to calculate the costs. Table 1 shows the number of individual deliveries within the current condition of logistics in the selected company.

Table 1
Layout of daily average deliveries

Daily average number of deliveries from RDC in Bratislava	55
Daily average number of deliveries by an external carrier – middle Slovakia	16
Daily average number of deliveries by an external carrier – eastern Slovakia	18

Source: own processing by the Author

From the information available in the selected company, we understood that an external carrier charges a shipping charge of € 20 per order to the customer. On the basis of past experience and analysis, selected company calculated that their average delivering costs of one single order is an average of € 7. Based on these data it is possible to calculate the individual cost of transport to the customer by own drivers and external contract carriage.

When calculating the costs of transport to the customer (through an external company), we used the average number of working days per month, which is 21. The total costs of external transportation to the customer is therefore average per month: 21 days x 20 € x 34 deliveries per day = 14.280 € .

If we have a look at the operating costs of the distribution centers, these are made up of three main parts. They are the costs of: rent, wage costs and other costs. In our case, we refer to wage costs from the average wages paid for this job position within individual regions.

Based on the above figure, which shows the coverage of the company's own transportation and an external contractor, it is clear that approximately 30% of slovak territory is covered by its own transport and about 70% by external. For that reason we have decided to design a distribution center in the area where our own transport coverage is currently closed to let us continually follow up on the logistics process to extend coverage. Therefore our proposal will be the distribution center in the area Martin - Ružomberok (Figure 2).

Figure 2
Proposal to regional distribution center location within Slovakia

Source: own processing by the Author

In analyzing this solution we proceeded from the following input data: the average monthly wage in the region of Žilina is € 685 and the monthly fixed fee for renting a single delivery car is € 1,154 (the maximum number of km is 150th per year). When calculating the rental costs of the warehouse, we used 60 square meters. Average rental prices per m2 of storage space, including energies, are around € 2,5 / m2 - € 3 / m2.

Thus, the total costs will represent the sum of the individual costs mentioned above, i.e.: 2x € 1,154 + 2x € 685 (+€ 241 deductions) + € 180 = € 4,340 + other costs. A separate part is made of other costs that represent an average of € 500 per month. This category includes: OSH training in RDC, hire of forklift, etc.

These costs are calculated with respect to the total number of deliveries per day, i.e. 16 in central Slovakia and 18 in eastern Slovakia. If necessary to increase the number of deliveries per day, it is possible to add two more drivers.

Looking at the benefits of this proposal, the costs of external transport has decreased from an initial € 14,280 per month to € 4,840. If two additional drivers were added, these costs would rise to € 9,680. However, these costs have to be added to costs that are not directly related to the distribution center, but they represent an increase of the total costs in the company. They are the costs associated with the transport of goods to the RDC from the central warehouse in Bratislava. These costs were calculated for € 4,000 per month. After finalizing the total, we will see that the total cost for two drivers is € 8,840 and for four

drivers € 13,680, which is sufficient to support the decision to establish such a distribution center.

In the Table 2 we summarize the advantages and disadvantages of our design solution for distribution centers.

Table 2
Summary of the advantages and disadvantages of our design solution for distribution centers

Advantages	Disadvantages
even distribution of logistics load	need for new spaces - transfer
faster delivery dates	higher labor costs - RDC staff
preventing non-delivery of goods in the case of weather influences on the route to the RDC	need for new cars for a given RDC

Source: own processing by the Author

4. Conclusions

At the end of this paper we can conclude that the settle of a distribution center is definitely a benefit, but it also brings certain disadvantages in addition to its advantages and, of course, it also requires certain conditions for its settlement. As can be seen from the previous parts of paper, from the economic point of view the number of deliveries is a very important factor which is closely related to the number of customers in the area. Just the number of customers plays an important role in the profit of logistics center.

Acknowledgement

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The Impact of Foreign Students on Internationalization of University and on the Economy of a Host City (Case of the Katowice School of Technology)

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Abstract
The paper examines how the increase in the number of foreign students affects the level of internationalization of higher education in Poland. Furthermore,, the authors examine the influence of the number of foreign students on the level of internationalization of Katowice School of Technology (compared to other non-public universities in the Silesian Voivodeship). Analysis of the results of a questionnaire survey of foreign and domestic students of the Katowice School of Technology confirms the hypothesis of the authors that the direct influence of foreign students on the economy of the city of Katowice is greater than that of Polish students.

Keywords: *foreign students, internationalization of higher education, economic impact*
JEL classification: I 23, I 25, I 29

1. Introduction

Nowadays higher education plays a more and more significant role in the world. The expansion in tertiary attainment over the generations has been significant. According to a UNESCO report from 2016, student numbers more than doubled between 1999 and 2014, from around 95 to 207 million in the world. The number of young people aged 25-34 with a tertiary qualification increased by nearly 45% between 2005 and 2013 in OECD and G20 countries and is expected to keep increasing in the coming decade. By 2020, the number of 25-34 year olds with a tertiary qualification in OECD and G20 countries is expected to grow from 137 million to 300 million (OECD, 2017). More and more young people are deciding to pursue higher education abroad. There are 4 million people studying outside the borders of their country. In 2020 this will amount to 7 million people who want to educate themselves outside the country where they were born (Ministry of Science and Higher Education, 2015). The process of internationalization of higher education is greatly increasing.

Internationalization is one of the most important challenges facing the Polish higher education system. Activities within its framework are undertaken by the Ministry of Science and Higher Education (MSHN) and its agencies, but most of all by the universities themselves. Its most important aim is to attract foreign students and employ foreign scientists. An important part of internationalization is participation of Polish scientists in international educational and research programs (Ministry of Science and Higher Education, 2015).

That is why the Ministry of Science and Higher Education has developed a Program for the Internationalization of Higher Education, which was signed in 2015 by the acting Minster of Science and Higher Education. The program includes goals, methods of achieving them and sources of financing (Ministry of Science and Higher Education, 2015).

The most important entities in the process of raising the level of internationalization will be universities, whose activities will be supported by the ministry with special funds, including within the framework of the Operational Program Knowledge, Education, Development (OP KED) (Nauka w Polsce, 2015).

Around the world there are 4 million people studying outside their countries. In 2020 this figure will grow to 7 million. The market is estimated to be worth 100 billion dollars. The most active players on the market are USA, Great Britain and Australia. However, there are constantly new participants emerging, such as France and Germany. Poland can join this select group thanks to a dynamically developing economy, since the role of a European leader in economic growth attracts the world's attention (Ministry of Science and Higher Education, 2015).

It should be noted that over the past decade, Poland's level of internationalization of higher education has increased significantly, especially through the increase of the number of foreign students. In the 2016/17 academic year, 65793 foreign students from 166 countries studied in Poland. The number of foreign students at Polish universities increased by over 15% compared to 2015 (Table 1). Against the backdrop of a steady decline in the number of students in Polish universities, the number of foreign students is constantly increasing. In 2016, three times more foreign students studied in Poland than in 2010.

However, the number of foreign students in Polish universities is still small considering the fact that internationalization is largely equated with student mobility (European Parliament, 2015).

Between the years 2010-2016, Polish universities have consistently increased the proportion of foreign students – from 1.17% in 2010 to 4.88% in 2016. Among other incentives, activities within the framework of "Study in Poland" program have a great

influence on the growing number of foreigners at Polish universities. Other factors which also influence this figure are other activities at the central level and marketing activities of the university (Study in Poland, 2017).

Table 1
Students and graduates of higher education in Poland

Specification	2010	2011	2012	2013	2014	2015	2016
Students and graduates of Polish higher education institutions	1841251	1764060	1676927	1549877	1469386	1405133	1348822
Foreign students and graduates	21474	24253	29172	35983	46101	57119	65793
- including foreign students and graduates of Polish origin	4117	4667	5155	5610	6242	7576	7675

Source: completed by authors on the basis of *Higher education institutions and their finances* (Statistics Poland, 2010-2016).

In order to further develop internationalization of higher education, the Ministry of Science and Higher Education of RP adopted the *Higher Education Internationalization Program* in 2015. One of the main goals of this program is the increasing the competitiveness of Polish institutions of higher education on the international market, through the improvement of the quality of education and scientific research. It is about improving creativity and increasing the competencies and skills of academic workers, students and graduates of Polish institutions of higher education (Ministry of Science and Higher Education of the Republic of Poland, 2015).

Increasing the level of competitiveness of Polish higher education institutions will contribute to an increase in the number of foreign students and, thereby, to the increase of the level of internationalization of higher education in Poland. The level of internationalization of the university is one of the main factors in determining the national rating of universities in Poland (Perspektywy, 2017). The rating, in turn, is a reference point for entrants in choosing a university where they would like to study. Therefore, the increase of the level of internationalization of the universities will contribute not only to improving its position in the national rating, but also to increasing its attractiveness in the eyes of future students, including foreign ones.

In addition, the growth in the number of foreign students in Polish universities positively affects the economy of both Poland and the economy of the city where such higher education institutions are located. In numerous studies it is noted that foreign students contribute significantly to national economy of the host country and its social prosperity, both in the short term during their studies as well as in the medium to longer term after they graduate (Hut – Jaroszewska, 2011; Nestorenko, 2016; Pawłowski, 2010; The costs and benefit, 2018).

In Poland, foreign students of non-Polish origin usually have to pay for their studies at the university. The share of non-Polish students among all foreign students is constantly increasing – from 80.83% in 2010 to 88.33% in 2016 (based on the data in Table 1). The growth in the proportion of students of non-Polish origin among foreign students indicates an increase in foreign investment into higher education system of Poland. In Polish non-public universities, education is usually paid for by the student – regardless of the fact whether it is a domestic or a foreign student. Therefore, the increase in the number of foreign students in a non-public institution will clearly indicate the growth of private foreign investment in the economy of the city and the country.

Given the foregoing, it is of interest to study the influence of the level of internationalization of the university on its position in the national ranking of Polish universities, to study the influence of the number of foreign students on the level of internationalization of the university (on the example of the Katowice School of Technology). In the study particular attention is given to the comparison of the economic impact of the expenditures of foreign students and domestic students of the Katowice School of Technology on the economy of the city of Katowice.

Our main hypothesis is that the direct economic impact of foreign students on the economy of the city of Katowice is on average more than a such economic impact of domestic students.

1.1 Data and Methodology

The study used the ranking data of the non-public higher educational institutions of Poland in 2010-2017 (Perspektywy, 2015-2017).

In order to estimate the direct economic impact of foreign and domestic students on the host city's economy we conducted a survey of students who studied during 2017/2018 academic year or during a shorter period at the Katowice School of Technology. We took into account only the answers of those students who would not have come to study in Katowice, if the Katowice School of Technology had not existed in the city. We asked the international students of Bachelor and Master's degree studies at Katowice School of Technology to answer the questions about their income and expenditures in Katowice. We used a standard methodology called impact studies to quantify the additional revenue into the local economy which foreign students bring with them.

15 questions were included in the questionnaire. It consisted of three parts. Questions in the first part allowed us to identify the local profile of foreign students. Questions in the second part were focused on definition of incomes and expenditures profile of international students. Foreign students were asked to take into account only their expenditures in Katowice. Answers to the questions in the third part allowed us to form a demographic profile of foreign students. Our questionnaire included the same questions as questionnaire of Rehák and Sekelský (2014) and Nestorenko (2016).

2. The role of foreign students in internationalization of Katowice School of Technology

The Silesian Voivodeship is one of the most dynamically developing regions in Poland. There are 5 public universities (Częstochowa University of Technology, Silesian University of Technology, Medical University of Silesia, University of Economics in Katowice, University of Silesia in Katowice) and 5 non-public universities (Humanitas University in Sosnowiec, Katowice School of Economics, Katowice School of Technology, University of Dąbrowa Górnicza, University of Economics – Humanities) on the territory of this voivodeship.

The favourable location and good communications infrastructure of Silesian Voivodeship contribute to make the region more attractive for foreign students and therefore they are more willing to study at Silesian universities.

Let us consider the dynamics of the positions of the Katowice School of Technology and other Silesian non-public universities in the national ranking of non-public universities in 2010-2017 (Table 2). Universities are listed in alphabetical order.

Table 2
Ranking of Silesian non-public Master's universities (2010-2017)

University	2010	2011	2012	2013	2014	2015	2016	2017
Humanitas University in Sosnowiec	-	60	79	61	39	44	49	23
Katowice School of Economics	10	14	15	14	11	12	9	10
Katowice School of Technology	*72*	*78*	*65*	*63*	*36*	*40*	*27*	*32*
University of Dąbrowa Górnicza	12	16	9	10	10	9	10	5
University of Economics – Humanities	-	47	36	35	34	-	26	14

Source: completed by authors on the basis of *Perspektywy,* 2015-2017.

Despite the fact that the Katowice School of Technology has risen in the ranking from 72nd place (2010) to 32nd place (2017), the university occupies the lowest position among all Silesian non-public universities. A significant impact on this result was the low level of internationalization of the university – 15% of ranking indicator (Table 3).

Table 3
Ranking indicator and its structure of Silesian non-public master's universities (2017)

University	Prestige 10%	Graduates on labour market 20%	Scientific power 35%	Educational conditions 15%	Innovativeness 5%	Internationalization 15%	Ranking indicator
Humanitas University in Sosnowiec	2.09	50.30	26.70	38.00	40.00	24.20	34.70
Katowice School of Economics	16.32	61.50	48.80	67.00	5.00	30.80	50.50
Katowice School of Technology	*11.09*	*55.30*	*18.70*	*54.00*	*0*	***2.20***	*30.50*
University of Dąbrowa Górnicza	5.30	64.20	78.90	24.00	7.50	60.60	59.40
University of Economics – Humanities	2.72	52.00	35.90	100	0	9.10	42.0

Source: completed by authors on the basis of *Perspektywy,* 2017.

As the retrospective analysis shows, both in 2016 and 2015, the Katowice School of Technology had the lowest level of *internationalization* among all Silesian non-public universities – 0.70 and 0.22 respectively (Table 4 and Table 5).

Table 4
Ranking indicator and its structure of Silesian non-public master's universities (2016)

University	Prestige 25%	Scientific power 35%	Educational conditions 20%	Innovativeness 5%	Internationalization 15%	Ranking indicator
Humanitas University in Sosnowiec	5.44	30.46	46.84	0.09	15.41	23.50
Katowice School of Economics	32.93	21.38	100	12.76	42.74	44.10
Katowice School of Technology	*10.59*	*17.94*	*75.62*	*69.69*	***0.70***	*27.70*
University of Dąbrowa Górnicza	7.37	49.39	54.24	14.08	56.13	42.30
University of Economics – Humanities	5.41	29.67	69.30	12.22	18.34	28.50

Source: completed by authors on the basis of *Perspektywy* 2016.

Table 5
Ranking indicator and its structure of Silesian non-public master's universities (2015)

University	Prestige 20%	Scientific power 38%	Educational conditions 22%	Innovativeness 5%	Internationalization 15%	Ranking indicator
Humanitas University in Sosnowiec	3.87	30.44	37.86	5.27	21.12	25.7
Katowice School of Economics	34.50	26.06	73.95	9.14	50.26	48.7
Katowice School of Technology	*8.62*	*30.18*	*43.77*	*37.66*	***0.22***	*27.2*
University of Dąbrowa Górnicza	16.71	56.11	61.39	32.92	54.04	53.6
University of Economics – Humanities	-	-	-	-	-	-

Source: completed by authors on the basis of *Perspektywy* 2015.

In the years 2015-2017, the structure of the ranking indicator was not constant. In 2015-2016, the rating was determined based on five indicators: prestige, scientific power, educational conditions, innovativeness and internationalization (Table 4, Table 5). However, in 2015 and in 2016, the importance of indicators in determining the overall rating of the university was different. For example, in 2015, the proportion of the indicator *prestige* in the rating estimate was 20%, and in 2016 – already 25%. In 2017, the indicator *graduates on the labour market* was added to the number of indicators used to calculate the rating (Table 3). However, despite the changes in the structure of the rating for Polish non-public universities, the impact of the indicator *internationalization* remains unchanged at the level of 15%.

The indicator *internationalization* takes into account seven factors: *study programs in foreign languages in the academic year* (4%), *students studying in foreign languages* (4%), *foreign students* (3%), *academic teachers from abroad* (1%), *student exchange (departures)* (1%), *student exchange (arrivals)* (1%) and *multiculturalism of the student community* (1%) (Perspektywy, 2017).

At first glance, the number of foreign students determines the indicator of internationalization directly only by 20% (3% / 15% · 100%). However, the number of foreign students indirectly determines the level of the factors of *student exchange (departures), multiculturalism of the student community*.

There is also a direct correlation between the number of foreign students, *the study programs in foreign languages in the academic year* offered by the university, and the number of *students studying in foreign languages*, which determines the value of the internationalization indicator in an additional by 66.7%. Therefore, a high proportion of foreign students in the total number of students will allow the university to obtain 86.7 points for the indicator *internationalization* (other things being equal).

Low indicators of the internationalization of the Katowice School of Technology are due to the low number of foreign students. In the academic year 2017/2018, 13 foreign students on Bachelor's programs and 1 foreign student on the Master's program study at the Katowice School of Technology. In previous years, the number of foreign students on the Master's programs of the Katowice School of Technology was also insignificant – at the level of statistical error (Table 6).

Table 6
The number of students in the Master's programs of the Katowice School of Technology

Specification	2010	2011	2012	2013	2014	2015	2016	2017
Number of domestic students	1740	1819	1879	1599	1584	1402	1258	1363
Number of foreign students	0	0	0	2	3	8	5	1

Source: completed by authors

The Katowice School of Technology can move to a higher position in the ranking of non-public universities of Silesian Voivodeship by raising the level of internationalization and, in particular, by attracting more foreign students to its programs.

In addition to improving the positions in the ranking of non-public universities, an increase in the number of foreign students will have a positive impact on the economy of the city of Katowice. The next section is devoted to the results of the analysis of the impact of the expenditures of the Katowice School of Technology foreign students on the economy of the host city.

3. Economic impact of the Katowice School of Technology foreign students on the economy of Katowice

On February 5, 2018 questionnaires were sent to the Katowice School of Technology full-time foreign students via e-mail. We also asked the domestic students of Katowice School of Technology to answer the questions of this questionnaire (via e-mail). We planned to use their answers for comparison of foreign and domestic students' expenditures. By February 11, 2018 we received replies from 13 foreign students (93% of the total number of foreign students) and the replies from 21 domestic students. We did not take into account the answers of Polish students, if these answers were received after February 10, 2018.

First of all, we analysed the replies of foreign students. 23% of the responses were not taken into account in determining the economic impact of foreign students on economy of Katowice, because if the Katowice School of Technology had not existed, these students would have studied at another university in Katowice. It means that for this group of foreign students Katowice as a place of education is more important, than the Katowice School of Technology itself. 77% of foreign students have come to Katowice specifically to study at Katowice School of Technology.

Therefore, we considered only the replies of 10 foreign students. Among these students 20% noted, that if the Katowice School of Technology had not existed, they would have studied in another country. 20% of foreign students were from EU-countries (Germany, Slovakia), 80% of foreign students were from non-EU-countries (Syria, Turkey, Ukraine). All foreign students study at the Katowice School of Technology for a full academic year. One student studies on Master's program. Other students study on the Bachelor programs.

Only 20% of foreign students are males. Among foreign students the majority are females – 80%. The age structure of respondents is as follows: 10% of foreign students are 18 years old, 20% of foreign students are 19-20 years old, 30% of foreign students are 21-22 years old, the age of 40% of foreign students is 23 or over.

Only 10% of foreign students live in a dormitory (of another university), most of the foreign students rent a flat (60%). 10% of foreign students live outside of Katowice and commute to the Katowice School of Technology to study. And 10% of foreign students live in Katowice in an apartment (or in a house) owned by his/her family. Only 10% of the foreign students are married. Other foreign students are single.

Among domestic students, the level of commitment to Katowice School of Technology was significantly lower than among foreign students. Only 43% of Polish students answered that if the Katowice School of Technology had not existed, they would have studied in another Polish city (19%), or they would have gone to study to another country (19%) or they would not have studied at all (5%). Therefore, to study the impact of domestic students on the economy of Katowice, we will take into account the answers of only these 43% of Polish students. All domestic students (except one) study at the Katowice School of Technology for full academic year. One student indicated that she plans to study at the Katowice School of Technology for 1-2 months. However, at the same time her tuition fee for studying at this school is 2040 EUR. This corresponds to the cost of the annual course. Due to the discrepancy between the period of study and the cost of study, we excluded the answers of this student from the analyzed sample. Two students study on Bachelor program. Other students study on the Master's programs.

The demographic profile of domestic students is as follows: There is an equal number of males and females among domestic students in the survey (50% are males, 50% – females). Among domestic students 62.5% are 19-20 years old, 12.5% - 21-22 years old. The age of 25% of domestic students is 23 or over. All of the domestic students in the survey are single. Almost all domestic students (87.5%) live in Katowice in an apartment or in a house owned by his/her family. The rest of the domestic students did not provide a specific response to this question. The average planned expenditures of the Katowice School of Technology foreign students in 2017/2018 academic year are 2680 EUR (Table 7). Their expenditures are less, than the average planned expenditures of Katowice School of Technology domestic students (3033.63 EUR).

Table 7
Local planned expenditures of students for 2017/2018 academic year (EUR)

Type of expenditures	Foreign students	Domestic students
The average expenditures on goods, services and housing	2000	1975
The average tuition fee	680	1058.63
Total expenditures	2680	3033.63

Source: Own calculation based on questionnaires of Katowice School of Technology's foreign and domestic students.

In the structure of foreign students' expenditures the spending on goods, services and housing is 74.6%. In the structure of domestic students' expenditures such spending is 34.9%. The largest part of domestic students' expenditures goes to tuition at the Katowice School of Technology.

Thus, the hypothesis put forward above, that the direct economic impact of foreign students on the economy of the city of Katowice is on an average more than such economic impact of domestic students, was not confirmed. The lower average tuition fees of foreign students can be explained by the fact that some of them come for exchange programs (for example, under the Erasmus+). In this case, the foreign student does not directly pay for his/her education. However, the Katowice School of Technology still receives such tuition fee from other sources. Therefore, we can conclude, that the direct impact on the economy of the city will be higher if the Katowice School of Technology educates a foreign student instead of a Polish student.

4. Conclusions and policy implications

Nowadays higher education is increasingly globalized. Thus, an increasing number of students is looking to study outside their home country. The growth in the number of foreign students in Polish universities is an integral factor of the further internationalization of higher

education in the Republic of Poland. It also demonstrates the improvement of the quality of education in universities, where foreign students come to study.

The conducted study on the influence of the level of internationalization of the Katowice School of Technology on the position of the university in the national ranking showed that the university has great potential to improve its positions as a result of actively attracting foreign students to Master's programs. The increase in the number of foreign students at the Katowice School of Technology will contribute, on one hand, to improving the school's position in the national ranking of Polish non-public higher education institutions, thereby, increasing the attractiveness of studying in this school from the point of view of future students. On the other hand, it will positively affect the economy of the city of Katowice.

As the results of a comparative analysis of the expenditures of domestic and foreign students who study at the Katowice School of Technology show, the direct economic effect of a foreign student on the economy of the city of Katowice is 2680 EUR (on the average). The direct effect of a domestic student is 3033.63 EUR (on the average).

Thus, the revitalization of the work of the Katowice School of Technology to attract foreigners to study at this higher educational institution will allow this university to stimulate the economic growth of the city of Katowice, Silesian Voivodeship and Poland.

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China in the Shanghai Cooperation Organisation

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Abstract
The aim of this work is to present the Shanghai Cooperation Organisation (SCO) and China's role within it. The paper will first look at the history of the formation of the SCO. Then, the motivations of China to create such an organisation will be shown. The work will then turn its attention to the primary goals of the organisation, i.e. security and stability in Central Asia and being a forum for contacts between China and Russia. Critical claims of the SCO as supporting authoritarian rule will also be briefly mentioned. Next, the focus will turn to a potential economic dimension of the organisation, according to Chinese plans. Finally, the role of the SCO in China's multilateral diplomatic strategy will be explained. The main methods used were the study and analysis of online sources, mainly online databases of scientific journals and internet pages of relevant media.

1. Introduction

The Shanghai Cooperation Organisation presents itself as an alternative to the Western-dominated global security order. This is due to the two great powers behind it, the Russian Federation, and an increasingly powerful People's Republic of China, which both have grievances with regards to the current order and the powers that guarantee it, especially the USA. For China, The SCO is an interesting exercise in multilateralism and cooperation not only with Russia as another great power, but also with other smaller states, where China can develop and practice a position of leadership in a geographical subsystem of international relations. Explaining the importance of the SCO for China is the main goal of this article. It will start by looking at the background and reasons for the creation of the organisation, after which it will focus on China's motivation in its formation. Next, the work will discuss the principal objectives of the SCO, namely the security and stability of Central Asia, as well as the exclusion of any Western, i.e. US, military presence. Attention will then turn to Chinese plans to expand the economic role of the SCO, as well as the resistance of the other member states. Finally, the paper will look at China's multilateral diplomatic strategy as well as certain criticisms of it. The main methods used in the writing of the article were the study and analysis of online sources, especially online databases of scientific journals and internet pages of relevant media organisations.

2. Reasons for the Creation of the SCO

Although the SCO was officially founded in 2001, its beginnings go back to the 1990s, when China began to develop multilateral cooperation in Central Asia. Since China was encouraged by the success of bilateral negotiations on the resolution of border disputes with Russia and the other post-soviet countries bordering China, it along with these other countries decided to expand cooperation to encompass security issues that they all had in common.

Eventually, the format was altered from a series of bilateral dialogues into a multilateral platform, to increase the effectiveness of their measures. The result was the signing of the Treaty to enhance trust in military affairs on 26. 4. 1996 by China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan. This led to the formation of the Shanghai Five (Čáky, 2011). They were joined in 2001 by Uzbekistan, and the organisation was renamed to the Shanghai Cooperation Organisation. The newest additions are India and Pakistan, which joined in 2017. The SCO was the first intergovernmental organisation which China was involved in creating. It was meant to serve as a laboratory for China to try out a multilateral approach in foreign policy, since it previously favored bilateralism, where it could more easily use its political and economic might to gain an edge over its partners. The SCO represented China's will to found new institutions through which it could better pursue its interests. It is also a useful platform for China to resolve issues with Russia, especially to mitigate potential conflicts over influence in Central Asia. For their part, Central Asian countries can balance between the two great powers and prevent either of them from becoming the hegemon in the region (Dadabaev, 2014). These countries joined the SCO precisely in the hope that China will balance the dominant role of Russia, but with China's rising power and influence, they are now growing increasingly concerned about Chinese dominance. On June 9th 2017, India and Pakistan joined the SCO after several delays. There are hopes in the region, especially from Russia, that India will help balance out the power of China. It has been speculated that this enlargement will hamper the cooperation within the organisation, because of Sino-Indian mistrust, or that the tensions between India and Pakistan will lead to tensions within the SCO as a whole (Grossman, 2017). In his speech at the 19th National Congress of the Communist Party of China in October 2017, current Chinese president Xi Jinping did not mention the SCO, which was a departure from the speeches of his predecessor Hu Jintao at the previous Congress in 2012. This is seen as a sign that China is placing less importance on the SCO after the accession of India and Pakistan (Doshi, 2017). China may thus be anticipating the aforementioned difficulties and the decline of relevance of the SCO.

In the case of China, which is catching up to the dominant position of the USA in the global economic and financial architecture, there is speculation about its possible future political and military ambitions. It is thus beneficial for China to appear as a team player. It wants to show that it can make compromises and cooperate with other countries within a a regional or global coalition of equals, rather than act unilaterally (like the USA often does) or create networks of satellite states (like Russia in its near abroad, or the USSR before it). This cautious strategy was inherited from its former paramount leader Deng Xiaoping. It was meant to calm those states that had reason to fear the growth of a strong China with ambitions to change the regional or even global balance of power. The Chinese leadership fears that these countries could form a balancing coalition against China. In spite of that, there are those in China that argue for a more assertive foreign policy, to match its growing influence (Breslin, 2013).

3. Main Goals of the SCO

The SCO focuses primarily on security issues such as the fight against terrorism and extremism (Dadabaev, 2014). This is in keeping China's identification of three main threats to its security – terrorism, separatism and extremism. In the context of Central Asia, issues such as Uyghur separatism in China's western Xinjiang province (who have the sympathies of ethnically related nations of Central Asia) and Islamic fundamentalist terrorists in the Central Asian states can be counted within these three categories of threats. These two specific security issues are often interlinked. Issues such as cyber crime and electronic warfare are also included in the scope of security threats. The SCO also included conventional military cooperation, as well as cooperation in the realms of the economy, energy, transportation,

agriculture, science, education, the environment, culture and tourism (Shanghai Cooperation Organisation, 2014). Between 2003 and 2014, there were five SCO military and counterterrorism exercises (Yu, 2014). Military cooperation within the SCO has become more institutionalized over time, e.g. in the form of military exercises termed Peace Mission. These exercises take place approximately every two years since 2005. In a common declaration on the international order in the 21st century, issued by the SCO member states in 2005, the members emphasized the need for a multipolar world and multilateralism, denounced interference in the internal affairs of other sovereign states, and insisted that international law is binding for all countries (Čáky, 2009). This last claim suggests that it is aimed at the USA and its allies, which are frequently criticized for acting as being "above the law". This shows the value of SCO as an instrument for pushing for a multilateral system of international relations.

The ambition of the SCO is to be the guarantor of security and stability in Central Asia. This results in its cool attitude toward any military presence of the USA in the region, due especially to the war in Afghanistan. This attitude is more a reflection of the Chinese and Russian rivalry with the USA than the opinions of the Central Asian states, which were initially not against the US presence in the region. One reason for this was a possibility to use the USA to balance the power of both China and Russia. This changed after the color revolutions of the mid-2000s, which had the tacit approval of the US government, as well as alleged involvement by US-based NGOs such as the Open Society Foundation. Since then, the two most powerful Central Asian countries, Kazakhstan and Uzbekistan, also would prefer to use the SCO as a tool to weaken Western influence in the region, by supporting the illiberal or authoritarian governments and condemning more color revolutions. A victory for the SCO was the closing down of the US airbase in Karshi-Khanabad, Uzbekistan, in November 2005 following US condemnation of the Uzbek government crackdown on protesters in Andijan that May (BBC, 2005), as well as the US base in Manas, Kyrgyzstan, in June 2014. Apart from the permanent threats of terrorism, extremism and separatism, opposition to color revolutions and Western military presence in the region have become the unifying characteristics of the foreign policies of SCO members. Notwithstanding, it is questionable to what extent the SCO is effective in its proclaimed role of stabilizing the situation in Central Asia. The principle of non-interference in the internal affairs of its members keeps its hands tied. For example, the SCO did nothing with regards to the Tulip revolution in Kyrgyzstan in 2005, the unrest in the Andijan region of Uzbekistan in the same year, or anti-government protests in Uzbekistan in 2010 (Blank, 2011).

4. China's Ideas for the SCO

But China would like to broaden the scope of the SCO to include a stronger role in economic relations (Saif-ur-Rehman – Kayani, 2015). The Chinese have suggested the creation of a free trade area between SCO members, as well as an SCO development bank (Pantucci – Petersen, 2012). The expanded Chinese ambitions took form in June 2009, when the then-president of China Hu Jintao presented an initiative to strengthen the economies of SCO member states which were threatened by the global financial and economic recession. Part of this initiative was a 10 billion USD Chinese loan to SCO members (Wuthnow et al., 2012). The other members are skeptical of these plans, however. Especially Russia, which would like to keep the focus of the SCO on security matters, and keep economic cooperation reserved for its own project of the Eurasian Economic Union, where Russia is dominant, since China is not a member. All these other members are wary of China's growing economic power. This is mostly due to its economic power, such as financing economic and infrastructure projects in the region as part of the Silk Road Economic Belt, part of China's

Belt and Road Initiative. But since no country want to miss out on Chinese investment, there are no attempts to thwart China's activities in the region.

According to Joel Wuthnow et al. (2012), China's membership in the SCO represents a passive revisionist strategy in China's multilateral diplomacy. The revisionism of the SCO is visible in its refusal of the Western concept of human rights by a majority of its member states, which are counted among illiberal democracies and outright undemocratic authoritarian regimes (Babones, 2017). China is blamed for spreading the so-called "Shanghai spirit" of authoritarian rule in Central Asia. This claim ignores the fact that these countries had an authoritarian form of government since their independence, and none of them had any historical experience with Western-style democratic rule, principles or institutions. It also neglects the fact that insistence upon the respect of sovereignty is a conservative trait since the establishment of the Westphalian system of international relations after the Thirty Years' War. In this respect, it would be the Western countries spreading democracy that are the revisionist powers. The revisionism is seen as passive in that it does not formally repudiate Western values or organisations subscribing to these values, such as NATO (Wuthnow et al., 2012). Neither does the SCO take steps to actively spread some sort of authoritarian or anti-Western ideology beyond the borders of its member states, nor does it undertake confrontational steps against NATO or other Western countries or organisations with interests in the region. On the contrary, cooperation between the SCO and Western countries is expanding, especially in the realms of counterterrorism and combating organized crime (mainly drug trafficking and gun running). Military cooperation between SCO and NATO has been developed as well.

5. Conclusions and Policy Implications

As can be seen from the content of the paper, the Shanghai Cooperation Organisation is an important tool in Chinas multilateral diplomacy, although possibly less so than it was previously. First of all, it is a way for China to appear as a cooperative power that is able to be a constructive team player in an organisation of at least formally equal states. Secondly, it is a useful dialogue platform with Russia, where they can discuss issues relating to Central Asia, where both countries have political and economic interests, as well as reaffirm their commitment to a multipolar world based on sovereignty, non-interference and respect for national specificities, in contrast to what they see as an unfair Western-dominated global order. Specifically, they oppose the hegemonic aspirations of the USA and Western institutions and organisations trying to spread the liberal values which the SCO member states see as alien to their cultures. It remains to be seen what impact the accession of India and Pakistan will have on the organisation, especially with India being seen as a democracy close to the Western type, as well as a rival of China. It seems that China has lost some interest in the SCO because of this development.

However, there are tensions within the SCO, both between the two major powers and over the relative influence of each of them over the smaller members, as well as between China and these smaller members, who are growing ever more concerned over China's growing political, economic and military power. While China was originally seen by these countries as a useful balancer against Russia, the traditional regional power, now it is China that is shaping up to take over that role, especially through its Belt and Road Initiative, namely the Silk Road Economic Belt. Since all the members are eager to take part in the initiative and accept Chinese investment, it seems like China's economic penetration of the region will continue without opposition. It also remains to be seen if this ever closer economic cooperation will be subsumed into the SCO or whether it will remain a parallel set of relationships. In any case,

China will be able to use its economic influence to put pressure on the other members in other areas of mutual relations.

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Return on Equity and Return on Assets in Context of Sustainable Development

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Abstract

The concepts of sustainable development are getting to the awareness not only at the level of member states of United Nations, but there is also a need for application in companies. Sustainable development at micro level is followed through three pillars: economic, environmental and social. For long term development is crucial to sustain "financial health" of company, which can be measured by financial performance and ability to pay liabilities. The object of the paper is examination of economic pillar of sustainable development through changes in profitability and indebtedness ratios. The aim of the paper is to analyse relations between return on equity and return on assets with emphasis on indebtedness in context of sustainable development. We concluded that change in debt ratio corresponds with the change in indebtedness determined by difference of indicators return on assets and return on equity.

Keywords: *return on assets, return on equity, debt ratio*
JEL classification: M41

1. Introduction

Sustainable development is a way of economic growth and development taking in to account not only the economic aspect, but also environmental aspects and social aspects. In this paper will be examined economic aspect of sustainable development by indicators of profitability and indebtedness. Firstly, we will define sustainable development and basic relations between indicators of profitability and indebtedness.

1.1 Sustainable development

Sustainable development is development that meets the needs of the present without the ability compromising of future generations to meet their own needs. (United Nations, 1987) Currently Agenda 2030 for Sustainable Development contains 17 objectives and 169 related sub-targets. Individual member states of the United Nations are responsible for creating the legal framework through which the sustainable development objectives should be achieved. On micro level sustainable development is examined based on three aspects: economic, environmental and social aspect. (Ebner and Baumgartner, 2006) Triple bottom line based on concepts of sustainable development are applied in fields related to economic development, responsible investments and social responsibility. (Hammer and Pivo, 2016) Interest about applying the triple bottom line for measurement of three dimensions of company`s performance increased in the business sector, non- profit sector and in the public sector. (Slaper and Hall, 2011) Sustainable development is reported by Global Reporting Initiative (GRI) framework, which is considered as most trusted and most widespread in the world. GRI guidelines help organizations to manage their overall impact based on triple bottom line, which improve the quality and transparency of sustainable development reporting and provide

a reasonable and balanced presentation of performance. (Stenzel, 2010) GRI supports sustainability reporting in all its fields and its approach is based on merger of multiple parties from different interest areas to appropriately respond to the needs of managers, creators and users of information. (Lovciová and Pakšiová, 2017) Reports about sustainable development should contain financial and non-financial information related to social, environmental and economic aspects of business activities. Reporting of economic aspect of sustainable development contains information for assessment of financial health of company, for which are needed information mostly about financial performance and the ability of paying liabilities. The next part will deal with interpretation of theoretical base of profitability and indebtedness indicators, which are base for the assessment of company`s financial health.

1.2 Relations between indicators of profitability and indebtedness

Relationship of profitability and indebtedness is an issue, which is needed to be explained and understood during the financial analysis and evaluation of the financial health of the company. Briefly the financial health of the company is the ability of the company to pay liabilities in time and create profit. The financial health of a company can be detected by financial analysis, which provides information on the strengths and weaknesses of the financial management of a company through various indicators. Information about financial health are the best reflected by indicators of liquidity and profitability. (Šlosárová and Blahušiaková, 2016) The ability to ensure the required level of liquidity and profitability means achieving financial stability as one of the company's financial goals. Achieving and maintaining financial stability requires the creation of quantitative dimension of the relationship between profitability and liquidity. (Majtán et al., 2012) The object of the paper are debt ratio and indicators of profitability, specifically return on assets and return on equity. Indicators of profitability are used for calculation of overall profitability of the company. They enable management to determine whether a company can pay short-term and long-term liabilities and maintain optimal profit. (Adedeji, 2014) Debt ratios inform about the structure and amount of liabilities in a broader sense, while liquidity ratios inform about the ability to pay due liabilities in time. By indebtedness analysis are examined all liabilities, both due and not due, and evaluated is the perspective of long-term ability to pay liabilities.

1.3 Methods and methodology

The object of the examination is analysis of relationship between profitability and indebtedness. The aim of the paper is to analyse relations between return on equity and return on assets with emphasis on indebtedness in context of sustainable development. In evaluation of financial performance of a company is misleading to make conclusion based on one indicator. To correctly understand and interpret financial results is necessary to judge several indicators from different areas. The basis for the financial indicators problem solution was the knowledge gained from professional publications, conference proceedings of domestic and foreign authors in the field of financial analysis and accounting. To achieve the objectives several methods of investigation were used. By the selection method were selected relevant and useful information needed to explain the theoretical backgrounds. The abstraction and concretization method were used to apply theoretical knowledge to the sample of companies as part of the financial analysis. In conclusion using synthesis were summed up all the findings about profitability and indebtedness relationship.

The sample of companies was determined according to the following criteria:
   a) all companies, whose subject of business under the SK NACE classification is in Section C Industrial Production and at the same time

b) companies, where the average calculated number of employees exceeded 250 and at the same time

c) companies with an asset value of more than € 1 000 000.

Of the total number of companies that met the above stated criteria were selected 50 companies with the highest amount of revenues in accounting period 2016. Data were reviewed over two years, for accounting period 2016 and 2015. Companies cancelled or ceased in 2016 and 2015 were not included in analysis. Companies were not included in the analysis, if they accounting period is not calendar year, but financial year. Companies, which prepared first financial statements as of 31. 12. 2015 and later, were excluded from the analysis. Data were obtained from two databases, from Financial Statement Register (www.registeruz.sk) and Finstat (www.finstat.sk).

Relationship between profitability and indebtedness was examined by following indicators: return on equity, return on investments, return on assets and debt ratio. Return on assets (ROA) and return on investments (ROI) are proportion profitability indicators, which proclaim about appreciation of capital, respectively of property. Profitability of assets and investments is calculated according to the following formulas:

$$ROA = \frac{Net\ profit}{Total\ assets} \tag{1}$$

$$ROI = \frac{Net\ profit}{Total\ liabilities\ and\ shareholders\ equity} \tag{2}$$

The input data and the result of both formula are the same based on balance rule, according to which the sum of assets is equal to the sum of the equity and liabilities. Net profit is meant net profit after tax.

Return on equity (ROE) is calculated as net profit divided by the total shareholders equity. ROE expresses profitability of equity, so it measures the shareholders rate of return on their investment. (Kabajeh et al., 2012)

$$ROE = \frac{Net\ profit}{Total\ shareholders\ equity} \tag{3}$$

The formula for calculating return on equity by DuPont analysis may be decomposed into several formulas, whose multiplying is return on equity. DuPont analysis enables to detect, which component is most responsible for changes in return on equity. According to DuPont analysis ROE is calculated by multiplying profit margin, asset turnover ratio and equity multiplier. (Hak-Seon Kim, 2016)

Indebtedness was calculated by debt ratio, which expresses the amount of the assets covered from external resources.

$$Debt\ ratio = \frac{Total\ liabilities}{Total\ assets} \tag{4}$$

2. Relationship between return on equity and return on assets

Relationship between profitability and indebtedness were examined through several indicators. Basis for the analysis were information obtained from financial statements of selected companies. Properly and understandable reporting of information in financial statements is the basis for the financial analysis of the company. (Kubaščíková and Juhászová, 2016) True and fair view of the company as well as its properly understanding is very important for making financial decisions. (Juhászová et al., 2014) However, after the financial analysis users must determine the weight of the information to be assigned to the decision-making. (Dechow et al., 2013) From the view of financial health of the company, it is not

sufficient to achieve profit as the main indicator of financial performance, but the extent of indebtedness is also an important factor. Indebtedness is a consequence of increase in liabilities as an external source of financing. Sources in term of ownership can be divided to own and external resources. In accounting own resources are called shareholders equity, while external resources are different types of liabilities. (Šlosárová et al., 2016) Sources inform users about the structure and composition of resources, from which assets are financed. Application of different theoretical rules of financial management or methods of optimizing the financial structure should ensure the proportion between own and external sources. The "golden rule of financing" is a proportion approximately 1: 1 of own and external resources. Proportion, when 70 % of all resources are made up of external resources, can be considered acceptable. (Šlosárová, 2014) Financing from both own and external resources has its advantage and disadvantage.

The advantage of financing from own resources is that the company's indebtedness does not increase. The advantage of financing from external resources is that the external resources are cheaper than own resources, because interest rate is lower than the extent of dividends. External resources are also cheaper, due to interest tax effect according to which interest represents expense and thus reduces the profit and the corporation`s tax base. Disadvantage of financing from external resources is risk of indebtedness and that the growth of indebtedness causes further negative impacts on the company. Growth of indebtedness causes that every other debt is more expensive and can be more difficult to obtain it. Advantage of financing from external resources is that the development of indicator return on equity is better. However, the gap between return on assets and return on equity is widening, which indicates problems with extent of external sources. Return on assets can be determined as proportion of net profit and total assets, while return on equity is the proportion of net profit and amount of shareholders equity. Theoretically, return on equity and return on assets may equate in case of zero amount of liabilities. The higher the value of the liabilities, the greater is the gap between the return on equity and return on assets. Before applying the return on equity indicator is needed to identify the circumstances under which the results are misleading. In some cases, a company before bankruptcy (presenting negative equity and loss in the same time) achieves better return on equity than a financially healthy company. Return on equity provides a distorted picture, if the amount of equity is negative, due to relatively high amount of accumulated losses previous periods or incurred loss in current accounting period. (Markovič et al., 2013) For this reason, from data analysis were discarded companies, that presented loss and/or negative equity in their financial statement as of 31. 12. 2016 and 31. 12. 2015. Analysis of the relationship between profitability and indebtedness was performed on a sample of 42 companies. Based on the above-mentioned formulas have been calculated ratios as return on equity, return on assets and debt ratio. We have found out that in all companies is return on equity higher than return on assets, which informs users about the existence of liabilities. Subsequently, we verified the assumption that changes in the companies' indebtedness, calculated based on asset return and return on equity, correspond to the change in the debt ratio. Based on indicator return on equity we verified our assumption. Results of return on equity shows that out of 42 companies 47,62 % (20 companies) have higher return on equity in 2016 compared to 2015, while 52,38 % (22 companies) had a lower value than in the previous year.

In relation to higher value of return on equity we continued to examine the number of companies with increased debt by assessment of return on assets and debt ratio indicator. (Table 1). Based on return on assets in 40 % of company indebtedness decreased and in 55 % of companies increased. By comparing the debt ratio, we identified in 40 % of companies decrease in indebtedness and in 55 % of companies increase in indebtedness. Table 1 also

shows that in one company proportion of examined indicators have not changed. The change in indebtedness as compared to the previous period is one and the change in return on assets and return on equity are the same, its value is 1,21. In this company return on assets and return on equity increased by 21 %.

