EXPLORING THE RELATION BETWEEN NATIONAL COMPETITIVENESS AND ECONOMIC GROWTH: THE CASE OF CEE EU MEMBER STATES

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Abstract. *A country's economic growth and herewith the standard of living of its population are related to many factors, that are inside or outside control of policymakers, institutions, companies and individuals. The intensities and the directions of impacts of one and the other group of factors are conditional on several unconsidered factors, however, we can presume the existence of the relations between one and the other group of factors and economic growth. Although variously conceptualised and measured, a country's competitiveness comprises endogenous and exogenous variables of economic prosperity. The key goal of this paper was to find out if a country's competitiveness and its economic growth are related. As a measure of competitiveness we have used World Economic Forum's Global Competitiveness Index, as a measure of economic growth, however, GDP per capita. The research was made on the sample of Central and Eastern European EU Member States, due to their similar political past and similar opportunities after their political transformation in the beginning of 1990s. The observed period was partly the period from 2004 to 2013, when all of these countries have become members of the EU, and partly the period from 2008, when the financial and economic crisis has begun. On the basis of calculations of average growth rates and determination of ranks and their congruity we have confirmed the relation between a country's competitiveness and its economic growth. The findings show that especially some transition CEE EU Member States have recorded high growth of GDP per capita in the observed periods, which is accompanied by their higher competitiveness, and that some innovation-driven CEE EU Member States have deteriorated their positions in this regard. Our research has shown main gaps in the competitiveness of each observed country and thus, it can be used as a rough analytical foundation for deliberation of measures in the areas, where severe changes are necessary.*

Keywords: *national competitiveness; economic growth; labour productivity; Central and Eastern European Countries; European Union.*

Introduction

One of the key factors explaining an economy's growth potential, which determines the pace of economic recovery, is productivity of a country. A country with higher productivity obtains higher rates of returns on investment, which are the fundamental drivers of economy's growth rates. The productivity of a country also determines its ability to sustain a high level of income and herewith the level of a country's prosperity (see Lewis, 2004), which indirectly influences its rates of economic growth. The level of productivity and an economy's growth potential, respectively, can be explained by the concept of competitiveness. There exist a broad debate among politicians and scholars about the meaning and components of this concept. Boltho (1996) explains it as an ability of an economy to secure a higher standard of living than comparable economies, whilst Porter (1998) argues that the only meaningful concept of competitiveness is national productivity. The World Economic Forum's (WEF) Global Competitiveness Index (GCI) (Schwab & Sala-i-Martin, 2013), which has been extensively referenced as a credible metric instrument of national competitiveness, is based on the Porter's (1998) definition. According to this definition a country's competitiveness is a set of macroeconomic and microeconomic factors that determine its productivity and economic growth, respectively.

In this paper we explore the relations between national competitiveness, as defined by Schwab and Sala-i-Martin (2013), and its economic growth, measured by gross domestic product (GDP) per capita. The empirical analysis is conducted on a sample of Central and Eastern European (CEE) EU member

states[1], that had similar political past and herewith comparable opportunities of socio-economic development. The latter have been increased by the transformation of political systems in the beginning of 1990s and by the accession of these countries to the EU in the last two decades. According to Labaye et al. (2013) these economies established a record of growth and economic progress that few regions have matched since from the early 1990s to the onset of the global financial crisis in 2008. Since the existent analyses of CEE countries' competitiveness focus on one or two competitiveness dimensions (e.g. Wilinski, 2012; Petrariu, Bumbac & Ciobanu, 2013), discuss competitiveness in one particular year (e.g. Gardiner, Ron & Tyler, 2004; European Commission, 2014), or evaluate competitiveness for selected CEE countries (e.g. Niessner, 2013) there is no comprehensive insight into the progress and regression of all competitiveness dimensions in a longer period and their possible impacts on CEE EU member states' economic growth rates. Therefore we estimate the topic of our empirical analysis as highly relevant.

