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COMPETIVIVENESS AND DEVELOPMENT POTENTIAL OF REGIONS IN CZECH REPUBLIC AND SLOVAKIA

The research aims to assess the competitiveness potential of regions in Czech Republic and Slovakia. The multifactor monitoring of regional competitiveness is based on the fact that competitiveness growth is tightly related not only with economic and innovation growth but also with social-demographic changes, which generally results in differentiated development changes at the regional level. The analysis is based on the calculated average values of the selected indicators for each territory for the period from 2002 to 2012. The results reveals that divergent rather than convergent development processes are characteristic for regional competitiveness development, the risk of increased polarization between regional economies remains relatively significant.

Keywords: *competitiveness; polarization; region; Czech Republic; Slovakia.*
JEL classification: M13; M21.

Пьотр Хлавачек

КОНКУРЕНТОСПРОМОЖНІСТЬ ТА ПОТЕНЦІАЛ РОЗВИТКУ РЕГІОНІВ У ЧЕСЬКІЙ РЕСПУБЛІЦІ І СЛОВАЧЧИНІ

У статті проведено оцінювання потенціалу конкурентоспроможності регіонів Чеської Республіки і Словаччини. Багатофакторне дослідження регіональної конкурентоспроможності випливає з факту, що зростання конкурентоспроможності значною мірою пов'язане не тільки з економічним та інноваційним зростанням, але й з соціально-демографічними змінами, що в комплексі викликають диференційовані зміни розвитку на рівні регіонів. Розраховано середні величини вибраних індикаторів окремих територій за 2002–2012 роки. Встановлені дані показують, що для розвитку регіональної конкурентоспроможності характерні скоріше дивергентні, аніж конвергентні процеси розвитку, ризик зростання поляризації між регіональними економіками залишається досить виразним.

Ключові слова: *конкурентоспроможність; поляризація; регіон; Чеська Республіка; Словаччина.*
Рис. 1. Табл. 2. Літ. 27.

Петр Хлавачек

КОНКУРЕНТОСПОСОБНОСТЬ И ПОТЕНЦИАЛ РАЗВИТИЯ РЕГИОНОВ ЧЕШСКОЙ РЕСПУБЛИКИ И СЛОВАКИИ

В статье проведена оценка потенциала конкурентоспособности регионов Чешской Республики и Словакии. Многофакторный мониторинг региональной конкурентоспособности следует из того факта, что рост конкурентоспособности в значительной степени связан не только с экономическим и инновационным ростом, но и с социально-демографическими изменениями, что в итоге вызывает сложные дифференцированные изменения процесса развития на региональном уровне. Проведен расчет средних значений выборочных показателей по отдельным регионам в течение 2002–2012 годов. Полученные данные свидетельствуют о том, что в развитии региональной конкурентоспособности преобладают скорее дивергентные, чем конвергентные процессы развития, а риск роста поляризации экономики регионов является относительно высоким.

Ключевые слова: *конкурентоспособность; поляризация; регион; Чешская Республика; Словакия.*

Introduction. Competitiveness of regions in changing economic environment is regarded as one of the basic assumptions for mitigation of the economic crisis

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impacts, stabilization or development of economic potential of regional economies. Economic growth of regions (Porter, 2003) and regional development processes occur in the context of competition in the interregional, national, and global relationships. Hierarchic dimensions of economic environment (from global to microregional) affect the economic development of regions. The ability to do well in competitive relations (Martin, Kitson and Tyler, 2006) influences to a certain extent the potential of regional competitiveness.

Theoretical framework. Competitiveness of regions (Turok, 2003) as the research field in economies and economic geography, evolved from a higher level of national competitiveness analyses, as described e.g. by Porter (1995, 1999), Camagni and Capello (2013), Valdaliso and Wilson (2015). Similar concepts (Cooke, 2006) can be used as a background for the analysis of regional competitiveness at the methodological and theoretical level; Zenka, Novotny and Csank (2012) elaborated their classification with this in mind for use in the analysis of regional competitiveness, particularly, for regions of Central Europe. Storper (1997) introduces regional competitiveness as an activity where regions and cities compete with each other in spatial organization of economic relations as well as for capital or workforce. On the contrary, Porter (2003) emphasizes the export potential of local businesses and their production. Skokan (2004) defines it as the ability of businesses, industries, regions, nations, and supranational regions to generate income and employment. Bajmocy and Lengyel (2009) give deeper definition of spatial aspects and define, together with vertical hierarchies of territorial units, the model of regional competitiveness with the success determinants in interregional competition.