Table 1
Change in indebtedness of companies with increased return on equity depending on return of assets and debt ratio in absolute and relative terms

Indicators	Decrease in indebtedness	Indebtedness without change	Increase in indebtedness	Total number
Based on return on assets	8	1	11	20
Percentage	40 %	5 %	55 %	-
Based on debt ratio	8	1	11	20
Percentage	40 %	5 %	55 %	-

Source: author's calculations

At the same time, we examined number of companies with increased indebtedness depending on decreased return on equity in relation to return on assets and debt ratio (Table 2).

Table 2
Change in indebtedness of companies with decreased return on equity depending on return of assets and debt ratio in absolute and relative terms

Indicators	Decrease in indebtedness	Indebtedness without change	Increase in indebtedness	Total number
Based on return on assets	13	0	9	22
Percentage	59 %	0 %	41 %	-
Based on debt ratio	13	0	9	22
Percentage	59 %	0 %	41 %	-

Source: author's calculations

Table 2 shows that the share of companies in which we identified by decreased return on equity bigger, respectively smaller gap compared to return on assets and positive, respectively negative change in debt ratio. Based on analysis of changes in return on assets and debt ratio we concluded, that in 59 % of companies decreased indebtedness, while in 41 % increased indebtedness.

According to table 1 and 2 can be concluded that the character of change in indebtedness is the same regardless the used indicator, return on assets or debt ratio.

3. Conclusions

The economic aspect of sustainable development is focusing on financial performance and existence of company in long period. Companies should ensure financial stability to be able to adapt to rapidly changing environment. Correct evaluation of the information obtained from the financial statements plays an important role in the decision making of both managers and investors. Financial analysis by financial indicators expresses incomparable data by ratios, which allows comparison of several companies of different sizes. Financial analysis is mostly focused on financial stability, financial health and profitability of company. In this paper we investigated relations of profitability and indebtedness. We sought an answer to the question, whether changes in the company's indebtedness, calculated based on return on assets and return on equity, correspond to the change in the debt ratio. The basis for our assumption was the existence of gap between return on equity and return on assets due to liabilities. In

companies presenting increased return on equity, we found out decrease in indebtedness in 40 % of companies, increase in indebtedness in 55 % of companies based on both indicators return on assets and debt ratio. In 5 % of companies' proportion of return on equity and return on assets did not change compared to the previous period, that means companies where neither more nor less indebted. In companies achieving decrease of return on equity we identified increase in indebtedness in 41 % of companies and decrease in 59 % of companies. Both the increase and the decrease in indebtedness were in accordance with both examined ratios, return on assets and debt ratio. The analysis performed on the sample of companies confirmed the correctness of our assumption.

Acknowledgement

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How FDI Impacted Slovak Economic Development and Future Outcomes

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Abstract
Foreign Direct Investment (FDI) is considered by many a driving force of progress and sign of economic prosperity of the country. Throughout transformation of CEE countries from planned to market economy, high inflow of FDI has greatly pushed and lifted post-soviet union countries toward West European level. However, FDI is acclaimed as a positive influence, this paper investigates real impact and indirectly caused negative outcomes on Slovak Republic. Due to FDI, Slovakia has become car and electronics "assembly line" of Europe nevertheless, overspecialization in one industry and lack of diversification of FDI has played unfortunate role during financial crisis of year 2009. Moreover, paper advocates strategies to mitigate effects of negative trade balance and migration of highly skilled professionals out of the country.

1. Introduction

In the past years from the defining moment of fall of iron curtain and revolution from planned to market economy in Central and Eastern Europe (CEE), formed a circle of countries that succeeded in developing market economy and integrating to world economic system. One the central factor for success in transfer from Soviet Union planned economy to European was an influx of foreign direct investments (FDI) in the past 20 years. Highest success and major percentage of FDI can be allocated to Hungary, Czech Republic, and Poland according to percentage of FDI per capita among post-soviet union countries. During the first 10 years after Soviet Union fall, eastern European countries received significant FDI flows, moreover it has almost triples with accession to European Union. According to OECD Poland has received between 1991-2000 years 8,796 billion USD from Germany only in FDI, furthermore from years 2001 until 2012 this amount has tripled to 32,636 billion USD. Similar picture can be seen in other Eastern European countries.

After collapse of Soviet Union, CEE countries has chosen diverse ways toward market economy. This included different types of privatization and mergers. Slovenia has rejected initially foreign privatization structure and thus didn't receive direct access to technology but had to trade it. On a contrary Estonia has opened access for foreign companies in direct privatization (Roberts, 2008). Considering other factors such as low cooperation with foreign investors, companies investing to Poland has chosen mostly mergers, thus moving Poland to become leading economy with highest rate of cross boarded M&A (UNCTAD, 2000). From the beginning of xxi century number of mergers and joint-ventured has rapidly increased and transnational corporations' (TNC) almost monopolized field of FDI. Moreover, TNC has become the main creator and distributor of new technologies and knowledge that is considered crucial for host FDI countries to their economic integration and development (Scott-Kennel, 2007).

Foreign direct investment can be considered as one of the most effective tools in TNC's expansions strategies. Since it allows TNC to exert real control over companies and sometimes even over economy of host country. FDI serves as safe strategy for TNC's in market expansion and increasing effectiveness in assets acquisition. FDI entails in itself transfer of technology, business knowledge, competitive management, and marketing. Foreign direct investments allows to acquire and eliminate competitors but as well enter into joint-ventures to create new products with increase in global competitiveness (Arslan, et al. 2010).

For the countries with transitional economy, FDI operates as driving force in modernization of national economy through development of most competitive industries, increasing management knowledge of workforce, and overall effectiveness of national economy. FDI stimulates implementation of modern market relations, development of infrastructure and forming new entrepreneurial thinking among people.

2. Methodology

The goal of this paper is to analyze current economic situation of Slovakia and how FDI since year 2004 has changed and shaped it. Author has applied methods of secondary data research to establish FDI inflow since 2002 to Slovakia and paralleled comparison of structural changes in export and import of Slovakia. There has been used scientific journal articles, and internet sources for understanding FDI impacts on the economy during transformation of CEE countries after 2000th. Moreover author has based suggestions and strategies for mitigation of FDI negative outcomes on OECD yearly country reports and economic statistics.

3. Results and Discussion

It has been discussed in literature about benefits of foreign direct investment and in particular in CEE countries. FDI brings new technologies to the host country but as well intangible assets such as: business knowledge, latest management skills, and business experience. Because of these and other factors productivity and effectiveness of capital usage has increased. However, it should be underlined that most beneficial advantage of FDI is transfer of technology and possible spillovers on the national market. Such spillovers are considered as transfer or imitation of newly brought technologies by TNC's on national market and usage of it by local companies. In a long run such spillovers should increase a competitiveness of local companies and its productivity (Szent-Ivanyi, 2012).

Thus, considering importance of technology spillovers in FDI, researchers tried to identify the channels how spillovers happen. From research by Szent-Ivanyi (2012) there can be identified 4 main channels: Imitation, Vertical linkages, Movement of employees, and other. Imitation is considered when new technology is brought by subsidiaries to the market, local companies in order to stay competitive are imitating it. It can be by imitative same marketing strategy or reverse engineering.

Vertical linkages – are happening when foreign subsidiaries are focusing to increasing their supplier's competitiveness and productivity. It can be done through either sharing the knowledge from MNC to local supplier or urging the companies to initiate their own development.

Movement of employees is one channel that has impacted entrepreneurial raise in recent years. People that worked with foreign subsidiaries or with MNC's after acquiring knowledge initiating move to local companies or setting their own companies. In the other channels should be considered cases when due to importance of MNC's and its transfer other companies and services is transferred as well such as consultancy, accountancy, other professional which in turn increases local market competitiveness (example of Korean companies). In ad-

dition, it has been noted that increase of competitiveness on the local market forces MNC's to transfer additional technology to stay competitive and strengthens local companies in becoming more productive. In Slovakia, participation by foreign investors in privatization, in beginning of 90th were almost invisible. Only with introduction of new reform and change of government, starting from year 2000, Slovakia has open its doors for foreign FDI.

Between years 2000 and 2006 Slovakia has undergo in Financial, Electricity, and Gas privatization of majority or all shares in previously government controlled enterprises. Such examples are privatization of "Prva Stavebna Sproritelna" by Erste Group and privatization of "Slovenske Elektrarne" by Enel Italia. However, manufacturing sector has started as greenfield investment and a growing sector currently becoming number one sector in export and import products of Slovakia. In addition, with dotted liner indicator, chart shows stable growth of real estate sector.

Chart 1
FDI flows by industry in Slovakia (mil./year)
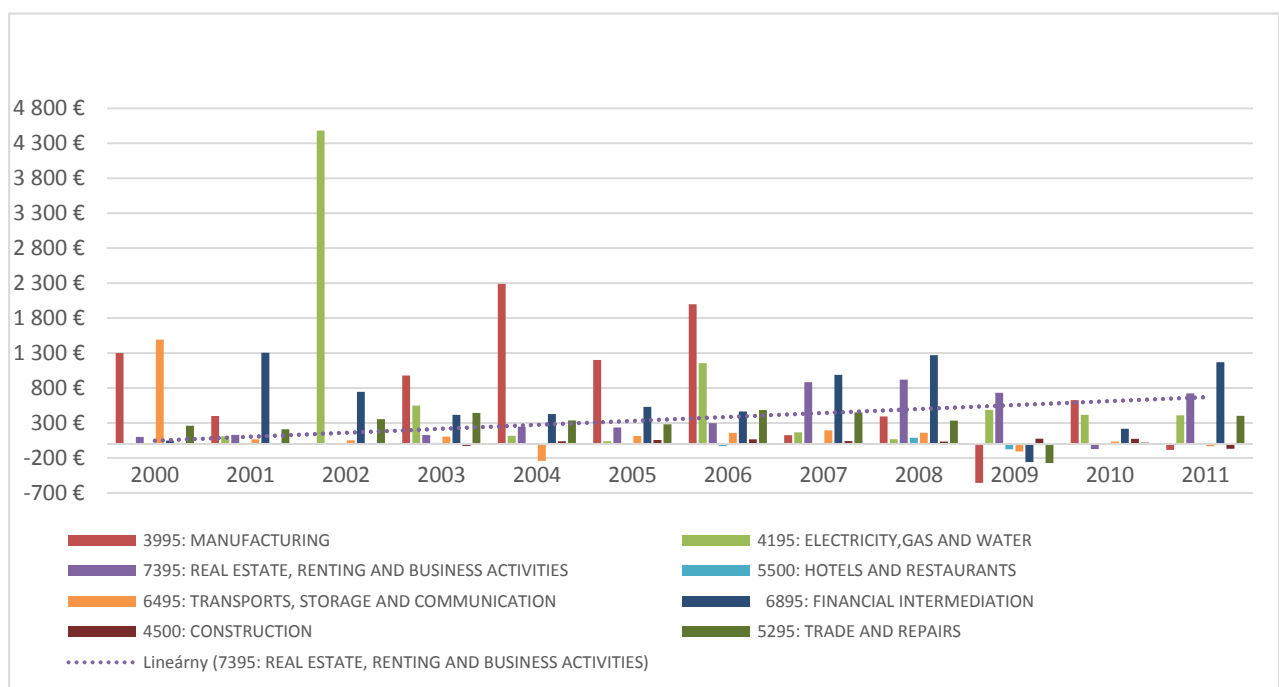
Source: Adapted from http://www.oecd.org/corporate/mne/statistics.htm

Czech Republic has shown similar results as to Slovakia in terms of FDI development. It can be seen that country has gone through privatization of gas, electricity, and communication where the major investments are. Based on this overview of Czech Republic and Slovakia, it may conclude that motivations of FDI vary and primarily depend the goal of company management. Manufacturing in Europe has become an outsourcing sector. Western countries have seen V4 countries as manufacturing heaven due to skilled and low costs labor. Therefore, the highest value of greenfield projects is in manufacturing. Other FDI are seen as expansion and market penetration strategies of corporations.

Chart 2
FDI flows by industry in Czech Republic (mil./year)

Source: Adapted from http://www.oecd.org/corporate/mne/statistics.htm
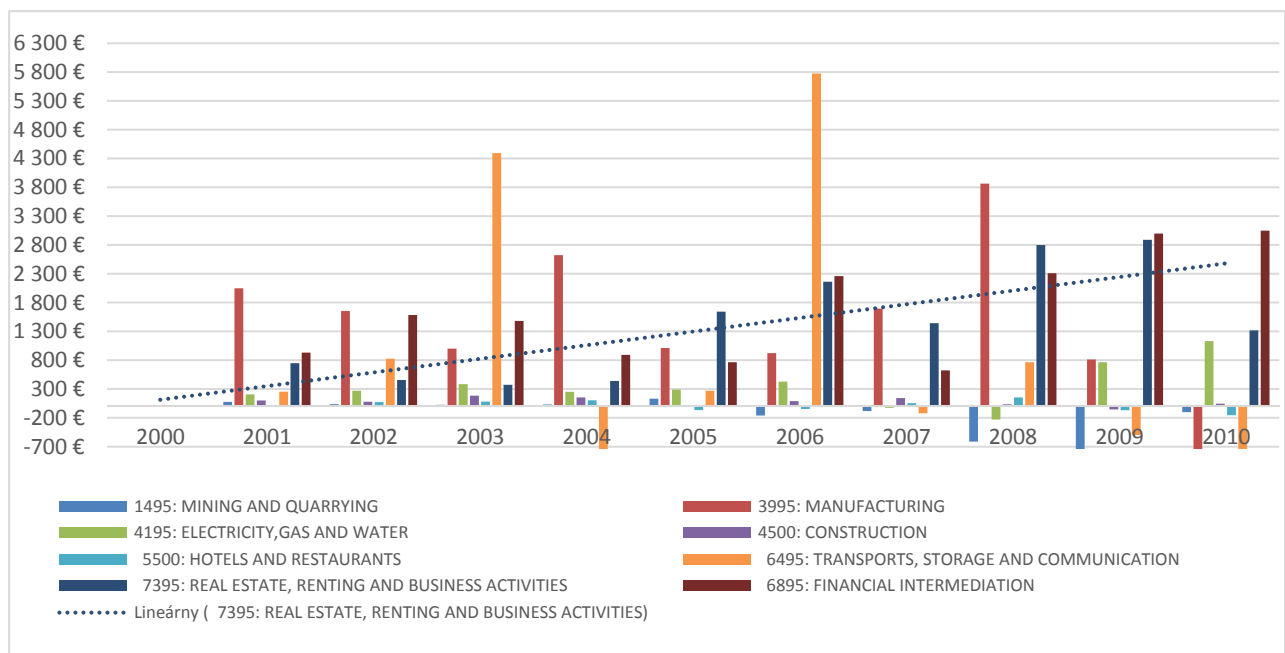
However, one the important differences between CZ and SK FDI development is the impact of financial crisis during 2009 and 2010 years. Slovakia as seen has had negative FDI flows due to worldwide car industry decline in demand, however in Czech Republic where FDI are diversified between industries and has less sensitivity with global growth fluctuations has maintained stable growth of FDI.

1.1 Effects of FDI on Slovakia and Eastern Europe

Various literature has been focusing mostly on positive effects of FDI and its impact on economic growth of host country. It can't be disputed the positive effects on GDP growth, decrease of unemployment and development of new industries in local economy. Slovakia and rest of Eastern Europe has benefited greatly from FDI since year 1995, however there in a long run such situation may bring countries to negative outcomes. Such outcomes already seen in some countries.

FDI has significantly changed the product structure of import and export. With increasing number of FDI projects focused on production and assembly of equipment Slovakia has change entirely import and export preferences.

In the Chart 1 In year 1995, vehicle parts had almost no import value and by year 2013 has reached 6.9 billion USD. In addition, it needs to be mentioned a positive impact of FDI on export. Moreover, together with increase of FDI into manufacturing industry, and other energy intense production, import of energy resources has increased too.

Chart 4
Slovak Import 1995 - 2013

Source: http://atlas.media.mit.edu/en/visualize/stacked/hs92/import/svk/all/show/1995.2013/
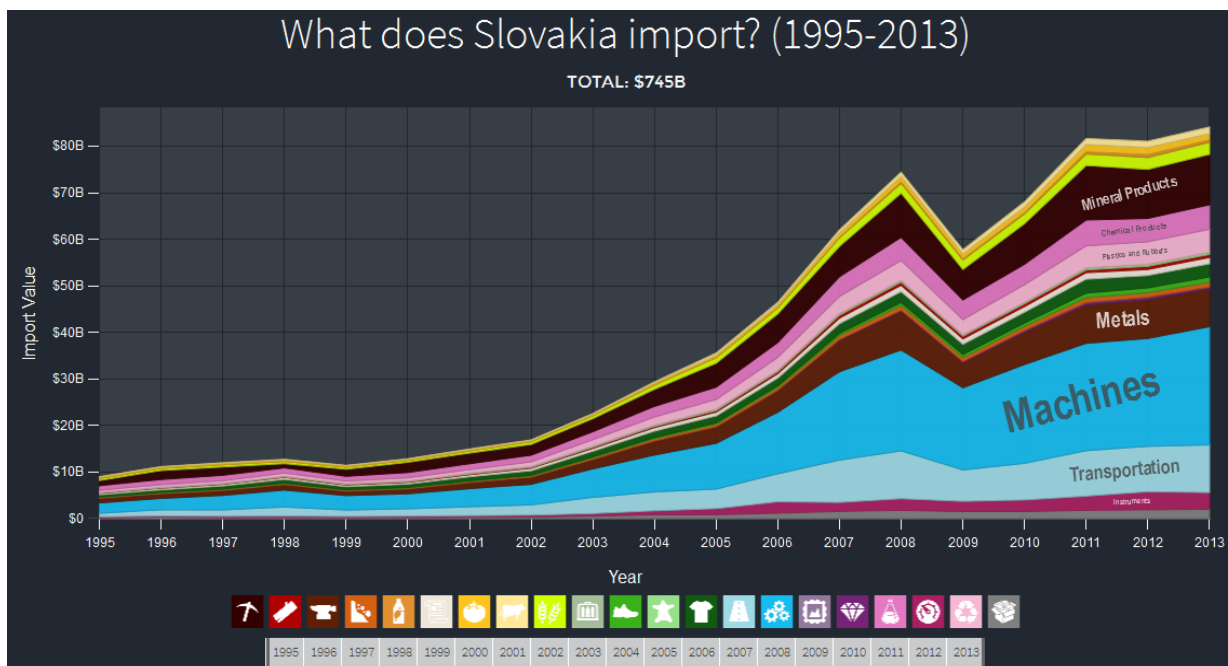
As well in the Chart 2. may be seen a positive trend between FDI inflow and Export industries. One of the highest value in Greenfield projects were machinery and transportation industry. On the below graph can be seen significant increase of export in cars and video displays from 1998 being $1.6B and zero to $14B and $6.14B in year 2013 respective. Drawing correlation between Chart2 and Chart3 with increase of FDI, Slovak export has increased from $ 10B to over $ 80B. Mainly it was influenced by manufacturing of car and electronics industries.

Chart 5
Slovak Republic Export 1995-2013

Source: http://atlas.media.mit.edu/en/visualize/stacked/hs92/export/svk/all/show/1995.2013/
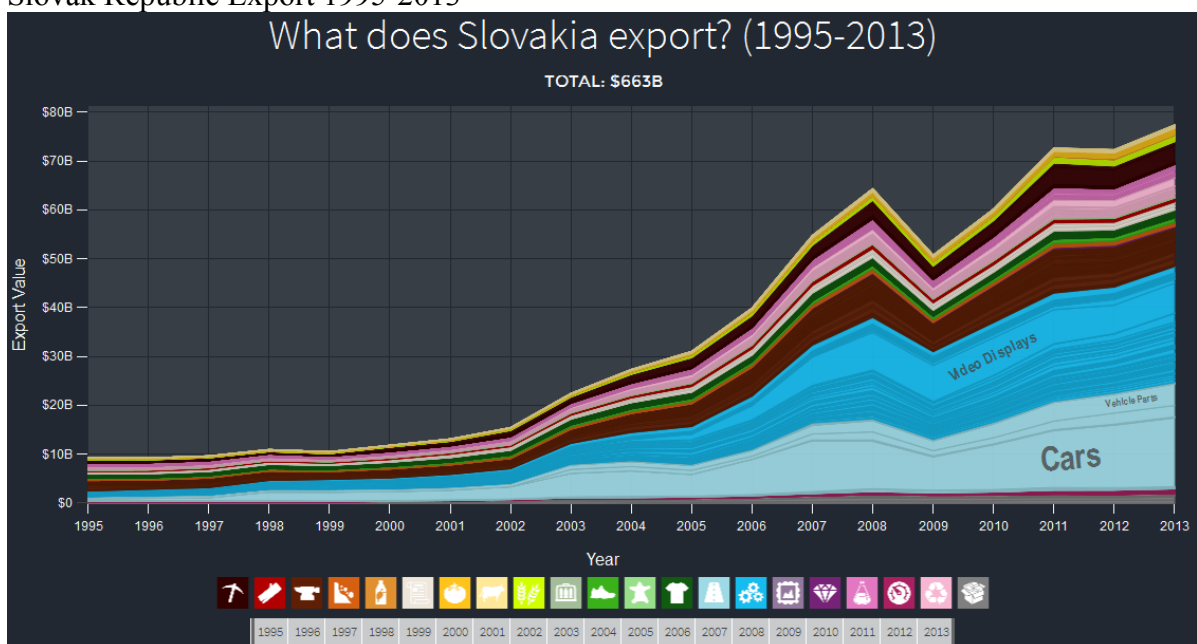
Considering growth of export and import of Slovakia in the past 10 years, one can see it has grown greatly, although some risks can be seen:

a) Long term negative impact on trade balance. In order to set up a new operation in the host country, MNC's will export from home country a necessary equipment especially when its new production dependable on heavy machinery. During initial stages when MNC is penetrating market, it involves high import of resources and technology. Thus, due to high amount of products and resources imported to host country, host country import is exceeding production export meaning negative trade balance.

b) Industrial specialization of Slovakia. Slovakia has made a great progress in attracting foreign capital to production and manufacturing industries. According to export statistics of Slovakia, car industry has become the major specialization of export contributing up to 20% to overall export. In addition, Slovakia has become №1 country with highest ration of exported cars per 1000 people. Despite such success, Slovakia will not be able to maintain status of "assembly line of Europe" for a long time. Moreover, car, PC, and consumer electronics industries are highly sensitive on any crisis or decrease in global growth. Therefore, further continuing specialization and development of car and electronics production industries exposes Slovakia to double risk: 1. Potential decrease in global growth directly impacts 30% of Slovak export; 2. Industrial production and assembly specialization forces Slovakia to compete with less developed and more cost effective countries such as China, Brazil, India.

c) Migration of highly skilled specialists abroad. Due to continuous specialization in industries of car and electronics production for the past 10 year, economic employment structure has been influences and changed as well. It brought stable employment and brought demand for certain entry and medium level jobs, however more complex and highly sophisticated positions has stayed in the headquarter country or outsourced to more suitable places. With this said, neither educational system nor research and development sector of Slovakia is attractive to foreign capital, hence missing opportunities for skilled labor to apply their skills.

## 1.2 Strategies in managing FDI and increasing its flow

Inward FDI to Slovakia and rest of CEE countries has been favorable, especially between years of 2001 and 2007 with decrease of financial crisis starting 2008 and two years after showing positive growth. Financial crisis of 2009 has shown undiversified FDI flows to only few industries that are highly impacted and much sensitive to any fluctuations in international financial system. Throughout last financial crisis, Slovakia has reaches negative FDI flows due to major hit of car industry and has proven that specialization in one industry possesses major threat to stability of Slovak economy. Therefore, author suggest following strategies:

a) Stabilizing trade balance. Currently, since year 1995 Slovakia has been in negative trade balance. This has been triggered due to multiple reasons. First is specialization in production of industrial semi-finished products that require high energy resource investment. Second highly important issue is import of special parts required for final assembly in electronics or automobile industry. Important items required for major

automobile and electronics industry, are imported, such as broadcasting equipment and accessories reached in 2013 7.3% and vehicle parts account to 8.3% from total Slovak export in 2013. Thus importing spare parts and after it's assembly produces minimum added value. European energy costs are considerably higher than of developing countries China, India, Russia. Therefore, further increase of specialization in this products with continuous costs of energy and same rate of consumption will in a long run lower attractiveness of Slovakia and Europe furthermore, will lead to transfer of production facilities elsewhere. Eurostat has already indicated decrease of growth for energy intense industries from 2008 and the process of restructuring toward energy low energy intensity. Below graph indicates industry electricity prices across European countries. However, still can be seen that costs of electricity in Slovakia is one of the most expensive in Europe.

Chart 3

Industry electricity prices (€c/kWh excl. VAT & recoverable taxes and levies but also any exemptions)

Source: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52014DC0021
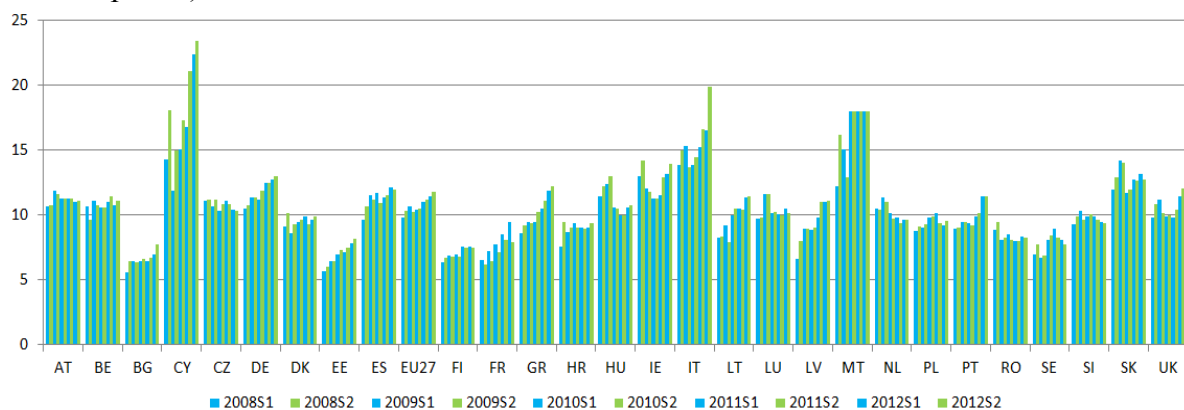
Slovakia, so far hasn't announced investing resources in restructuring its energy base. In the next years this might be an economical threat with unstable political relationships, high costs and energy supply interruptions. On the other hand, technological spillovers have not played visible role to increase growth in medium businesses of Slovakia. Local business has no chances to compete with MNC and their subsidiaries due to low production costs. Therefore, author suggest to implement specialization strategy in production of items related to already developed industries such as car and electronics. Thus, Slovak medium and small business will have a unique competitive advantage to supply already established MNC's and factories with items for theirs assembly of final goods.

b) Education system and country's R&D. It has been mentioned that continuous positioning of Slovak republic as "industrial assembly line" will not be able to attract further FDI in a long term. Inward FDI has been in stagnation phase and hasn't reached its levels in years 2002-2006. This might be an indicator showing that Slovakia has reaching its current potential as industrial assembly for European outsource. Therefore, it's important now more than ever to utilize reserves in lagging education system and country R&D. According OECD in the past 5 years Slovak Republic has lagged behind on last places in public spending on Educational sector as percentage of GDP resulting in around 6% on average.

Government authorities need to focus on development of future qualified professional to attract foreign capital with not only cost effective labor for manual jobs but as well with high educated specialist. Thus, not only increasing spending on overall education but develop and increase focus on a new and progressive sectors such as nanotechnology, cybernetics, or haptic programmers. According to multiple reports increasing automatization will further reduce jobs in car production and electronics industries.

On the other hand, research and development is not less important sector for government to focus. FDI technological spillovers that had to boost technological environment of Slovakia hasn't effected to visible extend on local producers or Slovak economy. Subsidiaries of MNC were the importers of all major machinery for production of parts for assembly of products. In upcoming years, diversifying and developing new industries will be a crucial goal for government. It is a necessary strategy to further develop and increase spending in R&D sector. According to below graph current level of spending is the lowest in OECD countries ahead of only Argentina, Mexico and Romania. In year 2014, there only 0.8% of GDP allocated to R&D, where OECD average is around 2.5%.

Graph 1
Gross domestic spending on R&D – Total, % of GDP, 1996-2015

Source: https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm
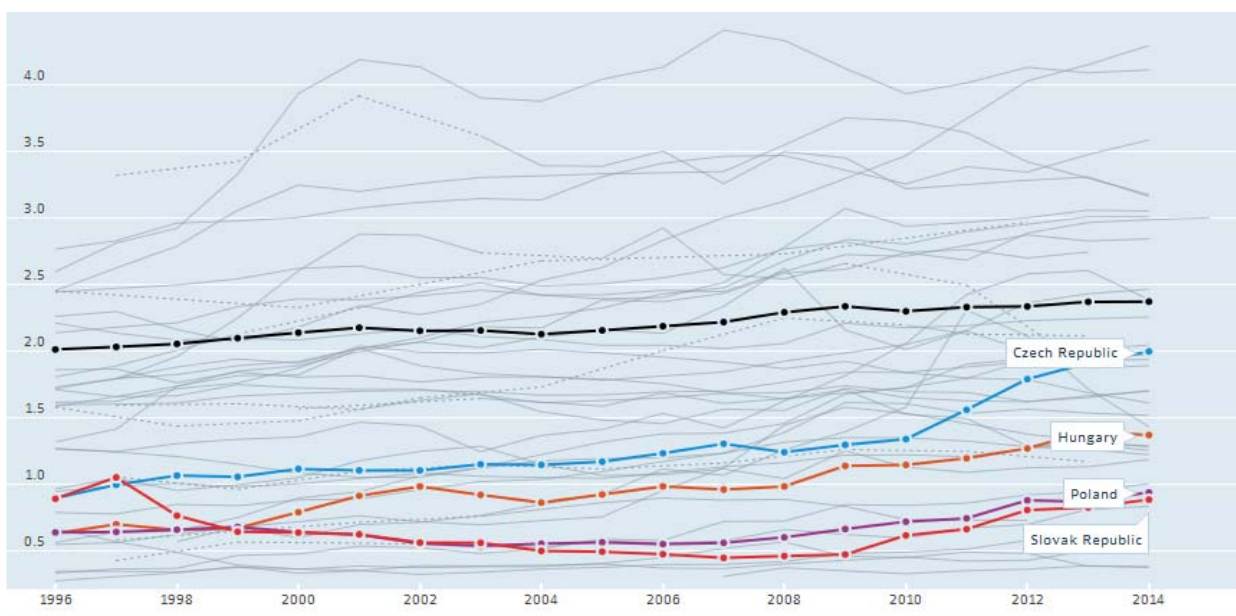
Through encouragement to increase investment into research and development sector, Slovakia and respectively other CEE countries shall build platforms to diversify their FDI flows as well as retain highly skilled professionals from immigrating abroad. Such strategy will open untapped reserves.

Conclusion

Vast investment to CEE countries in the form of foreign direct investments has contributed to economic growth, development of infrastructure, and strengthening of competitiveness. Nevertheless, FDI has left countries to be dependent on external business environment and decisions of foreign investors. In addition, as it was already discussed, technology spillovers as being most crucial benefits of FDI didn't spread on full spectrum of economy (horizontal spillovers) but rather on preferred industries (vertical spillovers) thus,

creating high dependency in a country on specific modernized industry and further advancing inequality of modernization across all country economy.

Research paper has provided further overview of sectoral changed in export and import under FDI and proved the effects of MNC and its monopolization of FDI. On the example of Slovakia, FDI has not only changed the structure of products that are imported and exported but within last 10 year seen four times fold sole increase of value in manufacturing of vehicles. Author has reviewed and shown country preferences in FDI politics, resulting in relying mostly on historical background and closer political relationships. In addition, it has been noted that accession to EU has played only indirect impact in FDI increase. Although in real estate section starting in year 2000 and reaching peak in 2006, accession given trust to investors that can be constituted as direct influence on FDI.

In addition, author has identified potential future risks with continuous maintenance of established FDI trends. Financial crisis of 2009 has proven lack of diversification of FDI flows toward different industries on example of car manufacturing industry that is highly sensitive on international demand. In addition, deeper specialization in manufacturing of energy intense products is lowering competitiveness of Eastern European countries due to rising energy costs and additional competition with developing countries. In regards to labor further disregard of other industries will lead for outflow of highly skilled labor not being able to find relevant industry supported by government.

Suggesting potential strategies to hedge and minimize potential FDI risk, may be suggested encouragement and support of local business in specializing in production of items related to already developed industries in Slovakia, consequently not competing with MNC's and creating unique local offer for foreign capital.

On the other hand, maintenance of status of low cost manufacturing will be hard to continue with increase of competitiveness. Therefore, Slovakia and other V4 countries should further diversify industries and ever more invest in research and development. For industries where new technology was implemented, government of countries didn't foster local businesses in research of new technology to maintain pace with newly arising foreign technologies. This resulted in conservation of imported technology and lagging behind western partners. According to Eurostat only 0.5% to 1,5% of GDP is allocation to research and development in CEE countries when on EU-15 such rate is above 2% of GDP.

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The Impacts of Population Ageing on Economic Growth and Fiscal Sustainability in OECD Countries

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Abstract

This paper deals with the problem of population ageing and its impacts on economic growth and fiscal sustainability in OECD countries. The aim of the paper is to verify hypothesis that higher share of older people over 65 years old on the working age population 15-64 years old has a negative impact on selected macroeconomic indicators focusing on economic growth and fiscal sustainability. For purpose of economic analyses the OECD countries are ordered by old people dependency ratio, from country with the oldest population Japan to country with the lowest old dependency ratio Mexico. This arrangement of countries is used in all figures for analysis different economic indicators. Belong OECD countries the Israel has the highest young people dependency ratio.

Keywords: *population ageing, labour force, economic growth, fiscal sustainability*
JEL classification: E24, J21, J11

1. Introduction

Nowadays, lots of research is oriented on population ageing, which is problem for many economically advanced countries. Populations ageing means not only the increasing the number of old people in post-productive age, but also the decreasing people in working age, who through paying taxes and contributions on social security generate resources for government spending expended also on economically dependent person over 65 years old or under 15 years old. The threat to sustainable development and economic growth can be the increase in the elderly combined with the current decline of young people under the age 15.

1.1 Methodology

Selected indicators of economic growth and fiscal sustainability are analyzed on OECD countries, which are ordered by indicator old dependency ratio from country with the oldest population Japan to country with the lowest old dependency ratio Mexico. The old dependency ratio gives the share of older people over 65 years old on working age population (15-64 years old). For completeness, the indicator young dependency ratio is also used.[1]

According methodology of OECD the population is divided on pre-productive age (up to 15 years old), productive age (15-64 years old), post-productive age (over 65 years old).

2. The impact of population ageing on selected indicators of economic growth and fiscal sustainability in OECD countries.

The Table 1 in annex provides an overview of the structure of the population by age in OECD countries in 2015. The age structure of population is evaluated by indicator old people or young people dependency ratio, which is expressed as a share of old over 65 years/young

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[1] Young dependency ratio means the share of young people under 15 years old on working age population.

below 15 years people on a population in working age 15-64 years. From the Table 1 and Figure 1 it is clear, that from 35 OECD countries 20 countries has the population with higher share of older than young people on working age population (gray marking in the Table 1).

Most OECD countries face population ageing problem, i.e. the decline in pre-productive and productive age population with the increase in the number of people in post-productive age. This is negative phenomenon, because people in working age represent a labour force, which generates for state revenues from taxies and social security contributions, which are subsequently used on expenditures paid to pre-productive and post-productive people. From this reason the dependency ratio of old/young people on working age population is important for each state.

Arrangement of OECD countries by old dependency ratio from the highest share (Japan) to the lowest share of old people (Mexico) is used in all figures in the article.

Figure 1
Dependency ratio of old and young people as % on working age population in 2016
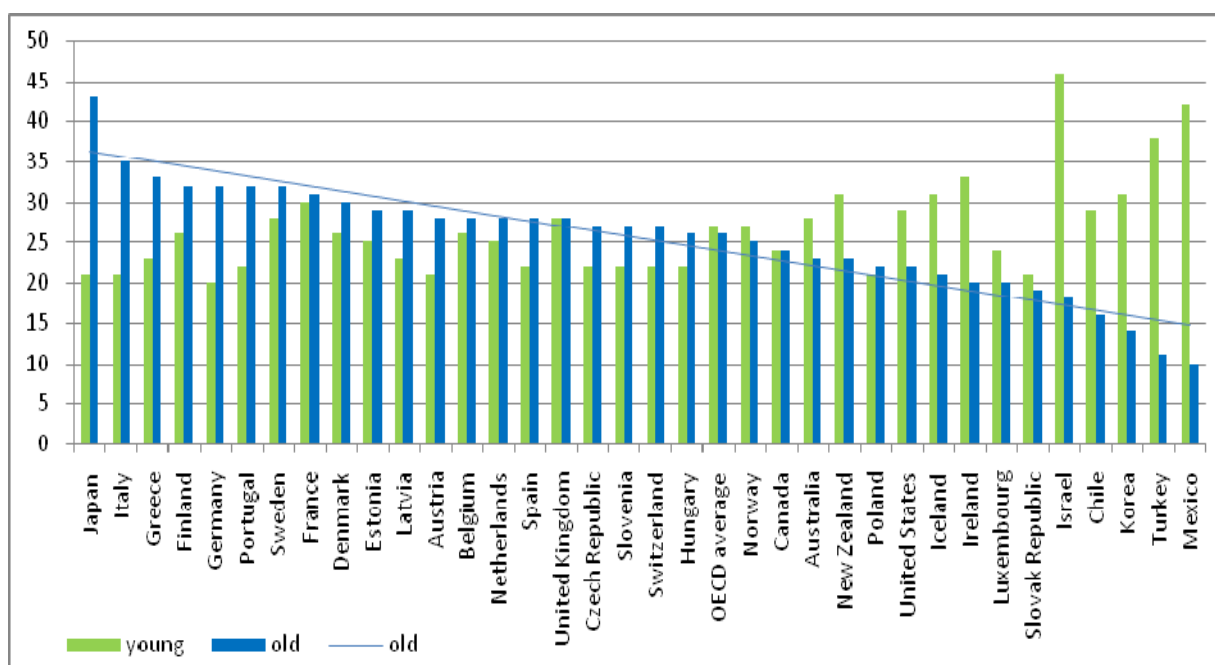
Source: Author based on data extracted from OECD database

The Figure 1 shows, that from 35 OECD countries the 20 countries have higher share of old people (blue colour), 13 countries have a higher share of young population (green colour) and in Canada and Great Britain the share of old and young people is equal. The higher old dependency ratio have Japan (43%), Italy (35%), Greece (33%), Finland (32%), Germany (32%), Sweden (32%), France (31%). On the other hand the indicator is the lowest in Mexico (10%), Turkey (11%), Korea (14%), Chile (16%), Israel (18%) and Slovakia (19%). All this countries, exception Slovakia, have the highest young dependency ratio.

Figure 2

The share of labour force, employed people and unemployed people as % on working age population in 2016
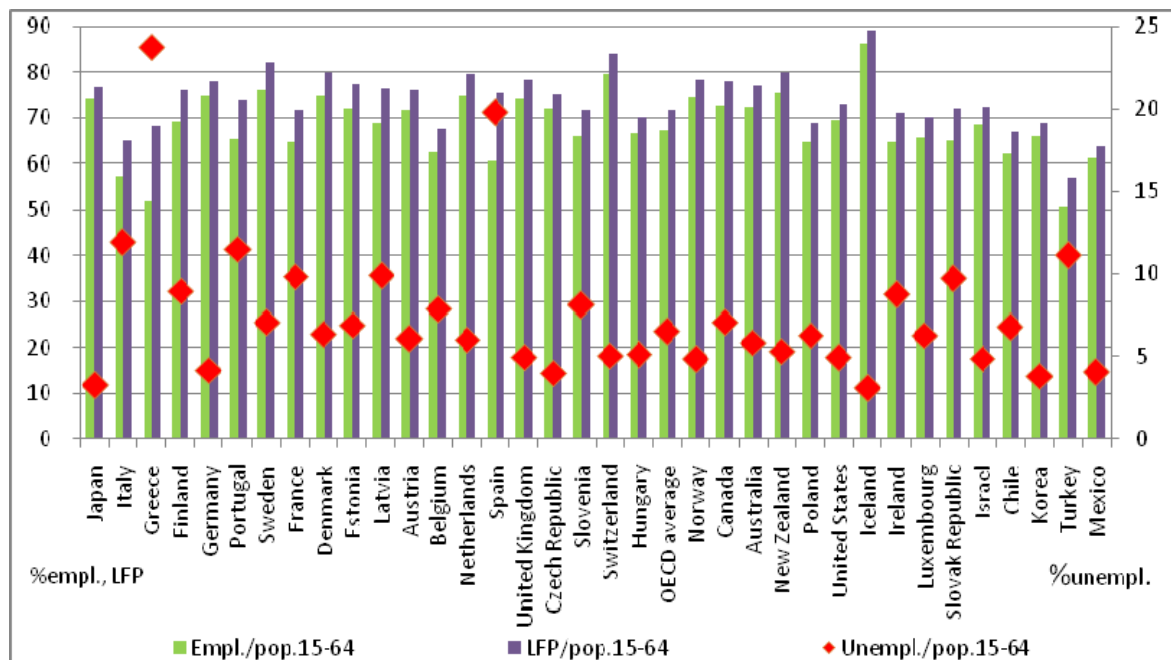
Source: Author based on data extracted from OECD database (OECD Data, 2018).

The Figure 2 shows the share of labour force, employed and unemployed people on the working age population (aged 15-64) in 2016. From Figure 2 we can conclude, that the labour force share and employed people share on working age population is not significantly affected by population ageing, because it has similar values in the countries with an older population in compare with the countries with younger population.

The country with the oldest population Japan belongs among countries with a higher labour force share (76,9%) and employed people share (74,3%) on working age population. Also Israel, as the country with the youngest population, achieves a slightly higher labour force share (72,1%) and employed people share (68,6%) than the OECD average (67,0% labour force, 71,7% employed people).

In 2016 the highest labour force share and employed people share together with lower unemployment share on working age population, i.e. the best situation in the field of employment, have Iceland, Sweden, Switzerland, Japan, Germany, Netherlands, Denmark, Norway. Except Iceland and Norway, in mentioned countries the older population prevails. On the other side unfavorable indicators, especially higher unemployment rate, are achieved by Greece, Italy, Spain, Portugal, the countries affected by the debt crisis with the prevalence of older population, but also by Turkey, Slovak Republic, Ireland, i.e. the countries with younger population. In the case of the periphery of the euro area, as well as Slovak Republic, experts say about the "lost generation" problem, when young people do not have adequate opportunities in the labour market (TREND.sk, 2017).

We can conclude that in the OECD countries the population ageing does not pose a significant risk for labour force, employment ratio and unemployment ratio.

Figure 3
The share of NEETs on population at the age 20-24 years old in OECD in 2014
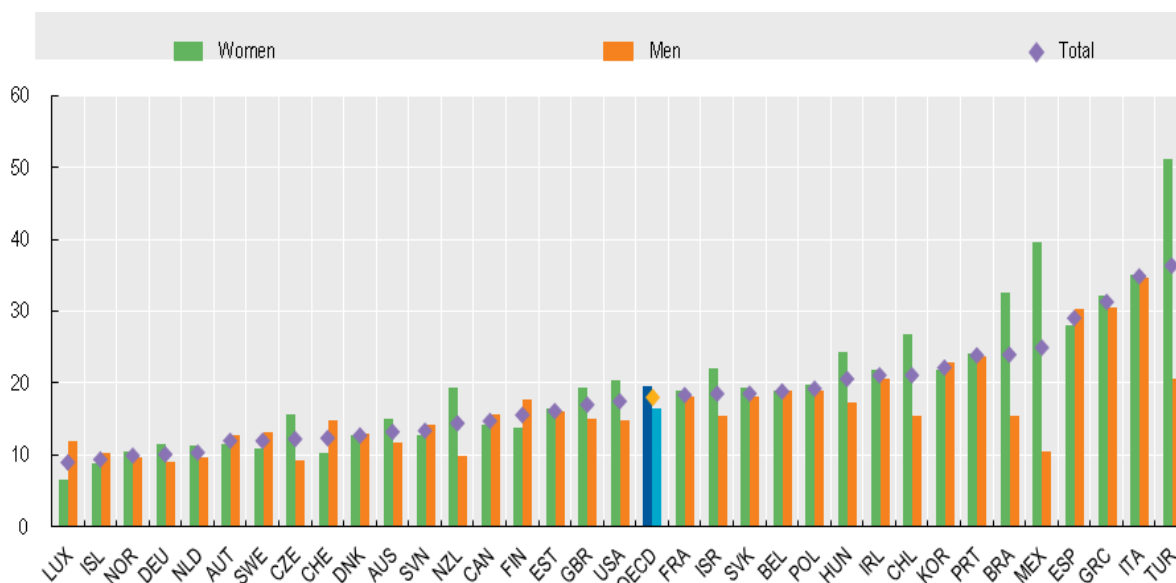
Source: OECD. 2016. OECD Factbook 2015-2016, Economic, Environmental and Social Statistics. Paris: OECD Publishing. 228 pp. ISBN 9789264255241.