The paper is structured as follows: in the Section 2 we conceptualize national competitiveness and its impacts on economic growth and productivity, respectively, as well as the importance of each competitiveness pillar according to the country's stage of development. The Section 3 comprises the explanation of methodology and data gathering, as well as the formulation of hypotheses. In the Section 4 empirical analysis is conducted and the hypotheses are tested. In the Section 5 we discuss the empirical findings and their aplicability in the observed countries .

Competitiveness pillars and economic growth

According to Schwab and Sala-i-Martin (2013) national competitiveness is a set of twelve pillars, structured into three groups - basic requirements, the sources of efficiency and the innnovation and business sophistication factors. All twelve pillars tend to reinforce each other, and a weakness in one area often has a negative impact in others. All of the pillars matter to a certain extent for all economies, however, due to different stages of countries' development they affect them in different ways. The basic requirements are critical for countries in the factor-driven stage, the efficiency enhancers are important for countries in the efficiency-driven stage, on the basis of the innovation and sophistication factors, however, compete the countries in the innovation-driven stage. All countries falling in between two of the three stages are considered to be »in transition«. For each of the twelve pillars of a country's competitiveness there are empirical evidences about their impact on economic growth.

The quality of a country's *institutions*, which can be determined by the legal and administrative framework within which individuals, firms, and governments interact to generate wealth, has been proven as a factor of economic growth by several studies (e.g. North, 1989; Rodrik, Subramanian & Trebbi, 2004). According to Miller, Kim and Holmes (2014) public institutions can impose significant economic costs to businesses and slow the process of economic development (e.g. excessive bureaucracy and red tape, overregulation, corruption, dishonesty in dealing with public contracts, lack of transparency, inability to provide appropriate services for the business sector, improper management of public finances and political dependence of the judicial system). Besides public institutions, good governance of private institutions and maintainance of investor and consumer confidence is also an important element of the process of creating wealth (see Zingales, 1998).

The quality and extensiveness of *infrastructure* networks integrate the national market and connect it at low cost to markets in other countries, enable businesses to get their goods and services to market in a secure and timely manner, allow for a rapid and low cost flow of information, determine the location of economic activities, facilitate the movement of workers, prevent interruptions and shortages of energy supplies etc. Their impact on economic growth has been identified for example by Calderon and Serven (2004).

Although the literature (e.g. Fischer, 1993) finds only weak effects of *macroeconomic stability* on productivity and growth, there are clear evidences about its impact on short-term economic activity: the impacts of low and moderate levels of inflation are studied for example by Goodfriend (2007) and Temple (2000), the impacts of public debt levels are examined for example by Reinhart and Rogoff

(2010) and the impacts of the level of taxes, structure of taxation and the way government spends money are studied for example by Johansson, Heady, Arnold, Brys and Vartia (2008).

Healthy workers are vital to a country's productivity, thus, investment in the provision of *health services* is critical factor of economic development and growth, respectively (see Sachs, 2001). *Basic* and *higher education* received by the population increase the workers' efficiency and are also key factors for economies that want to move up the value chain (see Barro, 2002; Schwab & Sala-i-Martin, 2013).

Goods market efficiency is related to the production of the right mix of products and services, given a country's particular supply-and-demand conditions, as well as to the effectiveness of trading with these goods (Schwab & Sala-i-Martin, 2013). The best possible environment for the exchange of goods requires high levels and the vitality of market competition (see Carlin, Schaffer & Seabright, 2005) and a minimum of government intervention that impedes business activity (see Branstetter, Lima, Lowell & Venancio, 2010). Openness to international competition, via trade and investment, enables a country to improve productivity, expand the most productive local industries and access more advanced knowledge and technology from abroad (see Baldwin, 2003; Dollar & Kraay, 2003; Branstetter, 2006; Delgado, Ketels, Porter & Stern, 2012). Market efficiency also depends on demand conditions, such as customer orientation and buyer sophistication (see Porter, 1998). More demanding customers force companies to be more innovative and customer-oriented and thus impose discipline necessary for market efficiency.