The research aim is the analysis of regions in Czech Republic and Slovakia to evaluate the competitiveness potential of the regions in these countries. The multifactor monitoring of regional competitiveness is based on the fact that competitiveness growth is tightly related not only to economic and innovation growth but to social-demographic changes, which generally results in differentiated development changes at regional level (Blazek and Netrdova, 2012; Hlavacek, 2013; Suchacek, 2013). There are expectations that the new development trends in the competitiveness area will increasingly reinforce the divergence processes between regions along with the polarization risks of the social and economic differences growth in both countries. The competitiveness potential of regions in Czech Republic and Slovakia could be regarded as the economic environment transformation indicator, which has been completely changing over the last 20 years in transit economies. Therefore, regional competitiveness may be regarded as the key factor for economic potential of regional growth, particularly in its qualitative dimension. The competitiveness of Czech Republic was studied (Slaby, 2006) at the regional level (Viturka, 2007; Wokoun et al., 2012) and they highlighted the variability of competitiveness factors depending on the development of socioeconomic structures.

Methodology description. The main problem in the analyses of regional competitiveness is primarily related to the methodology employed for regional competitiveness measurement. Various methods (Fernandez, Navarro and Duarte, 2013; Charles and Zegarra, 2014) for regional competitiveness measurement are based on the statistical evaluation of socioeconomic disparities (Polednikova, 2013). Regional competitiveness is a rather complex matter especially because of its multifactor condi-

tionality and mutual collective influence of individual factors. For evaluation of regional competitiveness, its key components must be identified first and this measurement provides data about the weak links of a region with respect to competitiveness, and which areas should be focused on while developing strategy of regional development.

Various measurement methods are used in evaluation of regions' competitiveness (Melecky and Stanickova, 2011; NaJuMong, 2013). Huggins (2003) uses the competitiveness index for the case of Great Britain; the index evaluates the competitiveness from the standing point of factors in the areas of input, output, and results.

The Regional Competitiveness Index is the most used method for regional potential analysis (Snieska and Bruneckiene, 2009; Viassone, 2009). For the regions of Czech Republic, it is based on the RCI used by the EU for measurement of competitiveness of the NUTS II regions (Annoni and Dijkstra, 2013). The index is rather complex and uses a set of specific indicators being standardized to produce a summary indicator of regional competitiveness. In order to optimize the statistical and graphical outcomes, it reduces the analysis into the areas of human resources and economic potential. The method employed in this paper is based on this calculation method. The method of regional competitiveness uses 6 pillars described in Table 1. Selection of indicators is done on the available data and is adapted to available statistical data in the databases of Eurostat and also Czech and Slovak Statistical Offices.

Table 1. **Indicators used for regional competitiveness calculation,** *author's*

Index of economic and infrastructure potential (IEIP)	**Infrastructure** (density of highway and speed roads network, density of railway)
	Innovation (number of R&D employees per 100 employees, R&D spending per 100 employees)
	Business sophistication (foreign direct investments per capita, production of gross fixed capital per capita)
Index of human resource potential (IHRP)	**Health** (population growth, economic burden index)
	Labour market efficiency (share of university-degree persons in the 15–64 age group, long-term unemployment level, registered unemployment level)
	Market size (regional GDP per capita, urbanization level, households income)

The default methodological procedure is the standardization of the absolute data of each indicator. For each indicator, the benchmark used was the maximum value of the indicator for Czech and Slovak regions. Deviation in % from the maximum value for each region was then calculated for all region under study. The reason for the use of the maximum value was that the use of the value indicator for Czech Republic or Slovakia would not be methodologically correct considering the comparison of Czech and Slovak regions.

When calculating the resulting index in the pillar, the final % evaluation is averaged by the number of calculated pillars (value 6) used for calculation of the regional competitiveness index. The Index of economic and infrastructure potential (IEIP) is calculated as the average value of pillar I (infrastructure), II (innovation) and III (business sophistication). The Index of human resource potential (IHRP) is the

resulting value of the average from pillars IV (health), V (labour market efficiency) and VI (market size).