OECD specifically monitored vulnerable group called NEETs (young people who are "Not in Education, Employment or Training"). The Figure 3 shows, the higher share of NEETs has especially countries with high unemployment (Turkey with prevalence of women NEETs, Mexico, Korea, Chille – countries with younger population; Italy, Greece, Spain, Portugal – countries with older population), so we can say, that population ageing is not related to the share of NEETs. The Slovak Republic has labour force share close to the average of OECD countries, employment rate slightly lower, but unemployment rate considerably higher than average of OECD countries. The share of NEETs in Slovakia is close to the OECD average.

Figure 4
Annual average wage of full-time employee and GDP per capita and productivity in 2016
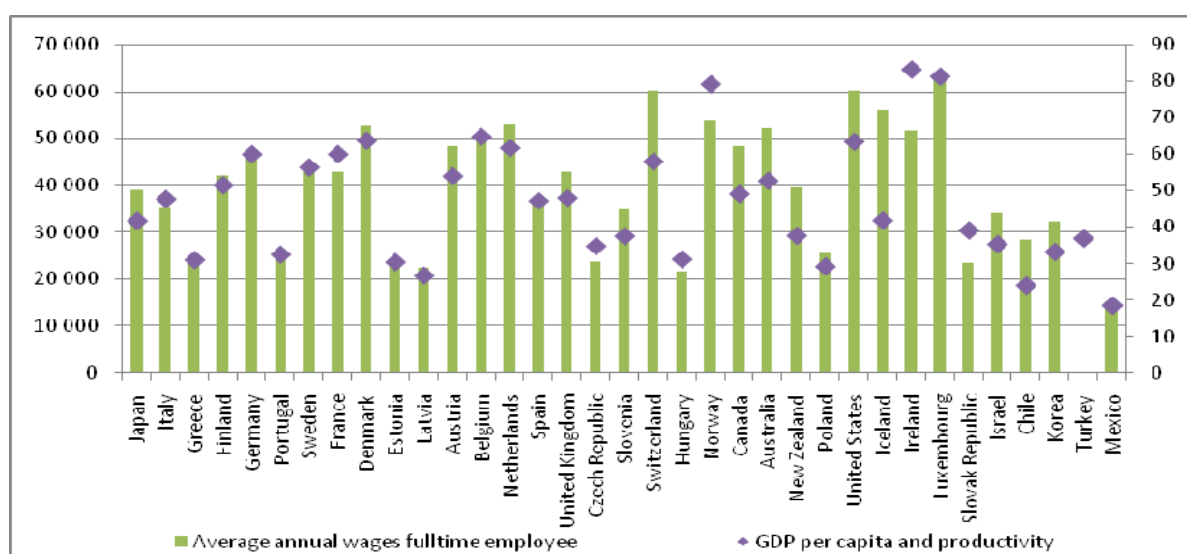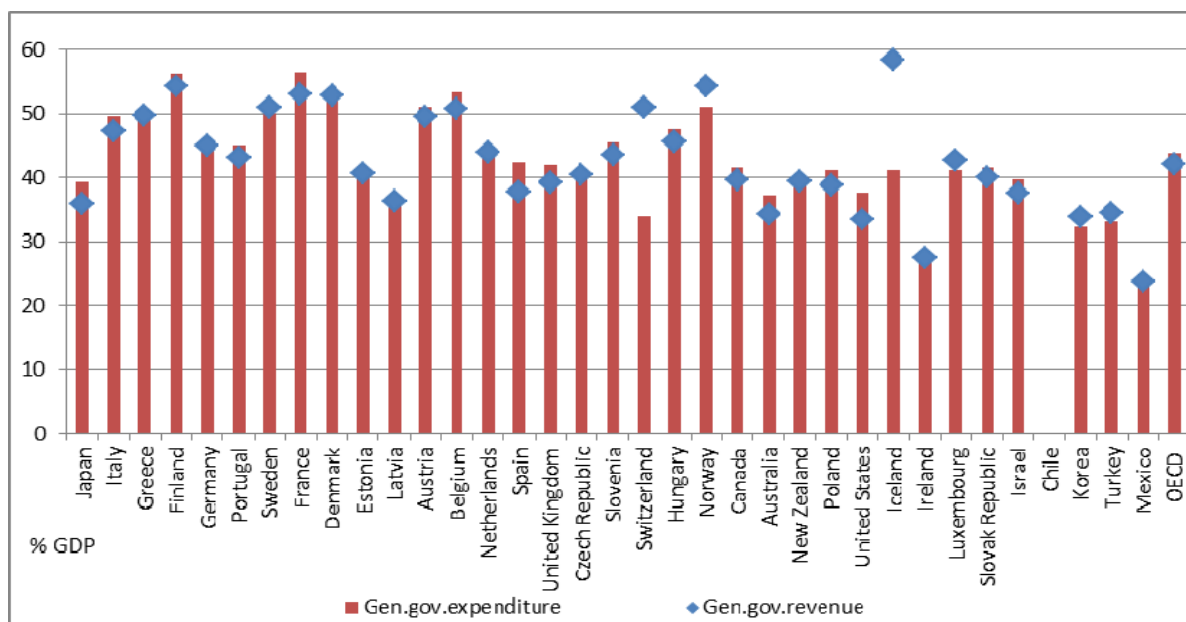

Source: Author based on data extracted from OECD database (OECD Data, 2018).
Notes: The data of annual average wage of Turkey are not available.

To assess economic growth and productivity in Figure 4 the indicator gross domestic product per capita together with annual average wage of full time employee are used. At first glance it is obvious that the countries with high GDP per capita also have relative high average wage and vice versa. The highest GPD per capita, i.e. productivity, have countries with younger population and higher annual average wage as Ireland (83,1%), Luxembourg (81,2 %), Norway (79,1 %), United States (63,3 %). But also countries with slightly older population have high GDP per capita and annual average wage as Belgium (64,7 %), Denmark (63,6 %), Netherlands (61,6 %). All mentioned countries belong to the most advanced economies. Compared with other countries the Slovakia has lower GDP per capita and significantly lower annual average wage. We can conclude, that most countries with younger population have higher GDP per capita and average wage, so the population ageing can be perceived as a risk for increase productivity.

Figure 5
General government expenditure and general government revenue as % on GDP in 2016
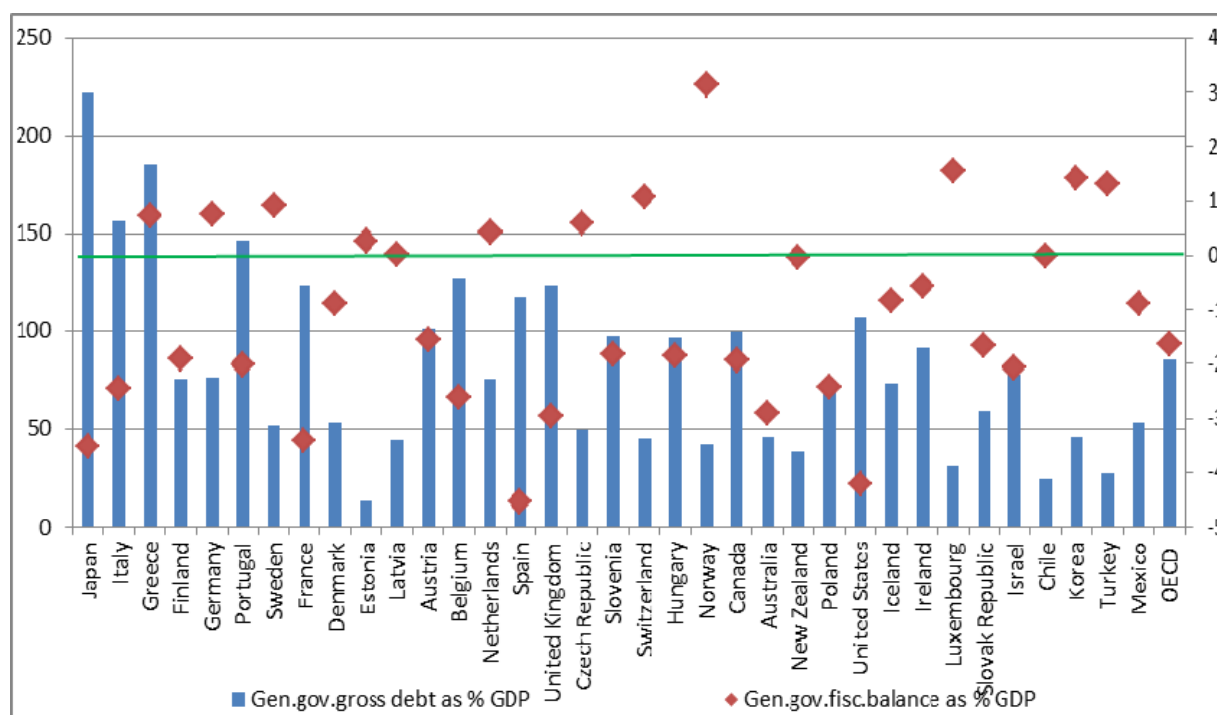

Source: Author based on data extracted from OECD database.
Notes: The data for Chille are not available.

According to Figure 5 countries with older population reach a higher share of public revenues and public spending on gross domestic product compared with countries with a younger population. In almost all countries public spending exceeded public revenue. An exception among countries with older population are Germany, Sweden, Estonia, Netherlands, Czech Republic, Switzerland; among countries with younger population only Norway, Iceland, Luxembourg, Korea and Turkey.

Figure 6
General government gross debt and general government fiscal balance as % on GDP in 2016

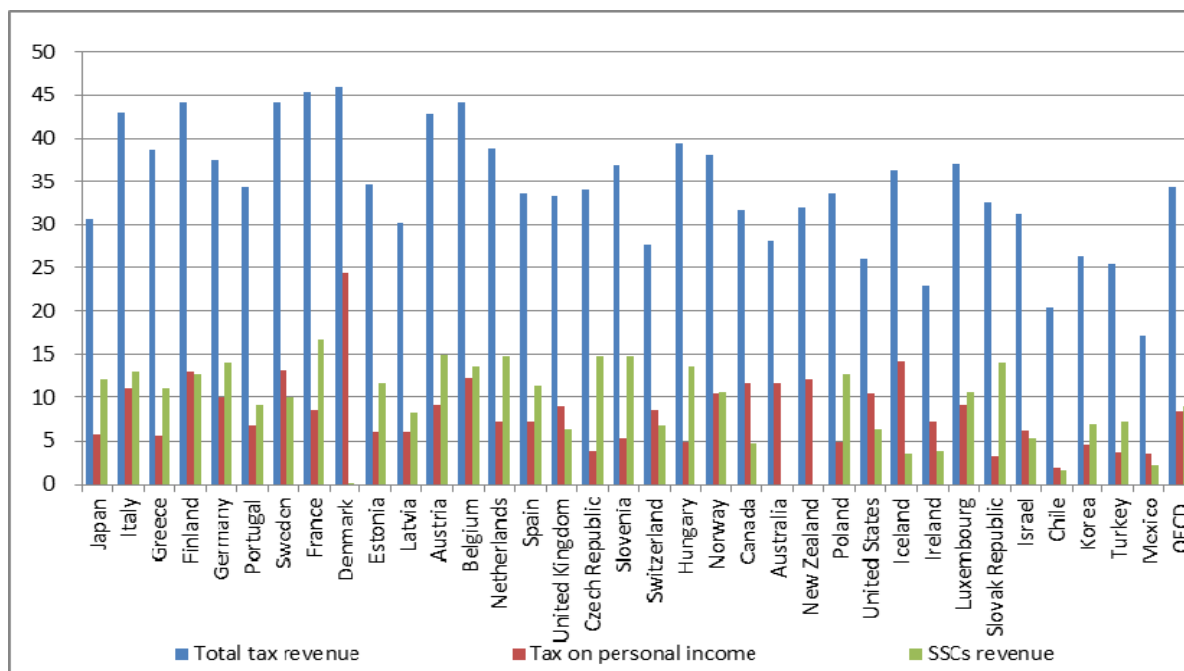Source: Author based on data extracted from OECD database.

At first glance from the Figure 6, it is clear that most countries reached a deficits in 2016, i.e. the share of government expenditure was higher than the share of government revenues on GDP. The highest deficit reached mainly countries with older population especially Spain (-4,54%), Japan (-3,51%) with the oldest population, France (-3,41%), United Kingdom (-2,95%), but also countries with younger population as United States (-4,22%), Australia (-2,91%). On the other side, the highest surplus reached mainly countries with younger population as Norway (3,13%), Luxembourg (1,56%), Korea (1,41%) and Turkey (1,31%).

Mainly countries with older population reached very high share of genereal government gross debt on GDP, especially Japan (221,77%) with oldest population, countries affected by debt crisis as Greece (185,24%), Italy (156,39%), Portugal (146,46%), Spain (117,23%), but also Belgium 127,52%), France (123,42%), United Kingdom (123,12%).

From above results we can conclude, that the highest shares of deficits and gross debt on GDP reached mainly countries with older population. Therefore not only economic stagnation, debt crisis, negative balance of payments, but also population ageing poses a risk to sustainable development.

Figure 7

Total tax revenue, tax on personal income and social security contributions as % on GDP in 2016
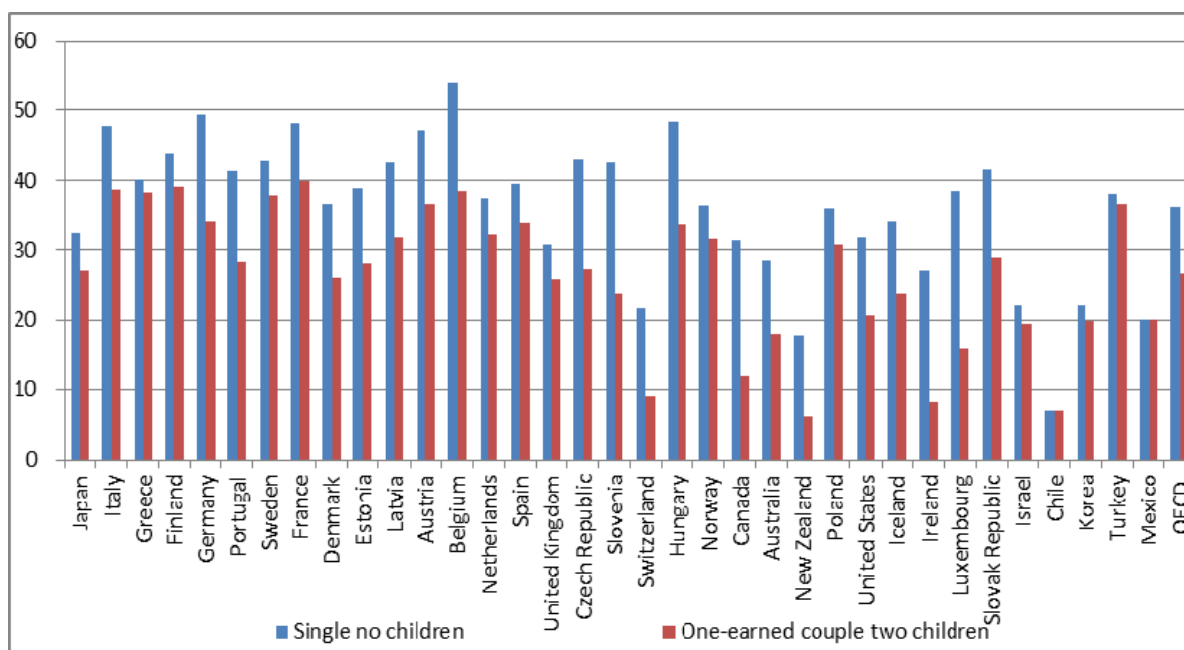

Source: Author based on data extracted from OECD database.

To secure the financing of rising expenditure linked to the population ageing, in particular countries with older population have a higher share of total tax revenues, in most cases also high share of personal income tax revenues and social security contributions revenues on GDP. The highest tax revenues reached Denmark, France, Sweden, Finland, Belgium, Austria, Italy, all of those countries have a prevalence of the older population.

Figure 8

Tax wedge as % on labour costs in 2016

Source: Author based on data extracted from OECD database.

The Figure 8 shows, that ensuring sufficient tax revenues is linked to a high tax burden of labour. The highest tax burden of single without children, but also one-earned couple with two children, have mostly countries with older population as Belgium, Germany, Italy, France, Austria, Hungary. Among the countries with younger population the tax burden of single without children higher than 40% of labour costs has only Slovakia. We can say, that population ageing is factor, which increase the tax burden of labour due to securing funding of raising government spending, which to a large extend increses by expenditures linked to old age population, through increase tax revenues and thus ensuring fiscal sustainability.

Figure 9
Employment rate of older workers as % in given age group in 2016
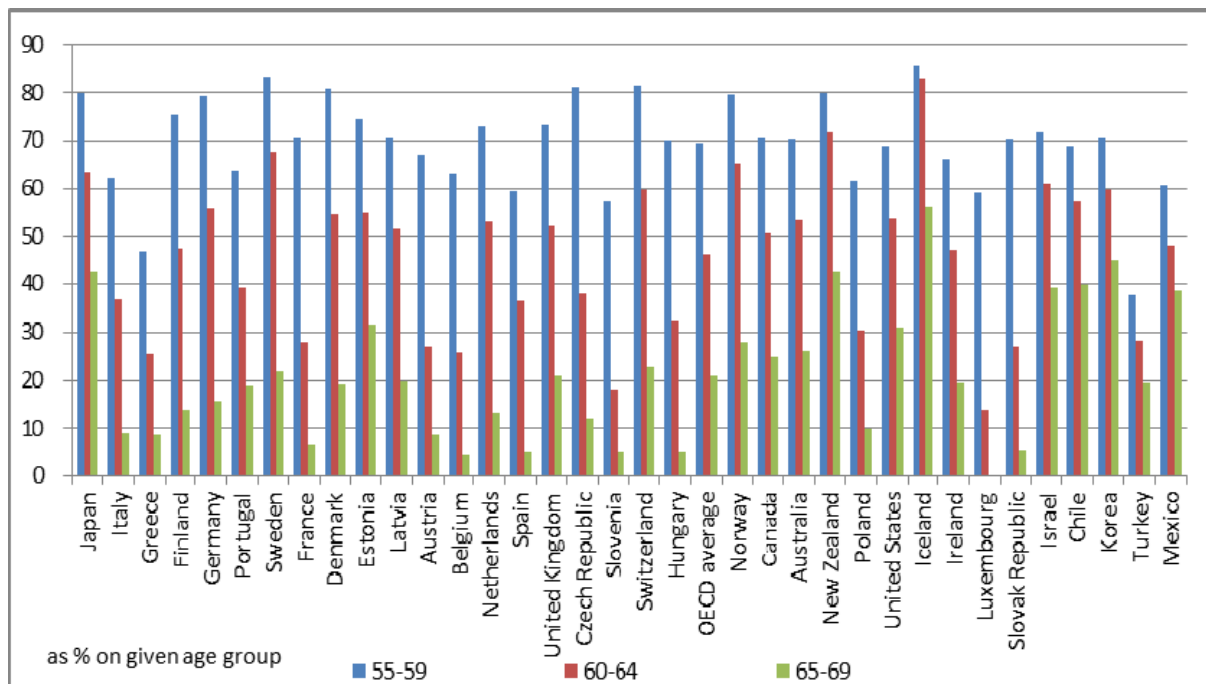
Source: Author based on data extracted from OECD database.

The Figure 9 shows employment rate of older workers in given age group. In 55-59 age group higher values than OECD average mainly achieved countries with older population (except Iceland, Norway, New Zeland). In the other age groups there are not large differences between countries with older and younger population.

Conclusions and policy implications

The aim of the paper was to verify hypothesis that higher share of older people over 65 years on the working age population 15-64 years has a negative impact on selected macroeconomic indicators focusing on economic growth and fiscal sustainability, i.e. whether the population ageing poses a risk an economy of OECD countries.

Analysis has shown that the shares of labour force participation, employed people and unemployed people on working age population are not significantly influenced by the population ageing, because most countries with older population do not belong to the countries with low share of labour force participation and employment. Population ageing does not pose a significant risk to the employment and unemployment.

In terms of assessing the economic growth, it can be stated that countries with older population achieve a lower gross domestic product per capita, lower productivity, so population ageing can poses a risk for sustainable economic development.

Population ageing is a risk for the amount and structure of public spending, as well as public revenues, which are funded mainly through tax and social security revenues, what leads to incresing the tax burden of labour. The risk of population ageing is reflected in the increase in public deficits and public gross debt, which puts the fiscal sustainability of the countries with older population at risk.

In conclusion, population ageing can be included among the factors that represent risk to the economic growth and fiscal sustainability for many OECD countries in the near future.

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Appendix 1

Table 1

The structure of population in OECD countries in 2015

	Dependency ratio (% working-age population)		Population age composition (2015)			Population		Average annual population growth %
			0-14	15-64	65+	2000	2015	
	young	old	%	%	%	mil.	mil.	2000-2015
Australia	28	23	19	66	15	19,2	23,8	1,4
Austria	21	28	14	67	19	8,0	8,6	0,5
Belgium	26	28	17	65	18	10,3	11,2	0,6
Canada	24	24	16	68	16	30,8	35,8	1,0
Czech Republic	22	27	15	67	18	10,3	10,5	0,2
Denmark	26	30	17	64	19	5,3	5,7	0,4
Estonia	25	29	16	65	19	1,4	1,3	-0,4
Finland	26	32	16	63	20	5,2	5,5	0,4
France	30	31	18	62	19	60,9	66,5	0,6
Germany	20	32	13	66	21	82,2	81,7	0,0
Greece	23	33	15	64	21	10,8	10,8	0,0
Hungary	22	26	15	68	18	10,2	9,8	-0,2
Chile	29	16	20	69	11	15,2	17,9	1,1
Iceland	31	21	20	66	14	0,3	0,3	1,1
Ireland	33	20	22	65	13	3,8	4,6	1,3
Israel	46	18	28	61	11	6,3	8,4	1,9
Italy	21	35	14	64	22	56,9	60,7	0,4
Japan	21	43	13	61	26	126,8	127,0	0,0
Korea	31	14	21	69	10	22,8	25,2	0,6
Latvia	23	29	15	66	19	2,4	2,0	-1,2
Luxembourg	24	20	16	70	14	0,4	0,6	1,8
Mexico	42	10	28	66	6	102,8	127,0	-1,4
Netherlands	25	28	17	65	18	15,9	16,9	0,4
New Zealand	31	23	20	65	15	3,9	4,6	1,2
Norway	27	25	18	66	16	4,5	5,2	1,0
Poland	21	22	15	70	16	38,3	38,0	0,0
Portugal	22	32	14	65	21	10,3	10,4	0,0
Slovak Republic	21	19	15	71	14	5,4	5,4	0,0
Slovenia	22	27	15	67	18	2,0	2,1	0,2
Spain	22	28	15	66	19	40,6	46,4	0,9
Sweden	28	32	17	63	20	8,9	9,8	0,7
Switzerland	22	27	15	67	18	7,2	8,3	0,9
Turkey	38	11	26	67	8	63,2	78,7	1,5
United Kingdom	28	28	18	64	18	58,9	65,1	0,7
United States	29	22	19	66	15	282,2	321,4	0,9
OECD average	**27**	**26**	**17**	**66**	**17**			**0,5**

Source: Author based on data extracted from data of United Nations

The Relationship Between Stock Prices and Exchange Rates in Emerging Countries: Co-Integration and Causality Analysis

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Abstract
This study empirically analyses the possible relationship between stock market prices and exchange rates for five emerging markets namely Brazil, China, India, Mauritius and Russia from 1995 to 2015, using dynamic panel data analysis, namely a Panel Vector Autoregressive model. The panel co-integration tests suggest that there is a long run relationship between stock market prices and the variables. Furthermore, the Vector Error Correction Model asserts that stock market prices are negatively but insignificantly related with exchange rates. Stock prices are also negatively related with money supply and total reserves; it was also established that interest rates are negatively linked with exchange rates. Bi-directional relationship between stock prices and the two variables: money supply and total reserves were observed. Additionally, indirect relationships between stock prices and inflation through money supply and the other between stock prices and exchange rates through total reserves were also established.

Keywords: *Stock Price, Exchange Rate, Emerging Countries, Cointegration, Causality*
JEL Classification: G15

1. Introduction

Over the years, there has been an increase in cooperation and transactions between different nations; with the acceptance of higher flexible exchange rates regime in emerging and transition markets, it has been noted that stock and currency markets have gained more importance. This has also given rise to the necessity of establishing if the two markets affect each other and up to which extent. Investors would be able to use such information to improve their investment strategies.

During the recent global financial crisis of 2007-2008, vulnerable countries observed significant volatilities in both stock exchange and exchange rate markets. If a correlation exists between these two markets and exchange rates cause stock prices as per the Traditional Theory, then the volatilities in stock market can be avoided by manipulating the exchange rates. In addition, countries especially emerging countries can benefit from such a causality to foster foreign asset investment in their countries. Conversely if stock prices cause exchange rates as per the Portfolio-Balancing Theory, then government can manipulate the local economic strategies to stabilize the stock market in order to maintain and increase potential investors' confidence. Besides, fundamentalist investors consider these relationships,in order to estimate the future movements for each other (Nieh and Lee (2001), Phylaktis and Ravazzolo (2005), Stavárek (2005) and Mishra et al. (2007).

Most researches done on the topic have mainly focused on developed countries; this study will allow us to discern if in developing countries particular results are observed. The main objective of this dissertation is to find whether in the presence of the following control

factors: consumer Price Index, Gross Domestic Product, Interest Rate, Money Supply and Total Reserves, any type of bond exists between stock exchange prices and exchange rates.

Past studies done on the same topic, in different contexts have given different results; some revealed a positive relationship, while others found a negative link and some even infer no connection among the two variables. As regard to the causal association, the result is also mixed. Some evidences show uni-directional relationship from exchange rates to stock prices, while others highlighted a reverse causality. Md-Yusuf and Rahman (2013) and Tursoy (2017) assert a bi-directional relationship between stock prices and exchange rates, while Nguyen et al. (2016) failed to detect any causal relationship.

Current body of knowledge has overwhelmingly focused on developed country cases and panel sets and in this study, five emerging countries have been chosen, namely Brazil, China, India, Mauritius and Russia. The four biggest emerging markets and Mauritius were included in the sample; mainly due to the fact that data was readily available for these countries. The time period of 21 years from 1995 to 2015 was chosen. The research use dynamic panel data analysis, namely Panel Vector Autoregressive framework to investigate the link between the two variables, after testing the time series properties of the data set. It is believed that empirical results from this study will supplement the body of literature with respect to the exchange rate- stock price nexus by bringing additional evidence from emerging economies.

The rest of the paper is organized as follows. Section 2 reviews the literature while section 3 discusses the conceptual model and section 4 discusses the findings from the empirical regression and section 5 concludes.

2. Literature Review

2.1 *Theories between Exchange Rates and Stock Prices*

2.1.1 Flow-Oriented Model

The Flow oriented model was pioneered by Dornbusch and Fischer (1980) and it examines the link between stock prices and exchange rates. They inferred that the two main elements of a country's exchange rate determination are its current account and its trade balance. As such, changes in exchange rate will cause changes in stock price. At macroeconomic level, movements in currency will have impacts on the balance of trade of a country. Nevertheless, the extent to which firms' returns and share prices will be touched, rely on the openness of the host country towards the world that is on the resilient of its exchange rate system. In fact, the more open an economy is, the more it is likely to participate in international trade, and higher will be its exposure to exchange rate risk.

2.1.2 Stock-Oriented Model

The Stock Oriented Model developed by Branson et al. (1977), emphasizes that capital account of balance of payment is a dominant factor of exchange rate. It is viewed that prices of financial assets change quicker compared to prices of goods when changes occur in exchange rates. According to Adjasi et al. (2008), under this model, exchange rate equates demand and supply for financial instruments (bonds and stocks). Consequently, when relative currency fluctuates this caused the price of these assets to change. Thus, stock prices are affected by exchange rate movement. This stock oriented model can be categorized into two: the monetary approach and portfolio balance approach.

2.2 *Empirical Evidences on the Relationship between Exchange Rates and Stock Prices*

Abdalla and Murinde (1997) used four emerging economies, namely India, Pakistan, South Korea and Philippines to assess the link between exchange rate and stock price. The

outcomes revealed that causality runs from exchange rates to stock prices in all the markets except for Philippines where causality runs negatively, from stock prices to exchange rates. The studies of Agus and Carl (2004) also postulated that changes in exchange rate cause movements in stock price. Their studies are based on four SEAN countries, notably, Indonesia, Philippines, Singapore and Thailand. Similarly, using six industrialized market; Canada, France, Italy, Japan, UK and West Germany. Ma and Kao (1990) highlighted the same result which support the Flow-Oriented Model.

Granger, Huang and Yang (1998) using a sample of nine Asian countries, showed that for Japan and Thailand, exchange rates have a positive impact on stock prices. While for Taiwan, the study revealed that there is an opposite causality from SP to ER in line with the portfolio balance theory. Moreover, the study depicted concrete relations for Indonesia, Korea, Malaysia and the Philippines whereas reveals no causality for Singapore. Substantially, Lin (2012) also outlined a strong correlation between ER and SP in the Asian economies (India, Indonesia, Korea, Philippines, Taiwan and Thailand). Muhammed and Rasheed (2002) using a sample of four South Asian countries; Bangladesh, India, Pakistan and Sri Lanka, found that there is no relationship between the variables for India and Pakistan while for Bangladesh and Sri Lanka, a bidirectional long-run causality was noted. They deduced that the variables are unconnected in the short-run for the sample they took. Recently, the investigation of Umoru and Asekome (2013) illustrated positive co-integrating association between the Naira-US$ exchange rate changes and the Nigerian stock market data with bidirectional Granger causality.

Muhammed and Rasheed (2002) used two test, the Granger causality and bivariate co-integration tests to figure out the interaction between exchange rates and stock prices for Bangladesh, India, Pakistan and Sri Lanka. The outcomes showed that the two variables do not display a long-run connection for Bangladesh and Sri Lanka. Likewise, none of the four countries have short run causality. Later, Smyth and Nandha (2003) researched on the same four South Asian countries and conducted two different test known as Engle-Granger and Johansen co-integration tests. Contrary to the findings of Muhammed and Rasheed (2002), the findings of this recent research inferred that there is no evidence that the two variables have long-run link in the four countries. Furthermore, unidirectional causality occurs from ER to SP in India and Sri Lanka, whereas in Bangladesh and Pakistan the two variables do not have any correlation in the short run.

However by employing multivariable model, multiple researchers such as Dimitrova (2005) and Md-Yusuf and Rahman (2013) proved the existence of long run causation between exchange rates and stock prices. Dimitrova (2005) considered data from United Kingdom and United States found a weak relationship between the variables, where a rise in stock prices will cause a fall in exchange rates. Md-Yusuf and Rahman (2013) conducted research in Malaysia to define the interrelationship between exchange rates and stock prices. They used data on a monthly basis from 1990 until 2010 and use RM/US$ as exchange rate. Subsequently upon the application of the Granger causality, results shielded light on the existence of bi-directional causality between the two variables.

Furthermore, Adjasi et al. (2008) tested the correlation between exchange rates and stock prices in Egypt, Ghana, Kenya, Mauritius, Nigeria and South Africa. They applied Vector autoregressive (VAR) co-integration and Impulse response test to decide whether a long and short-run association exists between the two variables. The results of their studies highlighted a long run bond between SP and ER in Tunisia, where depreciation of currencies lead to a fall in SP. The outcomes of Impulse response showed that for countries such as Ghana, Kenya, Mauritius and Nigeria, stock returns fall when prompt by exchange rate surprises but grow in Egypt and South Africa. Shocks caused by either exchange rates or the stock prices are more

severe in Ghana, Kenya, Mauritius and Nigeria as compared to Egypt and South Africa. Nevertheless, for Egypt, Ghana, Kenya, Mauritius, Nigeria and South Africa, analysis could not prove any long run stable link between the stock prices and exchange rates.

Alagidede, Panagiotidis and Zhang (2010) examined the link between stock market prices and foreign exchange markets in developed markets. Despite the use of two co-integration methods and a sophisticated datasets, end results could not substantiate a long-run relationship between the variables. Equally, they employed three completely different versions of Granger causality and found that causality runs from exchange rates to stock market prices for Canada, Switzerland, and United Kingdom. While, insignificant causality running in the opposite direction, from stock prices to exchange rate, was remarked in the case of Switzerland.

A bidirectional long-run causality was obtained by Muhammed and Rasheed (2002) in Bangladesh and Sri Lanka. Sevuktekin and Nargelecekenler (2007) also obtained a noteworthy long term bond between stock market indices and exchange rates when conducting his analysis in Turkey. As a result of using co-integration and Granger causality tests, outcomes denoted a positive and important long run interrelation between the variables.

Olugbenga (2012) studied the long and short period impact of exchange rate on stock market development in Nigeria from year 1985 to 2009 by making use of Johansen co-integration tests. A bivariate model was applied and empirical results demostrated that in the short run a major positive relation exists between stock market performances and exchange rates. While in the long run, a significant negative link was noted. Additionally, by performing the Granger causality test, result favoured the flow oriented model, that volatility in exchange rates lead to changes in stock market prices.

Using panel Granger causality and DOLS methods on five Asian countries, Liang et al. (2013) found the presence of both short run and long run bond between exchange rates and stock prices.

3. Methodology & Analysis

To analyze the link between exchange rate and stock prices in emerging economies, a panel data analysis of 5 countries will be considered from the IMF's list of emerging markets. The countries are; Brazil, China, India, Mauritius and Russia. These countries were chosen mainly based on the availability of data. Data for the macroeconomic variables has been collected mainly from the World Bank website and for the respective stock prices from various sources.

The dependent variable used is the yearly (end of December) benchmark stock market prices of the corresponding countries. The independent variables used are exchange rate, total reserves of foreign currencies, gross domestic product (GDP), Inflation (CPI), interest rate, and money supply of the respective countries. The sample is made of annual data collected from 1995 to 2015.

Model Specification

A panel model will be employed to establish and determine the relationship between stock prices and exchange rates of the 5 developing markets. The respective Stock Exchange data of each country is the dependent variable and the corresponding Exchange Rate (ER) of each country is the main independent variable. Other explanatory variables have also been added to analyze the long and short run link between stock price and exchange rate. An approach similar to Md-Yusuf and Rahman (2013) will be used; with the objective of discerning the long and short term relationships between the variables. As well as finding the causal relationships between the variables.

Since the variables do not have the same base, logarithm will be applied to ensure compatibility in their measurement. The model is as follows:

$$\text{Ln } SP_{it} = \alpha_{it} + \beta_1 \text{LnER}_{it} + \beta_2 \text{LnTR}_{it} + \beta_3 \text{LnGDP}_{it} + \beta_4 \text{LnCPI}_{it} + \beta_5 \text{LnBLR}_{it} + \beta_6 \text{LnM2}_{it} + \varepsilon_{it}$$

Table 1
Definition of variables in above model

↓ SP is the stock prices
↓ i denotes each country (i = Brazil, China,….., Russia),
↓ t illustrates each time span in years (t = 1, 2.., T),
↓ α is the constant value,
↓ β is the coefficient of its corresponding variable,
↓ ER is the exchange rate,
↓ TR is the total reserves
↓ GDP is the gross domestic product,
↓ CPI is the consumer price index,
↓ BLR is the bank lending rate,
↓ M2 is the broad money supply and
↓ ε is the composite error term denoting items not included in the model specification.

Source: Author

Note: $\varepsilon_{it} = \mu_i + u_{it}$, where μ_i are unobserved effects during the interval but steady with time and related with the independent variables and u_{it} are errors which change with time and presume to be idiosyncratic $(0, \sigma_u^2)$.

4. Analysis

Before running the Johansen panel co-integration test or causality model, it is crucial to verify the stationary of data to avoid unreliable conclusion of regression results.

The outcomes of the Phillips-Perron (PP) unit root test shows that all variables are stationary at first order difference Both the Johansen Panel Co-integration Test and Kao's panel co-integration validate the presence of cointegration and thus a long run relationship. In such a setting, the study will discuss both the long run and short run estimates in a PVAR framework. The latter interestingly takes into account possible elements of dynamism and endogeniety in the modeling. The Table 2 reports the long run estimates.

4.1 Long Run Relationship

Table 2
Long run relationship: Normalized Co-integration coefficient

SP	CPI	ER	GDP	IR	M2	TR
1.000000	3.947007 (0.66426) [5.94200]	-1.528132 (0.40131) -[3.80786]	1.982080 (0.55514) [3.57041]	-2.845526 (0.43012) -[6.61571]	0.933469 (0.45617) [2.04630]	1.612949 (0.48932) [3.29630]

Source: author's calculations, Standard errors in ( ) & t-statistics in [ ]

From the Table 2, it can be inferred that ER and IR have an opposite long term link with SP. CPI, GDP, M2 and TR have a positive effect on SP. Since the absolute t-values of all independent variables are higher than 2, they are all statistically significant in explaining SP.

A 1% rise in ER will cause a fall in SP by 0.40%. This supports Ajayi and Mougoue (1996) and Mital's (2010) conclusion and also reinforces the traditional approach theory which implies that an increase in exchange rate will decrease stock prices. This is relevant for import-oriented companies; a hike in exchange rate will augment the cost of importing goods thereby raising the costs of a firm. This rise in costs will subsequently cause a decline in the returns of the firms and eventually a decrease in its stock prices. However this result in inconsistent with Umoru and Asekome (2013), who found positive correlation between the Naira-US$ exchange rate changes and the Nigerian stock market data.

A 1% hike in CPI will cause SP to increase by around 3.95%. Many researchers such as Fama (1981), Hosseini, Ahmad and Lai (2011) and Laichena and Obwogi (2015) also found a positive link between SP and CPI. Along with a negative linkage between SP and ER, Ajayi and Mougoue (1996) also support a positive relationship between SP and CPI. They state that a flourishing stock market is an indication of an amplifying economy and, in an amplifying economy there is greater chance of high inflation. Since high rate of inflation is not positively viewed by investors, the country's currency will fall leading to depreciation.

Furthermore, a 1% gain in M2 will lead to an augmentation of 0.93% in SP. This is in line with Ratanapakorn and Sharma (2007) and corroborates with the Liquidity Hypothesis, which states that when M2 rises in a country the demand for equity also expands. Then, potential investors will have the tendency to shift to equity due to its greater profit compared to bond. Eventually, rising the stock market price of the country. However, the result obtained is inconsistent with Sayilgan and Süslü (2011).

The results obtained also assert an inverse bond between SP and IR, whereby an increase by 1% in IR will cause SP to decrease by nearly 2.85%. This inverse relationship is justified by the fact that if the IR provided by financial institutions rises, people will move their funds from stock exchange to these financial institutions, leading to a fall in the share prices. Hosseini, Ahmad and Lai (2011), Ullah, Hussain and Rauf (2014) and Laichena and Obwogi (2015) also derive an opposite link between the two variables.

Elite Forex Signal (2013) also found a positive relationship between reserves and stock prices in India and Pakistan. Besides, a negative linkage is found between SP and GDP as revealed in the study of Laichena and Obwogi (2015). This is explained by the fact that an increase in GDP will make people believe that a rise in future cash flows and subsequently, raising stock market prices.

4.2 Panel Vector Error Correction Model

Since the above panel co-integration tests reveal the presence of a co-integrating vector between the variables, the use of Panel Vector Error Correction Model (VECM) is then suitable to find the short run link. VECM is a relevant way of analyzing short run modifications necessary among the selected variable to attain long run equilibrium. Table 3 illustrates the VECM with the coefficient Error Correction Term (ECT) also known as the co-integrating term, indicating the speed of adjustment of any disequilibrium toward the long run equilibrium. Basically, the ECT (-1) should be negatively signed, meaning a backward step toward equilibrium. The greater the value of coefficient, the steadier the long run bond.

As indicated in the Table 3, the predicted coefficient of the ECM (-1) (-0.080221) is negative and significant at 5%, suggesting that volatilities in stock prices are due to ECT. This means that in one year stock prices are adjusted by 8.02% to the long run equilibrium. The

results illustrate that it can take nearly twelve and a half years (1/0.080221) to get back to the equilibrium; concluding that the official markets tend to be inefficient.

Table 3
Vector Error Correction Model

Error Correction:	D(SP)	D(CPI)	D(ER)	D(GDP)	D(IR)	D(M2)	D(TR)
CointEq1	-0.080221	0.004654	-0.026160	0.036524	0.023286	0.011530	0.137631
	(0.03867)	(0.00344)	(0.01396)	(0.01906)	(0.02621)	(0.00761)	(0.02449)
	[-2.07438]	[1.35351]	[-1.87364]	[1.91590]	[0.88855]	[1.51508]	[5.62080]
D(SP(-1))	0.102826	0.016751	-0.064200	0.098346	-0.167509	-0.035369	-0.127296
	(0.16130)	(0.01434)	(0.05823)	(0.07951)	(0.10931)	(0.01756)	(0.10213)
	[0.63749]	[1.16810]	[-1.10243]	[1.23687]	[-.53247]	[-2.01418]	[-1.24643]
D(SP(-2))	-0.207685	0.002201	0.105758	-0.115983	-0.088406	-0.002453	-0.216392
	(0.17317)	(0.01540)	(0.06252)	(0.08536)	(0.11735)	(0.03408)	(0.10964)
	[-1.19932]	[0.14296]	[1.69157]	[-1.35868]	[-.75334]	[-0.07197]	[-1.97357]
D(CPI(-1))	-2.123066	0.315564	0.976091	-1.488583	-1.703476	-0.326164	-0.624829
	(1.71464)	(0.15245)	(0.61905)	(0.84524)	(1.16197)	(0.33742)	(1.08566)
	[-1.23820]	[2.06999]	[1.57675]	[-1.76114]	[-.46603]	[-0.96663]	[-0.57553]
D(CPI(-2))	1.949873	0.107660	-0.576915	0.559945	-0.959573	0.478761	-0.004759
	(1.52662)	(0.13573)	(0.55117)	(0.75255)	(1.03454)	(0.30042)	(0.96660)
	[1.27725]	[0.79319]	[-1.04671]	[0.74407]	[-.92753]	[1.59363]	[-0.00492]
D(ER(-1))	1.414812	0.024370	0.184661	0.089759	0.178734	0.196939	0.839967
	(1.13048)	(0.10051)	(0.40815)	(0.55727)	(0.76609)	(0.22247)	(0.71578)
	[1.25152]	[0.24247]	[0.45244]	[0.16107]	[0.23331]	[0.88525]	[1.17349]
D(ER(-2))	0.052550	0.009549	-0.381354	0.445432	1.036780	0.214283	-0.158043
	(0.98211)	(0.08732)	(0.35458)	(0.48413)	(0.66555)	(0.19327)	(0.62184)
	[0.05351]	[0.10936]	[-1.07551]	[0.92006]	[1.55778]	[1.10873]	[-0.25415]
D(GDP(-1))	0.722666	-0.025357	-0.125015	0.148611	0.245845	0.169937	0.941870
	(0.85666)	(0.07616)	(0.30929)	(0.42229)	(0.58054)	(0.16858)	(0.54241)
	[0.84358]	[-0.33292]	[-0.40420]	[0.35191]	[0.42348]	[1.00804]	[1.73645]
D(GDP(-2))	0.261753	-0.067801	-0.445524	0.443536	0.286258	0.150097	0.440074
	(0.73862)	(0.06567)	(0.26667)	(0.36410)	(0.50054)	(0.14535)	(0.46767)
	[0.35438]	[-1.03246]	[-1.67070]	[1.21816]	[0.57190]	[1.03265]	[0.94100]
D(IR(-1))	-0.230508	0.048666	0.078142	-0.099420	0.207341	0.080067	0.093991
	(0.24129)	(0.02145)	(0.08711)	(0.11894)	(0.16351)	(0.04748)	(0.15277)
	[-0.95533]	[2.26857]	[0.89701]	[-0.83586]	[1.26804]	[1.68623]	[0.61523]
D(IR(-2))	-0.212548	-0.013742	-0.217983	0.286716	-0.302089	0.082963	0.291612
	(0.22903)	(0.02036)	(0.08269)	(0.11290)	(0.15521)	(0.04507)	(0.14502)
	[-0.92803]	[-0.67487]	[-2.63616]	[2.53952]	[-1.94634]	[1.84072]	[2.01090]
D(M2(-1))	1.376741	0.059337	0.174328	0.550732	0.855974	0.489136	1.060616
	(0.81837)	(0.07276)	(0.29546)	(0.40342)	(0.55458)	(0.16105)	(0.51816)
	[1.68230]	[0.81551]	[0.59002]	[1.36517]	[1.54345]	[3.03725]	[2.04688]
D(M2(-2))	-0.910058	0.200803	-0.147728	0.252128	0.214137	0.099766	0.122809
	(0.32241)	(0.06342)	(0.25752)	(0.35160)	(0.48336)	(0.14036)	(0.45161)
	[-2.82267]	[3.16648]	[-0.57367]	[0.71708]	[0.44302]	[0.71077]	[0.27193]
D(TR(-1))	-0.134623	-0.019574	-0.236326	0.251141	-0.381881	0.053195	0.047250
	(0.22822)	(0.02029)	(0.08239)	(0.11250)	(0.15466)	(0.04491)	(0.14450)
	[-0.58989]	[-0.96471]	[-2.86822]	[2.23238]	[-2.46924]	[1.18446]	[0.32699]
Error Correction:	D(SP)	D(CPI)	D(ER)	D(GDP)	D(IR)	D(M2)	D(TR)
D(TR(-2))	-0.259958	-0.006250	0.208046	-0.270290	0.052693	-0.044192	-0.463416
	(0.25402)	(0.02258)	(0.09171)	(0.12522)	(0.17214)	(0.04999)	(0.16084)
	[-1.02337]	[-0.27672]	[2.26847]	[-2.15851]	[0.30610]	[-.88405]	[-2.88124]
C	0.029016	0.005298	0.051205	-0.025604	-0.043139	0.019950	-0.046543
	(0.09173)	(0.00816)	(0.03312)	(0.04522)	(0.06216)	(0.01805)	(0.05808)
	[0.31633]	[0.64962]	[1.54620]	[-0.56627]	[-0.69401]	[1.10525]	[-0.80139]
R-squared	0.269564	0.705949	0.539181	0.543350	0.338449	0.638797	0.567276
Adj. R-squared	0.045961	0.615933	0.398114	0.403560	0.135933	0.528225	0.434809

Note: ** *significant at 5%,* standard errors in ( ) & t-statistics in [ ]

From the Table 3 it can be seen that for most variables, except for TR and IR, positive connections are found for the two lags. Where an opposite relationship is found between SP and CPI at lag 1, a positive relationship is revealed at lag 2. Similarly at lag 1 a positive link is found between market SP and M2, but at lag 2 a negative relationship is found. Thus, emphasis will be laid in lag 2 when explaining the short run bond between stock prices and the selected independent factors.