To achieve *labour market efficiency* the workers have to be allocated to their most effective use in the economy and provided with incentives to give their best effort in their jobs. Thus, labour market supports economic growth if it is flexible to shift workers from one economic activity to another rapidly and at low cost, and allows for wage fluctuations without much social disruption (see Kaplan, 2009).

Efficient access to capital is important for companies to make the long-term investments needed to raise productivity levels (see Levine, 2005). Thus, *financial market development* is reflected in the allocation of financial resources to those entrepreneurial or investment projects with the highest expected rates of return rather than to the politically connected. Furthermore, it is reflected in its sophistication, which enables the provision of capital from various sources (see Schwab & Sala-i-Martin, 2013). In order to fulfill all those functions, financial markets need appropriate regulation to protect investors and other actors in the economy.

For an economy to prosper it is important to be agile with adopting existing technologies to enhance the productivity of its industries (see Barro & Sala-i-Martin, 2012). Thus, contemporary *technological readiness* is reflected in the information-communication technology (ICT) access and usage.

Market size, as one of a country's endowments, affects productivity by the opportunities for achieving economies of scale. In the era of globalization, international markets have become a substitute for domestic markets, especially for small countries. Thus, exports and the membership in the regional integration can be thought of as a substitute for domestic demand in determining the size of the market for a country's companies. The effects of a country's international markets on a country's productivity are evidented for example by study of Parteka and Wolszcak-Derlacz (2013).

Business sophistication, which concerns the quantity and the quality of local suppliers, service providers and associated institutions in a particular field and the extent of their interactions, raises productivity due to higher efficiency, creation of greater opportunities for innovation in processes and products and reduction of entry barriers for new firms (see Delgado, Porter & Stern, 2010). Several empirical studies confirm the importance of companies operations and strategies for productivity (e.g. Bloom & Van Reenen, 2007).

The positive impact of *technological innovation* (including institutions and policies supporting innovation) on productivity has been empirically proven for example by Furman, Porter and Stern (2002). According to Romer (1990) technological innovation is particularly important for economies, which can not anymore improve their productivity only by integrating and adapting exogenous technologies.

Methodology, data and hypotheses

This paper is a macroeconomic dynamic research, based on the secondary data. The calculations of average growth rates of competitiveness indices, labour productivity and GDP per capita for each of the CEE EU member states are followed by comparative analyses of these variables for the discussed countries and by the exploration of relations between variables. Since the last economic and financial crisis differently harmed various economies and co-shaped the economies' growth prospects, we researched the trends of the above mentioned variables in the period from 2008 – 2013. The data were collected from the World Economic Forum's Global Competitiveness Reports and Eurostat Database.

On the basis of the set theoretical background, where we have argued the concept of a country's competitiveness and its relation with productivity and economic growth, respectively, as well as the importance of various components of competitiveness according to the country's stage of development, we formulate the following hypotheses:

H1: The growth of national economy's labour productivity, as one of the major driver of economic growth, and the growth of national economy's competitiveness are related.
H2: The growth of national economy's GDP per capita and the growth of national economy's competitiveness are related.

Empirical analysis

In the first part of the empirical analysis we have compared the GDP per capita, the growth of labour productivity and the growth of real GDP per capita in CEE EU member states in the 10 years period.

From the Table 1 it is evident that the highest growth of GDP per capita 2004-2013 (EU28=100) in relation to the other 10 CEE EU Member States have recorded four transition CEE EU Member States (Lithuania (12.3%), Latvia (11.3%), Slovak Republic (9.7%), Poland (6.8 %)) and one innovation-driven economy (Estonia (5.4%)).

