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**COMPARATIVE ANALYSIS OF CHOSEN
DEVELOPMENT ASPECTS
IN SELECTED CENTRAL
AND WESTERN EUROPEAN REGIONS**

Introduction

Resilience and adaptability concepts represent a progressive regional science theory these days. Both concepts were developed in Western Europe and their applicability in Eastern Europe may be problematic.

The aim of this paper is to highlight the differences in the character and development of Central East Europe, which may pose applicability barrier of both concepts in those regions.

Development in selected Western and Central European “old industrial regions” is illustrated within the case study, which draws a comparison between the position of the Moravian-Silesian region and three other regions in terms of selected economic, social and territorial aspects of individual regions development. The analysis is consisted in evaluation by way of integrated indicators. Realms as Economic potential and competitiveness and Labor market, are solved in the Economic sphere. Social sphere includes integrated indicators as Social pathology and exclusion and Education. Thematic realms of Environment and Transport infrastructure belong into the Territorial sphere. Evaluation of the case study together with theoretical base may support or refute the claim that resilience and adaptability concepts are not well applicable for Central East European regions.

1. Character and development differences in selected regions

Transformation processes as well as formal and informal institutional characteristics differ in the compared Western and Central East European “old industrial regions”. Firstly, the societies of Central Eastern Europe have undergone double transformation: the specific processes of the transformation from the totalitarian to the democratic political system, and from the centrally planned to the market economy. The long-term administrative-political centralization of all decisive mechanisms brought about the presence of deformed system macrostructures, which represent the heritage of the socialist times. The system macrostructures are embodied by the public administration (namely the extent of power and maneuvering space of the State administration and self-government from both the financial perspective and organization of competences) as well as the physical and social infrastructure (Sucháček, 2008).

There are also considerable differences in the course of restructuring and transformation between the “old industrial regions” in Central Eastern Europe.

A different approach is apparent between the Moravian-Silesian region and the Silesian Voivodeship. In the former, the restructuring was tackled in a “shock” way and, as should be noted from experience, somewhat hastily while in the latter, only a very gradual decline of industry occurred and new jobs had been generated before the old ones were eliminated (Sucháček, 2004). Despite this, or perhaps because of this, comparing the position of Moravia-Silesia to the selected regions of the European Union is beneficial.

The Moravian-Silesian region is one of the traditional industrial areas of Central Europe. At the same time, the economic performance of the region is an important potential of the Czech Republic. The Moravian-Silesian Region had been slightly improving its position until 2003 and it ranked among the fastest growing regions of the Czech Republic between 2003 and 2006. However, this growth has “cyclic” nature. Based on the final report on the implementation of regional development strategies, it can be established that the region is sinking again (BermanGroup, 2009). This statement alone shows the lack of resilience in this region.

Three regions having relevant features in common with the unified Moravian-Silesian region (CZ08) were chosen for the comparative analysis. The most important feature was having made an extensive structural manoeuvre as a result of attenuation or extinction of historically fundamental sectors or productions. Of the four compared regions, two fall under the ‘old’ EU countries, in which the core structural changes occurred about twenty years ahead, and two belong to the “new” member states, in which the most significant structural manoeuvres have been taking place over the last fifteen years. According to these aspects, the following region of NUTS II level were selected: the province of Liège (Province de Liège, BE33), Silesian Voivodeship (Województwo Śląskie, PL22), and Northumberland, Tyne and Wear (Northumberland and Tyne and Wear, UKC2).

2. Methodology

The database of the statistical office of the European Union – Eurostat was used as a major source of statistical data for the individual areas of the development. For a comparison of disparities between the selected NUTS II regions, relevant indicators were chosen. These were subsequently integrated into thematically homogeneous units – integrated indicators in the economic, social and territorial development areas. The selected integrated indicators and their structure and classification were based primarily on the methodology of the research project ‘Regional disparities in the spatial development of the Czech Republic’ (Kutscherauer et al., 2010). Nevertheless, it was essential to adjust to the restrictions of limited availability of the relevant statistical data for the minor territorial units within the European Union when choosing the appropriate indicators.