In the short term, ER has a positive link on SP. But, the t-value of 0.05351 is not significant. As per the coefficient, SP will rise by 0.05% if there is a 1% increase in ER corroborating the flow-oriented theory. Abbas et al. (2014) also infer a positive insignificant link between ER and stock market return when researching in Pakistan.

From the second equation, it can be concluded that relative to other variables, M2 tremendously affects SP and the t-figure of -2.82267 is significant. Contrary, to the long run, an opposite bond is seen between SP and M2 in the short run, where a 1% rise in money supply leads to 0.91% decrease in stock exchange prices supporting the Keynesian economists. This inverse association is substantiated by the M2 equation where a 1% increase in SP causes the M2 to fall by 0.04%, consistent with the studies of Geske and Roll (1983) and James et al. (1985) where both studies reveal a reverse causality model between M2 and SP. However, the above result is inconsistent with Sohail & Hussain (2009), Cagli, Halac and Taskin (2010) and Taguchi (2012), who found positive relationship between the two variables for Pakistan, Turkey and East Asian markets respectively.

In addition, opposite but insignificant interrelationship exists between stock prices and total reserves. A 1% rise in the total reserves causes stock prices to fall by 0.26%. This reverse link is proven by the total reserve equation where a 1% increase in market prices leads to a fall in total reserves by 0.13%. The above result is in line with the findings of Masood (2015), where the researcher's result infers that opposite effect of reserves and inflation is being found on stock prices in Pakistan. An inverse bond between official market prices and reserves is also found by Rahman et al (2009) when conducting research in Malaysia.

It is also observed that the coefficient for interest rates and exchange rates (-0.217983) is negative and significant at 5% significance level. This implies that a 1% increase in interest rates leads exchanges rates to fall by approximately 0.22%. This significant short run bond is in line with the outcomes of Sanchez (2005), who reveals that rates of interest and exchange rates display an inverse interrelationship when depreciations are expansionary and when a positive interrelationship is found when depreciations are contractionary. Goldfajn and Baig (1998) strong correlation is also found between interest rates and exchange rates in Asian markets during a time frame of 1997 to 1998. However, contrary to Goldfajn and Baig (1998), Hameed and Rose (2016) infer that negative interest rates have insignificant impact on observable exchange rate in the 5 countries for period of 2010 to 2016.

4.3 Granger Causality

In order to find the direction of causality between the series, the Granger causality will be adopted. The aim of the causality test is to substantiate the outcomes derived from the VECM, which infers the existence of short-term bonds. Based on the AIC, lag of 2 is automatically chosen for the causality test.

Table 4
Granger Causality Test

Null Hypothesis	P-Value	Result	Relationship
SP Granger causes M2	0.0476**	Reject	Bi-Directional

M2 Granger causes SP	0.0343**	Reject	
M2 Granger causes CPI	0.0006**	Reject	Uni-Directional
CPI does not Granger cause M2	0.6935	Do Not Reject	
SP Granger causes TR	0.0219**	Reject	Bi-Directional
TR Granger causes SP	0.0458**	Reject	
Exchange does not Granger cause TR	0.8759	Do Not Reject	Uni-Directional
TR Granger causes Exchange	0.0001**	Reject	

4.3.1 Bi-directional Relationship between Stock Prices and Money Supply

A bi-directional linkage between stock prices and money supply is obtained. The outcome is in line with Ho (1983), Sharma (1984), Mookerjee (1987) and Das (2003) who found bi-directional link between money supply and stock price. There are multiple concrete concepts on how money supply impedes stock market prices of a country. One of the concepts highlighted here is the one pioneered by Sellin (2001). He infers that only if movement in money supply changes predictions about monetary policy in the future, then money supply will influence stock market prices. Sellin (2001) further explains that an increase in money supply will cause people to predict tightening monetary policy in the future. The following rise in demand for bond will hike the prevailing interest rate. As interest rate rises, the discount rate will also rise, and the actual value of future returns will fall, thus entailing a decrease in stock prices.

4.3.2 Indirect Relationship between Stock Prices and Inflation through Money Supply

From the results, it is noted that money supply does not Granger causes CPI, implying that there is a uni-directional causality running from money supply to inflation. Amin (2011) also derived the same result when conducting research in Bangladesh. Besides from the VECM analysis it can be highlighted that there is a positive association between money supply and inflation. Therefore, both the Granger causality result and the VECM result are consistent with the "Quantity Theory of Money" which states that additional money is circulated in an economy to create inflation. This indirect relationship is very important in the sense that the government can also manipulate the inflation rate to stabilize the stock market to maintain and increase potential investors' confidence during crisis time.

4.3.3 Bi-directional Relationship between Stock Prices and Total Reserves

The causality tests reveal that there is a two way relationship between stock prices and total reserves. Ray (2012) study also infers a two way bond between stock price and reserve, when conducting a research in India. However, Ray & Sarbapriya (2012) and Abakah and Abakah (2016) found a uni-directional between the said variables.

4.3.4 Indirect Relationship between Stock Prices and Exchange rates through Total Reserves

There is a unidirectional causality between TR to exchange rate. This outcome is consistent with the research of Narayan and Smyth (2004) and Mohammad (2010) who found uni-directionality from reserves to exchange rate in China and three other Asian countries. It can be concluded that there is an indirect positive causality from stock market prices and exchange rates for the selected emerging countries through total reserves volatilities.

5. Conclusion

The relationship between stock market prices and exchange rates by means of CPI, GDP, IR, M2 and TR for five emerging countries was studied, by employing yearly data from 1995 to 2015. The Johansen panel co-integration test and the panel Vector Error Correction Model were used for the analysis. The pairwise Granger causality was also used to determine the relationship between the variables.

The empirical outcomes assert that there is a significant and inverse relationship between stock prices and exchange rates in the long run consistent with Ajayi and Mougoue (1996) and Mital (2010) outcomes. There is a positive relationship between stock market prices and money supply in the long run, but a negative relationship in the short run. The pairwise Granger causality test also reveals a bi-directional causality relationship between the two variables supporting the work of Ho (1983), Sharma (1984), Mookerjee (1987) and Das (2003). However, it is noted that there is an indirect relationship between stock prices and inflation rate through money supply as the Granger causality tests indicate a uni-directional causality from money supply to inflation rate similar as Amin (2011). Furthermore, an inverse correlation exists between stock prices and total reserves both in the long run and short run and a bi-directional causality is established by the Granger causality test same as Ray (2012) . The causality test reveals negative uni-directional causality from total reserves to exchange rate level with Narayan and Smyth (2004) and Mohammad (2010), implying a positive indirect causality from stock market prices and exchange rates through total reserves.

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Linkage between Economic Growth and Labor Productivity in Slovakia by Using Linear Econometric Model

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Abstract
There are many factors causing the economic growth of a country. One of them could be labor productivity as an indicator of employment and effort of employees to make some value. In drawing up the article, we used a linear econometric model that explored the relationship between economic growth expressed by GDP growth and four variables such as labor productivity, government debt, gross capital formation and unemployment in Slovakia. The main objective of this article is to evaluate the linkage between economic growth and individual variables especially focusing on labor productivity in Slovakia.

Keywords: *econometric model, economic growth, labor productivity*
JEL classification: C01, O4, J24

1. Introduction

In general, productivity is contributing to the general overall economic achievement. We can consider about many kinds or forms of productivity, but it is still the ratio of input and output. Labor productivity is one of the indicators that can affect the economic condition, the condition of business, region or country. Many factors can influence the labor productivity, for example internal factors (motivation, wage, technology, business environment) and external factors (demographic and social condition, state policy, education) (Krauszová, 2006). On the other side, factors affecting the economic growth include labor productivity, employment and unemployment, research and development level, technological progress or use of natural resources. In addition, the crisis period, indebtedness or openness can affect the economic growth. In effort to determine the magnitude and significance of the relations between economic growth and factors that influence the economic changes, we tried to create a suitable econometric model. We expect there exist statistically significant linkage between economic growth as GDP growth and labor productivity and that labor productivity has a positive impact on economic growth.

Hatrák (2007) states that econometrics is a science discipline which deals with quantifications of economic relations and empirical parameters estimation of economic relations. The term econometric model means a simplified mathematical expression of a real economic relationship. Econometric models are suitable for analysis, simulation and forecasting of future values in economic relations. The mathematical software R is suitable instrument for econometric calculations and modelling (Želinský et al., 2010). In a simple way, econometrics deals with estimation of economic relationship in folowing steps: it proves the existence of relation between variables; it sets the relationship between variables and estimates the magnitude of dependence between variables.

Our effort was to capture the period before the entry of Slovakia to the European Union over the period of global economic crisis to the most up-to-date available dataset. From the

point of view of human capital representing the labor, during the economic crisis in 2007-2009 there was a stagnation of human capital. This stagnation could be much higher, but people decided to stay and work even in the worst times of the crisis. Unemployed persons were willing to work even on shortened working hours, part-time jobs or in the shared working time forms. Development of labor productivity can be measured by GDP change per person employed. This share increased in advanced economies faster than the labor productivity per hour worked, because there was a stronger year-to-year decline of working hours, but year-to-year changes of total employment was not so significantly strong (Obadi, 2011).

Analysis of relations between labor productivity and other economic indicators can be find in many scientific articles. For example, author Podkaminer (2017) examined the linkage between output increase and labor productivity for a long-term period in more than twenty countries by using econometric examination. According his finding, labor productivity did not cause the higher output in general. Gittell et al. (2017) analyzed relations between U.S. economic growth, labor quality, productivity and earning as dependent indicators to higher education. According their results, achieving the associate degrees of education could increase productivity, quality of the workforce, earnings and economic growth. Status of economy in European countries was the main theme in article of two authors, namely Martin-Retortillo and Pinilla (2015). The focus of their work was on labor productivity in agriculture. They proposed econometric model as combination of causes of economic growth in Europe. Research in three Baltic countries (Auzina-Emsina, 2014) shows, that the key factors for keeping and improving the competiveness of economy are labor productivity and economic growth. Finding of this research confirmed linkage between labor productivity and economic growth and shows that increase of labor productivity during economic crisis became a significant key factor for next economic growth. The linear econometric model is widely useable for discovering the relations in the economy. Author Zakaria (2012) studied the impact of trade openness on foreign debt in Pakistan by using an econometric model.

1.1 Data and methodology

The studied econometric model describes the impact of four independent variables on the dependent variable. The real GDP growth in Slovakia was selected as the dependent variable. Using the linear regression model, the linkage between selected macroeconomic indicators and economic growth was analyzed. The main aim of this article was to find out how selected variables influence the economic development. The model uses macroeconomic data on annual bases from 2000 until 2016. It hat means seventeen observations of each characteristics drawn from the Eurostat database. The calculations were made in the program R. For modelling, the following multiple linear regression econometric model was used (Hatrák, 2007):

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k + u \qquad (1)$$

Before defining the suitable model, we provided several calculations and model testing in order to find the most significant and most suitable model according to the main goal of the article. Originally, the analyses focused on 11 independent variables:
- percentage change of total employment based on persons,
- percentage change of government debt in EUR million,
- percentage change of gross fixed capital formation in million EUR,
- annual average rate of change of HICP,
- percentage change of real labor productivity per person employed,
- percentage change of nominal labor cost based on persons,
- percentage change of nominal labor cost based on hours worked,

- percentage change of total population (national concept),
- percentage change of research and development expanding from all sectors in EUR million,
- percentage change of resource productivity in purchasing power standard per kilogram,
- percentage change of total unemployment.

Later after testing a few models that obtained different combinations of variables, we tried to create the most suitable statistically significant model that would appropriately explain the real GDP change. Thus, we chose the following model as the most appropriate econometric model for explaining the real GDP growth:

$$GDP = \beta 0 + \beta 1 *GDEBT + \beta 2 *LPRODPER + \beta 3 *UNEMP + \beta 4 *GFIXFORM + u \quad (2)$$

Each of selected variables has the following definition of Eurostat (European Commission, 2018):

- GDP – gross domestic product expresses the economic activity as the value of all goods and services. We used the real annual growth rate of GDP (in %) that expresses the dynamics of economic development over time.

- GDEBT – government debt is defined as total gross debt at nominal value outstanding at the end of the year. For modelling the year-on-year change (in %) of general government consolidated gross debt for all sectors in million EUR was used.

- LPRODPER – labor productivity per employed person in year-to-year change (in %) for full-time and part-time employment.

- UNEMP – unemployment rate represents persons, which are unemployed, as a percentage of the labor force. We used unemployment year-to-year change (in %) which consists from unemployed persons aged 15 – 74 years old.

- GFIXFORM – gross fixed capital formation percentage change on previous period in chain linked volumes. This variable consists of resident procedures´ acquisitions less disposal of fixed tangible or intangible asset.

All variables used to build the accurate econometric model were in percentage terms of year-to-year changes.

2. Modelling Results

To summarize characteristics of chosen model, we estimated the model coefficients in Figure 1. After estimating the coefficients, the model equation is as follows:

$$GDP = 0.46438 + 0.04697 *GDEBT + 0.85212 *LPRODPER – 0.13131 *UNEMP + \\ 0.02963 *GFIXFORM \quad (3)$$

Summary results suggest that: If GDEBT increases by one percentage with no changes of other variables, GDP growth will increase by 0.04967 percentages in year-to-year change basis. If LPRODPER increases by one percentage with no changes of other variables, GDP growth will increase by 0.85212 percentages in year-to-year change basis. If UNEMP increases by one percentage with no changes of other variables, GDP growth will decline by 0.13131 percentages in year-to-year change basis. Finally, if the last variable GFIXFORM increases by one percentage with no changes of other variables, GDP growth will increase by 0.02963 percentages in year-to-year change basis.

By estimating the coefficients of the defined model, we can see that three of the four independent variables caused positive changes in GDP growth. LPRODPER variable generates the highest increase of GDP growth. On the contrary, one variable of all independent variables namely UNEMP in this model causes a decrease of GDP. According the coefficients "Multiple R-squared" and "Adjusted R-squared", we can say that the selected model is a model with high quality. Both indicators was as high as 0.98, it means that the selected variables explained approximately 98% of depend variable - real GDP growth – changes.

Figure 1
Summary of model

```
> model<-lm(GDP~GDEBT+LPRODPER+UNEMP+GFIXFORM,udaje)
> summary(model)

Call:
lm(formula = GDP ~ GDEBT + LPRODPER + UNEMP + GFIXFORM, data = udaje)

Residuals:
    Min       1Q   Median       3Q      Max
-0.95535 -0.21545  0.04704  0.26047  0.70080

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.46438    0.23202   2.001   0.0685 .
GDEBT        0.04697    0.01822   2.578   0.0242 *
LPRODPER     0.85212    0.04895  17.408 7.01e-10 ***
UNEMP       -0.13131    0.01139 -11.531 7.53e-08 ***
GFIXFORM     0.02963    0.01467   2.020   0.0662 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.458 on 12 degrees of freedom
Multiple R-squared:  0.987,     Adjusted R-squared:  0.9826
F-statistic: 227.4 on 4 and 12 DF,  p-value: 3.37e-11
```
Source: Authors´ calculations

The selected variables are statistically significant at a significance level of 0.1 (see the symbols located in last column). According to the last column of Figure 1 in "summary (model)" the most significant variables are LPRODPER and UNEMP with symbols "***".

2.1 Model Testing

In the following parts of the article, the chosen econometric model was tested for normality of residuals, for heteroscedasticity, for autocorrelation, multicollinearity and for the model specification (Hatrák, 2007). Model was tested at a significance level of 0.05 ($\alpha = 0.05$).

Firstly, the normality of residuals was tested by the Jarque-Bera Normality Test. For the test the following hypotheses (Hatrák, 2007) are used:

H_0: Distribution of residuals in model is normal.

H_1: Distribution of residuals in model is not normal.

In this test of normality of residuals, we focus on value "Asymptotic" = 0.641 (see Figure 2) which is higher than $\alpha = 0.05$. Thus, we do not reject the null hypothesis and so the distribution of residues in the tested model is normal.

Figure 2
Normality Test

```
> jbTest(resid(model))

Title:
 Jarque - Bera Normality Test

Test Results:
  PARAMETER:
    Sample Size: 17
  STATISTIC:
    LM: 0.889
    ALM: 1.693
  P VALUE:
    LM p-value: 0.445
    ALM p-value: 0.291
    Asymptotic: 0.641
```

Source: Authors´ calculations

The next test of heteroscedasticity was provided by Breusch-Pagan Test (Hatrák, 2007) with the following hypotheses:

H₀: Heteroscedasticity is not present in the model.

H₁: Heteroscedasticity is present in the model.

Figure 3
Heteroscedasticity Test

```
> bptest(model)

        studentized Breusch-Pagan test

data:  model
BP = 0.50314, df = 4, p-value = 0.9732
```

Source: Authors´ calculations

In second testing we focused on the "*p-value*" = 0.9732 which is higher than $\alpha = 0.05$ (see Figure 3). Thus, we do not reject H_0, heteroscedasticity is not present in the tested model.

Thirdly, for the autocorrelation testing the Durbin-Watson Test (Hatrák, 2007) was used. The construction of hypotheses is as follows:

H₀: Autocorrelation is not present in the model.

H₁: Autocorrelation is present in the model.

Figure 4
Autocorrelation Test

```
> dwtest(model)

        Durbin-Watson test

data:  model
DW = 2.0102, p-value = 0.4554
```

Source: Authors´ calculations

Even in this test we focused on (see Figure 4) "*p-value*" = 0.4554 which is higher than $\alpha = 0.05$. Consequently, we do not reject H_0. In addition, when value "*DW*" belongs to the interval < 1, 2.5 > we also do not reject H_0. For these reasons, there is no problem with autocorrelation in the tested model.

By fourth test, we verified presence of multicollinearity in our model (Hatrák, 2007). For this testing, we used "vif" test with following hypotheses:

H_0: *Multicollinearity is not present in the model.*

H_1: *Multicolinearity is present in the model.*

Figure 5
Multicollinearity Test

```
> vif(model)
    GDEBT LPRODPER    UNEMP GFIXFORM
 1.617812 1.438304 1.724043 1.738248
```

Source: Author's calculations

Generally, the "Variance Inflation Factor" (vif) less than 10 is significant. All four independent variables reached "vif" values markedly less than 10, so we do not reject H_0 (Figure 5). By this test, we found that there is no problem with multicollinearity in the tested model.

Finally, for the last test of correct model specification, the Ramsey Reset Test (Hatrák, 2007) was used with the following hypotheses statement:

H_0: *The model is specified correctly.*

H_1: *The model is not specified correctly.*

Figure 6
Rest Test

```
> resettest(model)

        RESET test

data:  model
RESET = 0.72569, df1 = 2, df2 = 10, p-value = 0.5078
```

Source: Author's calculations

Again, in this test the "*p-value*" = 0.5078 is higher than $\alpha = 0.05$ (see Figure 6). As a result, we do not reject the null hypothesis and therefore we found that model is correct.

3. Conclusion

The linear regression econometric model confirmed our expectations that there exists a relationship between economic growth and labor productivity and that labor productivity has a positive impact to economic growth. By using and testing some specific econometric models, we came up to a final model with four statistically significant variables explaining the economic growth expressed by GDP. Calculated model was successfully tested on normality, heteroscedasticity, autocorrelation, multicollinearity and right model specification. As statistically significant variables were detected especially labor productivity and unemployment. According our expectations, there was a positive linkage between labor productivity and GDP growth. From the results of the econometric model, it is clear that an increase in labor productivity by one percentage is associated with an increase of GDP by 0.85 % change on a year-to-year basis. Furthermore, the government debt has a positive

impact on GDP growth. It causes increase of GDP by 0.05 % on year-on-year basis by its own one percentage change. One of the explanation can be that the money the government borrowed was used effectively as an investment into the Slovak economy and thus the debt has contributed to economic growth. Gross fixed formation also had a positive impact on GDP, but the smallest of all four independent variables. Based on our results, we can confirm that the existence of the linkage between labor productivity and economic growth is obvious and this relation is positive. As a limitation of our research is a shorter time series of dataset available for relevant conclusion. We recommend continuing research on this point of view. For example to continue the analysis in the area of econometric modelling using longer time series samples, working with different type of data and not only data on annual basis and using other variables in econometric models in the future, which will more appropriately identify the linkages between productivity and economic growth.

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Consumer Behavior in the Digital Environment in Terms of Selected Demographic Indicators (Generations) in Slovakia

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Abstract
This article discusses about the impact of technological development and digitization on consumer's buying behavior. Internet as an everyday part of consumer's life is also getting increasingly influence on consumer's buying behavior. The use of mobile technologies and the internet can be identified as key consumer vectors. Distrust toward shopping over the internet is declining, especially as consumer's positive experiences are growing. The aim of the paper is to analyze consumer's behavior in the digital environment from a perspective of demographic data, focusing on segmentation by age of consumer's.

1. Introduction

Continuous innovations and technological development are bringing along fundamental changes that affect all areas of the today's population life. The Internet has become a daily part of our life and consumers are connected online more than ever before. This fact puts a difficult task ahead of traders as they are forced to respond to changes in consumer behavior due to the constant development and shifting of information and communication technologies. Changes in consumer´s behavior require an adequate and proactive response in using of modern marketing tools to achieve effective marketing communications. In order that the companies would be able to meet the needs and desires of consumers, they need to be fully aware of them. This means that companies have to be able to characterize and subsequently typify the consumers. The consumer is one of the basic elements of marketing. It is mainly consumer´s behavior that includes knowledge about individuals, groups, or organizations in terms of their activities aimed to meet the needs.

Peter and Olson (2008) characterize consumer behavior as a dynamic interaction of knowledge, affects, behavior, and influences made by environment. Taking under consideration the constant changes and development of society; it is a natural phenomenon that consumer behavior is extremely dynamic. Social trends, the increasing possibilities of choice as well as the economic situation of consumers contribute to changes in consumer´s behavior at the market. As the key tool for responding to these changes it is possible to identify the segmentation. Increasingly, digital skills are coming to the fore.

The 21st Century is considered by many experts to be a century of information and knowledge. Potential and use of information and communication technologies shift human society into a new dimension, called the digital era (Žák, 2014). The Internet is used as a broad-spectrum platform for a wide range of activities. With the change of today's world in the digital age, there is a change in today's consumer, which is much more demanding and more responsive.

Over the last decade, new technologies have a significant impact on society, which is changing especially from the perspective of the age structure and consumer´s behavior of the particular generations. Jones, Higgs and Ekerdt (2008) and Ordun (2015) state that the young generation has been orienting itself to new products in the recent period, and as the generation was gradually getting older, they has been returning to the traditional system of consumer behavior. This meant that generational ideas about the development of products and services did not change significantly in the society. At present, however, there is a turning point when the consumption area is becoming just the reflection of significant changes. Extending the age of survival, the vitality of seniors, their ability to cope with new means of communication, and the absorption of much more information now lead to the fact that, for example, the generation over 60 is already capable of implementing new technologies into their lives, thereby fully utilize modern phenomena such as online shopping.

1.1 consumer and online space

One of the most fundamental rules specific for the online environment could be considered the speed. Changes in the online world come very quickly and it is necessary for companies to respond to these changes in a time. The digital world is becoming an increasingly important component of the economy, whether from the point of view of individual countries or the European Union as a whole. Based on research by the Institute for Public Affairs (Welsh, 2015), new phenomenon have emerged as a result of massive use of information technologies. The specific feature of modern consumers is the use of multiple devices at once. Considering the time that today's population spend on the Internet through various digital devices, it is essential that the brands will combine the use of marketing communication tools between online and offline media area. The increase in advertisement and branding in the digital environment is therefore steadily rising. The Cetelem´s research (Barometer Cetelem, 2015) points to the fact that 60% of Europeans have changed over the last 5 years the way of their purchasing. The use of mobile technologies and the Internet can be identified as key consumer vectors. This assessment also reflects the fact that 73% of Europeans have increased the use of mobile technologies and the Internet over a five-year period.

The facilities of Internet and mobile technologies are by Europeans high on different age categories with minimal differences. To the forefront is also moving the market of used goods and internet purchases at interest of purchasing new products and also of making purchases in salesrooms. Online shopping has taken a major role in new ways of buying. Confidence in online stores is predestinating and significantly affecting e-commerce mistrust toward online shopping is declining, especially because of the positive customer experiences. According to a research of the Slovak E-commerce Association, 94% of buyers are satisfied with their online purchase. Today's consumer has thanks to mobile technologies the option to be at the same time in a saleroom as well as in virtual one on the internet. (Trebulova, 2014). On the Internet, people buy mostly clothing, cosmetics and perfumes, books, tickets for various events.

Global statistics (Consumer barometer) show that about one third of smartphone users connect to the Internet more often through smartphones than via computers or tablets. Modern devices are also in the hands of Slovak users, with nearly a third (30%) connecting to the Internet using all available devices (smartphone, tablet, computer) (especially people under the age 34 - 45%). Connection mainly via computer is the dominance of seniors 55+ (64%). A research conducted by Kantar TNS for Google showed that in 2012 only 14% of Slovak consumers used smartphones, and in 2016 this grew even to 65%, which is a European overweight. Based on this research, it is possible to note the significant impact of smartphones on Slovak consumers. Most notably, this impact between the generation of young people

under 25 years - 93% and in people aged 26 to 34 - 89%. Using your smartphone is a tightly connected Internet connection and online activity. (Li et al., 2016). Most often these are:

• Search (42%),

• Checking emails (37%),

• Social Networks (35%),

• Watching videos (29%),

• Finding product information (14%),

• Map services and navigation (13%).

Based on the facts above, it can be said that the Internet is being used for a wide range of activities, brought by a large number of people using the network. In particular, economically active people with special interests are required to flexibly orient themselves in this area. The Internet can also be considered as a flexible, fast and relatively inexpensive communication channel that can deliver very quickly and efficiently message to the target group. As today's world is changing in the digital age due to the influence of the technologies and the online environment, the current consumer is also changing, becoming more demanding and more familiar. It is obvious, that consumers and their behavior change every year. Companies which are trying to get in a favor of consumer want to use for their own sake as many online and offline contact points as possible to interact with their target group.

Mobile applications also play important roles in digital technologies. From the point of view of mobile applications, it is characteristic that promotion and encouragement of mobile applications influences the adoption of these original resources as innovative ways for various activities (Briz-Ponce, 2017). The growing importance of mobile marketing and the use of mobile applications is characterized by (Chaffey, 2016):

• More than 50% of searches are carried out via mobile devices,

• 91% of active users of the Facebook joint network use mobile devices to surf the web,

• Users spend 90% of mobile media time in applications,

• 80% of revenue generated from advertising on the Facebook network comes from mobile devices.

One of the most frequently searched online consumer industries are Zonemedia (ZoneMedia.sk, 2017): accommodation (95%), transportation (80%), flight tickets (87%), music (86%) or cinema tickets (78%). Consumers are using mobile devices for various activities leading to a purchasing decision. 63% of them are comparing products, 56% are looking for inspiration, 52% are getting ready to buy, and 36% are looking for advice.

Consumers use mobile devices for various activities leading to a purchasing decision. Right looking for information in the online environment represents by 72% of consumers the initial phase of their purchasing decision process (Barometer Cetelem, 2015). Companies are trying to bring adventures and deepen the experience with the brand. All places where the customer comes in contact with the brand - "Touch points", they actually become points of the experience with the brand.

1.2 Generations of consumers as demographical indicator

Wide spread of diverse consumers in population brings the importance to segment them on basis of certain similarities. For definition of the target groups based on the demographical indicators, the most common segmentation is the inclusion of consumers in various generations. Generation is a collective mark of people who are born in relatively similar or

same time period. For example there is populations which are related by age, values etc. The key criteria for segmentation by generations is age. In general consumers are ranked in four basic categories:

• „Baby Boomers",

• generation X,

• generation Y,

• generation Z.

Baby Boomers – This generation of consumers includes people born in the post war period. The name is derived from so-called baby boom between 1946 and 1964.

This generation is heavily influenced by a specific post-war period when dramatic changes in education, economic life or social life have taken place. People born during this period are considered to be strong population classes.

Generation X – These include people born between 1964 and 1978. This generation was in the productive age of its life during the onset and development of multiple technologies, computers, and the Internet.

People of generation X remember the period before the Internet very well, but they are quite young people in order to quickly adapt to the changing technological environment. From the point of view of consumer behavior before buying, this generation tends to get information about the product as much as possible.

Generation Y – these are the consumers born between 1979 and 1990. This generation grew up along with digital technologies and at the time of the development of social media.

Characteristically, these people are fully adapted to the online environment, and technology is exploited to a large extent. The media, especially in the online environment, represent the primary source of information on products and services for this segment.

Generation Z – Also called "millenials" is the technically the most advanced generation. These are people born between 1991 and 2005. The undeniable advantage of this generation is the ability to absorb and process large amounts of information extremely quickly and efficiently.

The TNS Slovakia study states that Generation Z uses social media among all forms of media. Social networks are used by 63% and 59% of young people watch online videos (TNS-Global.sk, 2015). From the point of view of adopting technological innovations, the millenials are the most adaptable generation.

2. Analysis of Consumption and consumer behavior online

The Internet itself is a communication platform that enables the use of a global digital network for the purpose of transmitting information. Within this platform, we distinguish multiple communication channels. Nielsen's Consumer Path to purchase (2015) survey defines factors from the digital sphere that affect the consumer's buying process. These include search for products, online circulars, social media, mobile planning tools and e-commerce.

Picture 1
Consumers path to purchase
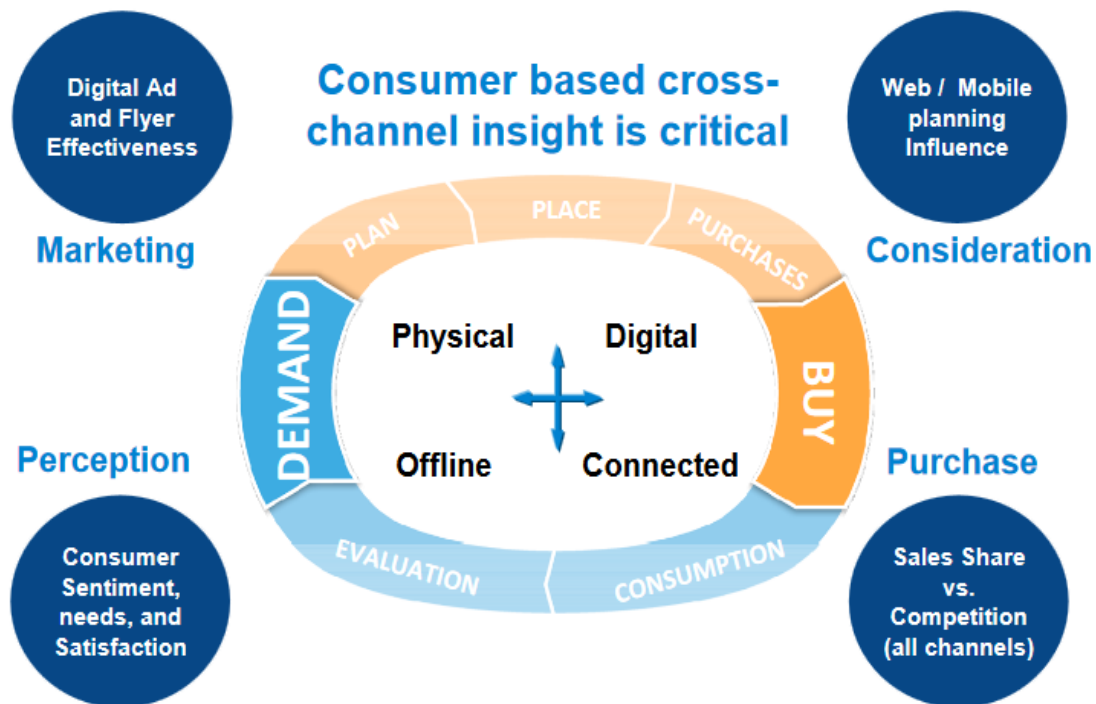
Source**:** Nielsen.com. 2011. Shopper Path to Purchase: The Three Biggest Decisions You can influence. [online]. Available at the URL: <http://www.nielsen.com/content/dam/c360/ canada/Shopper%20Path% 20to% 20 Purchase%20-%20Three%20Biggest%20Decisions%20 You%20Can%20Influence.pdf>. [accessed 2017-12-27].

The Figure 1 illustrates the analysis of consumption and consumers in the Slovak Republic for the year 2017 from the perspective of selected demographic data.

Figure 1
Consumtion and consumers in the Slovak Republic (year 2017)
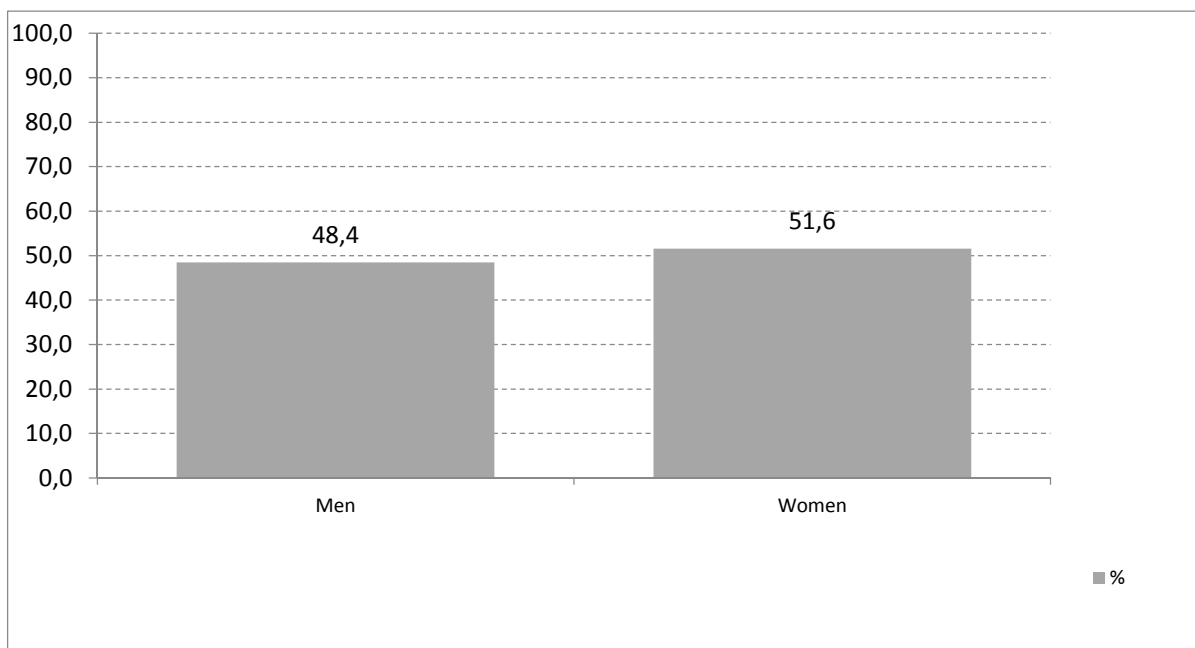
Source: MML data 2017, processed by author

48,4 % respondents, that accomplished online purchase in 2017 are men and 51,6% women.

The Median survey, MML based on data, provides a platform for decision-making in setting marketing strategies for a specific brand or product, and at the same time is one of the basic factors for media selection as the bearer of a communication message for specific target groups. The survey was attended by 2205 respondents, and the Figure 2 show the percentage of the answer "yes" to the question – Have you used the internet to buy goods or services online in the last 12 months?

Figure 2
Using of the internet to buy goods or services (via online internet services during last 12 months)
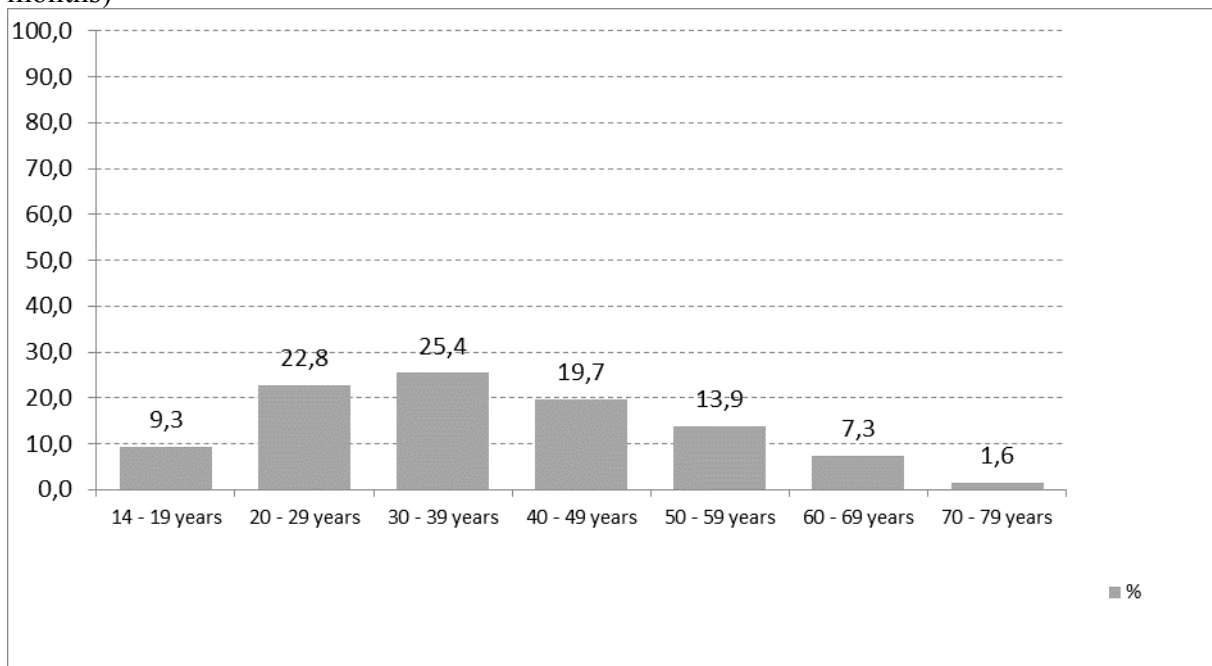
Source: MML data 2017, processed by author

The horizontal axis shows selected demographics pointers, sorted in logical order. The vertical axis displays the so-called reach, kt. represents how many percent of the target consumer group is claiming "yes" to the question asked.

Based on survey, it is clear that online shopping is the most active generation of Z and generation Y. Most purchases were made by people in age between 20-29 years. On the other hand, the generation Baby Boomers are the least active and made just a minimal purchase. This fact is caused by low rate of adapting new technologies. With generational exchange, it is expected that online shopping will be a matter of course for all generations.

Figure 3
Perspective of purchases made between respondents
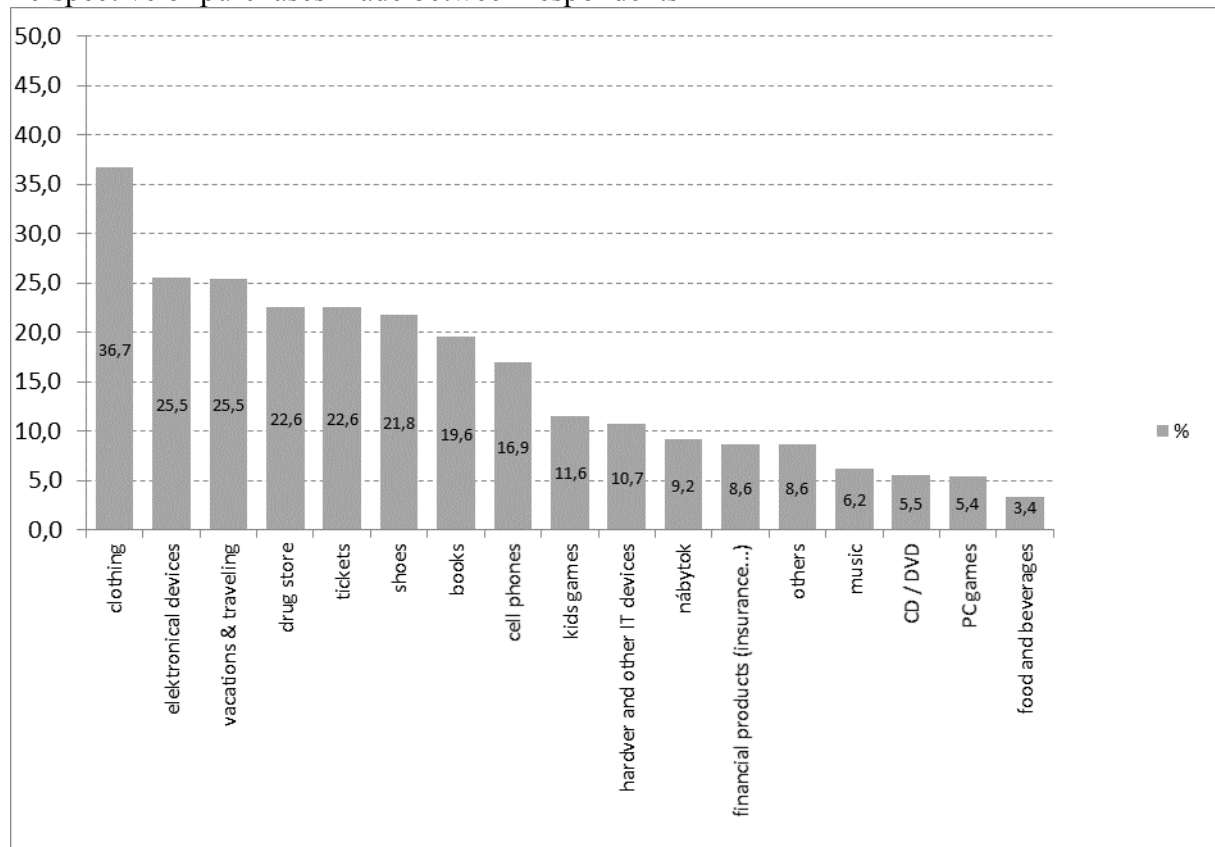
Source: MML data 2017, processed by author

From the perspective of purchases made between repondents, the consumers mostly buy clothing (36.7%), elektorinik (25.5%) or holidays (25.5%) dominated. On the other hand, the least purchased is food (3.4%) and computer games (5.4%).

3. Conclusions

Recognizing the behavior tendencies of individual generations in relation to media consumption is an important prerequisite for companies to effectively plan, design and allocate individual communication messages. The natural phenomenon in the form of the arrival of new generations is closely related to the differences in behavior and habits of individual generations.

Each generation is specific, grew in another period, and its behavior is influenced by stimuli typical of a given time period. For businesses, and in particular for media agencies planning media campaigns, it is essential to monitor individual generations, media consumption in terms of individual segments, or their buying behavior and responses in the online environment. In the last decade, new technologies have a significant impact on society, which changed in particular from point of the age structure and consumer behavior of the generations.

Based on the MML 2017 survey, it is clear that online shopping is the most active generation of Z and Y. On the other hand, Baby Boomers are the least active in this respect. With generational exchange, it is expected that online shopping will be a matter of course for all generations. However, from the point of view of the adaptability of new technologies, younger generations will be more appropriate.

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Does FDI Crowd-In or Crowd-Out Domestic Investment?
Evidence from African Economies

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Abstract
This paper investigates the impact of FDI on domestic capital accumulation in 20 African countries for the period 2001 to 2015.The research uses a Panel Vector Autoregressive framework which accounts for possibility of both dynamism and endogeneity issues in the FDI-Domestic investment link, while at the same time providing interesting insight on the link both in the long and short run. The results from the analysis reveal that in the long run, FDI has a positive impact on domestic investment, with a reported 1% increase in FDI contributing to a boost in domestic investment by 0.22% thus confirming a crowding in effect. The other explanatory variables were reported to have the expected sign and significance with the GDP of the country being one of the most important ingredients of domestic investment. The short run estimates overall confirm those of the long run. The smaller short run coefficients suggest that it may take some time for FDI to have its full effect on domestic investment. The lagged of the investment term is observed to be positive and significant implying that investment is of a dynamic nature. Moreover, domestic investment is reported to have a positive effect on FDI, confirming the presence of bi-causality.