Table 1. Deterioration/improvement of GDP per capita 2013/2004 (EU28=100) of CEE EU member states (Eurostat, 2014)

Country	Stage of development	GDP p.c. 2004 (EU28=100) (%)	GDP p.c. 2004 (EU28=100) – av. GDP p.c. 2004 of 10 CEE EU MS (EU28=100) (%)	GDP p.c. 2013 (EU28=100) (%)	GDP p.c. 2013 (EU28=100) – av. GDP p.c. 2013 of 10 CEE EU MS (EU28=100) (%)	Deter./Impr. of GDP p.c. (EU28=100) 2013/2004 according to av. GDP p.c. 2013 (EU28=100) of 10 CEE EU MS (%)
Bulgaria	Efficiency-driven	34,0	-23,7	40,0	-28,3	-4,6
Romania		34,0	-23,7	43,0	-25,0	-1,3
Croatia	Transition	57,0	+1,6	60,0	-6,3	-7,9
Hungary		62,0	+7,1	66,0	+0,3	-6,8
Latvia		48,0	-8,3	68,4	+3,0	+11,3
Lithuania		50,0	-6,1	71,2	+6,2	+12,3
Poland		49,0	-7,2	65,3	-0,4	+6,8
Slovak Republic		57,0	+1,6	76,0	+11,3	+9,7
Estonia	Innovation-driven	55,0	-0,6	69,5	+4,8	+5,4
Czech Republic		79,0	+25,8	81,1	+17,1	-8,7
Slovenia		86,0	+33,5	82,0	+17,9	-15,6

Notes: p.c. – per capita; av. – average; MS – Member States; deter. – deterioration; impr. – improvement.

The highest deterioration of this variable, however, have recorded two innovation-driven economies (Slovenia (-15.6%), Czech Republic (-8,7%)) and two transition countries (Croatia (-7.9%), Hungary (-6.8%)).

From the Figure 1 is evident that the trends of the growth of labour productivity and the growth of GDP per capita are very similar. In the countries with small or no differences in the growth rates of these two indicators, labour productivity trend better explains the growth of GDP per capita and vice versa. Due to the time lag in the impacts on economic growth, we suppose that the labour productivity growth, considering also different contributions of the other drivers of economic growth (endogenous and exogenous), is reflected only in the long-term growth of GDP per capita[2]. Herein we can search for the explanation of inconsistencies in average growth rates of the two compared variables in the observed period of time, thaat are evident from Figure 1.
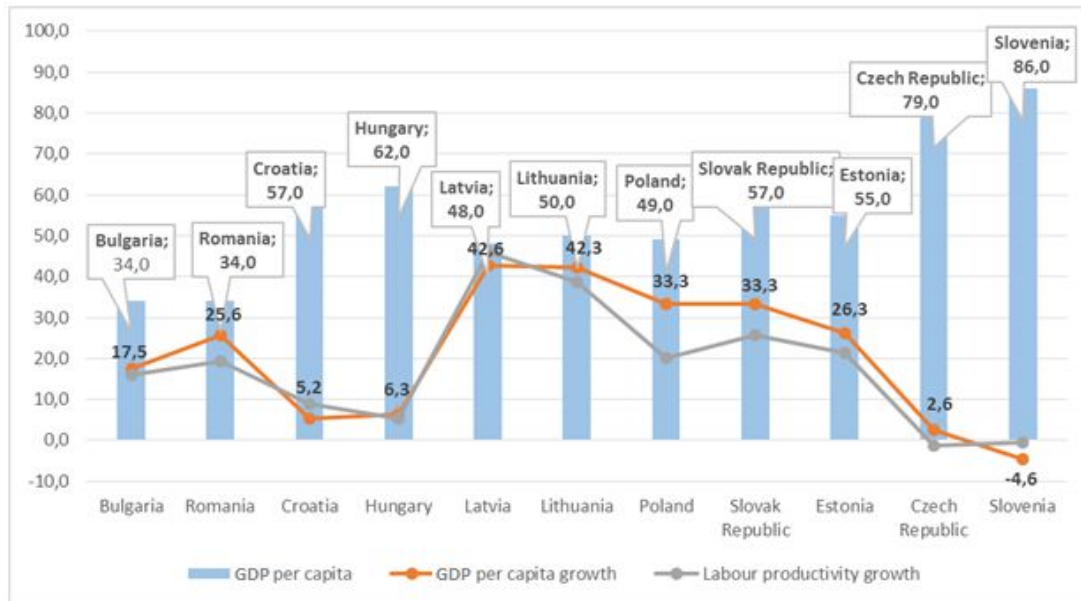

Figure 1. GDP per capita (2004), average growth of GDP per capita and average growth of labour productivity in the period 2004-2013 (Eurostat, 2014)

Notes: GDP per capita (EU28=100), labour productivity per person employed (EU27=100).