Given the intention to explore primarily the course and breadth of the disparities between the analyzed regions, the point method with weighted sum of indicators was used to calculate the integrated indicators. The essence of the point method (by M.K. Bennett) is to find a body that reaches optimal values of the analyzed indicator relative to the purpose of the analysis and is used as a comparative basis (criterion value). The difference in the calculation of the optimum value lies in regarding either an increase or a decrease of the indicator as progressive. The maximum value is used in the case of progression perceived by an increase in the indicator, while the minimum value is selected in the opposite case when a decline in the value of the indicator is identified as progressive. The body is evaluated at 1.000 points while other bodies are scored according to the amount per mille, which is formed by the value of their indicator from the fixed criterion value (Tuleja, 2009). Mathematical expression of the integrated indicator calculation is thus as follows:

$$INI_x = \frac{1}{p} \sum_{i=1}^p \frac{x_{ij}}{x_{imax}}, \text{ respectively } \frac{x_{imin}}{x_{ij}}, \quad (1)$$

where INI_x is the final point value of the integrated indicator, p is the number of the indicators, x_{ij} is the value of the 'i' indicator for the 'j' region, x_{imax} denotes the maximum value and x_{imin} is the minimum value of the 'i' indicator.

The comparison was made against the average of the indicators at the level of EU27. Where the data was not available, the analyzed regions average was used. The calculation was carried out with indicator weights set by experts. When it was not possible to clearly distinguish the weight of each indicator, the same weights were established. For indicators unavailable at the regional level, comparison at the state level was made. This meant identifying the position of the Czech Republic against Belgium, the United Kingdom and Poland, and subsequent evaluation of the position of the unified Moravian-Silesian region to the Czech Republic.

3. Development of disparities within set integrated indicators

3.1. Economic Potential and Competitiveness

The "Economic Potential and Competitiveness" integrated indicator shows the current economic strength of a region and its ability to further development. To express it, three indicators were selected from the available relevant data:

GDP per capita (weight 0.5), gross added value per capita (weight 0.3) and gross fixed capital per capita (weight 0.2).

The economic performance disparity between the analyzed regions in 2000-2008 has an overall convergent progression (see Figure 1). The disparity dispersion of 734 points in 2000 was lowered to 482 points in 2008. Approaching of the regions of the new member states (Moravia-Silesia, Silesian Voivodeship) to the economic performance and competitiveness of the regions of the old member states (Liège, Northumberland & TaW) is a positive development from the viewpoint of Moravian-Silesian region. However, it can be considered a negative that this is occurring along a reduction of the economic potency of the two western regions.

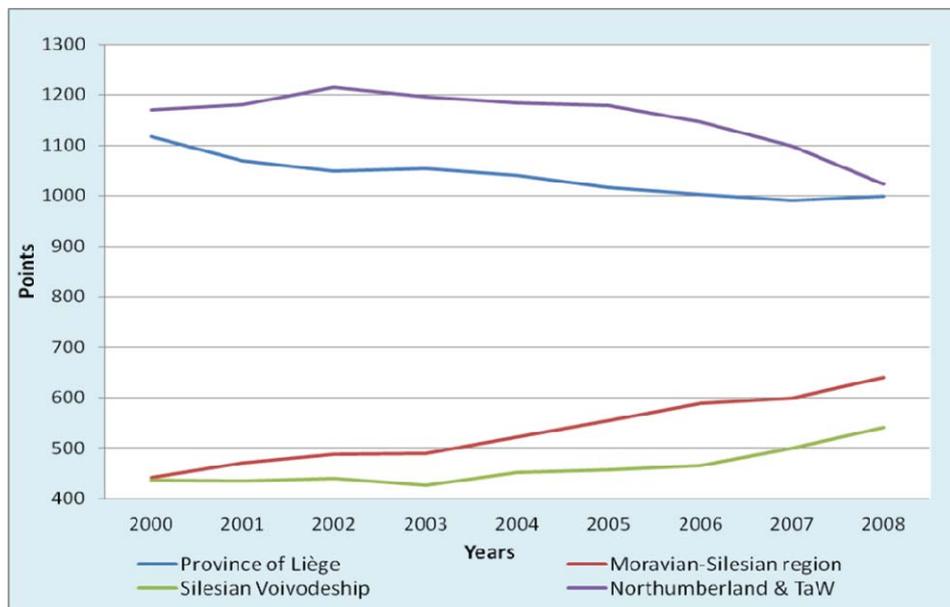


Figure 1. Economic Potential and Competitiveness
Source: Based on: Eurostat (2011).