1. Introduction

A general consensus exists in development economics literature that the inflow of foreign direct investment (FDI) is likely to play a critical role in the growth dynamics of recipient countries (Akinlo, 2004; Buckley et al., 2002 and De Mello, 1997, 1999). FDI inflows in fact represent additional resources a country needs to improve its economic performance and provides both physical capital and employment possibilities that may not be available in the host market. As De Gregorio (1992) argued 'by increasing capital stock, FDI can increase country's output and productivity through a more efficient use of existing resources and by absorbing unemployed resources". There have been a considerable number of studies on the contribution of FDI to economic growth (Borensztein et al., 1997; De Mello, 1999) but empirical evidence has been mixed.

FDI could have a complementary (crowding in) or a substitution (crowding out) relationship with domestic investment. On one hand, due to increased competition and better efficiency, FDI may replace domestic firms and deter their investment plans (Agosin and Machado, 2005). On the other hand, foreign investment may boost domestic investment by increasing demand for local intermediate inputs (Cardoso and Dornbusch, 1989) or through the diffusion of know-how and technology. Since the relationship between FDI and domestic investment demonstrate that there are possibilities for it to be either positive or negative, Governments need to identify the real impact of FDI so as to maximise domestic investment rates and optimise the positive effects of FDI on domestic investment. If FDI actually crowds out domestic investment, the benefits of FDI on a country could be questioned since this

would have long term impacts in terms of encouraging entrepreneurship. This would also cause a reassessment of the development effects of FDI.

There are numerous studies which have been done to explore this relationship both at country and continent level, with the majority of the literature focusing on developed country cases and panel sets. Evidences from developing countries, particularly from African economies have been rather scant and even then the results are quite mixed. Moreover, most of the studies analysing the FDI-Domestic investment nexus, have employed static panel sets with few focusing on the dynamic nature of the relationship, using mostly the GMM dynamic estimator which involves lagging the dependent term (Agosin – Mayer, 2000; Mody – Murshid, 2005; Mileva, 2008; Ndikumana – Verrick, 2012). Additionally, most previous studies were based on data prior to year 2000.

This study focuses on the impact of FDI on domestic capital accumulation in 20 African economies for the period 2001 to 2015. The African continent is still considered as one of the main investment destinations for the future and analysing the impact of FDI on local investment may give an idea into some of the effects of FDI for the region. The research innovatively uses a Panel Vector Autoregressive framework which accounts for possibility of both dynamism and endogeneity issues in the FDI-Domestic investment link, while at the same time providing interesting insight on the link both in the long and short run. This paper is thus believed to supplement the existing body of literature by providing evidences from a more recent time period for a sample of African economies, as well as from more rigorous analysis with respect to dynamism, causality and endogeniety issues.

The rest of the study is organised as follows: section 1 discusses the theoretical relationship between FDI and domestic investment and a review of previous studies on the topic. Section 2 provides a macroeconomic overview of the selected African economies, including the levels of FDI and domestic investment over the recent years. Section 3 specifies the data and methodology used and dwells into the results of the analysis while section 4 concludes.

2. Literature review

2.1 Theoretical Review

FDI can either act as a substitute to domestic investment or it can complement domestic investment. However, the exact impact of FDI on domestic investment depends on several factors. Firstly, the competitive nature of the sector where the investments are directed dictates the impact of FDI. If FDI is channelled in sectors with little competition, the net effect on capital formation will be positive due to the transmission of knowledge, technology and investment (Agosin and Machado, 2005). Along the same vein, if FDI is channelled into a competitive sector, the lower marginal cost of MNCs further increases the level of competition, resulting in a crowding out effect (Aitken and Harrison, 1999). Secondly, the impact of FDI also depends on knowledge and technological spillovers. Blomström and Kokko (1998) contend that by gaining exposure to foreign firms, domestic firms are able to initially observe and later integrate the practices and technologies in the local firms, thus boosting domestic investment. However, Kogut and Zander (1996) argue that MNC's sometimes try to internalise any advantage they possess and as such, domestic investment can in fact be crowded out. Thirdly, labour turnover also affects the impact of FDI on domestic investment. Since foreign firms often provide higher wages to employees (Dunning, 1983), the quality and the quantity of managers available for local firms decrease, resulting in a crowding out of domestic investment. However, these employees can provide valuable

insights on the strategies and the ways in which MNEs operate (Meyer, 2004) if they later work with a local firm, thereby enhancing domestic investment.

2.2 Empirical Evidences

While there is ample literature on the effects of FDI on economic growth, relatively less attention has been dedicated to its impact on domestic investment specifically. Borensztein et al. (1998) were among the first to test this relationship in the developing countries. Their results show that FDI actually stimulated domestic investment. This crowding in effect was mainly attributed to the complementarity of activities from FDI with established local ones. Bosworth and Collins (1999) decided to investigate the drawbacks and advantages of capital inflows following the currency crisis in east-Asian markets and how it affects domestic activity. Their results shows that FDI appeared to have a positive effect on domestic investment, but with a near one-to-one relationship.

De Mello (1999) on the other hand measured the effects of FDI on capital accumulation, output and total factor productivity growth and found "no time series evidence of linear endogenous growth derived from FDI" for the OECD sample, De Mello contended that the panel data demonstrated a complementary relationship between foreign investment and domestic investment, especially in indigenous sectors with relatively less investment. Moreover, he concluded that domestic investment is boosted through the introduction of new inputs, foreign technologies and the transfer of labour.

One of the pioneering studies for subsequent research on the crowding-in or crowding-out effect of FDI was performed by Agosin and Mayer (2000). The study included a variable for FDI while domestic investment had to be specifically modelled through different variables. The results from the analysis differed for the three regions. While Asian countries experienced a significant crowding-in, there was a strong crowding-out effect in Latin America. African countries also experienced crowding-in of domestic investment but to a lesser extent compared to Asian countries.

De Backer and Slewaegen (2003) found in their studies that FDI may "discourage entry and stimulate the exit of domestic entrepreneurs", hence decreasing domestic investment in the short run. While De Backer and Sleweaegen (2003) focussed on labour, Harrison and McMillan (2003) investigated if foreign firms ease the credit constraints of local firms or further exacerbate them. They concluded that domestic firms are crowded out by the foreign ones since the latter receive preference for credit facilities from banks and this forces many domestic firms out of business due to lack of financing.

3. Methodology and Analysis

3.1 Model specification

The purpose of this section is to empirically model the possible impact of FDI on domestic investment. The specific issue to be explored is whether FDI actually crowds in or crowds out domestic investment. The impact of FDI is measured on total investment as compared to making a distinction between private and public domestic investment. The analysis of the effects of FDI is based on the identity that total investment (I_t) is the sum of domestic investment (I_d) and foreign investment (I_f).

$$I_t = I_{d,\,t} + I_{f,\,t}$$

Foreign investment is considered to be a function of FDI but these resources are not often used at once to finance real investment. Thus, as stipulated by Agosin and Machado (2005), I_f

"*…will depend not only on contemporaneous FDI but also on its lagged values…*" Mody and Murshid (2005) also introduced lagged investment. This variable accounts for the persistence of the investment rate and also underlines the dynamic nature of the investment framework.

Building on the two models of domestic and foreign investment described above from Agosin and Machado (2005) and complementing it with the frameworks of Mody and Murshid (2005) and Jude (2015), the following equation is obtained:

$$I_{i,t} = \alpha + \beta_1\,FDI_{i,t} + \beta_2\,G_{i,t} + \beta_3\,Interest_{it} + \beta_4\,M2_{i,t} + \beta_5\,TO_{i,t} + \varepsilon_{it} \qquad (1)$$

Where **I** is the gross fixed capital formation (GFCF) expressed as a percent of GDP, , **FDI** is the FDI/GDP ratio, **G** is GDP. **Interest** represents the real interest rate and, **M2** is a proxy for financial liquidity and **TO** acts a proxy for trade openness. α is a constant while ε_{it} is the error term.

The data series are transformed into their log values for ease of interpretation and also for direct comparison (they will be thus explained in terms of % change).

The data for all the variables were collected from the World Development Indicators from the World Bank Database. The data spans from 2001 to 2015 for 20 African countries.

3.2 Estimation Methodology: Panel Vector Autoregressive Model (PVAR)

The research adopts a dynamic vector autoregressive model (PVAR) to perform the analysis since it is a framework which captures the dynamic behavior of the stipulated linkages in a panel setting, while at the same time, taking into consideration issues regarding endogeneity and causality. In fact the VAR model is a common framework which is adopted to describe the dynamic interrelationships between variables which are stationary.

The following first order VAR model is specified

$$Z_{it} = \Gamma_0 + \Gamma_1 Z_{it-1} + \mu_i + \varepsilon_t$$

where z_t is a six variable vector *(I, FDI, G, Interest, M2, TO)* and the variables are as defined previously. T_0 is the constant term and T1 is the parameter, while $\Box_i$ are fixed effects[1], ε is the error term.

Before proceeding with the estimation of the model, a few preliminary tests are carried out. First, it is important to determine whether the time series under investigation are stationary. To do so, the Im, Pesaran, and Shin (1995) panel unit root tests are applied on the dependent and independent variables. Results of this test revealed that our data series were stationary only at the first difference at the 5 per cent significance level for each variable. This being the case, it becomes important to test if the variables are co-integrated, and the Pedroni Co-integration test confirm the existence of co-integration and thus a long run relationship and thus allowing for both long and short run analysis.

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[1]This is used to overcome the restriction on parameters and to allow for 'individual heterogeneity' (see Love and Zicchino 2006).

4. Analysis

4.1 Long Run Cointegrating Estimates

The summary of the Long Run co-integrating estimator results is available in the table below.

Table 1
Long Run Estimation results

Variable	Coefficient	t-Statistic
LN_FDI	0.220798	2.4344*
LN_GDP	0.64566	2.767***
LN_M2	0.41865	2.357**
LN_RIR	-0.332043	-1.818*
LN_T_O	0.462101	2.2673**

Note: *, ** and *** *indicate significance at 10%, 5% and 1% respectively*

The results suggest that FDI has a positive impact on domestic investment, validating the crowding in hypothesis. An increase in FDI of 1% contributes to a boost in domestic investment by 0.22%. The findings are in line with the theoretical underpinnings on the link between FDI and domestic investment. Indeed, the positive effects may be related to spillovers in terms of knowledge, technology or productivity in general. The countries in the sample may also have benefited from forward or backward linkages. The findings support those of other studies in Africa like Agosin and Mayer (2000), Bosworth and Collins (1999) and Ndikumana and Verrick (2008) among others. However, the results from our analysis contradict the findings of Adams (2009), Erega (2011) and Morissey and Udomkerdmongkol (2012). These studies identified a net crowding out effect in African countries. Adams (2009) pointed to the fact that multinationals possessed advantages which discouraged local investment. Erega (2011) also contended that while foreign firms brought know-how in terms of productivity and technology, diffusion of this knowledge was often limited. An important aspect brought forward by Morissey and Udomkerdmongkol (2012) was that governance indicators and political stability had an important influence on causing the crowding-out effect. The possible reasons why the SADC countries did not experience the crowding out effect may be due to the fact most of these countries possess politically stable environments. The level of development of some of these countries also indicates an improvement in the use of technology. Furthermore, as stated by Backer (2002), ex-employees of MNEs may use the experience they gained to start local businesses. This may explain the boost over time in domestic investment.

The coefficient for the effect of GDP, significant at 5%, shows that an increase in GDP positively affects domestic investment. This is in line with the economic rationale and with previous studies such as De Mello (1999), Kim and Seo (2003), Bloningen and Wang (2004), Mileva (2008), Pilbeam and Oboleviciute (2012) and Jude (2015) among others. This effect can be explained since the development of a country's economy through total goods produced will help increase the capital stock, including domestic capital formed. It also creates expectations about future economic prospects which will then encourage domestic

investment. It is noteworthy that GDP appear to be the most important ingredient of investment as judged by its coefficient.

The impact of the real rate of interest was deemed negative on investment level and confirms the fact that the higher the cost of capital, the lower would be the level of investment. One should not forget that African economies are mostly bank-based economies and are thus very sensitive to changes in interest rate. Financial liquidity shows an expected positively impact on domestic investment with an elasticity coefficient of 0.25, confirming theoretical underpinnings. Mody and Murshid (2005), Mileva (2008) and Jude (2014) also found similar results. Finally, the coefficient of the proxy for trade openness, significant at 5% level, also confirms the positive link between trade and investment levels. As trade policies become more liberal, it is expected that both foreign and domestic investment would be boosted (Jude, 2015).

4.2 Regression results from PVECM

A summary of the regression results is given below.

Table 2
Regression results from PVECM (Short Run Estimates)

	ΔL_INVT	ΔL_FDI	ΔL_GDP	ΔL_M2	ΔL_RIR	ΔL_TO
L_INVT(-1)	0.777**	0.3672**	0.2841**	0.07855*	0.2537	0.07545**
L_FDI(-1)	0.0676***	0.70554	0.1054**	0.0132**	-0.0945	0.0571*
L_GDP(-1)	0.1427***	0.0725**	0.8379**	0.1245*	-0.28517**	0.0784*
L_M2(-1)	0.1305**	-0.07518**	0.08482	0.6205*	-0.1028	-0.05354
L_RIR(-1)	-0.115**	-0.00924	-0.0807**	0.0175	0.2225*	-0.01433
L_TO(-1)	0.024599*	0.10763	0.05765	0.1172*	-0.2231**	0.86359
ECM	-0.454*	-0.325*	0.375**	-0.217*	0.05262	0.418*

Note: *, ** and *** indicate significance at 10%, 5% and 1% respectively

The short run estimates overall confirms those of the long run obtained earlier. The variable of interest, FDI, is significant in explaining any change in domestic investment, measured through the gross fixed capital formation. All the other variables consisting of GDP, deviation in broad money, real interest rate and trade openness are also significant in explaining the dependent variable. It is noteworthy that the coefficients in the short, has a smaller coefficients in the short run, suggesting that it may take some time for FDI to have its full effect on domestic investment. Similar findings are obtained for the rest of the estimated coefficients. Nonetheless, such positive although very small has been observed by several other studies. Agosin and Machado (2005) even contended that the effect of FDI on domestic investment might even be considered as neutral.

The PVAR framework offers the possibility to gain more insights on dynamic and endogeneity issues. Similar method was used by Fauzel et al (2014). The lagged of the investment term is observed to be positive and significant implying that investment is of a dynamic nature. Considering the FDI equation, it can actually be seen that domestic investment has a positive and significant effect on FDI confirming the presence of a reverse causality where an increase of 1% in domestic investment increases FDI by 0.37%. Ndikuman and Verrick (2008) also found that domestic investment positively influenced FDI in Sub-Saharan Africa but these findings are not in line with the conclusions of Harrison and Revenga (1995) and MacMillan (1999).

Real interest rate is seen to have a negative impact on domestic investment. An increase in interest rate would discourage investment as the cost of capital would increase. Mody and Murshid (2005) and Wang (2010) came up with similar negative coefficients but their coefficients were not significant. Finally, the proxy for trade openness is significant and positive and is consistent to the findings of Jude (2015). It is expected that as the degree of trade openness would increase, there would be a boost in domestic investment due to the increased mobility of goods, especially in export-oriented sectors. This may be explained by the fact that intense competition from the foreign firms dampens the ability to invest locally.

Moreover the coefficient of the lagged error correction term is -0.45 which indicate that there is an adjustment to the long run equilibrium and implies that about 45% of the disequilibrium is corrected in the next period.

5. Conclusions

This paper investigated the impact of FDI on domestic capital accumulation in 20 African economies countries for the period 2001 to 2015.The research uses a Panel Vector Autoregressive framework which accounts for possibility of both dynamism and endogeneity issues in the FDI-Domestic investment link, while at the same time providing interesting insight on the link both in the long and short run.

Results from the analysis reveal that in the long run, FDI has a positive impact on domestic investment, with a reported 1% increase in FDI contributing to a boost in domestic investment by 0.22% thus confirming a crowding in effect. Such findings support those of other studies in Africa like Agosin and Mayer (2000), Bosworth and Collins (1999) and Ndikumana and Verrick (2008) among others. All of these studies in Africa suggest that this positive effect may be brought about through spillovers in terms of knowledge, technology or productivity in general. These countries also benefit from forward or backward linkages. The other explanatory variables were reported to have the expected sign and significance with the GDP of the country being one of the most important ingredients of domestic investment.

The short run estimates overall confirms those of the long run obtained earlier. The variable of interest, FDI, is significant in explaining any change in domestic investment,

measured through the gross fixed capital formation. All the other variables consisting of GDP, deviation in broad money, real interest rate and trade openness are also significant in explaining the dependent variable. It is noteworthy that the coefficients in the short, has a smaller coefficients in the short run, suggesting that it may take some time for FDI to have its full effect on domestic investment.

The lagged of the investment term is observed to be positive and significant implying that investment is of a dynamic nature. Moreover, domestic investment is reported to have a more positive effect on FDI although the coefficient is not significant in the short run. Nonetheless, this coefficient suggests a reverse correlation. Finally an adjustment to the long run equilibrium is noted and that about 45% of the disequilibrium is corrected in the next period.

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The Impact of a Tax Licence on Termination of Companies

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Abstract
The tax licence meant a significant change within the tax system of the Slovak Republic. Its introduction affected the Slovak business environment significantly. The tax licence is cancelled from January 1, 2018. Therefore it is appropriate to evaluate its impact on business entities. Within this contribution, we will evaluate the impact of a tax licence on termination of business companies. Through analysis, we will define which areas of business are affected by its implementation the most, what were the implementation impacts on new companies and on the companies that had not achieved sufficient financial performance. Evaluation of this impact allows us to define the effect of a tax licence on business entities, which is necessary at the time of current discussions on its abolition.

Keywords: *tax licence, termination of a company, revenues*
JEL classification: H 25, H 32

1. Introduction

The tax licence was the major change recorded in our tax system in 2014. This tax comes in form of a flat tax, which applies to all legal entities specified by law. The main factor influencing the introduction of a tax licence is generally to prevent excessive tax optimization.

This institute was implemented into our tax system by the Ministry of Finance, as another tool to fight tax evasion. The National Council approved an amendment to the Act No. 595/2003 Coll. on income tax as amended, this change, which, among others, introduced a tax licence, is valid since January 1, 2014. The tax licence, in addition to other purposes, was supposed to compensate the loss, which the state budget suffered by reducing the corporate tax rate from 23% to 22%.

1.1 Tax licence under the conditions of the Slovak Republic

Under the Income Tax Act, a taxpayer is obliged to pay the tax licence for each taxable period within which he has shown a tax liability lower than the tax licence establishes, a zero tax liability, as well as a tax loss (Finančná správa Slovenskej republiky, 2017). From the above-mentioned text of the law, it is clear, that a taxpayer is obliged to pay the tax licence regardless of his business situation at the end of the financial year. He does not have an opportunity to optimize his tax liability to such an extent that it will fall below a given minimum tax level. The law determines the obligation to pay tax liability to every legal entity, it also defines exceptions - the taxpayers who are not required to pay a tax licence. The legal entities that are not obliged to pay a tax licence include, for example public companies, a taxpayer who is firstly required to file in the tax return for the taxable period in which the taxpayer started his business, a taxpayer who is in the period of liquidation and bankruptcy, the National Bank of Slovakia. The taxpayer operating a sheltered workshop is not required to pay a tax licence either.

Those legal entities are privileged to be exempt from the full tax liability, besides this, the Income Tax Act also provides exemptions when a legal entity is required to pay the tax licence in a proportionate or a half amount. This refers to a taxpayer in business combinations such as acquisition, merger or division type, or a taxpayer, who changes the tax period from a calendar year to an economic year and vice versa. A half amount of the tax licence is payable by a taxpayer - a legal entity whose number of employees with disabilities is at least 20% of employees.

The amount of the tax licence is determined by criteria of annual turnover, as well as the fact, if the company is payer of value added tax.

Table 1

The Tax Licence amount

VAT payment	Annual turnover	The tax licence amount
no	up to 500 000 €	480 €
yes	up to 500 000 €	960 €
yes/no	over 500 000 €	2 880 €

Source: Own processing based on official site of Financial Administration: Finančná správa Slovenskej republiky. 2017. Tax licence. [online]. Available at the URL: <https://podpora.financnasprava.sk/062318-V%C5%A1eobecne-o-da%C5%88ovej-licencii>. [Accessed 5.1.2017].

The main motivation to implement the tax licence was a fight against excessive tax optimization, thereby increasing revenues of the state budget. In the context of drawbacks, it is important to note that not all companies attempt to artificially reduce their tax liability, moreover the tax licence also affects companies that appear in loss legitimately and thus aggravates their financial situation.

2. Impact of the tax licence on termination of companies

For a comprehensive assessment of the impact that the introduction of tax licence has had on termination of businesses, a large amount of data has to be analysed. This data can be drawn from the Register of Financial Statements into which financial statements of each company, as a mandatory attachment of a tax return, are entered by the Financial Administration. The analysis preparation implied the acquisition of a large amount of basic information about the companies, such as their seat and the date of establishment. We drew it from the Business Register of Slovak Republic. We took into account the period 2012 - 2015 in order to demonstrate an impact of the tax licence. In the following table, we give the number of companies terminated their business activities each year, as well as the proportion of terminated companies.

Table 2

The share of terminated companies, by year

Year	Terminated companies	Percentage of terminated companies out of the total number of companies
2012	4 152	2,26%
2013	4 004	1,91%
2014	6 152	2,76%
2015	7 218	3,06%

Source: Own calculation based on FinStat.sk. 2017. Databáza finančných údajov – hospodárske výsledky slovenských firiem. Database of financial statements. [online]. Available at the URL: <https://finstat.sk/databaza-financnych-udajov>. [Accessed 10.1.2017].

In 2014 and 2015, the number of companies that terminated, increased dramatically. In 2015, it is up to 34% of the total number of companies that terminated in 4 years. Of course, not all these companies were terminated because of the tax licence only, termination of a company is a natural part of a company's life cycle.

In the context of time distinction within the analysis, it is appropriate to examine termination of a company also on a monthly basis. The impact of the tax licence was most evident at the end of 2014 as well as at the beginning of 2015, when the number of terminated companies increased significantly. There is a high number of companies that terminated also in March and April, what may be related to the end of the economic year for many companies.

The highest increase in termination of companies occurred in December and January, while in the other months (excluding March and April, when we also observed disappearance of companies) the phenomenon remained stable.

2.1 Structure of terminated companies from the perspective of duration on the market

In the following part of the analysis (Figure 1), we observed terminated companies from the perspective of their duration on the market. This aspect makes it possible to define the impact of the tax licence on variously established companies.

Figure 1
Structure of companies terminated in years 2012 and 2013 from the perspective of their duration on the market
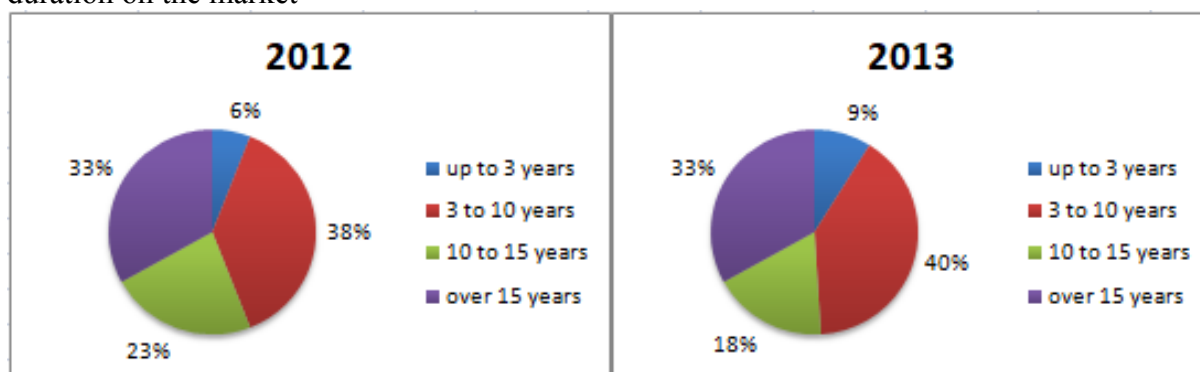
Source: Own calculation based on FinStat.sk (2017).

Within the comparison, we evaluated terminated companies in terms of their duration on the market. The following charts in the Figure 2 show their segmentation.

Figure 2
Structure of companies terminated in years 2014 and 2015 from the perspective of their duration on the market
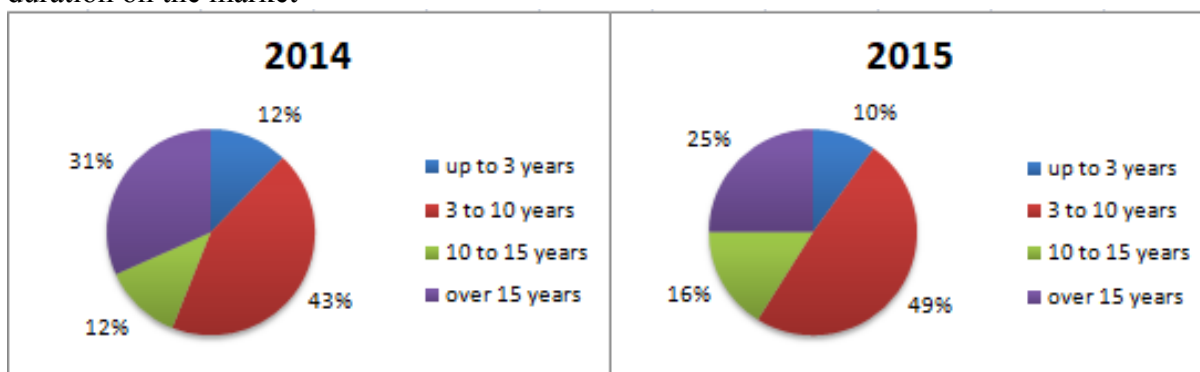
Source: Own calculation based on FinStat.sk (2017).

It is clear from the charts comparison that even before the introduction of the tax licence, most of terminated companies were those from 5 to 10 years of existence, but to lower extent, ca. 5-10%, compared to 2014 and 2015. The structure of terminated companies is very similar in 2014 and 2015, in both years with the largest share of terminated companies that had existed for 3 to 10 years. Terminated companies that had been operating for more than 15 years form approximately 10% from the total number of terminated companies. The average duration of terminated companies may be distorted by companies that had been on the market for more than 20 years; therefore, a median of terminated companies´ working life can be found a better informative value, which is approximately 7.5 years in 2015 and 6.9 years in 2014, while in 2012 it was 11.5 years and in 2013 it was 10.1 years. Therefore, we can say that the introduction of the tax licence had a significant impact on companies that were not well established on the market. The minimum tax thus reduced the median length of market activity among terminated companies.

2.2 Structure of terminated companies from the perspective of revenues and profits

A very important area of assessing the impact of the tax licence on termination of companies was an assessment of their revenue and profit. These quantities point at the financial performance of a company. Revenues are an indicator of a company's business activity and profitability indicates its ability to generate financial assets. When examining revenues and profits of terminated companies, we considered fewer companies, given that some of them did not submit their financial statements (or the Financial Administration did not publish it). We delivered the analysis in the period from 2012 to 2015.

When examining then revenues, we used the profit and loss statements of the companies concerned. In terms of revenue we took into account Revenue from Sales of Goods (line 1 in a profit and loss statement) and Production (line 4 in a profit and loss statement) from the latest available complete financial statements of a company. The following charts in the Figure 3 show the terminated companies segmented by revenue for the years 2012 to 2015.

Figure 3
Companies terminated in years 2012 and 2013 from the perspective of revenues
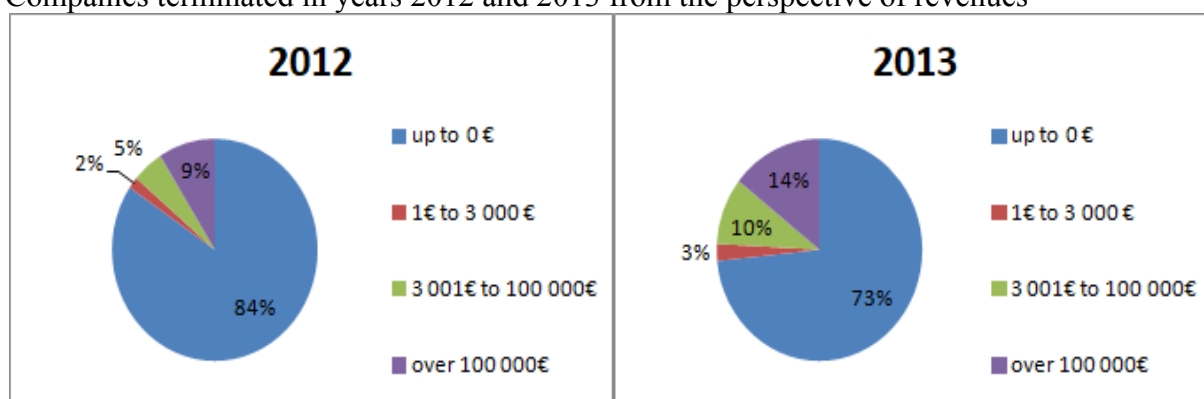
Source: Own calculation based on FinStat.sk (2017).

In terms of revenues in both years there was mostly recorded termination of companies with revenues of €0 or less. This number would increase significantly if we also included thecompanies that were bankrupt or restructured but those were not obliged to pay the tax licence. We can claim that before the introduction of the tax licence, on average, up to 80% of terminated companies did not produce revenues. It is also necessary to compare the situation with the period after the introduction of the tax licence.

Figure 4
Companies terminated in years 2014 and 2015 from the perspective of revenues
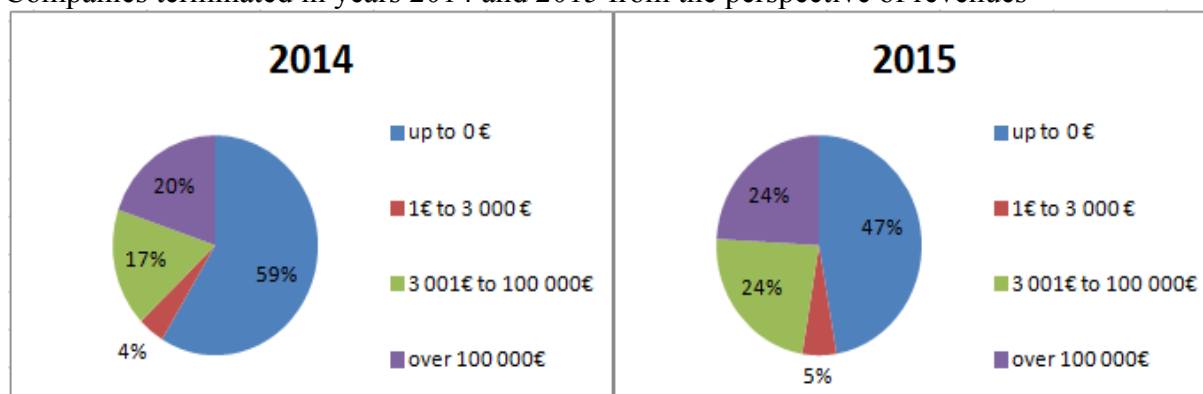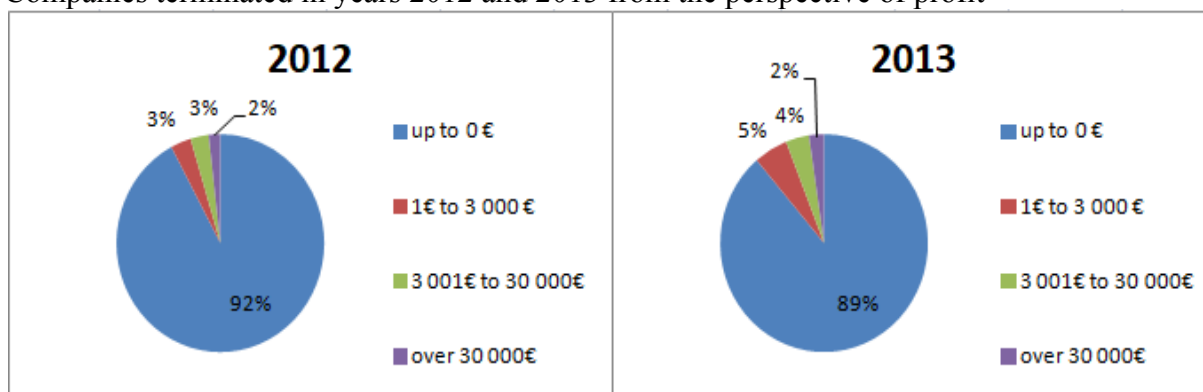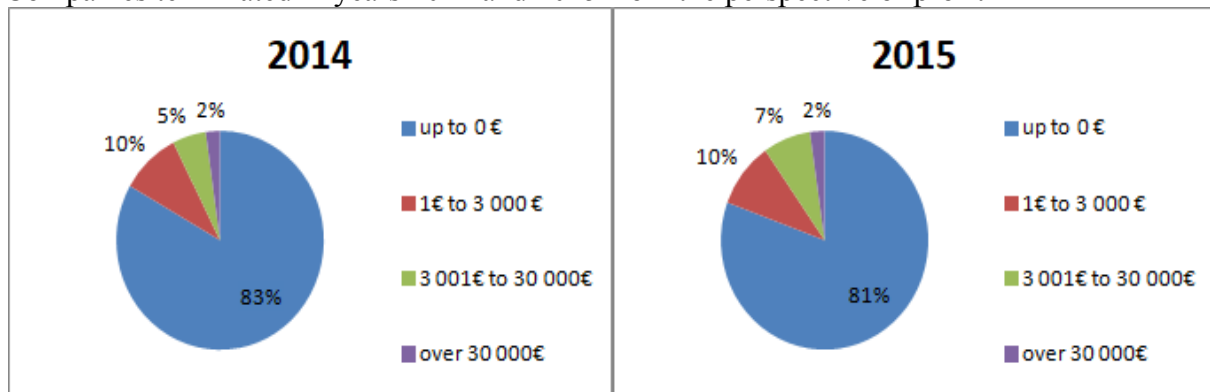

Source: Own calculation based on FinStat.sk (2017).

In 2014 and 2015, when the Income Tax Act was amended, introducing an institute of a minimum tax rate, the situation changed significantly. There were mostly terminated companies with no revenues, but the number of low-income companies (up to € 100,000) that ceased to operate in these years increased visibly. In 2013, only 13% of the total number of terminated companies were those that had revenue of € 3,000 to € 100,000, by their latest financial statements. This share rose to 24% in 2014. It is clear from the graphical presentations (see Figure 4) that the tax licence impacted the structure of terminated companies even from the perspective of revenues. The number of low-income companies, which terminated in 2014 and 2015, was higher than in 2012 and 2013.

The second examined quantity indicating the financial performance of a terminated company was a profit from the last complete accounting period. We took into account a profit/loss for the accounting period after taxation (line 61 in a profit and loss statement). The charts in the Figure 5 and the Figure 6 show terminated companies segmented by profit for the years 2012 to 2015.

Figure 5
Companies terminated in years 2012 and 2013 from the perspective of profit

Source: Own calculation based on FinStat.sk (2017).

In terms of profits in both years, there were mostly terminated companies with a profit of € 0 or less. Up to 90% of companies that terminated in 2012 and 2013 did not make a profit or they made a loss. Only 5% of terminated companies made profits, and mostly in the lowest selected profit range of €1 to €3,000. It is necessary to compare the situation again with the period after the introduction of the tax licence.

Figure 6
Companies terminated in years 2014 and 2015 from the perspective of profit

After introducing the tax licence, the companies that did not make any profits or they made a loss, were the most likely to terminate, but their share among all companies that terminated in that year was by almost 10% lower. The share of terminated companies which made a low profit, of €1 to €3,000, increased by up to 5%. Just like with revenue, we can point to the fact that, after introducing the tax licence, not only companies that did not make profit but also those with a low profit were terminated.

3. Conclusions and policy implications

The year 2014 was a turning point from the perspective of corporation tax. It brought changes into the Income Tax Act, in the form of the tax licence implementation and a reduction in the tax rate on the income of a legal entity. The tax licence encountered various positive and negative responses at the time of its implementation. The discussions about its cancellation are currently taking place therefore it is the right time to assess its impact on the legal entities concerned.

In this article we precisely defined its impact on termination of a company using statistical methods and work with a large amount of data. We examined the companies in years 2012-2015, which enabled us to compare the situation in the business environment before and after the introduction of this institute. When analysing the impact of the tax licence on a terminated companies, we paid attention to the duration of the companies on the market, as well as their revenues and profit.

Prior to the introduction of the tax licence in 2012 and 2013, approximately 44% of terminated companies ceased their activity within ten years after their establishment. After the introduction of the tax licence, this figure has increased to around 60%. The overall structure of the terminated companies changed with regards to their duration on the market as it was also indicated by the median of expired companies'duration on the market. It was about 7.5 years in 2015 and 6.9 years in 2014, while in 2012 it was 11.5 years and in 2013 the value was 10.1 years. We can therefore claim that the introduction of the tax licence had a significant impact on young companies that had not been so well established on the market.

We observed the terminated companies also from their financial management aspect, using the revenue and profit indicators. For both examined aspects, prior to the introduction of the tax licence in 2012 and 2013, there were terminated companies that had not achieved any revenues or they made loss. However, after introduction of the tax licence the situation changed as even the revenue and profits generating companies were terminating, with a share

approximately 10% higher in terms of revenue, and 5% share in terms of profit, from all terminated companies in the years.

The given findings make it possible to provide a realistic picture of the impact of the tax licence on termination of companies and the structure of terminated companies. Due to use of extensive amounts of data from the financial statements of Slovak companies, the outputs provide the actual impact of a change in the Income Tax Act in form of the introduction of the tax licence.

Acknowledgement

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The Act No. 595/2003 Coll. Income Tax Act.

Selected Indicators for Assessing the Competitiveness and Innovativeness of Countries

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Abstract

Transformation of the world economy is affected by business conditions on all international markets. Companies are pushed into increased internationalization of their activities, cooperation and specialization of the production process. Globalization as the main phenomenon in these processes has brought positive influences, mainly into labour productivity, innovations, modernization of production and consumption structures, capital accessibility etc. These factors gain more meaning in decision making processes, as they are reflected in the competitiveness of companies which are able to implement them into their production. Countries´ competitiveness and innovations ranking have been very popular in the current economic world. It enables to evaluate selected world economies on a basis of a wide range of criteria. This information can serve as a guideline for the governments when they are talking about their economic policy. It does not matter whether their national governments use this tool because they are interested in it, or at the expense of international organizations that highlight the changes in the positions of countries´ competitiveness and innovations and draw conclusions and recommendations for their economic policy. The aim of the paper is to analyse and assess the competitiveness and innovative performance of the Slovakia and the EU respectively, on the basis of selected indicators, in an international context. In the competitiveness and innovations ranking, at the best places with few exceptions occupy almost the same countries. However, differences in these rankings are naturally reflected in changes of the position of individual countries in the global market.

1. Introduction

Globalization has brought a new dimension to the development of the world economy and has become a logical outcome of the entire set of the development processes. The systematic efforts of states and integration communities to improve their individual positions within the new global trade system have become its "driving force". Gradually, it became clear that almost all the world´s producers quickly realized that this is their "chance" which was due to several reasons: into those processes stepped quickly emerging industrialized countries, especially Asian subsidiaries and through them to satisfy the demand in the domestic markets, e.i. developed market economies. The result of the efforts to reduce their own production unit costs by increasing the volume of their production, rapidly deepening process of specialization and different form of support or indirect subsidization of production and exports by national economies had a direct impact on the competitiveness of developed countries and ultimately their long-term international positions and national prosperity. In this "space time compression that globalization brings, the competition intensified increasingly

and began bringing new question marks about solving the problem of international competitiveness".

1.1 Model and Data

The aim of the paper is to analyse and assess the competitiveness and innovative performance and potential of the Slovak Republic and the EU respectively, on the basis of selected indicators, in an international context.

In order to achieve the stated goal, it was necessary to use several theoretical methods which we used in the form of general methods (abstraction, analysis, synthesis, induction and deduction). The abstraction method, which omits the insignificant features of the phenomenon, allowed us to define the concept of competitiveness and innovation with the help of several views of domestic and foreign authors. The paper also includes empirical methods, namely a comparison method for comparing the competitiveness and innovative performances of countries and the results achieved. The synthesis method is very closely related to the analysis. The task of the synthesis is to unify all the most important elements and findings into one unit in the presented paper.

2. The current situation of solving the problem at home and abroad

2.1 The competitiveness of countries

Sustained growth of prosperity and life quality in a certain country depends decisively on the capability of the corporate sector to perform at a highly productive level. Thus, nations that have created economic conditions and macroeconomic environment supporting the growth of corporate sector productiveness are significantly more competitive than those that have not.

Garelli, from the Institute for Management Development, defines the national competitiveness as "the ability of a country (industrial branch or sector or company) to create and maintain an economic (business) environment that enables not only value added creation, but also rising prosperity of the local people (employees), in a manner respecting the core resources and measures of the economic policy" (Kunst, 2009, p. 130, 133).

Depending to the economic development, Porter, distinguishes three stages of competitiveness development. In the first stage, the country benefits from cheap labour and natural resources. The efficiency of production of standard commodities becomes the source of comparative advantages in the second stage. And the third stage is associated with the production of innovative products and provision of services (Porter, 1994).

Porter also explains national competitiveness as a result of microeconomic competitiveness: "competitiveness is rooted in a nation's microeconomic fundamentals, manifested in the sophistication of its companies and the quality of its microeconomic business environment" (Opreana – Mihaiu, 2011, p. 69).

The official definition of OECD of a nation´s competitiveness is "the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term" (Garelli, online, 2002).

2.2 Impact of innovations on the competitive environment of international markets

The ability to develop new ideas and innovation has become a priority for many organizations. Intense global competition and technological development have made innovation be a source of competitive advantage.

Classical definition of innovation was given by Schumpeter (1950) who defined innovation as encompassing new products, processes, raw materials, management methods and markets. Schumpeter, also characterized the change process as involving three stages – invention (the generation of new ideas), innovation (the innovation generating process) and diffusion (the process by which global innovations spread across their potential domestic and overseas markets or non-market institutions). Although, for Schumpeter, innovation encompassed a single stage in the overall technological process, this concept is now widely used to define 'innovation process' involving all three stages mentioned above (Subbotina, 2015, p. 380).

According to Evans, the innovation is considered as "the ability to discover new relationships, of seeing things from new perspectives and to form new combinations from existing concepts" (Popa et al., 2010, p. 151, 152).

Innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment. Hence, innovation is here broadly defined to encompass a range of types, including new product or service, new process technology, new organization structure or administrative systems, or new plans or program pertaining to organization members (Baregheh et al., 2009, p. 1326).

According to Valenta, the concept of innovation is to be understood as „a change in the original structure of the production organism, as a transition to the new state of its internal structure" (Valenta, 1969).

The European Commission defines innovation in the same way. According to the European Commission, innovation represents the renewal and extension of the range of products and services and related markets, the creation of new methods of production, supply and distribution, the introduction of changes in management, changes in the organization of work, of working conditions and qualifications of the workforce. According to the European Commission, research-based technological innovation is the main source of innovation, unlike non-technological innovation, based on the use of accumulated practical experience (Hečková, 2007).

Although there are many good institutions in Europe, an appropriate business environment and research, which receives large funds, the transformation of these inputs into innovation itself is problematic. Creation of innovations is an open process in which individual actors such as companies, customers, investors and other organizations work together and create connections. Innovations benefit from geographical proximity, which facilitates the flow of intangible knowledge that is crucial to the innovation process and is becoming a key driving force behind the growth of regions and countries. Innovations are helping European countries to remain competitive in the global economy and they are contributing to the creation of new jobs. This stimulates continuous improvement and activities that are involved in promoting innovation and assessing the innovation performance of individual countries (Urbančíková – Burger, 2010).