In the second part of empirical analysis we have compared the average Global Competitiveness Index (GCI) scores of eleven CEE EU member states and average growth of these scores in the period from 2008 – 2013. The goal of this comparative analysis was to find out the state of competitiveness of these countries after the beginning of financial and economic crisis and the pillars of competitiveness, on which each country has recorded improvement or deterioration in the observed period of time.

Figure 2 shows that the highest average levels of competitiveness in the period from 2008-2013 achieved Czech Republic and Estonia. It is also evident that Lithuania and Poland, classified as transition countries, achieved the same average level of competitiveness as Slovenia, which is classified among the countries at the innovation-driven stage of development. The latter indicates higher progress of Poland and Lithuania. The same observation is valid for Bulgaria that achieved the same average level of competitiveness as Latvia and Slovak Republic, although its level of development is lower. Similarly, Romania, which is classified among countries at the efficiency-driven stage of development, recorded the same average level of competitiveness as Croatia, which is ranked among transition countries.
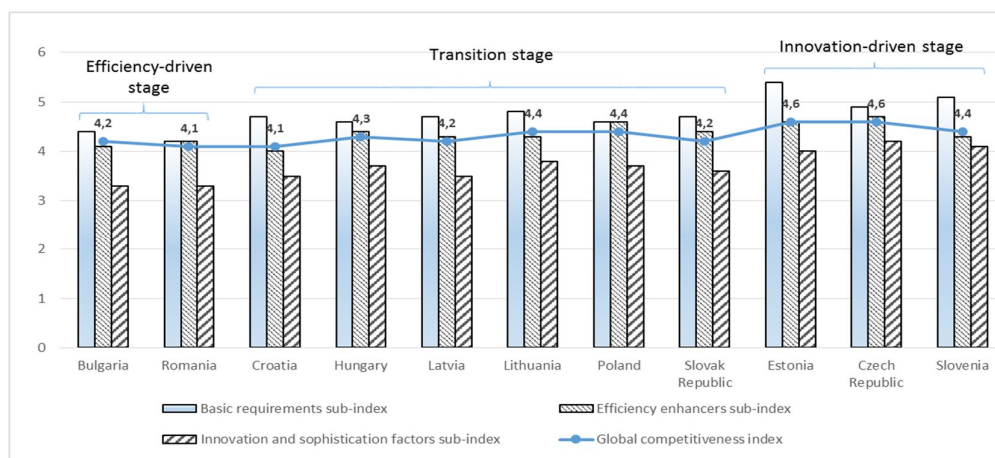
Figure 2. Average global competitiveness of CEE EU member states (WEF, 2008-2013)

Notes: see Schwab & Sala-i-Martin (2013, p.10) for for the classification of countries according to their level of development and for the sub-indices weights in the GCI according to the stage of development.
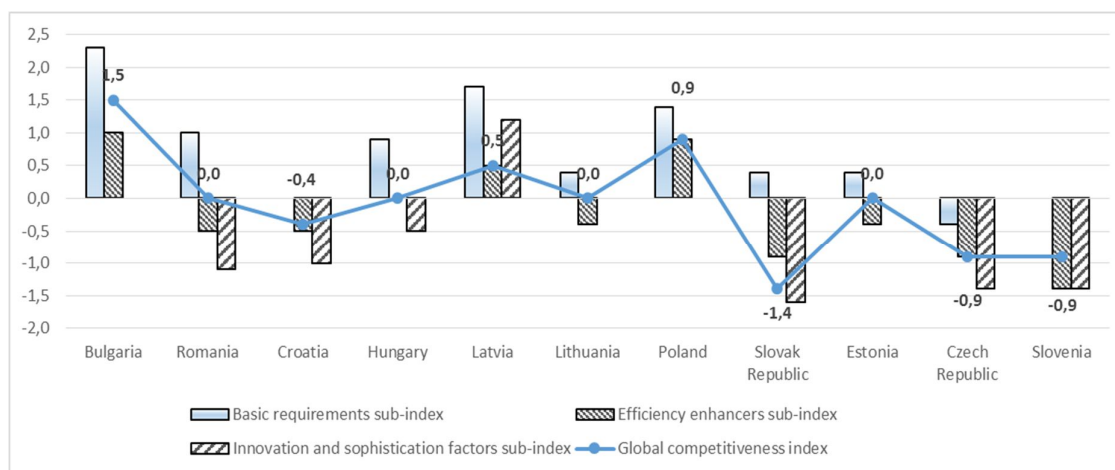