The long-term highest values to the EU average were consistently achieved by Northumberland & TaW; however, it declined by 148 points in eight years. The Liège region was second by a small gap. However, both of these regions were virtually aligned with the EU average by 2008. The lowest values of the analyzed period were evident in the region of the Silesian Voivodeship although there was a positive growth (as in Moravian-Silesian region). The highest growth values were reached by the Moravian-Silesian region (up by 199 points). The default value, representing 44% of EU average, grew through the growth dynamics to 64% in 2008.

3.2. Labour Market

The “Labour Market” integrated indicator describes situation on the labour market in terms of labour supply and demand. It consists of two indicators with equal weights: employment rate (age group 15-64 years) and long-term unemployment (12 months and longer).

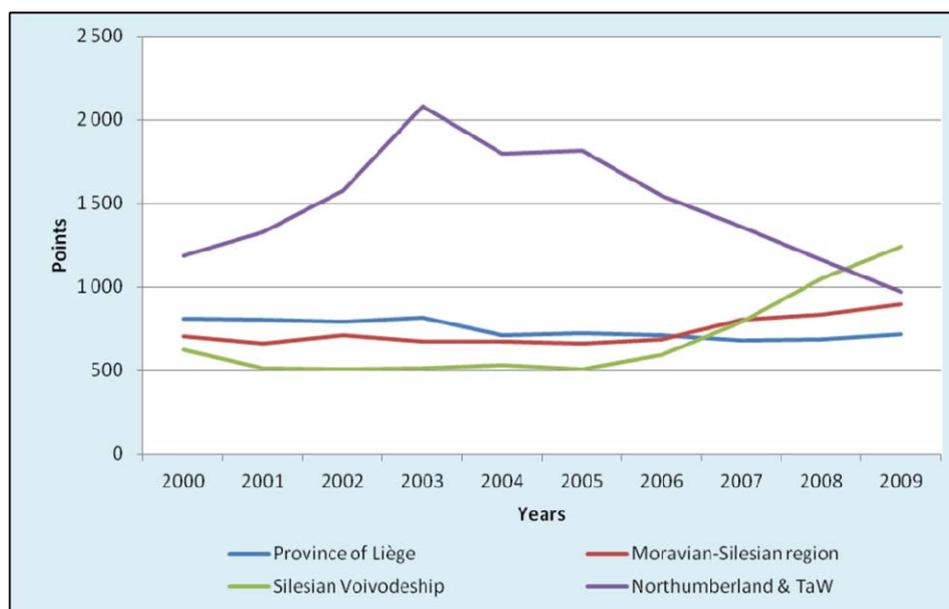


Figure 2. Labour Market
Source: Based on: Ibidem.

Between the years 2000-2009, there was a gradual convergence in the labour markets of the selected regions (see Figure 2). The spread of the disparities decreased by 7% in 2009 compared to 2000. However, opposite trends are apparent between the Eastern and Western regions. While the labour market development in Moravia-Silesia and especially Silesia was positive in terms of the above-mentioned indicators, the trend was completely reversed in the Liège region and particularly in Northumberland & TaW. Although Northumberland & TaW had been reaching values significantly above the EU average for a long time, this favourable development was disrupted in 2004 and was gradually phased out afterwards. In 2009, the integrated indicator of the region even dropped slightly below the EU27 average (by 30 points). With a relatively stable trend and with no significant deviation, the region of Liège was also consistently below this average. However, its original level of 81.2% of the EU27 average fell to 71.4% in 2009.