The main index called Index of regional competitiveness (IRC) is based on the Index of economic potential and the Index of human resource potential, summed and then divided by two. The analysis used average values for the selected indicators of each territory for the monitored period from 2002 to 2012. The values of each analyzed indicator (pillars) were used for the final Index of regional competitiveness.

Results. The analysis of the monitored indicators reports significant differences in the monitored criteria among the regions (Table 2). As far as the infrastructure development level is concerned, the Central Bohemia Region got the best result, which ranks it right after Prague where the low level is caused by high concentration of inhabitants. The Central Bohemia Region also has very good results in the field of health of inhabitants; it is the migration-attractive region for young people, which results in lower sickness rate. The worst health situation is reported in the Moravia-Silesia Region, which is the region with developed heavy industry and coal mining, which is directly reflected in bad health of local inhabitants. Rural regions may have a better environment but lower quality of medical services and therefore, they do not stand out significantly when it comes to health. The market size indicator shows a significant difference between Czech and Slovak regions. Even economically weak regions of Czech Republic have higher market potential than the majority of Slovak regions.

Business sophistication points out the investment attractiveness because investments and fixed capital can be regarded as a bearer of new technologies and organization of production, hence the indicator of development dynamics and quality changes to regional economy. Prague and Bratislava highly dominate the other regions, and the polarity between these capital cities and the other regions is the highest in this indicator. Strong polarity also exists between Czech and Slovak regions, where especially the area of Central and Eastern Slovakia highly lags behind the other regions. South Moravia is ranked second in the field of innovations, right after Prague.

The Index of human resource potential was the highest in Prague where it achieved 109.11% followed by the Bratislava Region (90.77%), tightly followed by Central Bohemia (89.30%). The lowest values of the HR potential index were found for Central and Eastern Slovakia, particularly the Kosice Region (44.12%), Presov Region (42.11%), and Banska Bystrica Region (35.56%). Data shows that higher polarity of data is reflected in the field of human resource potential in Slovakia than in the Czech Republic. The highest economic potential was found in Bratislava and Prague; the high value of the indicator for Bratislava demonstrates the intensive economic growth of Slovakia, which is significantly concentrated in the territory of Bratislava and southwest Slovakia. Of Slovak regions, the lowest value of economic potential was found in the Presov Region (17.4); the level of other regions is relatively balanced when it comes to human resource potential. The lowest economic potential level among Czech regions was shown by the Zlin Region (23.01). Higher values are recorded in the cases of South Moravia and Plzen Regions (45.99 and 41.43, respectively) where strong regional centres with dynamic development are located (Brno, Plzen). The differences among other Czech regions are not substantial.

The evaluation of the aggregated potential points out that values of the pillars of all the analyzed regions in most cases do not achieve the levels of the capital cities of

Prague and Bratislava and that they are much higher as compared to the other regions.

Table 2. **Indices of Czech and Slovak regions,** *author's calculations*

	IHRP	IEIP	IRC	ranking
Prague	109.11	70.34	89.72	1
Central Bohemia Region	89.30	49.67	69.49	3
South Bohemia Region	70.19	33.32	51.75	6
Plzen Region	73.01	41.34	57.17	5
Karlovy Vary Region	59.28	32.51	45.89	12
Usti Region	57.83	29.78	43.80	13
Liberec Region	69.19	31.71	50.45	7
Hradec Kralove Region	68.50	27.82	48.16	8
Pardubice Region	67.33	28.91	48.12	9
Vysocina Region	62.44	33.49	47.96	11
South Moravian Region	73.43	45.99	59.71	4
Olomouc Region	59.45	36.56	48.01	10
Zlin Region	62.23	23.01	42.62	15
Moravian-Silesian Region	59.09	27.41	43.25	14
Bratislava Region	90.77	72.56	81.66	2
Trnava Region	54.81	28.06	41.44	16
Trencin Region	52.33	24.72	38.52	18
Nitra Region	45.28	23.65	34.46	20
Zilina Region	51.80	25.79	38.79	17
Banska Bystrica Region	35.56	30.78	33.17	21
Presov Region	42.11	17.40	29.75	22
Kosice Region	44.12	25.55	34.84	19