Figure 3. Average growth of global competitiveness of CEE EU member states (WEF, 2008-2013)

Figure 3 reveals the average growth levels of total competitiveness and the average growth levels of three groups of competitiveness pillars for CEE EU member states. Herewith we gain an insight into the main fields of progress and regression in competitiveness of CEE EU member countries in the observed period of time. Czech Republic worsen its position in all three groups of competitiveness factors; the highest decrease evidented the group of innovation and sophistication factors, which endeangers the Czech Republic's further growth prospects with regard to its achieved stage of development. Very similar observation is valid for Slovenia, that recorded deterioration not only in the most important group of competitiveness pillars according to its level of development – innovation and sophistication factors -, but also in the field of efficiency factors, which represent the foundations for the conclusion of a country's transition period.

Among the transition countries, the data show that the worst position has achieved Slovak Republic. The other transition countries (with the exception of Croatia) either maintained their prior level of competitiveness (Hungary and Lithuania) or improved it (Poland and Latvia). According to these data, one of the two CEE EU member countries at the efficiency-driven stage of development - Bulgaria – outperformed all other countries in the field of average competitiveness growth in the observed period of time.

Table 2 is the synthesis of the state of competitiveness of CEE EU member states in the period from 2008 to 2013. The findings are the following: Latvia and Bulgaria have recorded improvement at the highest number of competitiveness pillars - 11 (Latvia) and 9 (Bulgaria) -, Poland and Estonia have each improved 7 pillars, Hungary and Lithuania have each improved 6 pillars, Romania, Croatia and Slovenia have recorded improvement each at 4 pillars, and Slovak and Czech Republic have each improved 3 pillars. The best position has achieved Latvia, which has improved all three competitiveness components – basic requirements, efficiency enhancers and innovation and sophistication factors -, the worst position has, however, achieved Czech Republic, which has deteriorated all three competitiveness components. If we have a look into the whole picture of competitiveness of CEE EU member states in the observed period of time we – take into consideration also the intensities of changes (see Figure 3) and the total competitiveness of each of the three competitiveness components – we can rank these countries according to their average competitivenes in the observed period of time (see last column in the Table 2).

Table 2. The synthesis of the state of competitiveness of CEE EU member states (WEF, 2008 – 2013)

Economy	Basic requirements					Efficiency enhancers							Innovation and sophistication factors			Rank
	Tc	Ins	Inf	Me	Hpe	Tc	Het	Gme	Lme	Fmd	Tr	Ms	Tc	Bs	In	
Bulgaria	Im	+	+	+	+	Im	+	+	Un	-	+	+	Un	-	+	1
Romania	Im	-	+	+	Un	De	+	-	Un	-	-	+	De	-	-	7
Croatia	Un	-	+	-	-	De	+	-	-	-	+	+	De	-	-	8
Hungary	Im	-	+	+	+	Un	+	Un	Un	-	+	Un	De	-	+	4
Latvia	Im	+	+	+	+	Im	+	+	+	-	+	+	Im	+	+	2
Lithuania	Im	-	+	-	+	De	+	-	-	-	+	+	Un	-	+	6
Poland	Im	+	+	-	+	Im	+	+	-	-	+	+	Un	-	Un	3
Slovak Republic	Im	-	+	-	+	De	Un	-	-	-	-	+	De	-	-	11
Estonia	Im	+	+	+	+	De	Un	-	+	-	-	+	Un	-	+	5
Czech Republic	De	-	+	-	-	De	-	-	-	-	+	+	De	-	-	10
Slovenia	Un	-	+	-	-	De	+	-	-	-	+	+	De	-	-	9