In Silesia, where the summary indicator of the labour market had had the lowest values of the analysed regions until 2006, the situation improved considerably in the last three years (2007-2009). Due to an increase in employment and a considerable reduction of unemployment, the integrated indicator's value increased by 98% from 2000 to 2009. If we express this dynamics of growth to the EU average, the initial level of 62.3% reached 123.9% of the EU27 average. The same trend can be also seen in Moravia-Silesia from 2006 although its growth dynamics is much lower than in adjoining Silesia. The original level of 70.2% increased to nearly 90% of the EU27 average.

3.3. Social Pathology and Exclusion

The integrated indicator "Social Pathology and Exclusion" affects undesirable side effects that lead to social exclusion or negatively influence the society in terms of health, life or safety. It consists of four indicators with equal weights: substantial material poverty rate (% of total population), the population threatened by poverty or social exclusion (% of total population), the number of crimes per 1000 people* and long-term unemployment rate (12 months and longer). Due to missing data for the regions of Liège and Northumberland & TaW, the integrated indicator was expressed at the national level. Comparison at the regional level was carried out only for Moravian-Silesian region and Silesian region.

From 2004 to 2009, there was a joint convergence between the countries (the range of the disparity decreased by 58.6%). However, while the positive above-average values of the Western countries approached the EU average (negative trend), the Eastern countries (the Czech Republic, Poland) positively moved away from it (see Figure 3). The highest rate of the positive disparity, i.e. the highest number of points, was achieved by the Czech Republic. This was influenced by a low proportion of the population at risk of poverty or social exclusion and less crime in comparison with the Western countries.

* In case of obtaining the number of crimes per 1000 people the average of the countries was selected as the optimum value for calculations through the point method due to unavailability of data for the EU27.

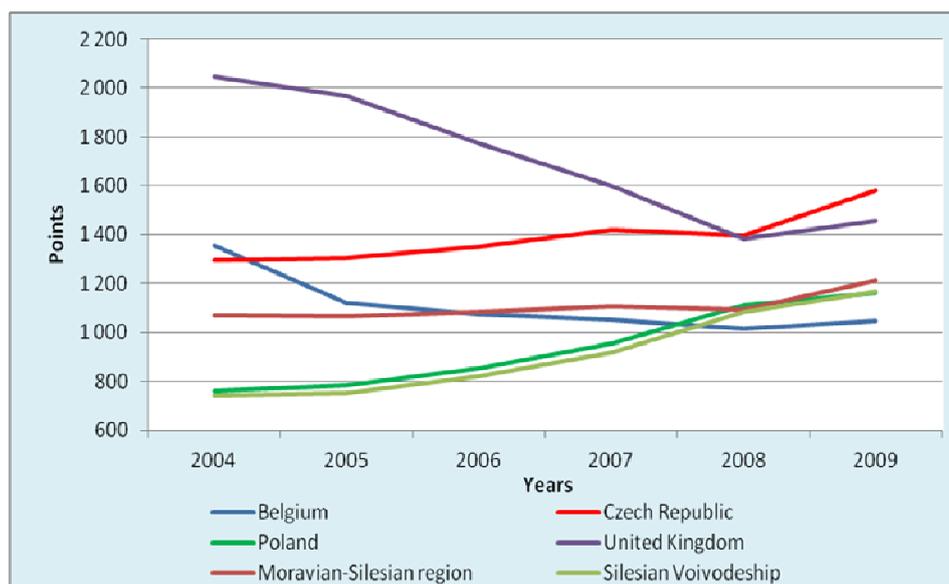


Figure 3. Social pathology and exclusion
Source: Based on: Ibidem.

The interregional comparison (Silesian and Moravian-Silesian region) showed a significant convergence. This was predominantly caused by higher dynamics of the decrease in the signs of social pathology and exclusion in the Polish region. The dispersion of the disparity decreased by 86.7% by 2009 and both of these eastern regions reached values above the EU27 average (i.e. lower level of the signs of pathology), making it a positive trend. In the Moravian-Silesian region, the positive disparity in the area of social pathology and exclusion increased by 11.6% during the reporting period. However, the region still achieved only 77% of the Czech Republic's average. Yet it should be noted that its position in this field is higher than that of Belgium, Poland and Silesia.