3. Results of the work and discussion

3.1 Assessment of the competitiveness of countries

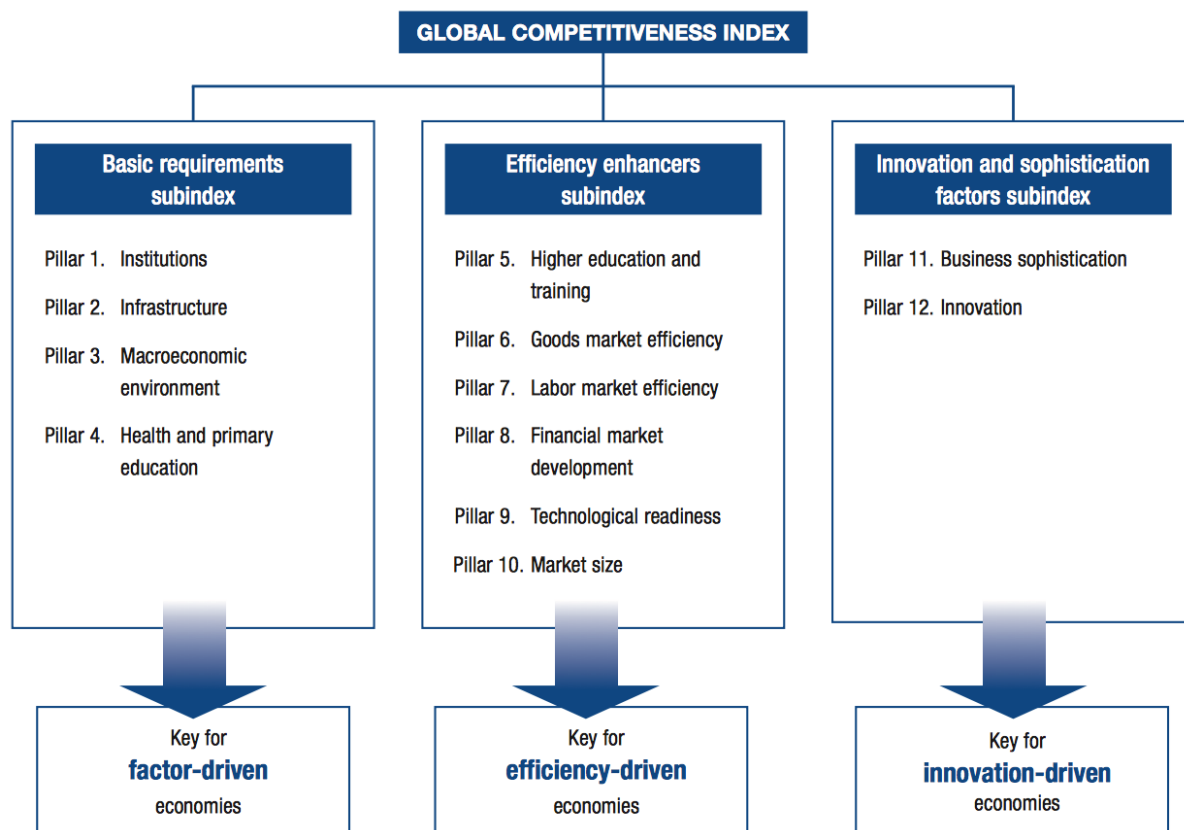#### 3.1.1 World Economic Forum – Global Competitiveness Report

Nowadays, the competitiveness of individual countries is examined and evaluated at different levels. Great attention is paid to it by national governments, bodies of integration groupings, as well as by major international institutions. Since 1979, the World Economic

Forum – WEF publishes annually its Global Competitiveness Report, which evaluates the factors of sustained economic growth and of the long-term prosperity of the economies of the individual countries of the world (Fabová, 2016).

The World Economic Forum defines the competitiveness of the country as a grouping of institutions, policies and factors that together determine the productivity of the country, i.e. more competitive economies are those that grow faster over time and more efficiently than others. The World Economic Forum assesses the competitiveness of the country on the basis of the Global Competitiveness Index (GCI). GCI is made up of more than 113 variables, of which approximately two-thirds are based on the responses of senior management staff to the questionnaire, the so-called soft data, and one third is based on publicly available sources, so-called hard data (statistics). The index provides a weighted average of a large number of components, each reflecting the complex of competitiveness. The index is based on 12 pillars of competitiveness, which are grouped into three sub-indices according to whether their growth is based on factors of production, efficiency or innovations (Figure 1) (Neslihan – Hűseyin, 2012).

Figure 1
The Global Competitiveness Index framework

Source: WEF. 2016. The Global Competitiveness Report 2017 – 2018. [online]. Available at the URL: <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>. [accessed 10.1.2018].

The quantification of the values of individual pillars is obtained through the procedures defined by the World Economic Forum methodology. This determines the numerical value for each pillar, with values ranging from 1 (lowest value) to 7 (the highest or most desirable value). The value which determines the overall competitiveness of the country is then derived from the acquired findings (Neslihan – Hűseyin, online, 2012).

In 2017, Slovak Republic ranked 59th in the competitiveness index, up 6 positions from previous year. The improvement was mainly the result of a higher number of mobile connections, an increase in the number of flight connections, of steps taken by the government to simplify business and reduce the administrative burden and of higher average internet connection speed. Despite this positive change, Slovak Republic is the sixth worst rated country in terms of competitiveness in a group of EU countries. Only Hungary (60th), Cyprus (64th), Romania (68th), Croatia (74th) and Greece (87th) were placed lower.

Corruption is traditionally reffered to as the biggest problem for doing business in Slovak Republic. At the second place is unnecessary state bureaucracy, which already poses more problems to the managers than tax rates. Other things, that businesses complain about, are the tax and social security legislations, the labor market, or insufficient employees training.

Slovak Republic lags behind primarily in the fight against clientelism, in the efficiency of the judiciary, in the area of regulatory burdens or in the use of the tax system to support citizens in finding jobs. In these categories, the country still belongs to the ten worst within the 137 countries of the world, according to the assessment by top Slovak managers.

Among best ten countries dominate European economies. Switzerland is the world's most competitive economy, for the ninth consecutive year in a row. Singapore was replaced by the United States at the second position. They are followed by the Netherlands and Germany. Hong Kong jumped from 9th to 6th place. Israel rose sharply (from 24th to 16th), and so did Russia (from 43rd to 38th). The opposite trend was in Qatar, which dropped from 18th to 25th position.

Among the Central European countries Austria is at the highest position (19th). The Czech Republic retained 31st place again. Poland fell to 39th position and Lithuania and Latvia also fell. (Podnikateľská aliancia Slovenska –Business Alliance of Slovakia, 2017).

3.1.2 Institute for Management Development – World Competitiveness Yearbook

Another influential institution measuring the competitiveness of nations is the International Institute for Management Development (IMD), which publishes annually the World Competitiveness Yearbook. The crucial determinants of competitiveness according to the IMD are 4 factors which determine national competitiveness (Ferenčíková, 2013, pp. 334-337):

1. Economic performance (domestic economy, international trade, international investment, employment, prices),
2. Government effectiveness (public finances, fiscal policy, institutional framework, business legislation, social framework),
3. Business efficiency (productivity, labor market, finance, management practices, attitudes and values),
4. Infrastructure (basic, technical and scientific infrastructure, health, environment, education).

Table 1:

Development of selected countries according to IMD competitiveness index in 2007 – 2017

	2017	2016	2015	2014	2013	2012	2011	2010	2007
Hong Kong	1	1	2	4	3	1	1	2	3
Switzerland	2	2	4	2	2	3	5	4	6
USA	4	3	1	1	1	2	1	3	1
Singapore	3	4	3	3	5	4	3	1	2
Sweden	9	5	9	5	4	5	4	6	9
Denmark	7	6	8	9	12	13	12	13	5
Norway	11	9	7	10	6	8	13	9	13
Canada	12	10	5	7	7	6	7	7	10
Germany	13	12	10	6	9	9	10	16	16
Taiwan	14	14	11	13	11	7	6	8	18
UAE	10	15	12	8	8	16	28	N/A	N/A
China	18	25	22	23	21	23	19	18	15
Czech Republic	28	27	29	33	35	33	30	29	32
Slovak Republic	51	40	46	45	47	47	48	49	34
Hungary	52	46	48	48	50	45	47	42	35

Source: Competitiveness 2017 rankings results - IMD Executive Education. 2017. *World Competitiveness Yearbook 2017*. [online]. Available at the URL: <https://www.imd.org/wcc/world-competitiveness-center-rankings/competitiveness-2017-rankings-results/>. [accessed 12.1.2018].

According to IMD, the United States had long maintained the leading position in the area of competitiveness, despite the downturns resulting from the financial crisis, but in 2017 the first place belonged to Hong Kong. The position of the EU in the ranking changes. The EU is at good places only because some countries (Sweden, Denmark, Germany) are at the leading positions. Similarly we can examine the parts of so-called Greater China (Hong Kong – 1) (Table 1).

Slovak Republic ranked 51st among the 63 assessed countries in 2017. In the year-on-year comparison, the country's position deteriorated by 11 places. In comparison with the closest neighboring countries, the Slovak Republic lags behind the Czech Republic, which ranked 28th and is the most successful country in the V4 region, despite the fact that it dropped by one position. We also lag Poland, which is 38th (a year-on-year decrease by 5 places). Slovak Republic, however, managed to overtake Hungary by one position in 2017. Hungary ranked 52nd.

Between 2007 and 2009, Slovak Republic was among the highly competitive countries, but we regrettably did not retain this status in the following years. The problems include a high rate of taxation and of payroll transfers to social-insurance funds, administrative burden, the high level of corruption, and so on. The challenge for the country is the health care and the pension system reforms and the reform of education (better results of the students in testing).

3.2 Assessment of the innovativeness of countries

3.2.1 The innovative performance of the EU

The first comprehensive indicator for assessment of the overall innovative performance of the Slovak Republic in the international comparison is the Summary Innovation Index (SII), which is part of the European Innovation Scoreboard (EIS). The European Innovation Scoreboard is an instrument created as an initiative of the European Commission for the need to evaluate the achievement of the Lisbon Strategy goals and the follow-up strategy Europe 2020. Its aim is to measure and compare the innovative performance of the individual countries of the European Union every year. It includes 25 indicators divided into five categories and two main groups: innovative inputs and innovative outputs. By summarizing

the measured innovative indicators is calculated the Summary Innovation Index (SII), which expresses the country's innovative performance (Radosevic – Kaderabkova, 2011).

Based on their average performance scores calculated using a composite indicator – the Summary Innovation Index – the Member States are included in one of the four different performance groups (Enterprise and Industry, online, 2017):

1. Innovation Leaders (above average result): Denmark, Finland, Germany, the Netherlands, Sweden, and the United Kingdom.

2. Successful innovators: Austria, Belgium, France, Ireland, Luxembourg and Slovenia.

3. Average innovators: Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Slovak Republic, and Spain.

4. Emerging innovators (below the EU average): Bulgaria and Romania.

At the global level, in 2017 the EU was less innovative than Australia, Canada, Japan, South Korea and the United States. Differences in performance between the EU on the one hand and Canada and the US on the other hand decreased compared to 2010, but they increased between the EU on the one hand and Japan and South Korea on other hand. Japan improved its performance compared to the EU more than three times and South Korea more than four times. The EU maintains its performance edge over China. But difference is rapidly reducing, as China is improving more than seven times faster than the EU. The EU has a significant lead in performance over Brazil, India, Russia and South Africa.

When comparing EU member states with other european and neighboring countries, Switzerland remains the most innovative European country. Iceland, Israel and Norway are successful innovators whose performance exceeds the EU average. Serbia and Turkey are mild innovators, and the Former Yugoslav Republic of Macedonia and Ukraine belong to the group of weaker innovators.

Overall, the EU innovation performance in comparison to 2010 is expected to increase from level of 102 % in 2017 to 104 % over the next two years. At the global level it can be expected that trends which have been seen in recent years, will continue, by which the EU will catch up with the United States within two years, the South Korea's and Japan's lead over the EU will increase, and EU's lead over China will decrease. (European Commission, online, 2017).

3.2.2 The Global Innovation Index

At global level, among other indicators, the Global Innovation Index (GII) is used to assess the innovativeness of countries (the component of this index is the Innovation Efficiency Index), which examines the country's innovative capacity and the use of its innovative potential. GII is published annually since 2007 by the World Intellectual Property Organization together with Cornell University and INSEAD (one of the most important business schools with campuses in Europe, Middle East and Asia) (Fabová, online, 2016). Their 2017 report includes assessment of 127 world economies using 81 indicators, 57 of which are quantitative, 5 qualitative and 19 composite. Based on this assessment, ranking of countries is compiled according to their innovation capabilities. Reports dealing with the Global Innovation Index are important tools for comparison of the state and development of innovations in individual countries of the world.

At the top ten positions in 2017 GII ranking were Switzerland, Sweden, the Netherlands, the United States, the United Kingdom, Denmark, Singapore, Finland, Germany and Ireland, i.e. mostly european countries. In the ranking according to the Innovative Efficiency Index,

six european countries were among the top ten. The biggest surprise in 2017 was China, which, despite belonging to the group of middle income countries, was among the 25 most innovative countries in the world and ranked 3rd in the Innovative Efficiency Index. This implies that less developed countries can also achieve high efficiency of innovation if their innovative outputs outweigh their innovative inputs. Therefore, when assessing innovativeness of countries, there is a need to analyze comprehensively not only the Global Innovation Index and the Innovation Efficiency Index, but also the sub-indices of inputs and outputs, and to take into account the phase of development of the given economy (freely according to WIPO, 2017).

4. Conclusions and policy implications

In the competitiveness and innovations ranking, at the best places with few exceptions occupy almost the same countries (Switzerland, USA, Singapore, Hong Kong, Germany, the Netherlands, etc.). However, differences in these rankings are naturally reflected in changes of the position of individual countries in the global market. Economies, which are successful in innovative development, are likewise the most competitive countries in the world.

Among obstacles that prevent Slovak Republic from becoming one of leading nations are insufficient innovative potential, the low work efficiency of public institutions, corruption, unnecessary state bureaucracy, the tax and social security legislations, which are the most obvious weaknesses of the country. For lagging countries, the way how to increase efficiency and competitiveness consists of innovations and the speed of countries´ reaction to different circumstances. The solution can only be of long-term nature, based on a coordinated development strategy replicating future changes in the labour market, significantly increasing its quality, building effective scientific research base, with the objective to increase the competitiveness of the whole group as an important priority.

Acknowledgement

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Comparison of two Methods of Measuring Country Risk

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Abstract
The capital market in each country has its own specific features compared to the global capital market. These differences reflect the different risks for investors who invest in one of the national capital markets. For the investor, it will therefore be extremely important to know how best to measure the country risk and to be able to respond to this risk in a timely manner. Currently, we can find several research studies which examine the different methods of country risk and the empirical relationship between sovereign rating of a country and the components of its capital market. In our contribution, we will focus on two different methods of measuring country risk. On the one hand, we have a sovereign rating method that measures the credit risk of the issuer (state), while on the other, we have a market-based method - bond spreads. At present, we often find that credit rating agencies are inefficient, delayed and often copied by other agencies. Therefore, we can assume that the markets will respond to the problems sooner than rating agencies.

Keywords: *government bonds, country risk, sovereign rating*
JEL classification: G12, G19, E00

1. Introduction: Literature Review

The issue of country risk has become a much-discussed topic in recent years because of the relationship between country risk and the debt crisis in Eurozone. Before the financial crisis, investors had rated government bonds of Eurozone as a so-called "safe haven". Investors hadn't identified the big differences between the countries of Eurozone because government bonds had minimum risk and were credible. In 2008, when the financial crisis hit the world, investors had to rethink their financial decisions about choosing the right country for their investments. Enormously growing risk spreads had been pure evidence of increasing risk of countries in the Eurozone. In the past we could meet some synonyms of the country risk. Country risk is also referred to as *sovereign risk*, *political risk*, *country risk* or *cross-border* risk in various literature, with some authors identifying and understanding the terms as synonyms, while some others emphasizing that there are differences between concepts that cannot be considered synonymous (Bouchet et al. 2003).

In financial theory, we come across the term country risk as a category which includes not only economical, but also political and financial risk. The economic risk reflects macroeconomic indicators such as GDP per capita, economic growth (GDP growth in %, annual inflation rate, state budget deficit and debt ratio relative to GDP) or balance of payments. Political risk reflects the stability of the government, internal and external conflicts, level of corruption, level of judiciary and law, level of international relations and external conflicts. The third category, financial risk measures part of country risk through indicators such as foreign debt (% GDP), foreign debt in relation to exports, exchange rate, and so on. It can be said that the country risk covers a multitude of problems that are often analysed as partial quantities, quantified by different statistical methods and econometric models.

The publications of foreign and domestic authors currently encounter the fact that specifically examines the country risk separately for the bond market and the stock market. The country risk associated with the bond market is mainly focused on the credit risk or the insolvency of the country. On the other hand, the country risk on stock market can be understood like a potential threat to investors who are investing in this market, as well as the companies that want to enter the market. Sovereign ratings are used to evaluate the credit risk of the country. The rating considers, in particular, the factors that affect a country's ability to fulfil its obligations of the issued bonds in time and in full. These are primarily financial indicators like level of debt, deficit, debt or deficit to GDP, etc. On the other hand, bond spreads are used to measure the country risk not only on the bond market, but also on the stock market. These spreads are more sensitive to market changes and are characterized by higher volatility.

Beirne and Fratzscher (2013) analysed country risk determinants like public debt/GDP, real GDP growth or current account/GDP to CDS spread in 31 countries. They found that there is a "wake-up call" contagion, as financial markets have become more sensitive to countries.

Maltritz and Molchanov (2013) analysed determinants of country default risk in emerging markets reflected by sovereign yield spreads. They stated that total debt, history of recent default, currency depreciation, and growth rate of foreign currency reserves as well as market sentiments are the key drivers of yield spreads.

Afonso, Arghyrou and Kontonikas (2015) also examined the determinants of bond yield spreads in the EMU and found that the menu of macro and fiscal risks priced by markets has been significantly enriched since March 2009, including international financial risk and liquidity risk.

Silvapulle, Fenech, Thomas and Brooks (2016) investigated the contagion effects in the daily bond yield spreads (relative to Germany) of five peripheral EU countries as a consequence of the recent euro-debt crisis. They found evidence of financial contagion effects. In globally interconnected financial markets, central bankers and policy makers are concerned about contagion.

Aristei and Martelli (2014) analysed the impact of behavioural factors on sovereign bond yield spreads in the Euro area. The authors found that the behavioural indicators considered, such as proxies of consumer and market sentiment and expectations, strongly affect spreads' behaviour, especially during crises.

Eichler (2014) examined the political determinants of sovereign bond yield spreads and found that political determinants have a more significant impact on sovereign bond yield spreads in autocratic and closed regimes than in democratic and open countries.

The working paper from Haugh, Ollivaud and Turner (2009) is dedicated to the government bond's growing risk spreads in countries of the Eurozone during the financial crisis of 2008-2009. They compare yields of government bonds of individual countries to German government bonds (Bunds). They see the problem of high spreads in the inefficient and deficit economy of countries, as well as higher investor risk aversion during crisis.

Kerstin Bernoth, Jürgen von Hagen and Ludger Schuknecht (2012) stated that interest rate differentials between bonds issued by EU countries and Germany or the USA contain risk premiums which increase with fiscal imbalances and depend negatively on the issuer's relative bond market size.

Much attention was given to this issue, especially in connection with the insolvency of Greece. Dionysios Chionis, Ioannis Pragidis and Panagiotis Schizas (2014) examined the impact of major macroeconomic indicators on government bond yields and growth of risk margins in Greece. They found that the most significant factor during the crisis era was government deficit. On the other hand, debt to GDP ratios do not play any significant role.

Reusens and Croux (2017) compared the importance of different sovereign credit rating determinants over time, using a sample of 90 countries for the years 2002–2015. After the European debt crisis in 2009, the importance of financial balance, economic development and external debt increased substantially and the effect of eurozone membership switched from positive to negative. For highly indebted countries, GDP growth gained a lot of importance, and on the other side, the government debt became more important for countries with lower GDP growth rates.

However, credit rating agencies are often criticized. The problem is that issuers pay for the required rating, so it can be assumed that the agency is too optimistic when evaluating the issuer. If one of the agencies changes the rating of the state, other agencies will do the same, so we cannot talk about agency independence. Another disadvantage is the too-long rating process. According to Damodaran (2015), credit rating agencies are reacting too late to a rating change, exposing the investors themselves to risk.

At the time of a crisis, it is assumed that credit rating agencies will overreact and aggravate credit ratings for issuers who would not otherwise undermine the rating, which will have market feedback and will only deepen the problem. Bhatia (2014) lists several of the following reasons why credit rating agencies are failing: information problems, limited human resources, revenue bias and other incentive problems.

2. Aim and Methodology

The goal of this contribution is to show the importance of the country risk, which has become more important in recent years because of the debt crisis in the Eurozone. Also, we will quantify the country risk by two different methods. First, we look at the sovereign ratings of individual countries. The second, market-based method is simply the difference between yield to maturity of a 10-year bond of a risky country and that of a 10-year bond of a risk-free country. To be able to compare the results of these methods, we will assign spreads in basis points to sovereign ratings according to the Table 1. The point of this contribution is to prove that changes in sovereign ratings could be forecasted by market-based method of measuring country risk. We will quantify the country risk of Italy, Spain and Greece. We will be examining the period from 1998 to 2018.

Country ratings focus mostly on the macroeconomic factors that would affect a country's ability to repay its debt and avoid defaults. On the other hand, bond spreads reflect current market situations. So, we assume that the market can react in advance to potential threats. The purpose of this paper is to try to prove that a market-based method can forecast changes in sovereign rating.

Emerging markets don't have government bonds denominated in foreign currency but in case they have a set rating from one of the world's rating agencies, we can determine the spread of these countries. The method assumes that countries with similar credit risk should have the same rating and based on this, we assign a given country spread.

Table 1
Rating and default spread. January 2018.

investment grade									
Rating	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3
Spread	0	41	51	62	72	87	123	164	195	226
speculative grade									
Rating	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca
Spread	256	308	369	462	564	667	769	923	1025	1230

Source: own processing based on www.stern.nyu.edu

In the Table 1 we can see individual risk spreads in basis points assigned to country ratings. For our measure, we choose Moody's rating agency. In our case, Germany has the best credit rating, so the country's risk premium is 0. Both Italy and Spain have a rating of Baa2 with a spread of 195 basis points. That means that bond yields of Italy or Spain should be higher by 1.95 percentage points than bond yields of German Bunds.

Investors who don't think that rating and scoring are sufficient and reliable methods of measuring country risk can use one of the alternative **market-based methods**. Investors see the advantage of these methods and that the results reflect the actual situation on the market. It should be noted that they are characterized by frequent fluctuations in comparison with rating or scoring evaluations. These fluctuations are caused by market reactions to different events or irrational behaviour of market participants which explains the psychological analysis. According to Damodaran (2016), one of these market-based methods is default spread. The risk premium is calculated according to equation 1 as the difference between the yield to maturity of the bond of country X and the yield to the maturity of the bond of a risk-free country. This difference tells us about the country X's risk; the bigger this difference, the more risk the investor assunes when it comes to the country's financial market. For the purpose of this paper we will use data of yield to maturity of 10-year bonds of countries Greece, Spain and Italy, and for a risk- free country, we choose 10-year German's bunds.

$$bond\ spread\ YTM = YTM\ of\ 10Y\ bond_{country\ X} - YTM\ of\ 10Y\ bond_{risk\ free\ country}$$

(1)

In this research we used data from different databases. We used mathematical and statistical methods to compile acquired data. We processed the data from the Eurostat database and available sites, www.tradingeconomics.com and www.yahoofinance.com, along with the ECB published data on www.ecb.org.

3. Results

During our examining period, we could see several important events in the financial markets. The first event was the technological bubble, also known as the "dot.com" bubble, which popped up in the early 2000s and caused huge losses for stock markets. However, spreads in the 2000s showed small volatility and therefore, the technology bubble affected not only the stock markets, but also the bond markets. During a market crisis, investors demand "safe haven" assets like bonds or gold. This causes the bond yields to fall. It is true that bond yields of our selected countries fell, but those movements had the same trend. In other words, the dot.com bubble and its collapse didn't affect the terms or the country risk, because the phenomenon didn't make any changes to the riskiness of our selected countries. Another case of crisis was the mortgage bubble in the US market in 2008. The core of this bubble was the fact that US banks provided mortgages to risky clients. These kinds of mortgages, when the

borrower is very risky, are known as subprime mortgages. In the next step, banks sold these assets to other financial institutions via securitization. The mortgage problem became a worldwide problem through these financial operations. Because of factors like level of globalization and specific relationships between financial institutions of different countries, we saw and experienced a worldwide crisis. In the first half of 2008, we saw growing spreads of government bonds. In 2011 and 2013, we saw enormous increased risk spreads for countries like Italy and Spain, because of disproportionate growth of government debt in those countries. Since 2014, we have seen relatively stable spreads; however, we can also see the different spreads of countries with different ratings. Since this moment, investors have begun observing and marking differences between the countries of Eurozone. They have started understanding and measuring the risk associated with investments in government bonds of risky countries. It should be noted, however, that during the stock bubble in 2000s, spreads slightly increased. In 2008, during the mortgage bubble in the US, we saw increased spreads. But we are talking about extreme growth from 2010-2014 because of debt crisis in the Eurozone.

In the Figure 1, we can see the development of bond spreads and the spread of spreads on the basis of the rating in the reference period from 1998 to 2018. As we mentioned above, the dot-com bubble was in the late 1990s. Bond spreads showed little volatility during this period. From 2001 to 2007 we can see that bond spreads have a minimum volatility, while the Spanish rating was at its best possible level - Aaa, making it a risk-free country comparable to Germany. The favourable economic environment was also characterized by a favourable development of macroeconomic indicators - the Spanish economic GDP growth remained at a stable level, the government debt to GDP ratio declined (in 2000 the debt/GDP ratio was at a level 60% and in 2007 at 35.5%) and the deficit had developed positively. But since 2007, we have seen a sharp increase in bond spreads. All macroeconomic indicators have deteriorated since 2007; for example, government debt/GDP ratio had risen to a level of 100.4% in 2014, or the economic "growth" had reached negative numbers.

Figure 1
Bond spread and rating based spread (in BP) in Spain between 1998 and 2018.
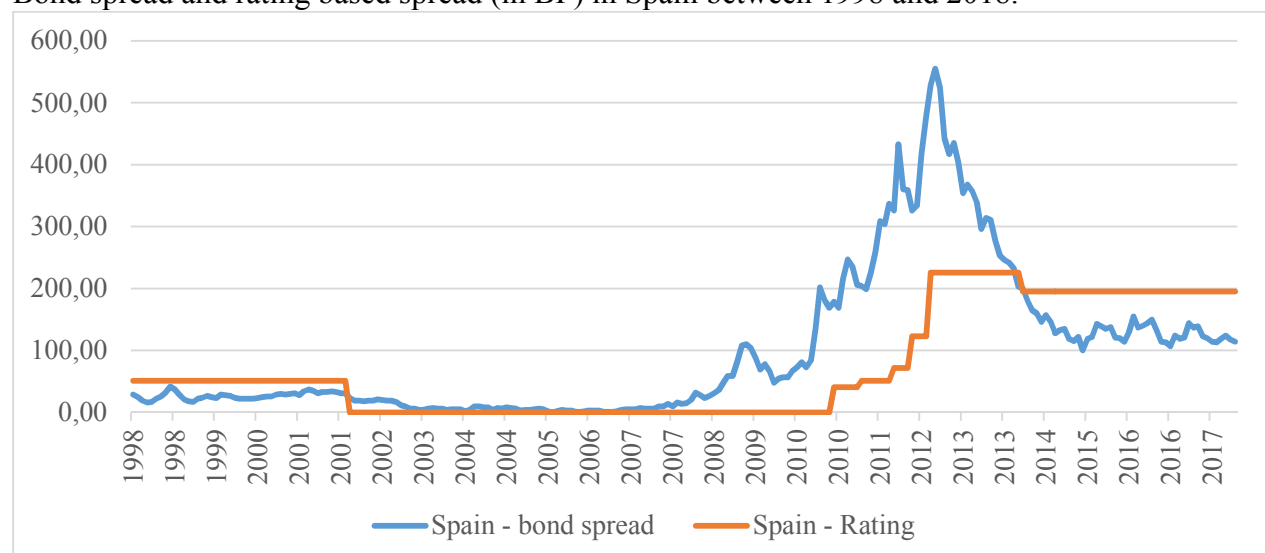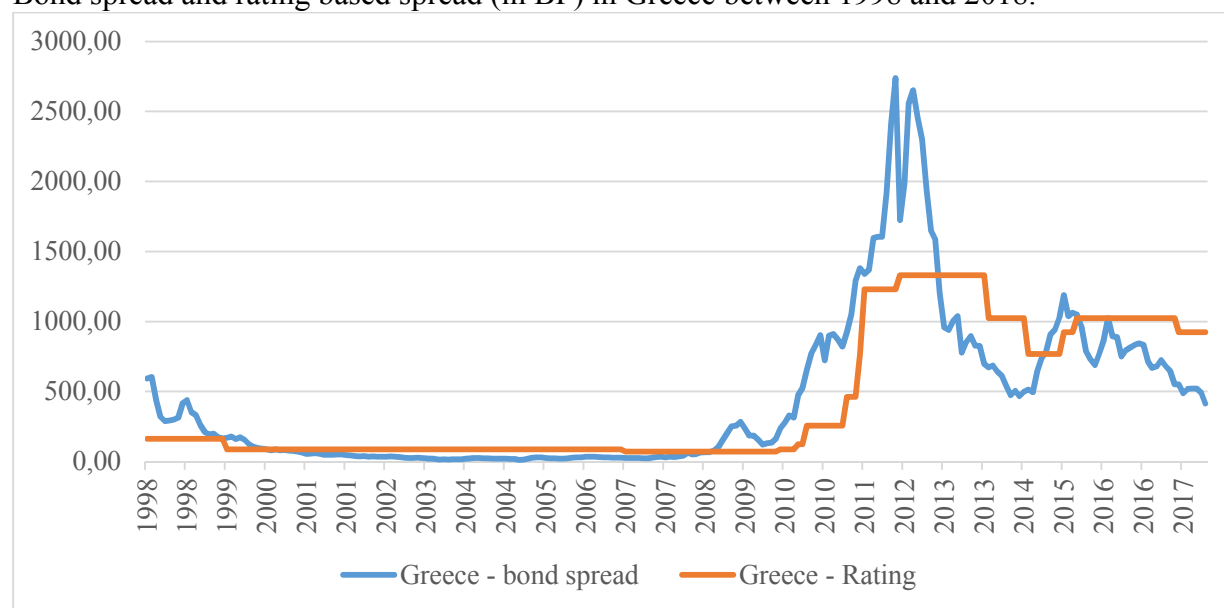

Source: own processing based on ec.europa.eu/Eurostat

In 2010, the sovereign rating of Spain was downgraded to level Aa1. In the recent years, there have been a number of further downgrades to Spain's sovereign rating to Baa3. On 1.2.2014 Spain was awarded the Baa2 rating, which remained at this level until now. As we can see in the Figure 1, the growth of spreads predominated from the worsening of the

sovereign rating of Spain, and in the next years the decline in bond spreads prevented an improvement in sovereign rating. From 2015, bond spreads and the outlook for sovereign rating of Spain are stable, so we can expect no changes in rating in the near future.

High public debt is currently the main problem of the Italian economy, which is ultimately reflected in the level of yields of Italian government bonds. Italy too has been affected by a low economic growth. The increasing public debt as part of GDP in recent years has been caused by a low, sometimes negative economic growth, as well as low inflation. Low inflation causes an increase in real interest rates, and therefore, the dynamics of Italian economy are getting worse. Italy's debt problem is a long-standing problem which can trace its roots back to 1999, when it adopted a common currency, the Euro, and became a member of the Euro area. Italy had undertaken to reduce the level of debt from 110% to 60% of GDP on entry into the Eurozone. It has accomplished this criterion, but only partly. In 2008, many countries were forced by the financial crisis to spend a considerable amount of money to support the economic recovery. In 2009, efforts to improve the situation in the fiscal area were renewed. The project EDP-Excessive Debt Procedure was launched in the same year, too. The purpose was to ensure better management of public funds. Since that year, we are watching decreasing public debt in Italy. The deficit was at 5.3% in 2008, while it was at 2.6 % in 2016. The development of bond spreads in Italy is very similar to that in Spain. In 1999, we can see a little volatility.

Figure 2
Bond spread and rating based spread (in BP) in Italy between 1998 and 2018.
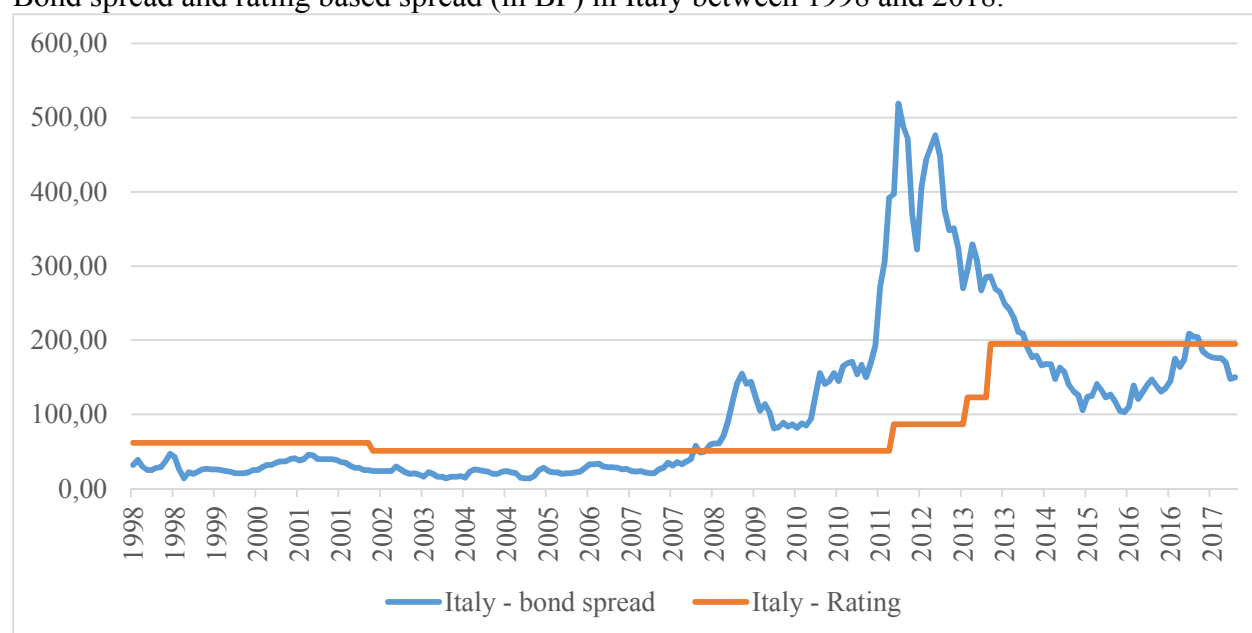
Source: own processing based on ec.europa.eu/Eurostat

From 2000 to 2007, we are seeing a very low volatility of bond spreads. In May 2002, the sovereign rating of Italy was decreased from Aa3 to Aa2. From 2007 to 2011, we see a rise in bond spreads. Consequently, in October 2011, the Italian rating was downgraded to A2. In the coming years there will be some further downgrades of the sovereign rating of Italy to Baa2. Extreme jump in bond spreads in the period 2011-2013 can be considered as an overreaction, but even in this case rising bond spreads prevent downgrading of sovereign credit rating of Italy. In 2016, we can again see rising bond spreads. Actually, the outlook for sovereign rating of Italy is negative, so we can expect another downgrading of Italy's rating.

In the Figure 3, we can see the development of bond spreads and the spread based on sovereign rating of Greece according to the Table 1, in the time period from 1998 till 2018.

The tendency to develop bond spreads is similar to that of Italy and Spain, with little difference. In 1998-2000, we can see a decline in bond spreads, and in July 1999, the sovereign rating of Greece grew to A2 with a positive outlook. From 2000 to 2008, the situation is the same as in the case of Italy and Spain. Bond spreads show minimal volatility, and the sovereign rating will improve to A1 in January 2007. During this period, the debt/GDP ratio was around 100%, and the country's economic growth oscillated from 0 % to 2 %. Since 2009, we have seen a sharp rise in bond spreads until May 2012, when the spread was at the level of 2652 basis points (the yield to maturity of 10-year Greek bonds was higher by 26.52 percentage points than that of German bonds). During this period, the debt/GDP ratio rose sharply to 179 % (2016 Eurostat). In June 2010, the sovereign rating of Greece was downgraded to A2. Over the next years, the sovereign rating of Greece has been downgraded several times. From March 2012 to November 2013, the sovereign rating of Greece was at level C with negative outlook (rating C signifies default of country). However, from 2012 till 2014, we can see declining bond spreads, while in November 2013, the rating of Greece was upgraded with positive outlook. From 2014 to 2015, we see a renewed increase in bond spreads and, consequently, a deterioration in ratings. From 2016, we see a declining trend in bond spreads as, in July 2017, the rating agency awarded Greece a status-positive outlook, which may indicate a further improvement in the sovereign rating of Greece.

Figure 3
Bond spread and rating based spread (in BP) in Greece between 1998 and 2018.

Source: own processing based on ec.europa.eu/Eurostat

In the Table 2 we can see the last three changes in sovereign ratings of Spain, Italy and Greece with outlook to the future. According to this data and the development of bond spreads, we can assume a stable rating for Spain, probably a downgraded rating for Italy and an upgrade of sovereign rating for Greece.

Table 2
Last three changes in sovereign rating of Spain, Italy and Greece (Moody')

Spain			Italy			Greece		
1.12.2013	*1.2.2014*	*1.2.2016*	*1.2.2009*	*1.10.2009*	*1.12.2009*	*1.7.2015*	*1.9.2016*	*1.6.2017*
Baa3	Baa2	Baa2	A1	A1	A2	Caa3	Caa3	Caa2
stable	positive	stable	stable	negative	negative	negative	stable	positive

Source: own processing based tradingeconomics.com

4. Conclusions

As we can see, the trend of bond spreads as well as sovereign rating was very similar in the monitored countries. At the beginning of the reference period 1998-2000, we were able to see a small volatility in bond spreads. Between 2000 and 2007, volatility of bond spreads was either minimal or none. During this period, the macroeconomic indicators of the monitored countries developed positively, and the sovereign rating was improved (Spain 2001 on Aaa, Italy 2002 on Aa2, Greece 2002 on A2), all with a stable outlook. In the period from 2007 to 2012, we saw a sharp increase in bond spreads, and in the coming years the deterioration of sovereign ratings. Spreads subsequently declined, with the rating of the country remaining unchanged (Spain, Italy). So, we can assume that the sharp increase in bond spreads has been overreacted, but in any case, preceded the downgrading of sovereign rating. So, we can assume that those overreacted increased predicted changes in sovereign ratings and served as a warning signal. In the last two years, we can see stable bond spreads in Spain with stable outlook for sovereign rating, so we can predict that the rating won't change in the near future. Bond spread in Italy has shown a rising trend with actual negative outlook, so we can predict a possible downgrading of sovereign rating of Italy. Conversely, bond spread in Greece has shown a declining trend with positive rating outlook, so we can assume a possible upgrading of the sovereign rating of Greece. The purpose of this contribution was to compare two methods for measuring country risk and to find out whether the market can predict the possible deterioration of economic conditions in a country. We can conclude, that we fulfilled the purpose of this paper.

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The Impact of Assets Measurement on a Financial Result
of an Accounting Entity

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Abstract

Accounting is strictly regulated by legally binding regulations. Nevertheless it is still possible to apply the entity's individual approach and its specific needs within the accounting. Measurement has direct impact on informative value of data given by accounting because the amount of assets, liabilities and equity recognized in the financial statement as well as the amount of financial result depends on its measurement. The paper focuses on alternative methods of assets measurement and their impact on the entity's financial result.

Keywords: *measurement, measurement bases, measurement methods*
JEL classification: M41

1. Introduction

Accounting as a comprehensive system of economic information aims to provide information about the accounting entity's financial position, financial performance and cash flows. These information are provided through the financial statements to various users who, on their basis, make economic decisions. The fulfilment of the accounting main goal is ensured by following the basic principle of double-entry accounting - the true and fair view. Economic information recorded in the accounting are expressed by monetary units, which is why there is significant emphasis on measurement. Measurement is considered to be one of the fundamental accounting methods. The methodology of accounting, and thus measurement, is regulated by law. The basic legal standard at the law level in the Slovak Republic is Act no. 431/2002 Coll. on accounting, as amended (hereinafter referred to as the "Act on Accounting"), followed by decrees issued by the Ministry of Finance of the Slovak Republic. We distinguish between two sets of decrees. The first set of decrees deals with the details on stipulation of details of accounting procedures and framework chart of accounts. The second set of decrees deals with the decrees dedicated to the financial statements. Measurement at business accounting entity is governed by the Act on Accounting and also by the Decree of the Finance Ministry of the Slovak Republic 23054/2002-92 on stipulation of details of accounting procedures and framework chart of accounts for entrepreneurs keeping double-entry accounting as amended (hereinafter referred to as "Accounting Procedures for Entrepreneurs"). Accounting legislation is in some cases strict, in some cases more liberal, allowing for alternative approaches and, in some cases, it has only a recommendatory character (Šlosárová, 2017). There are areas that provide scope for applying the entity's individual approach and taking into account its specific needs. Every accounting entity is unique and its uniqueness is influenced by several factors: object of activities, environment in which they perform their activities and last but not least, by people who regulate their activities. True and fair view of reality becomes subjective due to these factors. Alternative methods are mostly common in the area of measurement. Subjective approach could be also applied in some of the accounting methods.

2. Characteristics of measurement and measurement bases

An accounting entity is obliged to keep accounts and prepare the financial statements in monetary units of euro currency. Identification, quantification and expression of facts which are subject to accounting in monetary units are provided through measurement (Bednárová, 2015). Measurement means the way how the price of measuring object is expressed. Above all, the process of measurement consists of measurement object identification and the choice of right measurement base. Measurement object can be various facts which are subject to accounting, but also an accounting entity as a whole. The need of measurement of an accounting entity as a whole is necessary for example in the change of ownership.

Measurement has direct impact on informative value of data given by accounting because the amount of assets, liabilities and equity recognized in the financial statement depend on measurement. Measurement of assets and liabilities also influences the amount of the entity's costs and revenues and hence the amount of financial result. Measurement of costs once again depends on the measurement of the liability increase or the assets decrease to which it relates. Measurement of revenues depends on the measurement of the asset increase or the liability decrease to which it relates. The measurement of individual assets and liabilities also affects the value of the entity's equity because the equity does not have a measurement base in terms of its measurement.

Measurement bases in accordance with the Act on Accounting are the acquisition costs, conversion costs, nominal value, fair value, present value and net realizable value. While choosing the right measurement base by accounting entity the several factors must take into consideration: purpose of measurement, measurement date and in the case of assets, also the purpose of its further use. Various combinations of factors mentioned above can result in use of different measurement base even though the measurement object is the same. The result of measurement is price set in euro currency. Measurement bases in accordance with the Act on Accounting are further defined in the Table 1.

Table 1
Measurement bases

acquisition costs	the price at which the asset was procured, including the costs associated with the acquisition, and all reductions in the acquisition cost
conversion costs	· for inventories created by own activities: direct costs of production (or other activities) and, optionally, manufacturing overhead – indirect costs proportionally related to the production (or other activities); · for tangible assets other than inventories and intangible assets created by own activities, except for receivables: direct costs incurred for production or other activities and indirect costs related to production or other activities
nominal value	the price stated on cash, stamps and vouchers, or the amount to which receivable or liability is written
fair value	· market price · the value identified by a measurement model, which mainly uses information from operations or quotes on the active market, if the market price is not known · the value identified by a measurement model that mainly uses information from operations or quotes on a non-active market, if there is no information available on the active market that could be used in the measurement model under the preceding point · expert judgement, if the fair value of the asset cannot be set according to the preceding paragraphs, or no measurement model is available, which estimates the price of the asset with sufficient reliability, for which it would have been sold at that time, or its use would require the accounting entity to

	incur disproportionate efforts or costs in proportion to the benefit of its use for the quality of presented financial statements
present value	· for future cash receipts: sum of products of future cash receipts and the relevant discount factors · for future cash expenses: the sum of products of future cash expenses and the relevant discount factors
net realisable value	the estimated selling price of the inventory, reduced by the estimated costs of completion and the costs associated with the sale

Source: Act on Accounting

Not only the measurement method but also the measurement base itself is sometimes the result of subjective opinion or individual approach of accounting entity towards price setting. Among such measurement bases counts for example, the fair value. The Act on Accounting does not directly define the fair value but it regulates the methods of its setting. The methods which set the fair value can be significantly influenced by the persons who quantify them. These methods could be also influenced by the information that serves as the basis for determining the fair value. Every accounting entity has different information with various levels of reliability which has impact on assurance of the correct and objective setting of a fair value. In some cases, the process of a fair value setting may be simple and reliable. In other cases, it can be complicated with higher probability of incorrectness.

In this paper we will focus on the most common situations arising from the application of the Slovak national legislation in accounting, in which the choice of measurement base, enumeration of the asset's measurement or the accounting method is the responsibility of the accounting entity. Thereby the accounting entity has the ability to influence the amount of costs, revenues and thus the financial result through the asset measurement.

Alternative methods of assets measurement

The asset of an accounting entity in terms of its nature can be divided into intangible assets, tangible assets, financial assets and receivables. The amount and structure of assets differs in each entity. It depends on the entity's business activity. From a time perspective, we distinguish between long-term assets and short-term assets, and the criterion for this classification is the limit of one year.

Short-term tangible assets include also inventories. In terms of accounting, inventories include material, work in progress, semi-finished goods, finished goods, animals and merchandise. Inventories may be purchased from an external environment or the accounting entity may create them through its own activities. The inventory acquisition method influences the selection of the measurement base: purchased inventories are measured by acquisition cost and inventories created by own activities, which include livestock breeding and increments, are measured by conversion costs. Measurement of purchased inventories by acquisition cost can be considered as univocal because acquisition cost represents the price at which the asset was procured plus all costs related to the acquisition and also includes all reductions in the acquisition cost. It is for example in the case of discounts and rebates.