Notes: Tc – total competitiveness, Ins – institutions, Inf – infrastructure, Me – macroeconomic environment, Hpe – Health and primary education, Het – higher education and training, Gme – goods market efficiency, Lme – labour market efficiency, Fmd – financial market development, Tr – technologicy readiness, Ms – market size, Bs – business sophistication, In – innovation, Im – improvement, Un – unchanged, De - deterioration

Table 3. Rankings of CEE EU Member Countries according to labour productivity, GDP per capita and global competitiveness (Eurostat, 2014; WEF, 2008-2013)

	LP rank	C rank	LP rank – C rank	GDP p.c. rank	GDP p.c. rank – C rank
Bulgaria	7	1	6	7	6
Romania	6	7	(-)1	6	(-)1
Croatia	8	8	0	9	1
Hungary	9	4	5	8	4
Latvia	1	2	(-)1	1	(-)1
Lithuania	2	6	(-)4	2	(-)4
Poland	5	3	2	3	0
Slovak Republic	3	11	(-)8	4	(-)7
Estonia	4	5	(-)1	5	0
Czech Republic	11	10	1	10	0
Slovenia	10	9	1	11	2
			AVDR: 2.7		AVDR: 2.4

Notes: LP – labour productivity, C – competitiveness, AVDR – average differences in ranks.

If we compare the competitiveness rankings of these countries with their labour productivity growth rankings and GDP per capita growth rankings (Figure 1 and Table 3) we can see that seven out of the eleven countries recorded low differences in these rankings (0 to 2 places) and that the lower average differences are recorded between the GDP per capita growth rankings and competitiveness growth rankings (2.4). We estimate the 24% and 27% of differences between the rankings as the low levels and herewith we confirm our two hypotheses:

H1: The growth of national economy's labour productivity, as one of the major driver of economic growth, and the growth of national economy's competitiveness are related.
H2: The growth of national economy's GDP per capita and the growth of national economy's competitiveness are related.

Discussion and conclusion

The key goal of this paper was to find out if a country's competitiveness and its economic growth are related. On the basis of calculations of average growth rates and determination of ranks and their congruity we have confirmed the relation between a country's competitiveness and its economic growth. Similar observation was found for example by Dobrinsky and Havlik (2014). The findings show that especially some transition CEE EU Member States have recorded high growth of GDP per capita in the observed periods, which is accompanied by their higher competitiveness, and that some innovation-driven CEE EU Member States have deteriorated their positions in this regard. In general, each country has to put the emphasis on the development of those competitiveness pillars, that are the most important for the country's level of development. However, as all competitiveness pillars are mutually dependent, a country should not neglect the development of the others. Our research has shown main gaps in the competitiveness of each observed country and thus, it can be used as a rough analytical foundation for deliberation of measures in the areas, where severe changes are neccessary. The less promising findings for some countries demand fast responses. If they won't search the leverages for their economic impetus in the reforms of their political and economic structures, which hampers their competitiveness and development, the outlook for their economic recovery in the turbulent regional and international political and economic environment is unenviable.

As the key limitation of our research we see the fact, that the Global Competitiveness Index is a composite indicator, composed also from proxy indicators, and according to the set methodology. Possible limitations can be also the simple research methodology and the small sample of observed countries.

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End notes

[1] Authors variously define Central and Eastern European Region. According to OECD (2014) definition, this region comprises Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia. The empirical analysis of our paper is conducted on the sample of eleven CEE EU member states.
[2] In our research we were limited with unavailable data on labour productivity and on the other drivers of growth (except labour) for all CEE EU member states and for a longer period of time.