3.4. Education

The integrated indicator “Education” describes educational structure of individual regions. Education is valuable not only as a key social factor of development but also of regional competitiveness. Additionally, it is closely related to the prerequisite of sustainable development and innovation potential of regions. To express it, four indicators with the following weights were selected: people aged 25-64 with completed secondary education (% , weight 0.2), people with completed tertiary education* (% , weight 0.4), with completed lower se-

* Data for people aged 25-64 and with tertiary education was not available for the EU27. The regions' average was chosen as a criterion value.

condary education (% weight 0.1) and with completed upper secondary education (% weight 0.3).

The disparity development (see Table 1) between the analysed regions had an overall convergent course. The disparity spread decreased from 372 points in 2008 to 337 points in 2010. The convergent course is a result of a higher growth rate in Moravia-Silesia (42 points) and Silesia (49 points) and conversely an almost stagnant development in Liège (8 points) and a decreasing level of educational structure in Northumberland & TaW (-13 points). In this case, the polarization of the Eastern and Western regions is also apparent. In terms of the educational structure, Liège reached the best result as it achieved values at the EU level (1011 points). Northumberland & TaW recorded a slight decline, yet it maintained the levels of the EU average (930 points).

Table 1

Education			
	2008	2009	2010
Province of Liège	1,003	1,004	1,011
Moravian-Silesian region	631	660	674
Silesian Voivodeship	719	753	768
Northumberland & TaW	943	940	930

Source: Based on: Eurostat (2011).

Despite the increasing number of university graduates, Moravia-Silesia performed the worst of the evaluated regions and its educational structure was around the 67% average. If Moravia-Silesia maintains this growth dynamics, it will fail to achieve the current level of the EU by 2020. Silesia was rated better in comparison with Moravia-Silesia but even this region attained only 76% of the level and exhibited similar growth dynamics as Moravia-Silesia.

Table 2

Persons aged 25-64 with tertiary education attainment (% of population)

	2008	2009	2010
Province of Liège	29.00	30.40	31.40
Moravian-Silesian region	11.90	14.10	15.40
Silesian Voivodeship	17.60	20.50	22.00
Northumberland & TaW	26.70	27.50	27.80

Source: Based on: Ibidem.

3.5. Environment

Despite the significance of environmental issues for the development of all regions, relevant data in the field of environmental indicators at NUTS II level are not yet monitored in the Eurostat database. Some indicators are available at the member state level in a very limited extent. The Czech Republic and Poland display a positive disparity in terms of the monitored indicators of environmental quality (especially PM10 production – see Table 3). However, the regions of Silesia and Moravia-Silesia are far below the average of the two countries according to the available indicators as shown in the Tables 4 and 5 below.

Table 3

Urban population exposure to air pollution by particulate matter (PM10)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Belgium	32.9	33.9	33.2	36.5	30.3	29.6	30.7	26.3	26.0
Poland	41.8	37.9	45.0	44.1	35.1	38.9	44.6	34.0	33.1
United Kingdom	23.4	24.2	23.2	25.8	22.6	23.5	24.6	23.3	20.4
Czech Republic	32.7	35.6	40.2	47.0	38.1	39.6	40.6	31.9	29.8
Moravian-Silesian region	34.9	42.0	42.9	50.1	39.9	46.7	46.9	38.5	36.4
EU-27	27.7	27.1	28.1	31.2	27.8	29.2	30.8	29.0	26.8

Source: Based on: Eurostat (2011), CHMI (2011).

Table 4

Emissions of solid pollutants (t/km²)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Poland			1.50	1.50	1.40	1.50			
Silesian Voivodeship			7.20	7.50	7.60	6.80			
Moravian-Silesian region	1.33	1.21			1.27	1.04	1.05	1.26	0.56
Czech Republic	0.61	0.60			0.59	0.43	0.42	0.42	0.41

Source: Based on: RIS (2011), GUS (2011).

Table 5

Emissions of nitrogen oxides (t/km²)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Poland			2.50	2.60	2.60	2.60			
Silesian Voivodeship			9.20	9.50	9.10	9.70			
Moravian-Silesian region	4.10	4.41			4.30	4.58	4.34	4.38	3.77
Czech Republic	2.06	2.10			2.08	1.96	1.94	1.97	1.77

Source: Based on: Ibidem.