Conversion costs on inventories created by own activities are defined by the Act on Accounting as direct costs of production and, optionally, manufacturing overhead – the indirect costs that are incurred when a product is manufactured, proportionally related to the production. Slovak legislation leaves it to the accounting entity's decision whether to measure inventories created by own activities in the amount of direct costs only, or to include the manufacturing overhead. Inclusion or non-inclusion the manufacturing overhead in measurement of inventories created by own activities will have a direct impact on the amount

of financial result, especially in the cases when production (or other activities) and inventories sale does not take place in the same accounting year.

If an accounting entity decides to measure inventories created by own activities in the amount of direct and indirect costs, there are several options of indirect costs calculation methods. Calculations are in the interest of management accounting which is also the source of details on structure of costs necessary for the correct assignment of costs to particular entity's performance. The importance of the correct quantification of the inventory value is also due to the fact that it is the value that will continue in the asset cycle of in the accounting entity and will therefore be recognized in the future as the entity's cost that directly affects the financial result (Máziková, 2016).

Slovak legislation provides various alternatives not only in gains measurement but also losses measurement in the field of inventories. An accounting entity can choose from:

- individual measurement,

- price determined by weighted average of acquisition cost or conversion costs,

- FIFO formula when the first price of gains measurement is used as the first price to measure losses.

Aforesaid measurement methods of inventories outflows are as related to purchased inventories as to the inventories created by own activities. It is necessary that the inventories have similar nature and use.

Fixed assets serve to accounting entity throughout several accounting years whereby they are getting physically worn by using or by the influence of technical progress or they are getting morally out of date as time flows. Physical and moral wear of fixed assets represents a diminution of the economic benefits of particular assets and it is expressed by depreciation. Accounting entity will create a depreciation plan according to the intended use of assets. It depends whether the wear is related to useful life – time methods of depreciation – or to the production which can be achieved using the assets – production methods of depreciation. In justified cases, when conditions change, a depreciation plan can be reviewed and residual period of depreciation or depreciation rate can be modified.

Existence of various methods of calculation of assets' accounting depreciation provides legal opportunities for subjective establishment of depreciation costs which will have an impact on the financial result throughout several upcoming accounting years. While choosing an appropriate method, the fact that the amount of depreciation recognized for tax purposes is governed by the Act on Income Tax and an accounting entity may tend to make a depreciation plan according to the tax legislation which does not correspond with the real wear of assets and distorts true and fair view in most of the cases should not be forgotten.

Tangible and intangible assets whose useful life is longer than one year and whose valuation is equal to or lower than the amount under a separate regulation (Act No. 595/2003 Coll. on Income Tax as amended, § 22), may be classified as long-lived assets. This decision affects the method of accounting and has a direct impact on the amount of the financial result. Integration of assets directly to consumption means their full cost recognition, which reduces the financial result in the year of asset's purchase and does not have an impact on the upcoming years. Fixed assets classified in this way are depreciated in accordance with the accounting principles and accounting methods during estimated useful life of assets and acquisition cost will get to the financial result through depreciation costs gradually over the depreciation period of the assets.

An accounting entity can create not only inventories but also non-current assets by their own activities. While in the case of inventories, an accounting entity can decide whether the part of indirect costs in measurement process would be included, in the case of non-current assets, indirect costs are always part of measurement. There is a presumption that calculation of indirect costs related to non-current assets produced by own activities is easier and more precise than it is in the case of inventories. This is caused by smaller amount of produced assets to which indirect costs are related. Indirect costs can be therefore allocated with specific assets more clearly.

Financial assets could be presented in the accounting entity in various forms: funds in cash and bank accounts, stamps and vouchers, securities, shares and financial investments. Cash, stamps and vouchers are measured by nominal value, i.e. sum indicated on them. Price setting is simple and univocal in this case. However, stamps, vouchers and funds in cash and bank account can be denominated also in a foreign currency. In such event, an accounting entity is obliged to measure them in Euros as well. Methods of foreign currency translation into euro are set by Act on Accounting with no option of any conversion variants. The options are available while choosing outflow measurement. Cash outflow in foreign currency and funds from foreign currency account can be measured also by the price ascertained by weighted average or FIFO formula. The price ascertained by weighted average or FIFO formula can also be used for an outflow of the same type of securities if they are in the same currency and are from the same issuer.

Financial assets in the form of securities, shares and financial investments are distinguished into non-current financial assets and current financial assets. Criterion for financial assets inclusion in current or non-current assets is the purpose of their acquisition. The accounting entity accounts and recognizes securities and shares in subsidiary accounting entity, in accounting entity with participating interest, realizable securities and interests and debt securities held to maturity as non-current financial assets. The accounting entity accounts and recognizes equity and debt securities intended for business, debt securities with a maturity of up to one year, own shares and own business interests, own bonds and other realizable securities as current financial assets. Correct identification and inclusion in financial assets has an impact on their:

- measurement on the date of the accounting transaction,

- re-measurement on the balance sheet date and

- change in value accounting method.

In general, the change in fair value of current financial assets on the balance sheet date is accounted as an accounting transaction affecting the financial result. The change in fair value of non-current financial assets on the balance sheet date is accounted as an accounting transaction affecting equity.

Shares and interests in a subsidiary accounting entity or in an accounting entity with participating interest can be measured by acquisition cost or equity method on the balance sheet date. Equity method is based on the comparison of carrying value of shares with a value corresponding to the participation rate of equity of subsidiary accounting entity or accounting entity with participating interests. Measuring of share will be increased, resp. decreased by the difference found. The difference will be accounted as a transaction affecting equity, without any impact on the financial result. Measurement by equity method allows revaluation of share to the sum exceeding acquisition cost which results in recognition of higher total sum of assets and equity than it is in the case of measurement in acquisition cost. An accounting

entity must use the selected method of measuring shares in subsidiary accounting entity or in accounting entity with participating interests for all such shares.

Value adjustments

Measurement of assets with a reasonable expectation of a temporary impairment below their carrying value, is adjusted by value adjustments. The value adjustments are created on prudent basis on all types of assets: tangible and intangible fixed assets, inventories, financial assets and receivables. Probability of impairment loss of assets is a fact which has already occurred and it results in an estimation of future decrease of economic benefits of a specific assets. The cause for an impairment of assets and the reason for accounting of value adjustments may be a significant decline in the market price of the asset, obsolescence of assets, but also non-use of assets or the fact the assets' performance is lower than expected. A value adjustment is created when the accounting entity identifies an impairment of assets below its carrying value and discovers that the measurement of the asset recognized in the financial statements does not correspond with the reality. Value adjustments are used to express temporary impairment of asset with no permanent character. The amount of a value adjustment is set by estimation which is supposed to represent a value of decrease of economic benefits arising from reviewed assets. The reasonable assumption of a value adjustment is reviewed at least once a year on the balance sheet date.

Value adjustments are accounted as costs in the accounting period in which the accounting entity identifies impairment of assets and affect the financial result by its decreasing. As soon as the impairment loss of assets ceases to exist, value adjustment will be accounted in the accounting entry opposite to the one in which the value adjustment was accounted. It means, in the following accounting periods, if the reasonable assumptions about the impairment loss of an asset are fully or partially eliminated, the value adjustment is accounted as a reduction of the costs in the current accounting period and results in an increase in the financial result.

Value adjustments are accounting estimates with a direct impact on the financial result. An inaccurate estimate of value adjustments will influence the financial result for at least two accounting years: first, while creating value adjustments and then in the year when the reason for impairment loss of assets ceases to exist. Value adjustments as an estimate of amount based on management's subjective judgment may help to influence the financial result and profitability of an accounting entity easily.

3. Conclusion

Accounting information users request and rely on the compliance of the fundamental principle of accounting, which is a true and fair view principle. The given task for an accounting entity and to its people, who are responsible for the correctness of accounting, is to establish conditions and rules for true and fair view principle application and to supervise its compliance.

Measurement of facts which are subject to accounting has a significant impact on data presented in financial statement, their quality and reliability. Measurement affects not only the total amount of the assets, liabilities and equity recognised by the accounting entity in the financial statements, but also affects the financial result of the accounting entity. As given scope of the submitted paper, we focused on assets measurement.

Although the measurement is governed by legal rules, there are cases when price setting can be influenced by subjective judgment. In some events, legislation allows to choose measurement base. There is a risk that the true and fair view of the accounting would be distorted by choice of model which will enable accounting entity to recognise "wished"

financial situation and financial result. In those cases of measurement which are governed by tax laws can occur such a situation when the accounting entity in order to gain the simplification of the processes neglects the accounting policies. Proficiency and ethical approach of people responsible for creation and compliance with the accounting policies of accounting entity cannot be underestimated either. The insufficient knowledge or lack of ethical principles of these persons represents a risk of information misrepresentation in accounting. If the accounting entity is interested in influencing decisions of the financial statement information users, then the selection of an appropriate measuring model of assets and accounting method are the ideal tools for creating financial situation and financial performance of the accounting entity.

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Mediation as Efficient and Simple Way to Resolve Disputes

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Abstract
Today, with the global development of the economy and integration, which in its turn opens wide opportunities for development of economic relations between companies, corporations and states, the ground for emergence of various disagreements is formed as well, which can eventually lead to disputes between these companies. However, the economic environment and life itself as well are developing quite dynamically and they offer a wide variety of ways and mechanisms to resolve the emerging disputes. However, not all of them are accessible to everyone and not each of them is effective in a particular case.

1 Origin and demand for mediation

Mediation is one of the ways to resolve disputes. Mediation is an extrajudicial way of dispute resolution between the parties involving a mediator - a neutral and impartial person in the process, who coordinates and directs the negotiation process between the parties so that they could arrive at a mutual and beneficial decision for both of them.

The mediator facilitates the process of negotiations between the parties, promotes the reconciliation and helps to find common ground on the positions of the parties, but unlike the latter, the former cannot propose its own version of the agreement or otherwise direct the negotiations (Rozhkova, 2007).

Mediation as a method with theoretical definition of the mediator's role and certain phases and techniques, which are the basis for peaceful resolution of conflicts aimed at concluding an agreement with the participation of an independent and neutral person, is not regulated by any legal act (Swanová – Baliová – Dolanská, 2016a).

Mediation came into use in the second half of the twentieth century (Swanová – Baliová – Dolanská, 2016a). Firstly it appeared in the USA, Australia, England, and later in Europe: in Germany, Austria, France, Belgium, Italy, Slovakia and other countries. Within the practice of peaceful settlement, mediation has long been used, among other things, to resolve intercultural conflicts in the field of international diplomacy (for example, with the participation of the Organization for Security and Cooperation in Europe, in the UN), even if the methods used there are called in a different way. In the economy, in the family, at workplaces, in organizations, professional groups, communities, etc. various conflict management strategies are used, which are essentially mediative, although they are not called so, and are designated, for example, as "negotiation techniques" (Meta, 2009).

And today, mediation has achieved certain development throughout the world and is widely used by the parties to resolve disputes. The demand for mediation is explained by

broad globalization, which contributes to the growth of interrelations in the economy at the state level and in other spheres. Therefore, new, extraordinary and more efficient dispute resolution mechanisms are required. Mediation is one of such mechanisms.

2 Criteria by which the parties choose mediation for resolving disputes

There is a variety of ways to resolve disputes, but, as was said above, not each of them can always be effective and beneficial for the parties in a particular case. What does it depend on? It depends on such factors as:

- area of dispute,

- desire of the parties to agree between themselves. "…*One important thing in the mediation process is the readiness of the parties for a constructive dialogue and their desire to come to an agreement…*" (Pravo.by, 2016),

- desire to continue cooperating in the future, if, for example, this is a dispute in the field of economic legal relations,

- time that the parties are ready to spend to resolve the dispute,

- financial resources, which the parties are ready to spend to resolve the dispute.

Specific criteria for assessing the effectiveness of dispute resolution should be indicated, which are, as a rule, are taken into account by the parties when choosing one or another method of dispute resolution. They include:

- availability of a method for dispute resolution.

Mediator can mediate in resolving of any disputes, based not only and not so much on the legal requirements, but on the interests of the parties, the norms of morality and personal life experience (Advantages of mediation, 2013).

- completeness and sufficient regulation of the procedure for resolving disputes,

- terms of dispute resolution,

- financial costs for its resolution.

Through mediation, during the dispute resolution, the parties do not incur high financial costs as during legal proceedings or when using other ways of resolving disputes. And the parties usually divide the costs of mediation equally between themselves (Kučera, 2013).

- confidentiality (Rebuilding community connections – mediation and restorative justice in Europe, 2004).

Any information used in the mediation process is confidential (Swanová – Baliová – Dolanská, 2016b).

- possibility to make decisions on a dispute.

This is the best way when the disputing (conflicting) parties, with the help of a qualified agent, decide on their own to continue the relationships and resolve the dispute. This consent is reached by the parties themselves, and the foundation for future relations is laid instead of deepening in the conflict even under the presence of a court decision (Kamenkov, 2012).

Mediation has many advantages, such as its accessibility to the public and the state. It means accessibility for everyone and accessibility at all stages of the process (Rebuilding community connections – mediation and restorative justice in Europe, 2004).

Today there are no restrictions for any citizen, company or state that would like to resolve a dispute through mediation. Everyone can turn to mediators to solve a dispute with their help. But, of course, we cannot but mention the fact that "*…mediation cannot be applied in all cases. First of all, it is necessary for both parties to agree on its implementation. Usually one party is set for mediation, and attracting the second one is a matter of art and qualification of the dispatcher of the mediation center or the mediator himself/herself. Even if this is a mandatory pre-trial mediation, as in the case of divorce or small lawsuits in a number of U.S. states, one or both parties can easily sabotage it if they do not consider it necessary and beneficial for themselves…*" (Ivanova, 2009).

There are also cases that cannot be settled through mediation.

For example, in some countries "*…it cannot be used to resolve criminal conflicts or conflicts between people suffering from mental diseases…*" (Allakhverdova – Pavlova, 2009). But this does not in any way restrict the right to appeal to a mediator with a request to resolve a dispute through mediation.

3 Why is mediation an effective way to resolve disputes?

Today, the society and the state offer various options and ways to resolve disputes. Such as, the court – the most widespread in the whole world, arbitration and negotiations. But why is mediation identified as the most effective way to resolve disputes?

According to the author, the main reason is the mediation goals. Namely:

Above all, mediation allows us to discuss and work out a complicated situation that has arisen between the parties. In this discussion there should be a place for different points of view, often incompatible views on events or ways for getting out of a difficult situation. The result of successful mediation is a clear agreement reached on the basis of discussion and arrangements. The principle of self-determination of the parties remains decisive in the course of mediation. Decisions become decisions only if each participant recognizes them.

Secondly, in conflict situations, the access to dialogue and constructive interaction is violated. Achieving a positive shift towards the restoration of this ability, the mediators ensure that each participant is heard and treated with respect, so that his/her intentions are taken seriously. Only in such a way it is possible to overcome conflict emotions and to eliminate negative feelings. Not only the essence of the case, but also values and interests are discussed aloud. Ideally, at the end of mediation, emotional dissonance between the conflicting parties should disappear, and the resolved conflict should not interfere with communication between each other. It does not mean obligatory harmonization or forgiveness, but understanding, clarity and ability to manage possible remaining contradictions is an obligatory result of mediation.

And thirdly, honest and open elaboration of the interests and values of the participants increases the probability of implementation of the agreement reached. The agreements are often revised and changed if the participants understand during the mediation process that their interests are taken seriously as well as the interests of the "opposite" party.

Therefore:

- Mediation helps to reach an agreement with respect to all parties.
- Mediation helps to find practical solutions, which all the participants agree with.
- Mediation helps to avoid tedious discussions, long-lasting legal proceedings and high costs.
- Mediation respects and strengthens the autonomy of the parties of the conflict.

Unlike in the court - during mediation, the parties themselves can monitor the progress of the process and its final result. Often, the decisions taken in mediation cover a much broader range of issues than the claims listed in the statement of case (Mediation in court, 2009).

Compared to the court session, the mediation procedure is more informal, and, accordingly, is less stressful and traumatic for the parties. Also, mediation allows you to achieve results much faster (usually within 2-4 hours) and save money for examinations and other legal expenses.

The process of mediation and the information connected with this process is confidential, that is very important for the parties. And everyone knows that many people, as they say, do not want to "wash dirty linen in public".

Legal proceeding is an open process in most cases. That is why everyone can find out all the details of the dispute and business relations of the participants, and even the personal life. Information leakage during the mediation is nearly eliminated (Surma, 2017).

With the help of mediation, parties can reach mutual understanding to a greater extent, as well as to eliminate certain stereotypes on the dispute that has arisen, rather than it could be achieved by any other way (Kotvanová, 2010).

4 Conclusion

Society, state, law – all these are dynamic categories, constantly changing under the influence of various factors. Only yesterday things that seemed to be solid are falling apart and become forgotten by the descendants. And such a specific sphere as dispute and conflict resolution is not an exception too. One may seem what can replace the judicial bodies, which are an integral attribute of the state and leading its history from the biblical times? (Molotnikov, 2012)

And, as it turned out, mediation is one of such mechanisms and methods that are already developing quite actively, giving the parties the right to choose this procedure, and not the court to resolve the dispute, and sometimes even to shift from the court to mediation to resolve the dispute.

The fundamental opportunity that mediation gives is based on recognition of a positive impact of the presence of a neutral party on effectiveness of negotiations. It has a variety of historical and cultural analogues. Last decades saw growing interest in the opportunities of mediation, which is due to the wide spread of various forms of negotiation process in public life, as well as due to the facts of its successful implementation in the practice of resolving international conflicts.

Acknowledgement

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Negative Income Tax in Case of V4 Countries

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Abstract
This paper is follow up research of negative income tax topic. Despite its not very popular name in presence, it plays a significant role in the tax systems of the particular countries. Currently, negative income tax is reflected in the form of tax credits. I focused on the V4 countries in the last already reported period of 2016, and I was searching for a presence of the elements of negative taxation in tax systems of V4 countries. The effort was to point out the differences and inconsistencies in the way how tax credits are reported, compared by OECD and EU methodology.

Keywords: *negative income tax, poverty, tax credit*
JEL classification: H 23, I 38, H 53

1. Introduction

Nowadays, the presence of tax credits in the systems of countries is one possible manifestation of negative income taxation. James (1998) presented advatages of negative income tax:

➢ Indeed, negative income tax is an instrument to overcome the poverty trap. It stimulates people to take up paid employement instead of receiving social benefits.

➢ The existence of negative income tax could reduce the level of life minimum, that disrupt the operation of the free market mechanism and therefore causes unemployment.

➢ Last but not least, the negative income tax could stop the number of current social security benefits and replace them by simple systemic measures (James, 1998).

An earned income tax credit in United States of America (U.S.A.) is a tool to improve situation of poor families by eliminating income tax of tens of families. This is a specific case of New York (U.S.), where the state by increasing tax credit from 5% to 15% at the level of city, would have:

➢ Raise the level above the poverty line of an additional 15000 families in New York City;

➢ Boost the maximum earned income tax credit (federal, state, city) in New York from 8463 USD to 9090 USD per person.

➢ Provide more generous tax credit to more than million of children and two million of adults in New York City, which are living near the poverty line;

➢ Provide an average city-level credit of 330 USD per person (today 110 USD);

➢ Reduce effectively city income tax of 6000 citizens of New York (Stringer, 2016).

At the end, saving extra money would secure more food in particular families, higher financial support of schools and education, more public transportation travellers, more savings etc. The U.S. earned income tax credit is one of the most successful anti-poverty programs. Except of the aid to particular families, it helps to stimulate the economy in that particular region. According to study of Baltimore Earned income tax credit, each additional dollar of earned income tax credit, had the effect of more than one dollar of economic activity – 71 mil. USD tax credit expenditures (deductions + cash transfers) generated more than 102 mil. USD of economic output, more than 1000 jobs and 30 mil. USD of wages (The Jacob France Institute, 2004).

2. Different methodological approaches to the perception of tax credits

Let´s begin with the definition of a fiscal benefits. In **ESSPROS[1]**, the fiscal benefits are defined as a form of social protection provided in the form of tax concessions, that would otherwise be referred to as the social protection benefits, if they were provided in cash. Tax allowances may occur in the form of a tax deduction or exception – which is deducted from the tax bases, reduces the tax rate or reduces the tax liability itself (tax credit).

We can then differentiate between two types of tax credits:

➢ Wastable (non-payable or non-refundable) tax credit – it is available only to taxpayer with non-zero tax liability. Tax liability cannot be negative, and taxpayer is not allowed to receive cash transfer equal to left amount of tax credit.

➢ Non-wastable (refundable or payable) tax credit – it is not limited and can exceed the amount of tax liability, and therefore it can be returned to the taxpayer in the form of a contribution/cash transfer (European Commission, 2015).

Because non-payable tax credits reduce the amount of tax paid, they have only a fiscal component. They are considered to be a fiscal benefit, and they can be considered as a negative tax, in the sense that they reduce government revenue, but do not transform to government spending in terms of cash transfer.

There is a contradiction between ESSPROS and **ESA 2010** , namely between the cash and fiscal components of non-refundable tax credits. According to ESSPROS, payable tax credits have two components – cash and fiscal. [2] According to a recent Working group "Social Protection" decision, only refundable tax credits will be fully covered by fiscal benefits, while the other forms of fiscal benefists will be excluded from the Core statistics (European Commission, 2015).

According to ESA, non-wastable tax credits are perceived as a cash transfers, regardless of whether they are paid in cash or they reduce tax liability (for example in the future). In ESA 2010, they are treated as a total value of these credits, as government spending (and not on the other hand as a reduced tax liability – reduced government revenue) (Payable tax credits (PTC), 2017) The way, how they are currently recorded in the system of national accounts is essential, because there has been a change compared to ESA 95. At the same time, it requires, tax revenue to be reported as a total tax liability before applying non wastable tax credits.

Prior to 2010, all tax credits have been recorded in the state revenue (classified as tax credits, whether they were a form of negative tax, or not). By accepting ESA 2010, there was

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[1] European system of integrated social protection statistics
[2] Cash component represents the portion, that is paid to the taxpayer, and is therefore government spending
Fiscal component is the part, which can reduce the tax burden now, or in the future, and it is therefore
a reduction of government revenue – fiscal benefits.

practically a distinction between payable (non-wastable) and non-payable (wastable) tax credits. This means, that it is possible to distinguish the form of negative taxation within the national accounts.

The **OECD** defines the tax credit as the amount, by which a taxpayer may reduce his tax liability. They are described as payable (non-wastable) if they can exceed the tax liability. (OECD, 2017)

In fact, they can be treated in different ways, depends on whether they are considered as a tax relief or cash transfers. The Revenue Statistics 2016 discusses these alternative ways and the conceptual and practical difficulties that may arise, when deciding about the most appropriate approach. According to this report, many OECD countries fail to comply with methodological guidance, when reporting their tax credits. That leads to differences in tax credits reports. Those countries, that exceptionally follow the methodological guides generally use tax refund as the border/limit to differenciate weather there is tax expense component or cash transfer component (OECD, 2001).

Revenue Statistics 2001 discusses possible approaches how to treat tax credits:

1. To classify a refundable tax credit according to its policy objectives. Credits with the same political goals will be perceived and reported in the same way. Practicaly, this level of international comparability has never been achieved because of the problems to reach a common agreement about the benchmark of the tax system. Moreover, many tax credits have several political objectives, not just one.
2. To treat tax credits differently , depends on how tightly their administration is linked to the tax system. However, consistency between countries would not be ensured in this way.
3. To record gross tax revenue, without tax expenditures and tax credits. In this case, however, a very small change of non-payable to payable tax credit would have a major impact on reported revenue (even though the costs and impact on taxpayers would be minimal)
4. Tax receipts shall be recorded as net, taking into account tax expense and transfers. The most acceptable alternative among the previous four, the advantage of which is the consistent treatment between the countries. However, even this option would not deliver full comparability between the countries with and without payable tax credits. Especially in the countries with non-wastable tax credits, lower tax revenues will be reported (OECD, 2001).

3. Negative income tax components in V4 countries

The subject of the analysis are the V4 countries, in which I identified the presence of the negative income tax in one of its forms, under some of the names of its form. Based on information from the latest publication Taxing wages by OECD. In order to identify the elements of negative income tax, we will verify the presence of the basic characteristics of the negative tax:

1. The negative tax is not guaranteed to all individuals without exception. It is conditioned by the status of the employee. We will consider this criterion to be met, if an individual achieves taxable income from any source. As we follow a study aimed at personal income taxation, this criterion is achieved. Let us therefore refrain from reassessing it, as part of the analysis.
2. A negative tax is a reduction of the final tax liability.

3. If a negative income tax amount exceeds the value of tax liability, individual is entitled to a refund from the state budget (Tomčíková, 2015).

We have chosen these criteria based on theoretical assumptions and we consider them to be representative when assessing the negative income tax of individuals. Currently, the most popular and the most frequently occurring representative of a negative tax, and most of its components is a tax credit (if it is payable, non-wastable).

Hungary currently has no tax credits in the tax system. They were abolished recently in 2012, so we also refer to Hungary in our analysis.

3.1. *Development trends of tax credits in V4 countries (according to OECD methodology)*

In case of V4 countries, we can demonstrate a few observations. A single person with and income of 67% of the country's average is entitled to tax credits in Poland and the Czech Republic - the highest it is in the Czech Republic - about 1900 US per person per year, expressed in purchasing power parity. Compared to 2006, this sum amounts to be about 500 US per person per year. Even in Poland, the trend is increasing, compared to 2000, when it was 751 US per person per year, it is currently about 1500 US per person per year. By 2012, such a citizen was also entitled to a tax credit in Hungary (Apendix 1). The same applies to single, high-income person (100% or 167% of the country average income, Apendix 2 and 3). In Poland, exceptionally, the amount with rising income increases. The reason is tax credit defined as a percentage (as shown in the next part). Poland, Slovak Republic and the Czech Republic use child tax credits. In Slovak Republic, the amount of tax credit that is applicable is the lowest, and naturally grows more or less, or in other words there is no significant decrease. In case of married couple , with two children, where only one parent earnes 100 % of income average, in Slovak Republic he/she is entitled to a tax credit of about 564 US dollars per person in 2004 and 1047 US in 2016. In Czech Republic and Poland, these sums are considerably higher and, while in the same situation, the Czech Republic had 824 US per person per year in 2005 and 6160 US per person per year in 2016, in Poland it was 1508 US in 2005 and 3653 US in 2016. With the increasing income of one or both, however, Poland is ahead of the Czech Republic (Apendix 4, 5, 6, 7).

The charts in the annex represent the amount of tax credits according to OECD report in V4 countries. Each of them demonstrate different situation of taxpayer (single with no child/with 2 children, married with no child/2 children etc., see Apendix). To be able to compare data for V4 countries we expressed them in purchasing power parity of each currency and converted to US (based on particular year average currency exchange). We have been monitoring the period 2000-2016. In this case, we do not distinguish between payable and non-payable tax credits (because of methodolody OECD), but at the end of each overview we provide an evaluation based on our criteria.

Czech republic

According to the OECD, the tax system of the Czech Republic allows an individual person to have many tax credits. Through them, an individual earner can reduce the calculated tax liability by the following amounts:

➢ General tax credit to a taxpayer = 24 840 CZK per year;

➢ A tax credit of 24,840 CZK per year per spouse living with a taxpayer in one household, if his / her income did not exceed CZK 68,000 during the taxable period;

> ➢ Child tax credit of 13,404 CZK per year, 17004 CZK per year for second child, 20604 CZK per year for third and each additional child after meeting the criteria;
>
> > o   If the child is holder of the ZTP card, the taxpayer has the right to a tax credit of 26808 CZK per year additionaly;
>
> ➢ Tax credit in the amount of 2520 CZK, if the taxpayer is a beneficiary of a partial disability pension, respectively as a combination with the retirement pension;
>
> ➢ Tax credit in the amount of 5040 CZK, if the taxpayer receives a full disability pension, respectively combined with the retirement pension;;
>
> ➢ Tax credit in the amount of 16,140 CZK, if the taxpayer is holder of the card of a severely disabled person;
>
> ➢ Tax credit of 4020 CZK, if the taxpayer is part of the training program / training for the purposes of his / her future profession (PhD program);
>
> ➢ A new tax credit if a taxpayer's child is in a pre-school education establishment. It can be paid up to a maximum of pre-school cost and a minimum wage for a dependent child. The child also has to live with the taxpayer in one household (OECD, 2017).

Compared to the previous period, there have been several significant changes of tax credits:

> ➢ New child tax credit for pre-school facilities;
> ➢ The tax credit for second, third, and the additional children has risen;
> ➢ The new tax credit has no impact on tax equity (referring to the OECD tax burden analysis) but has an impact on tax collection in 2016.

It can be observed, that the Czech Republic replaces the system of minimum basic income guarantee (in the form of a non-taxable income) as well as many kinds of social benefits by tax credits. OECD indicates in its annual Taxing wages reports all the tax benefits mentioned above as tax credits. The EU says that there is only one tax credit in the Czech Republic, namely a child credit tax.
Czech Republic distinguishes between:

> ➢ Tax deductions - applicable up to the amount of the final tax liability
> In this case, we can´t consider it as tax credit (and negative tax) ;
> ➢ Tax benefits - in the Czech Republic it is a child tax credit
> A taxpayer is entitled to a tax bonus even if the amount of the benefit exceeds the tax liability, at a rate of at least 100 CZK, up to a maximum of 60300 CZK per year.

The EU and the Czech Republic itself correctly distinguish between payable (non-wastable) and wastable tax credits. In fact, a non-wastable tax credit is the only one of all, namely the child tax credit. Other tax credits (tax deductions) are non-payable tax credits.

Poland

One of the countries, that do not apply deductible items reducing the tax base but just the items, that reduce the tax burden of individuals is Poland. In general, taxpayers have few options to adjust their tax liability. Compared to the other countries Poland is specific by having a basic tax relief, child-tax allowance, etc.

> ➢ Basic tax deduction in the form of a tax credit of 556.02 PLN per person. This is an wastable tax credit, which is therefore not a form of a negative taxation;

➢ Tax liability can be reduced by health and social contributions. In case of health insurance contributions of 9%, a tax credit is provided of 7.5% of the tax base;

➢ Child tax credit applied on a monthly basis at a cumulative annual amount of 1 112.04 PLN for the first child and the same amount for the second child, 2004.04 PLN is provided for the third child and 2700 PLN for the fourth and each additional child. The parents entitled are those, whose annual income does not exceed 112 000 PLN in selected specific cases and 56 000 PLN per year for other parents. In case of tax credit, there is visible an objective of social policy to support socially disadvantaged or single parents, as well as effort to promote birth growth by applying increased tax credits to each additional child;

Compared to 2013, tax credits for third, fourth and other children have increased. From 1 January 2015, taxpayers, whose tax liability is negative are entitled to a refund after applying the child tax credit, but the amount refunded may not be higher than the amounts of deductible social and health insurance contributions. In 2015, therefore, the child tax credit became a form of negative tax in the Polish tax system (Basic information – Finanse, 2018).

The EU did not identify any forms of tax credits in Poland, what we can not agree with, as in 2015, there was a key change and child tax credit became a tax credit according to ESA 2010 methodology. Consequently, as the only one, it fulfills the characteristics of the negative tax (Payable tax credits (PTC), 2017).

Slovak republic

The employment premium (earned income tax credit) has been effective in Slovakia's tax system since 2009. From 2015 on, however it is still a part of Slovak tax law, no one can apply it.

Child tax credit is effective since 2004 and since July 2007 it is being regularly indexing according to the minimum standard of living. In 2016, the tax credit for a child was 21.41 EUR per month and an annual amount of 256.92 EUR per child.

3. Conclusions and policy implications

Tax credits have their status in the tax systems of the V4 countries, with the exception of Hungary, which canceled their tax credits in 2012. In the Czech Republic and Poland, new tax credits have been added, and Slovakia has excluded those, that did not find a wide application among taxpayers.

Compared with previous periods (depends on the year in which tax credits are introduced in the countries), a family with children at different income levels in V4 (except Hungary) can afford to buy more goods and services in the value of money coming from different forms of tax credits.

We continue to experience inconsistency in assessing tax credits within the EU and the OECD. We relied not only on the ESA 2010 methodology, the OECD methodological guidelines, but also on the assumptions typical for negative taxes. In Slovakia, Poland and the Czech Republic, only child tax credits are the manifestation of negative taxation. Other tax credits reported in OECD studies do not actually have a cash / transfer component and therefore we do not consider them to be a negative tax.

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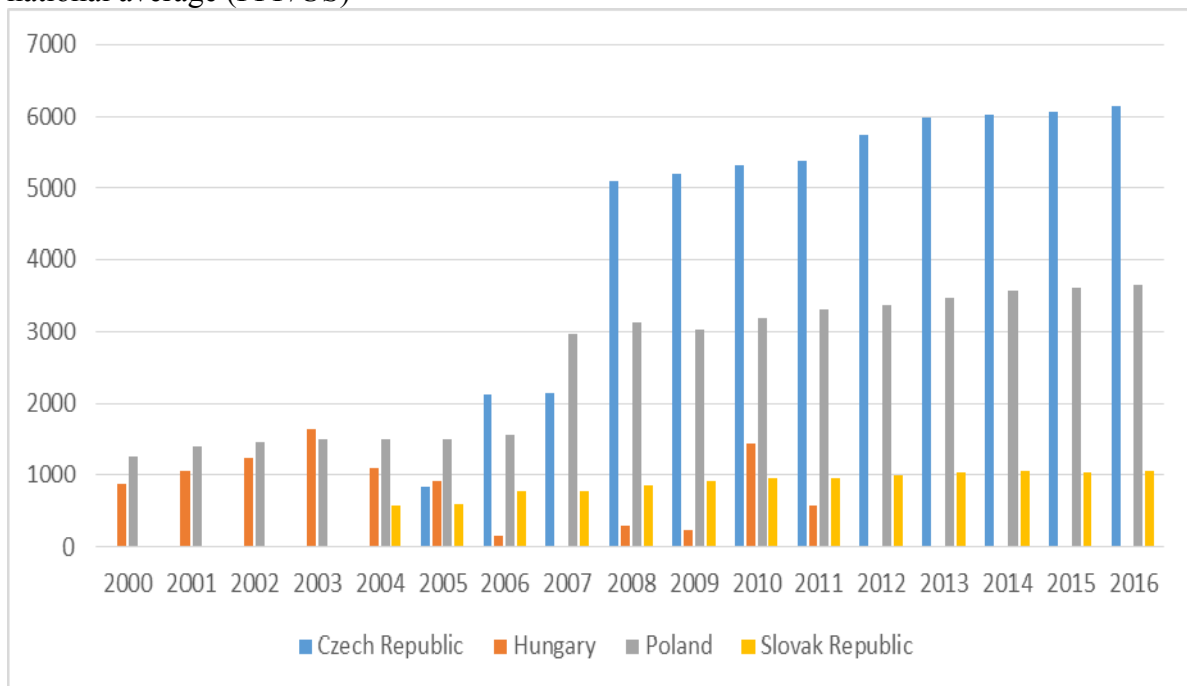
Apendix 1
Tax credits in V4 countries – single person, no child, income at 67% of national average (PPP/US)
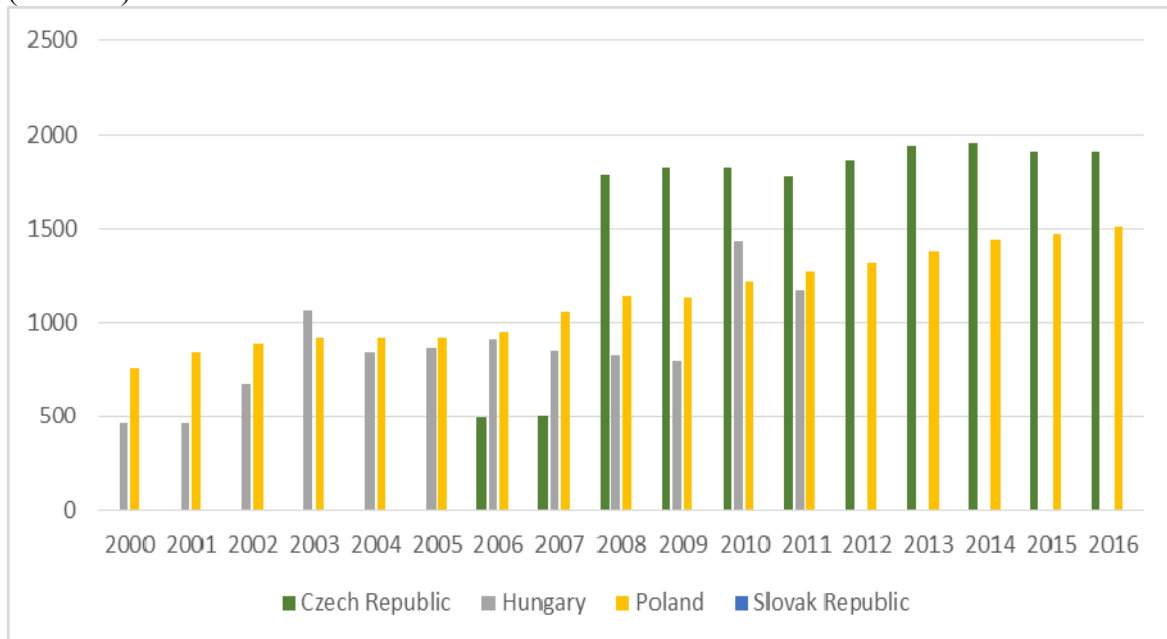
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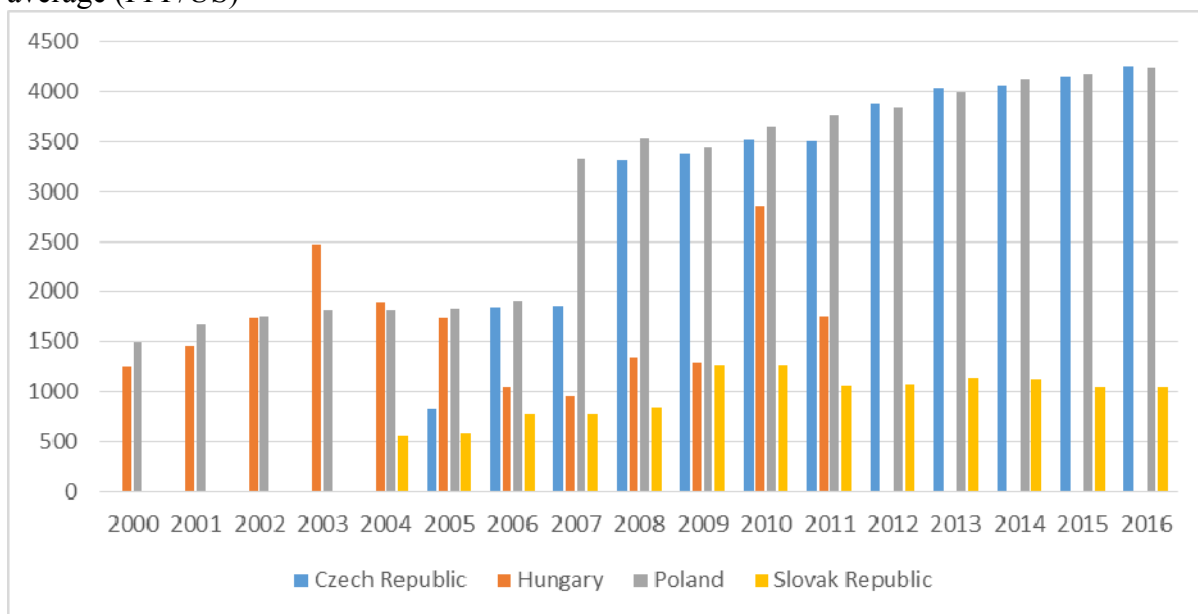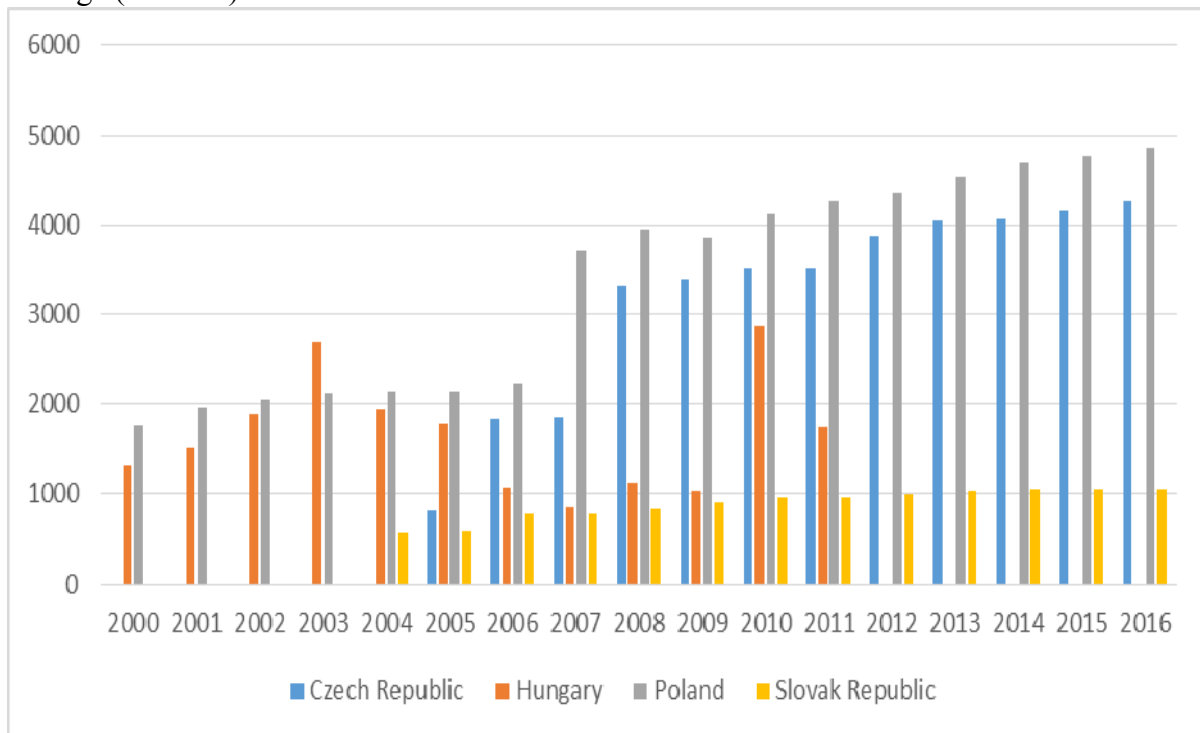
Apendix 2
 Tax credits in V4 countries – single person, no child, income at 100% of national average (PPP/US)
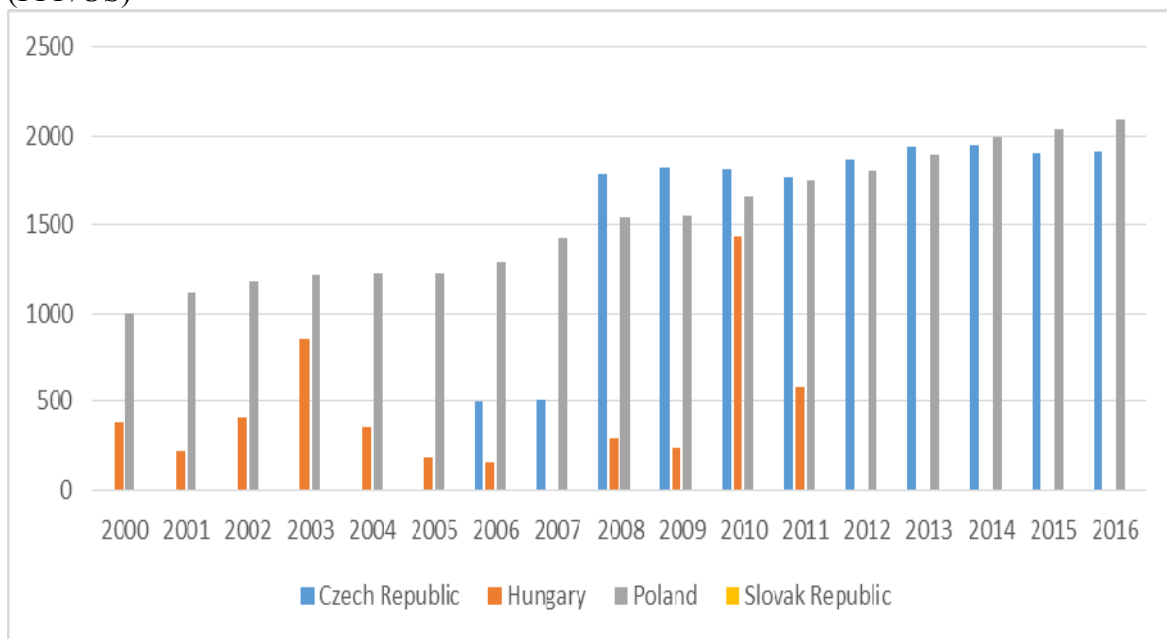
Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax/tax-policy/tax-database.htm>