The data show some differences between Czech and Slovak regions (Figure 1) in response to the current economic crisis, and at the same time there is higher similarity level for the regions based on their typological identity. The capital regions demonstrate the highest potential followed by Central Bohemia being developed in direct integration with Prague agglomeration. The regions with population-strong regional centres with growing economy have the above average potential, such as the South Moravia Region and the Plzen Region. The remaining Czech regions of which the old industrial regions (Moravia-Silesia and Usti) have weaker positions. Lower competitiveness is also related with the peripheral location, particularly in the cases of the Zlin Region and the Karlovy Vary.

Compared to the structurally impacted regions, this category of regions is in a less advantageous position; old industrial regions keep their economic potential that may adapt better to changes in external economic conditions, whereas in peripheral regions, the insufficient economic potential limits economic growth. Weaker and also relatively lagging regional economies of peripheral regions show worse assumptions for growing competitiveness.

Slovak regions, except for Bratislava, show lower competitiveness potential as compared to Czech regions and in aggregate, their index value is roughly one third lower. The importance of Bratislava as the economic centre of Slovakia is also demonstrated by comparison of Czech and Slovak regions, without capital cities where the difference in the competitiveness index is much higher. The geographical

location of the territory has its significant impact on the competitiveness of Slovak regions because there is a clear differentiation in regional competitiveness in the East-West axis. The East regions show lower competitiveness reflected in unemployment growth, lower investment attractiveness, other social and economic indicators. The Kosice Region has a specific position with slightly better results as compared to the surrounding regions because the metropolitan area of Kosice positively influences its competitiveness.

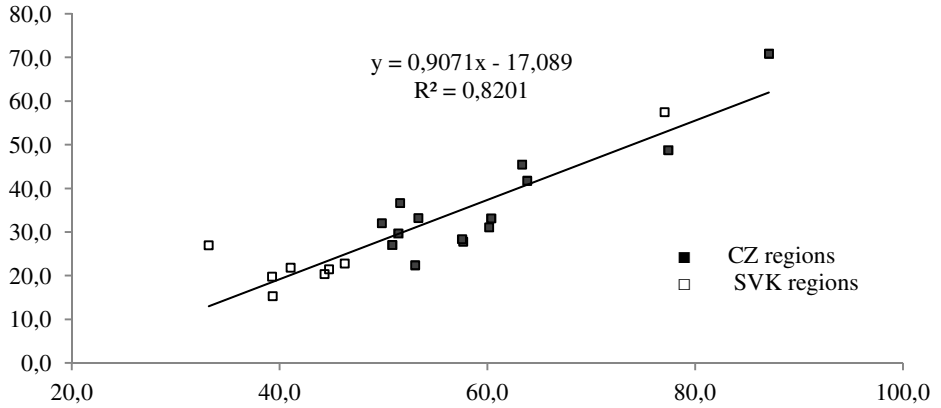

Figure 1. **Evaluation of the indicators for the analyzed regions,** *author's calculations*

Conclusion. The goal of the paper was the analysis of the regional competitiveness potential monitored by means of the constructed regional competitiveness index. The analysis of the calculated average values was carried out for the selected indicators of each country for the period of 2002 to 2012. There are also regional differences of specific character between the values of the Index of regional competitiveness potential. The resulting data show higher potential of competitiveness of the regions where capital cities are located, and of the regions with higher urbanization level and higher labour market potential. On the contrary, the lowest potential was reported for peripheral regions, which is emphasized in some cases by weak economic potential and undeveloped labour market. The key development trends are of a rather divergent nature, and the risk of growing polarization between regional economies remains rather high.

On the long-term horizon it is necessary to put emphasis on monitoring of quality features of regional development. For example, the inflow of foreign investment can be regarded as a relevant indicator of regional competitiveness if investments are monitored and subsidized from the public support by their quality features as they will contribute more to the long-term growth of regional economy and competitiveness. Therefore, further research on the competitiveness of regions should be focused on the analysis of quality processes and developing recommendations on achieving higher competitiveness of regions in the field of support for new industries and entrepreneurship (Hlavacek, Zambochova and Sivicek, 2015).

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Стаття надійшла до редакції 17.06.2015.