3.6. Transport Infrastructure

A comparison of the state and development of infrastructure in the analysed regions had to be limited to road transport only due to the unavailability of required data. To calculate the integrated indicator, the following indicators with the specified weights were used: freeways (km/100 km², weight 0.5), other roads (km/100 km², weight 0.25) and number of vehicles per 1000 people (weight 0.25).

The development of the interregional disparity of this integrated indicator (see Table 6) was slightly convergent at a very wide dispersion (1684 and 1523 points respectively). This was caused by the significant distance of the Liège region that exhibited considerably higher values in all default indicators, especially in the length of highways. The disparity between the other three regions was not so striking (range 308, respectively 223 points). However, Moravia-Silesia reached the lowest values. It is worth noting that the region of Silesian Voivodeship achieved almost double the values of Moravia-Silesia over the period. The situation in Moravia-Silesia began to improve slightly only from 2005.

Table 6

Transport Infrastructure

	2006	2007	2008	2009
Province of Liege	2153	2139	2110	2053
Moravian-Silesian region	135	138	200	241
Silesian Voivodeship	452	481	512	531
Northumberland and T&W	1260	1241	1178	1175

Source: Based on: Eurostat (2011).

Air transport, the fastest and one of the most important forms, especially for international passenger transport in the world today determines the distance. Direct connections with other cities and regions are increasing the availability of the region and allow to rise in passenger, always depending on the nature and conditions of carriage. The indicator Air transport of passengers may be under certain circumstances considered as an apposite indicator for evaluating the success of the region.

Number of passenger air traffic show utilization of airports in the region (see Table 7), each region has analyzed international transport terminal. Values for the region Province of Liège are affected by the proximity exceptional transport accessibility of Brussels airport.

Table 7

Air transport of passengers per 1000 inhabitants

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Province of Liège							0.29	0.31	0.37	0.33
Moravian-Silesian region			0.11	0.13		0.19	0.22	0.24	0.25	0.22
Silesian Voivodeship							0.29	0.39	0.51	0.50
Northumberland & TaW	2.25	2.42	2.43	2.80	3.37	3.71	3.86	4.01	3.58	3.26

Source: Based on: Ibidem.

Tiny decline of Air transport of passenger in 2009 to 0.50 for Silesian Voivodeship despite the global crisis in air transport indicates a significant improvement of local conditions. Although flights from Katowice airport are operated by only four airlines, of which 90% of flights operate low-cost airlines, passengers are offered a direct connection with 27 cities. In 2011 there was over 2.5 million passengers, which represents an annual increase of 140 000 passengers. Although Northumberland & TaW catchment area is only slightly greater than of Moravian-Silesian region, number of passengers carried in 2007 reached a value of 5.6 million people and the airport in Newcastle offers direct connections to 84, even transoceanic cities. On the contrary, maximum of 311 000 passengers were carried in Moravian-Silesian region in 2008. This number has decreased to 273 563 passengers in 2011. This finding is all the more important that the airport in Ostrava had a much better starting position than Katowice airport.

Conclusions

The performed results of the case study clearly show that the polarization of the Western (“old”) and Central East (“new”) regions of the EU member states) persists. With the exception of the assessed labour market characteristics, the regions of Moravia-Silesia and Silesian Voivodeship significantly lagged behind Liège and Northumberland & TaW as well as the EU mean in many indicators throughout the analyzed period. Although the compared regions of Central East Europe display a positive development trajectory, the dynamics is inadequate and insufficient.

Out of these regions, Silesian Voivodeship achieves higher quality parameters in many of the indicators although the region was in a worse starting position at the beginning of the transformation period. This finding is critical for the Moravian-Silesian region due to the “fragile” relationship between the two regions: on one hand, they seek to cooperate but on the other, they compete in many ways. Therefore, the finding supports the claim that the Polish restructuring model was clearly more successful.

Due to the different development conditions and specific character of Central East European regions, modern western theoretical concepts such as adaptability and resilience are not well applicable for Central East Europe. Rather than trying to apply western concepts accent should be given to the creation of concepts tailored to the specific conditions of Central East European regions.

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