Apendix 3
 Tax credits in V4 countries – single person, no child, income at 167% of national average (PPP/US)
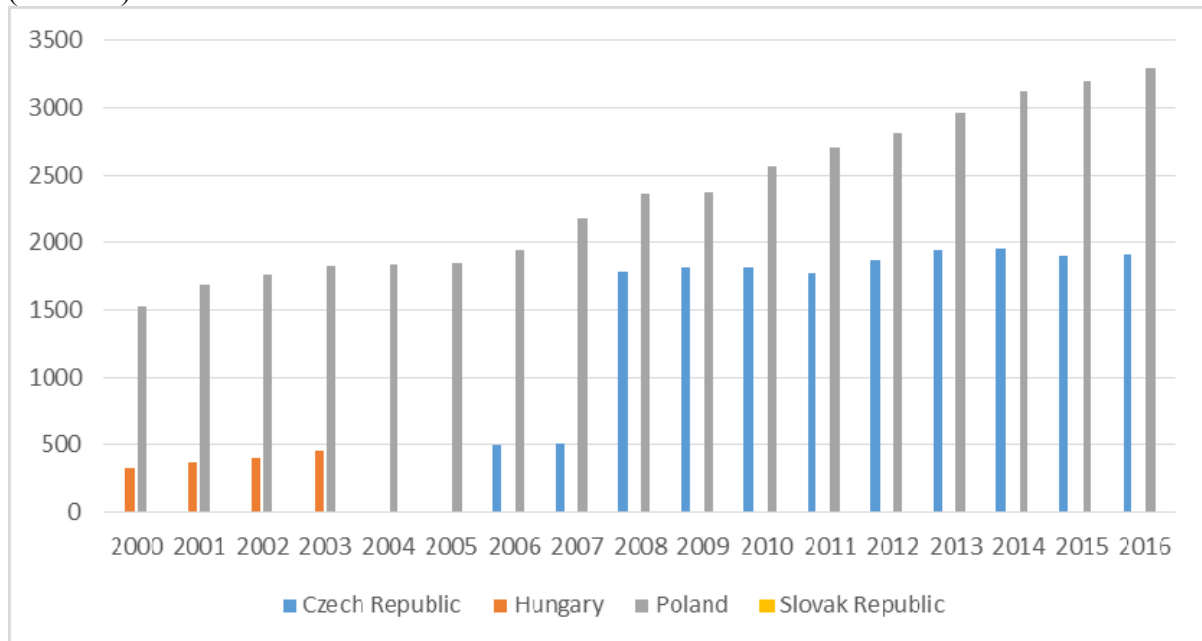
Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax/tax-policy/tax-database.htm>

Apendix 4
Tax credits in V4 countries – single person, 2 children, income at 67% of national average (PPP/US)
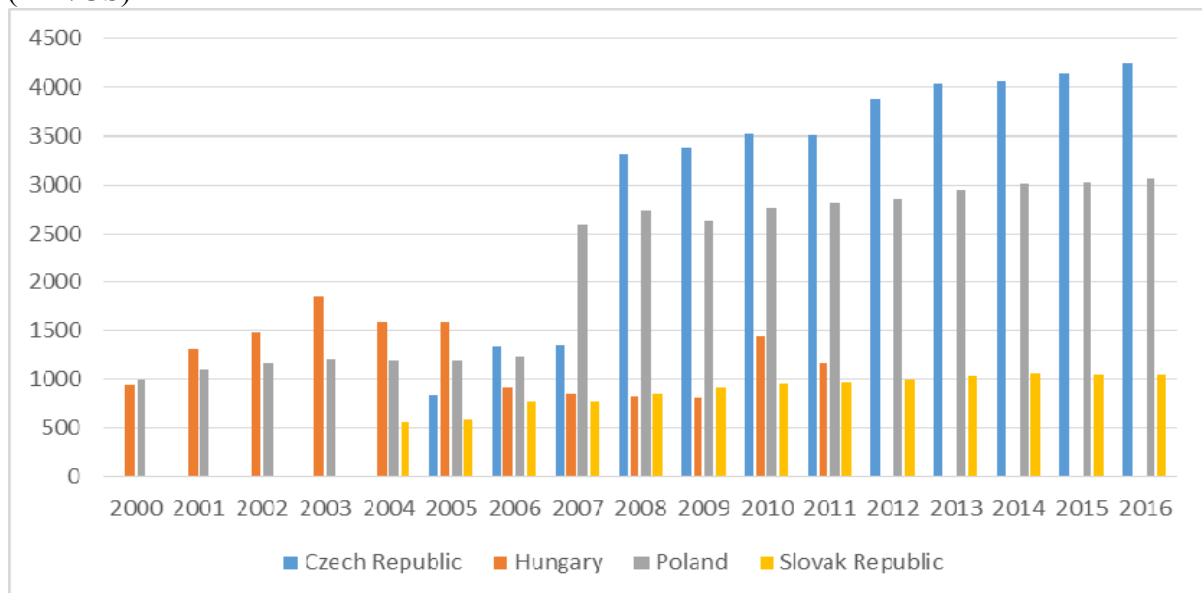
Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax/tax-policy/tax-database.htm>

Apendix 5
 Tax credits in V4 countries – married couple 2 children, one earned income at 100% of national average (PPP/US)

Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax-policy/tax-database.htm>

Apendix 6
Tax credits in V4 countries – married couple 2 children, income at 100% and 33% of national average (PPP/US)

Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax-policy/tax-database.htm>

Apendix 7
Tax credits in V4 countries – married couple 2 children, income at 100% and 67% of national average (PPP/US)

Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax/tax-policy/tax-database.htm>

Apendix 8
Tax credits in V4 countries – married couple no child, income at 100% and 33% of national average (PPP/US)
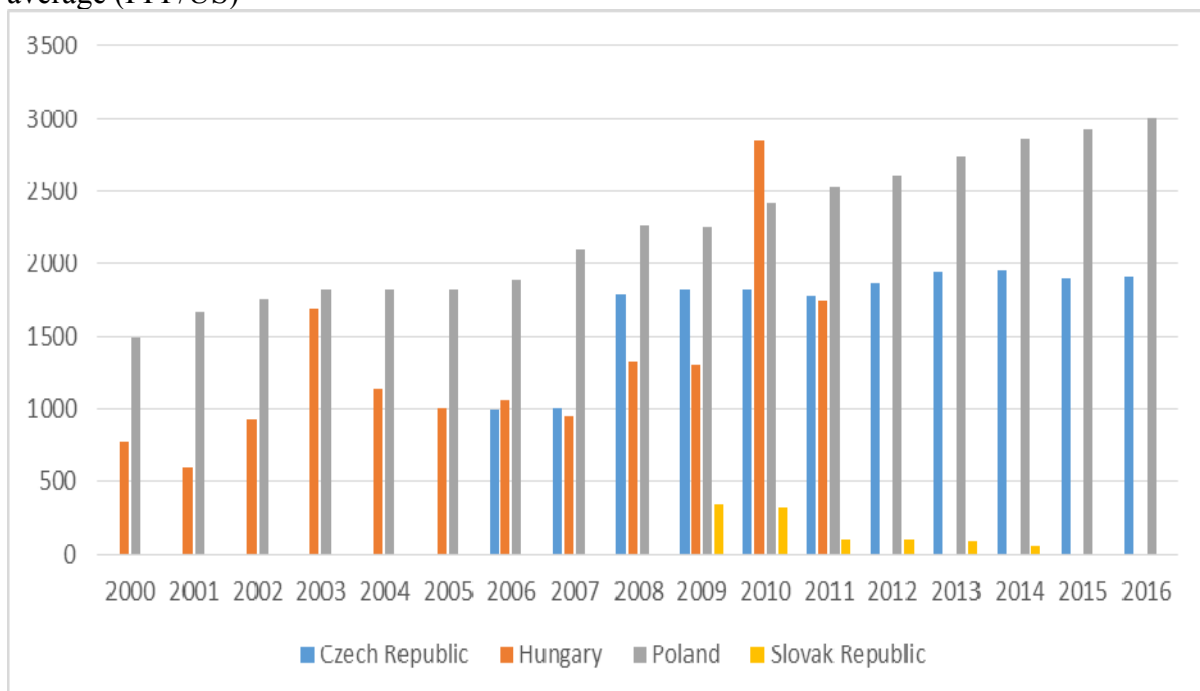
Source: Processed OECD Taxing Wages Database. Available at the URL: <http://www.oecd.org/tax/tax-policy/tax-database.htm>

Performance Measurement as a Component of New Public Management (Literature review)

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Abstract

In public administration area, the New Public Management became very important element of different types of politics implemented many levels of government, including local level. Crucial role in public administration management is focused on setting the standards, management by objectives and performance measurement. Performance of public sector organisations, quality of provided services and efficiency are reflected as a significant part of management in public administration. Performance measurement is not simple and there are many way how to do it. The aim of this paper is to give some theoretical review of the New Public Management, performance and possible methods to measure it in self-government. This paper analyse characteristics and origin of concept of New Public Management, its benefits and disadvantages and performance measurement as the important component of NPM. Paper also show some methods usually used in public sector, mainly in municipal level, to measure the performance.

1. Introduction

Constantly changing society (population aging, deepening of regional differences, and globalization of increasing competition) also affects the requirements for public service provision. Not only residents but also organizations and other "market participants" demand more services that should be better, cheaper, more affordable and more modern.

Value for money, efficiency, performance or productivity. Not only these notions we are faced in different special books and articles about public sector, strategic documents, politic discussion about different subject and levels of public administration. In recent years, this theme become interesting area of lower level, especially in self-government, also in Slovak republic.

The aim of the paper is to provide some basic theoretical background of public sector organisation provided services and its performance evaluation. This paper analyse origin, characteristics, benefits, and disadvantages of concept of New Public Management (NPM) that has become very popular concept of public administration. It also focused on performance measurement as the important element of NPM. Paper also analyse some methods usually used in performance measurement in local level of public administration.

2. Characteristics and origin of NPM

More than thirty years ago, the public sector began to use methods typical of the private sector. In the 1980s, criticism of inefficiency and low public sector flexibility led to its transformation. Bovaird and Löffler (2009) consider the financial crisis as the most important

reform event, but they also acknowledge the contribution of other internal and external factors. In particular, the budget deficits caused by the rapid increase in public spending due to so-called welfare state. External factors include changes in the political, economic, social, demographic, technological spheres, and more.

The result of these reforms was the introduction of changes and management techniques as part of NPM that were supposed to overcome bureaucracy. The main objective of the NPM was to achieve citizens' satisfaction with the provided services, increase the efficiency of the public administration actors and increase the efficiency of the inputs.

The goals of efficiency, effectiveness, cost minimization, and customer satisfaction are typical of private sector organizations, but through New Public Management, they also get into the public sector.

There is no exact definition or a steady opinion of what NPM is (Ferlie, 1996). According to Hood (1991) one way of interpreting the origin of NPM is that it is the marriage of two different thoughts. One stream is the new institutional economics (based on the theory of public choice, the theory of transaction costs and the principal-agent theory), which was based on a shift from processes orientation to result orientation. The second is business management, through which the methods used in the private sector are also used in the public sector.

Usually, NPM is understood as the use of typically private sector specific techniques in public sector for. According to Stark (2002) NPM is "like an empty canvas, you can paint it whatever you like". It is not just a form of governance, but also a philosophy and the whole system of which public administration works and is managed. Pollitt and Bouckaert (2011) understand NPM as a two-dimensional system. First, this is a general theory understood as improving the public sector through managerial techniques. The second view includes its practical side, perceiving it as a set of tools, including performance tracking through output ratings.

Formation of NPM is connected with public administration reforms, which change its original form. These reforms were implemented in eightieth and at the start of ninetieth of 20th century. The most important, key action of reforms by Bovaird and Löffler (2009) is financial crisis, but they consider also internal and external factors impact. Internal factors are mainly budget deficits caused by rapid public expenditures growth because of welfare state. External factors are changes in area of political, economic, social, demographic and technological area and others.

These motions lead some countries to public sector and public administration changes-mainly growth of competitiveness, liability to citizens and transparency, leaner structures and value for money, that academician by Hood (1991) started to name as NPM. It tries to overcome the existing public administration systems based on bureaucracy.

The NPM concept had a great success and it has taken place in many countries of the world. The reason is also its general acceptability. It can be understood as a certain universality, which means that the solution to management problems concerns many areas - i.e. different countries, political orientation, types of organizations, policies, level of management.

According to Catlaw and Champman (2007), it is important to emphasize that New Public Management just explained, respectively, describing the phenomena that have already existed in practice, and it is merely a theorization of practice. Activities that can be described as NPM were implemented in several countries (USA, UK) before this theory was developed.

NPM is defined by several components that are typical of it. The basic elements of NPM, according to the OECD (1993), are:

• emphasis on performance management,

• more flexibility and financial management,

• more developed personnel management with the use of performance-based

  remuneration,

• more accountability towards users and customers of public services,

• greater decentralization of authority at lower levels of government,

• use of market-specific mechanisms,

• privatization of market-oriented public enterprises.

According to Bovaird and Löffler (2009), public management can be considered as a public sector approach that use management techniques to increase value for money for provided services. It includes not only activities in public sector organizations but also in public service providers regardless of the sector in which they operate. According to Lane (2000), the NPM is a way of making significant changes in governance and public sector management. Barzelay (2001) argues that NPM can be considered as a set of ideas and ideas that spread rapidly from the original countries and came to the high tide quickly. However, we can understand it more practically than the empirical way of organizing public services (Hood, 1994). According to Malíková and Jacko, we can characterize the NPM as an innovative method of public sector operating that brings new techniques and procedures involving market mechanisms linked to the private sector.

3.   Advantages and disadvantages of NPM

The whole NPM can be seen as an advantage over the originally bureaucratic public administration. In general, however, the benefits of NPM may include increasing the quality of the provided services, increasing transparency, accountability, output increase, cost reduction, and a number of others benefits outlined in publications dealing with NPM.

According to Pollitt (1995), however, it is very difficult to evaluate NPM and its impact on public administration. He highlights several No.s associated with the NPM assessment, such as the impact of other ongoing reforms, the quantification of transaction costs associated with its implementation, the determination of the criteria on which the reform would be assessed.

In addition to the general advantages that NPM bring to public administration, it is necessary to stress the universality and generality of this concept, which makes it applicable in any geographical, economic, political area, even though with some specifics. It also involves political neutrality, so different strategies and priorities of public policy actors are possible to be adjusted NPM principles (Hood, 1991, Belifiore 2004), minimizes political calculation from the economy management, which is a great advantage both for the market and for the state.

The benefits and advantages of NPMs are indisputable. However, it is already from the very nature of the NPM that it is not a complete novelty, which is often the argument of its critics. Some elements typical of this theory have been described in earlier theories and even have been applied long before the NPM became a coherent concept.

The great disadvantage is that its supporting elements are just elements typical of the private business sector. However, several authors (Jones – Kettl, 2003) draw attention to the way in which public administration reform is planned and implemented. Using examples of good practice and trying to implement a similar reform may not produce the expected outcome; it may even be a negative one. The risk of copying and inadequate consideration of specific conditions are a major drawback in implementing reforms. His criticism also lies in the overstatement of his benefits. Often, the reform of the public administration is considered a universal all-round. However, it is not easy to pick up elements either from the private sector or from the public sector of other countries due to the excessive specificity.

It can be said that NPM focuses mainly on internal processes. It was unable to respond adequately to changes in society, which led to the emergence of new concepts and forms of public administration and to its suppression.

Because of its disadvantages, some authors and its opponents say the NPM is dead and it was overcome. Although NPM is still important and has its place in public administration theory and practice, there are some new concepts including new elements and improving NPM´s shortcomings, for example Good Governance.

In the context of public administration reforms and the NPM elements implementation, a number of issues appeared, that have opened up new themes and debates not only on the academic ground. What is the ideal, efficient organizational structure of public administration? What should be the quality of public services and how to measure it (Aucoin, 1990)? How to apply the mechanisms typical of the private sector in the area of public services?

4.   Performance measurement as a component of NPM

Various authors emphasize the various aspects of NPM (Hood, 1991), but it is possible to identify the seven basic components of the NPM doctrine on which they coincide. These include explicit standards and performance measurements, as well as an emphasis on output control. It is also recognized by other authors (e.g. Pollitt – Bouckaert, 2011). They think that important elements of NPM are the shift from process-oriented management to performance orientation, output measurement and cost reduction.

According to Jääskeläinen and Laihonen (2014), the basic idea of any approach to NPM is the sense of productivity. Public Performance Organizations are expected to show value for money they have created. Performance measurement brings many benefits, including identifying strengths and weaknesses, improving decision making, and increasing transparency. This is why performance measurement has become mandatory in some countries. (Johnson, 2005).

Even Malíková and Jacko (2013), who mention several characteristics of different authors, state that responsibility for performance and performance audit are recognized by a number of authors and has a broad consensus.

EFQM defines performance as a "rate of achievement by individuals, groups, organizations and processes" (Hudymačová – Hila, 2011).

Weber's theory of bureaucracy has already dealt with the question of whether public administration can be effective. He assumed that a centralized and bureaucratic organization is the most effective way of managing public administration. However, according to his belief, efficiency was only economic efficiency, i.e., maximizing outputs at a given input level.

According to (Read – Miller, 1991), performance means quality represented, for example, by customer satisfaction, timeliness of supply, employee awareness of quality or zero error. According to Clark (1991), performance is the same as productivity, so it is the relationship between inputs and outputs.

Pollit and Bouckaert (2000) explain performance as 3 E-economy, efficiency and effectiveness. Economy represents the costs incurred to achieve the required amount of services of the specified quality and it concerns the optimum amount of resources needed to achieve the outputs. Effectiveness, sometimes called productivity, is the number of outputs in relation to inputs, sometimes expressed as the way in which we perform certain activities. Efficiency defined as the relationship between the results in relation to the set goals (Wagner, 2009) or selection of activities to be carried out.

5.   Evaluation of performance (in municipal level)

In the area of public administration, performance evaluation may be defined as a systematic process concerning the collection, analysis and utilization of the information obtained for efficient and effective provision of public services. Evaluation is performed through performance metrics that allow quantified phenomena to be quantified.

Although, according to Johnsen (2005), performance measurement in public administration is criticized, in some cases even ridiculed, from the eighties increasingly expanding. Although Bovaird and Löffler (2009) claim that NPM is not the progenitor of measuring public sector performance, they recognize that since the 1990s, government performance has become a key component of the competitive advantage of national states and therefore it is needed to monitor it.

The main idea of performance measurement by De Bruijn (2007) is that the organization try to achieve its own goals that it has set itself. The rate of fulfilment or the achievement of the defined objectives is measured by the system of indicators. The measurement brings a lot of benefits, including the detection of its strengths and weaknesses, the improvement of the decision-making process and the increase in transparency. This is the reason why the performance of the obligator has been measured in some countries. (Johnson, 2005). Performance measurement is not an objective but only medium to achieve the organization's goals.

The reason for measuring performance in the public sector is precisely the use of limited public resources, which is necessary to use efficiently and not to blur them out. Another reason to measure performance is to set standards. Some competencies are not directly implemented by institutions that are responsible for them, but they delegate them, respectively transfer them to other organizations of the public sector or the private sphere. As these institutions are still responsible for their performance and guarantee their delivery to citizens, it is necessary to set the required standards, whether on the quality or quantity of the services performed.

In evaluating efficiency, it is important to follow three steps: define how we perceive efficiency, how to measure it, and what determinants affect it. Therefore, the key task is not "Why is it important to measure" and increase efficiency, but "What is the way".

The efficiency of public services provided is generally measurable by two types of methods, quantitative or qualitative. Qualitative methods can include customer satisfaction surveys, service users, which can be implemented through a questionnaire or interview. Even such outputs can be quantified e.g. through the Lickert's scale. This type of measurement is associated with the quality of the services provided, which are mostly monitored separately

for each service. Examples are surveys on citizens' satisfaction with municipal waste management (Folz, 2004). The general perception of quality can be found in Parasuraman (1988), which produced a set of indicators (SERVQUAL) to measure the customer's expectations regarding the quality of the services provided or Mokhlis, Aleesa and Mamat (2011) who examined the most important dimensions, improving the quality of communal services from the point of view of citizens.

The most commonly used quantitative methods of measuring performance in public administration can be divided into three categories:

• Ratio indicators

• Regression methods

• Estimates for border analysis

Ratio indicators can be considered as the simplest methods of measuring efficiency. They are based on simple ratios or their comparisons, and the efficiency is measured as a share of inputs and outputs. The disadvantage of this method is that it requires common input and output units (Rossi – Freeman – Lipsey, 1999). Sometimes it is not possible to quantify the outputs in monetary units, so it is possible to quantify the benefits.

Ratio surveys typically take the form of Cost-Benefit Analysis (CBA) or cost-effectiveness analysis (CEA). The main criterion in the CBA is to monitor the contributions of individual arrangements. The CEA focuses on tracking costs (expressed in monetary units) and effects (expressed in natural units).

Under Slovakia's conditions, the most often used are simple proportional performance indicators or indicators of unit cost of services. They were used in studies, for example, Balážová (2006) when comparing the efficiency of local self-government in waste collection, local communications, green, cemetery and public lighting; or Mihalik (2011) and Ochrana (2006) when examining other services related to the performance of mainly self-governing functions of municipalities.

Econometric regression methods compare expected and current outputs. There is some predicted output value created by the production unit that depends on the input level when generating goods and services. If the organization produces fewer outputs than predicted regression results, it can be considered ineffective.

This method was used for example by O'Connell (2005) in the field of social services transportation. Also in identifying the relationship between expenditure on political campaign and gained votes (Burden – Kimball, 1998), municipal services (Graddy – Chen, 2006) and others.

However, the use of these methods is not appropriate for organizations producing multiple outputs, as they would not assume the assumption of independence of outputs between themselves (Charnes – Cooper – Rhodes, 1981). It is also necessary to specify the functional relationship between the variables in the production function (Yang – Miller, 2008). Regression examines the relationship of only one output to inputs and is less useful in making decisions as DEA method.

The third area of the methods used is estimates for border analysis. Efficiency is monitored on the basis of estimated efficiency limits using, in particular, the non-parametric Data envelopment analysis and Free disposal hull (DEA and FDH), which measure the relative efficiency of the monitored units compared to the others surveyed. It has many advantages over other methods and is therefore increasingly used at present.

DEA is method of linear programming, it is stochastic method, so it assumes a certain degree of random error. It is not dependent on the weights of the variables (the input and output prices), as they empirically derive them. It also does not require expectations regarding the production process or specific parameters of the production function, allowing for a greater degree of generalization.

Comparison of several reference technologies on a sample of Belgian self-governments was tested by DeBorger and Kerstens (1995), who compared 2 non-parametric methods (DEA and FDH) and 3 parametric boundaries. In general, studies using these methods in the public sector can be divided into two areas. First, there are studies evaluating the efficiency of organizations globally, include several services provided. For example, Vanden-Eeckaut, et al. (1993), Loikkanen and Susiluoto (2005), Worthington and Dollery (2000) or Afonso and Fernandes (2005).

A second approach in similar studies is the assessment of a particular service such as, general services (Kalseth – Rattsø, 1995), education (Ruggiero, 2000; Sutherland et al., 2007), health care (Afonso – Aubyn, 2004) and others.

6.   Conclusion

As self-government is the foundation, the lowest public administration unit that is in direct contact with citizens, provide many public services, and takes note of the requirements of concrete conditions, I consider it one of the most important actors in public policy implementation. That is why it is important for this level to be maintained, which is only possible if it is effective and sustainable.

Popovich (Sangmook, 2004) defines the performed organization as a group of employees who produce the required goods, provide services at the lowest inputs. The executive organization can be seen from different perspectives.

The idea of performance measurement comes from NPM concept, which brings techniques typical for private sector to public sector. Performance is usually understood as efficiency or effectiveness of individuals, provided public services or organisations.

Each method of performance measurement has some benefits and disadvantages. Ratio analysis is very simple, but requires common measures of variables. Regress method is also relatively easy, but it is not sufficient to organisations producing more outputs. DEA or FDH analysis are methodically more difficult, but they are useful in organisation with wide range of provided services. I think the DEA method is the most sufficient method to measure organisational or public services efficiency. In connection with regress methods, it is very suitable to also determine factors of inefficiency.

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Why Is Sustainable Development Important?

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Abstract
Sustainable development is one of the 21st century's most important and most discussed topics as a kind of development that meets the needs of today's generations without limiting the satisfaction of the needs of future generations. Since the second half of the 20th century, our society has reached a very conscious stage. We begin to realize that the environment that surrounds us will not be the same forever and the resources we draw on are not inexhaustible. Furthermore, over the last few thousand years, the human race has undergone extreme interference with the planet's environment, and it is clear that technological and industrial progress has made this destructive development increasingly accelerated. Therefore, the aim of our research paper is to closely and critically analyze the modern understanding of the sustainable development conception in the context of economic and environmental aspects.

1. Introduction

A sense of imminent threat and fear of the fragile future of our planet's populations has given rise to a whole series of conferences around the world, where countries and international organizations are trying to constrain change to reverse this unfavorable development. During the second half of the 20th century, the world's public is beginning to gradually become aware of the need for change. In 1969, UN Secretary-General *Pantanaw Thant* urges the world public to act. At the United Nations General Assembly, he assumed that the United Nations have 10 years to overcome their old rifts and to start global cooperation to stop armaments, improve the human environment, manage the population explosion, and make much greater development efforts. Likewise, the threat of environmental degradation was highlighted by the *Stockholm Conference* in 1972. It was the first real UN meeting on the environment issues, while the results of a study titled *Growth Limits* were published during this session. The publication highlights the need to protect the environment endangered by human economic activity. The authors' conclusion is unambiguous - economic growth needs to be stopped, otherwise it is inevitably threatened by the disaster caused by depletion of resources and environmental pollution.

International debates continued throughout the 1970s and 1980s. At the end of the 1980s, the term sustainable development began to be used. This was implemented in 1987 following the publication of the World Commission on Environment and Development. The report was called *Our Common Future* and concluded that economic development and effective environmental protection would not be hampered but would be mutually supportive if development is sustainable (Stables, 2017). During the second United Nations conference (UNCED) on environment and development in Rio de Janeiro in 1992, the so-called *Agenda 21* was presented, which represents the first international strategy for sustainable development

(United Nations, 2014). Since then, the term is not limited to the ecological aspect of the concept but includes namely three aspects - ecological, economic and social. The UNCED conference in Rio de Janeiro has also become an important milestone in recognizing the gravity of the global warming problem. Following the conclusions of the conference was the *Kyoto Protocol* (the UN international treaty - framework convention on climate change), which aims to reduce greenhouse gas emissions. Scheme 1 shows the position of the top and bottom 10 countries in terms of their Human Development Index scores and their Ecological Footprints.

Scheme 1

Sustainable Development Ranking
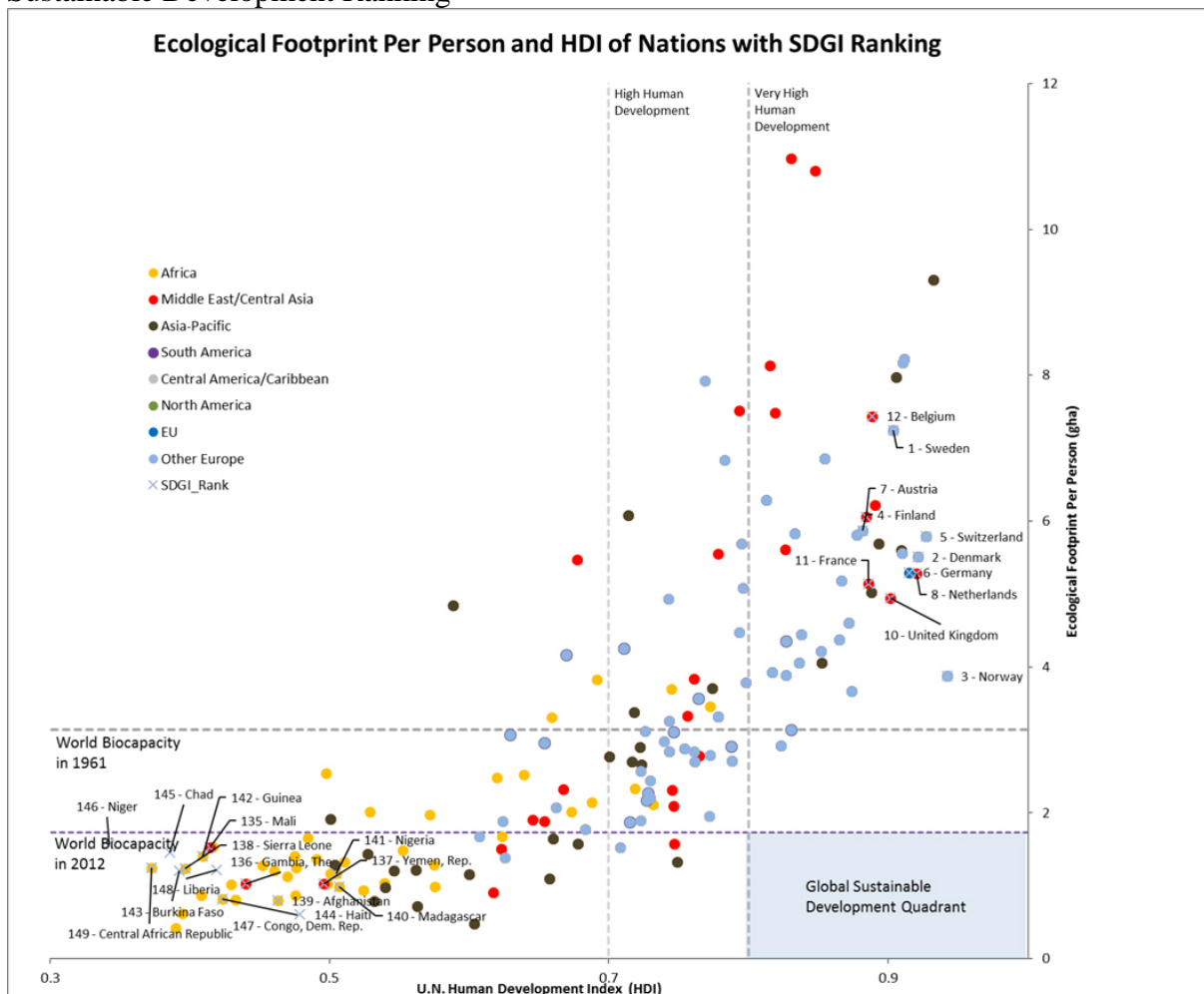
Source: Global Footprint Network. 2016. Sustainable Development Ranking. [online]. Available at the URL: <http://bit.ly/2nrYlG5>. [accessed 21.12.2017].

Furthermore, the Kyoto Protocol was followed by the *Johannesburg Declaration* in 2002*, UNCSD Conference on Sustainable Development* in Rio 2012, Doha Amendment 2012–20 to the Kyoto Protocol, the Paris 2016 climate agreement and the 2017 *Ocean Conference* in New York. However, to date, this is a very incomplete tool (i.e. the Doha Amendment) as it has not yet been ratified by the United States, that are emitting the world's second largest (after China) amount of CO_2 into the air. Secondly, of the 37 countries with binding commitments, only 7 have ratified it. Nevertheless, it is an important initiative in the fight against global warming. Lastly, on September 25th 2015, countries adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years (United Nations, 2015).

2. Sustainable Development Indicators

Sustainable development remains a very broadly defined concept. Appropriate indicators can show the progress made by countries, institutions, or individuals, whether they should report their behavior and decision-making to sustainability while at the same time motivating them. Information is absolutely crucial in this process. The acquisition, transformation, transfer and use of a wide variety of information at all levels of decision-making, in the most diverse areas and forms, is a typical feature of contemporary social development and the basis for a successful transition to sustainable development (Blewitt, 2014). Scheme 2 shows the five Ps of sustainable development. Sustainable development indicators are usually arranged in different frameworks, which are of a different nature. It can be a geographic framework where values and information are bound to a particular location. Or, as a framework, they serve the various fields of human activity. For example, there are a set of forestry indicators, indicators for individual industries, agriculture or health.

Scheme 2
5 Ps of Sustainable Development
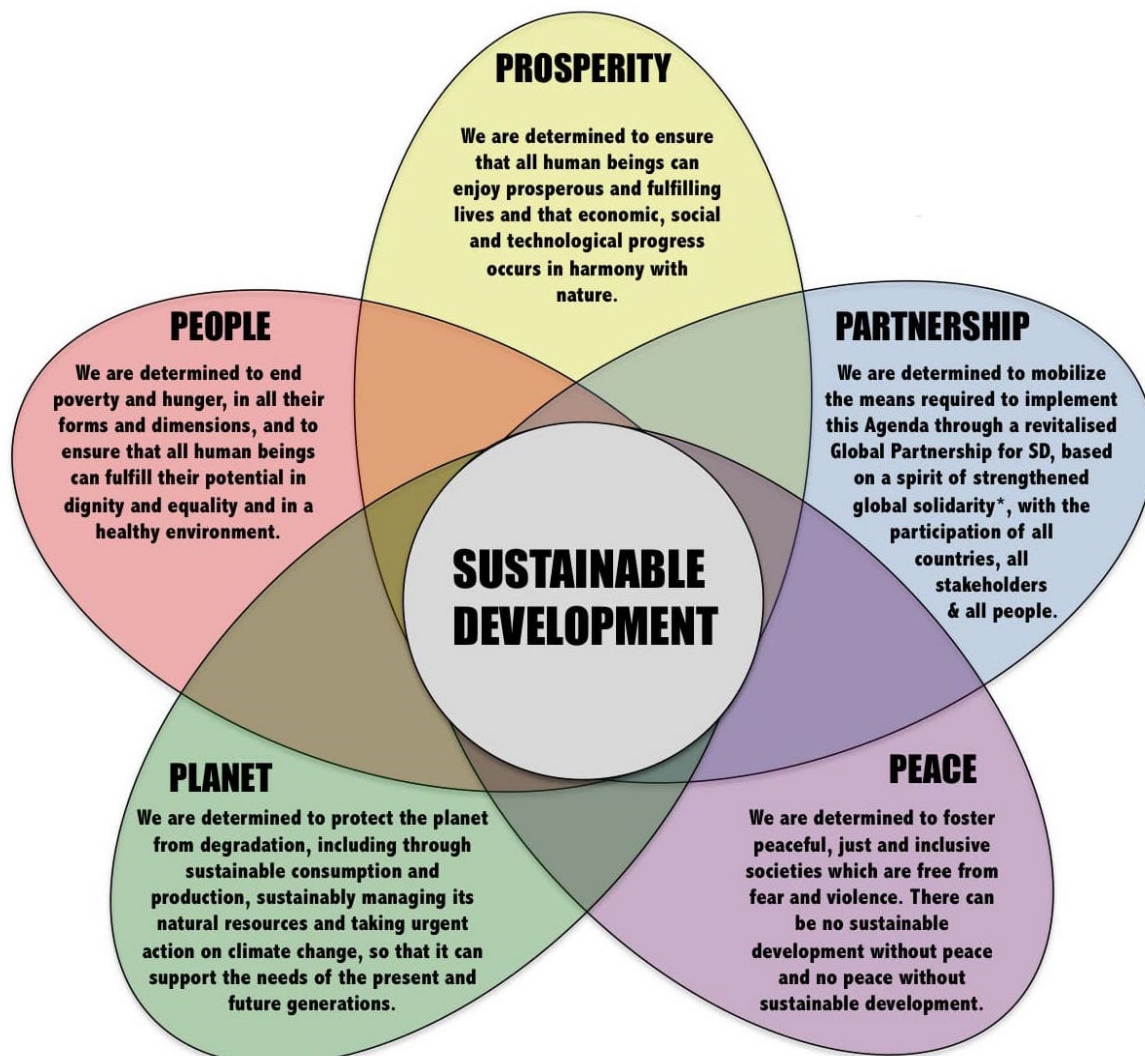
Source: VISSER, W. 2015. 5 Ps of Sustainable Development. [online]. Available at the URL: <http://bit.ly/2nrFsms>. [accessed 17.01.2018].

Moreover, the UN Commission on Sustainable Development issued a list of 130 indicators, which are organized according to a certain logical framework with the pressure-state-response scheme. Key indicators for policy formulation, take into account the

environmental, economic, social and institutional dimension of sustainable development. Secondary indicators are informative, they identify the problem and describe the current state of environment. The last group consists of the measures to eliminate the dangerous phenomena indicated (Stead, 2013).

In addition, these indicators are further divided into the following groups – *social* (combating poverty, dynamics of demographic growth, promoting education, protecting and promoting human health, promoting sustainable development of human settlements including transport), *economic* (international cooperation, change of consumption patterns, financial resources and mechanisms), *environmental – water* (quality protection and freshwater resources, protection of the ocean, all kinds of seas and coastal areas), *environmental – land* (integrated approach to planning and management of the earth's surface, combating desertification, sustainable mountain development, and rural areas, *environmental – other natural resources* (combating deforestation, preserving biodiversity, environmentally friendly use of biotechnology), *environmental – air* (atmospheric protection), *environmental – waste* (ecological appropriate treatment of solid and liquid waste, treatment of chemical and toxic waste, treatment of hazardous and radioactive waste) and *institutional* (national mechanisms and international cooperation in developing the potential of developing countries, decision making structures, strengthening the role of large groups). Scheme 3 shows the circles of sustainability.

Scheme 3
The Circles of Sustainability

Source: JAMES, P. 2015. Urban Sustainability in Theory and Practice: Circles of Sustainability. London and New York: Routledge, Taylor & Francis Group. 247 pp. ISBN 978-1-315-76574-7.

An important feature of indicators in general is that they always make sense in broader contexts. Relationships between individual indicators are also important. Therefore, in the context of sustainable development, we need to look at the indicators in a comprehensive way, examine individual relationships and links between them, not to examine them in isolation, but as part of a larger unit (Hawken, 2010).

3. What would a Sustainable World look like?

Sustainable development often means different things for different countries and for different people. The decisive role here is played by several important factors. Above all, it depends on cultural and historical traditions. Equally important are the basic natural conditions and values of a society. What is important is also how rich the country is and how this richness is spread out. Rich landscapes tend to increase the importance of the post material values (which do not speak almost to the inhabitants of the poorest countries), since the idea of sustainable development belongs to the category of post material values. Another important factor is the social and political organization of a society. Modern democratic states differ fundamentally from traditional hierarchical societies. The economic system of the country and the overall economic situation also have a key importance. In particular, the share of the agricultural sector and how it is organized is important in this context. Despite the differences that exist between different cultures and countries, we all understand that the current economic and civilization development is not sustainable in any country and not at all globally.

This increasingly imbalance stems from population growth and economic growth, in connection with growing demand for energy, raw materials and natural resources. For decades, environmental issues have reached the size of global dimensions. The most serious and most alarming evidence of the polluted environment is ozone depletion, the threat of radical climate change. The area of arable land is diminishing, while deserts expand. Increased pollution of the ocean and freshwater sources are decreasing. The reduction of biodiversity - the depletion of plant and animal species - is also terrible. Economic development over the last decades had so far ecologically devastating consequences and is associated with the growth of environmental burden. One of the options is stopping or at least slowing down economic growth, which should avert disaster in the form of resource depletion and absolute destruction of the environment. However, the world public would never accept such a recommendation, and it is questionable whether this would be possible at all. Moreover, modern concepts of sustainable development do not suggest economic growth, despite the fact that the relationship between economic development and an effective concept of environmental protection is full of contradictions.

According to the United Nations *Conference on Environment and Development*, modern sustainable development is one which meets the needs of the present without endangering the ability of future generations to meet their own needs (The Guardian, 2016). But the very notion of sustainable development has a close relationship to human values and does not have a fully objective basis given by independent scientific knowledge. The key idea is that economic development must be aimed at not destroying the basis of natural resources and bearing the quality of the environment. This is the only way to leave the future generations the same living conditions and economic activity as our generation. So, what would a *sustainable world* look like?

First of all, sustainable world means continual improvement of the standard of living and the well-being of the population concerned within the capacity of the ecosystem concerned, maintaining natural values and their biological diversity for the good of present and future generations. The key expression of this idea is *ecosystem capacity*. We understand the

ecosystem as an interconnected system of environmental compartments and its capacity as ecosystem's capacity to accept a load that does not yet impair its ecological stability. This term is commonly used in biological disciplines and denotes the maximum possible population of a species that can be fed to territory under natural conditions. In this case, however, we are not able to quantify the bearing capacity, as people are not a biological species that would still have the same demands. People have different material needs that vary over time and are different in different countries. However, precise quantification of the size of the carrying capacity is not important. It is important that the natural systems that represent natural resources used by human society are limited, they have only a certain capacity.

Second of all, modern sustainable development needs to be designed to ensure that the viable capacity of natural systems does not exceed, as a development that preserves the present and future generations of the possibility of satisfying their basic living needs while not diminishing the diversity of nature and preserving the natural functions of the ecosystem. This concept is the most realistic in the sense that it places emphasis on satisfying basic living needs. Therefore, we can see that the nature of sustainable development lies in the environmental restructuring of industry and the use of renewable raw and energy resources. However, if the idea of sustainable development is taken seriously, this process must at least temporarily hamper economic growth with relevant impacts on the social sphere. In a simplified way, this rather emphasizes the requirement of harmonizing environmental interests while partially suppressing the satisfaction of human needs (McDonald, 2014). The common idea of most modern sustainable development concept is the word *need*. However, the needs of all the inhabitants of the planet are diametrically different - the needs of the inhabitants of the rich northern world are the precursor to the populations of the poor global south. In any case, critical voices act as a catalyst for the process of securing future existence for us and our offspring.

4. Conclusions and policy implications

Firstly, poverty is a debilitating factor. The population is rapidly growing in societies whose life is based on agriculture, harvesting plants or fishing. In the past, the population living in this way was affected by a high mortality rate. Globalization and widening health care has disrupted this balance, and the only way to limit the sharp rise in population is to control birth rates. It depends on the free will of the parents, but in developing countries, children are the source of security and future care of their parents, so few families choose the way of a smaller number of children. In countries where there is no economic and social development, the population grows uncontrollably and the environment is inevitably suffering. The result is extensive deforestation, land degradation, overfishing and unregulated fishing. Therefore, the eradication of poverty, especially in third world countries, is necessary not only from the point of view of human values but also with regard to the environment. Secondly, increasing the population of the Third World affects the consumption of raw materials too much, while a greater responsibility lies on the shoulders of the people of developed countries. This cannot be achieved without social and economic change.

It is important to develop new technologies that are more environmentally friendly, use renewable energy sources and will be more efficient even with lower energy consumption. Developed countries with a lesser source of dependency thus must contribute to achieving sustainable development. Likewise, global cooperation on environmental issues must gain in importance. Hazardous waste, a greenhouse effect, a decline in biological diversity - these are not problems that will be solved if some countries fail to assume their responsibilities and do not engage in the global change process. Serious discussions are a sign that countries are willing to make a change in order to move towards sustainability in the development of the

environment in which they live. The concept of sustainability is mostly discussed at the UN soil or in another transnational organization of similar significance. These moves again send a signal to change, but real changes are rare. Discussions and negotiations with productive results will only be possible when local governments of developed and developing countries learn how to address their economic and environmental challenges so that each side gains something.

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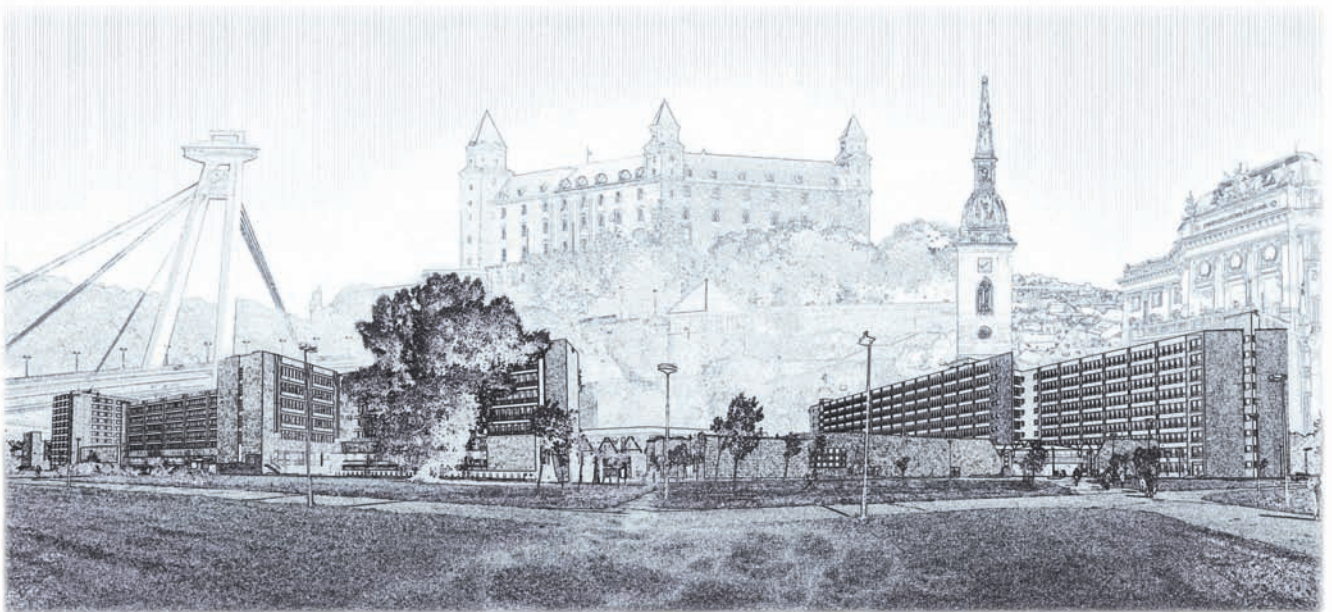
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