

Regional Disparity in Selected Regions of the Czech Republic – With New Definition

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Abstract—Regional disparities are common term of last time, which is solved in the regional economy. Regional differences are examined at different levels of regions. View on the regional disparities varies. The main contribution of this paper is a new perspective on regional disparities and determination of the new definitions. Then there is analyze of the regional disparity economic sphere through selected two indicators – it is the export performance and the unemployment rate. Aim of this paper is to use the new definition of regional disparities in the analysis and determine the positive or negative disparity in the regions of the Czech-Polish border.

Keywords—Czech-Polish Borderland, Export Performance, Regional Disparity, Unemployment Rate.

I. INTRODUCTION

AUTORS of regional disparities are watching them differently. There is currently no comprehensive view of regional disparities. Likewise, it is questionable how the disparity to be measured. In the context of this paper, the author proposes a new form definition of disparities. This definition implies also a new way of determining disparities, which are divided into positive and negative. A new view on regional disparities is used when analyzing the state of the selected regions. These are the regions of the Czech-Polish border. Specifically, it is five Czech regions, which are on the border with Poland. These are specific regions, mainly because they are considered peripheral and not sufficiently exploited the potential here that in those regions.

In this paper there is first introduced views of other authors on regional disparities. Then it introduced a new definition of regional disparities and a new method of determining disparities. Further defines the regions that are under the author's contribution focuses. Following is an analysis of regional disparities through two selected indicators.

II. LITERATURE REVIEW

The term disparity comes from the Latin word *disparatus*, which in direct translation means divided. The adjective takes

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the form of disparate, not disparity. The general definition of disparity indicates that the disparity means inequality, inconsistency or even divergence. [1] Each region is developing in another way, at a different pace, a different direction, and these differences are being referred as regional disparities. The Ministry for Regional Development defines regional disparities as "unjustified regional differences in the level of economic, social and environmental development of the regions."

Individual regional disparities can have various causes. It is the disparity in natural conditions of different regions, different demographic situation, different economic structures, low labor mobility, low mobility of capital, institutional factors, political decisions or psychological factors.

It is possible to observe two different perspectives leading to marking disparities as negative and positive [2]. There is also maintains that while it is possible to take the analogy of two pages and what are the weaknesses and strengths of an object under examination [4]. Negative regional disparities can be perceived as weaknesses and positive regional disparities as strengths. Weaknesses can usually lead to the key vulnerabilities of examined object, which usually lie in the lack of resources and lack of ability to use available resources [5]. Strengths usually result in comparative respectively competitive advantages of examined object, which usually consist of a unique and valuable resource and a unique ability to use these resources [6].

The basis of traditional regional and cohesion policy are negative regional disparity [5] - [7]. It is based on the principle of solidarity to help less developed regions to more equitable distribution of income or employment, respectively solidarity developed regions with less developed regions, and it is also, among others justified by the need to maintain social consensus among regions and social groups within countries and within the European Union. Themes connected with redistribution approach are largely political. The positive role of regional disparities is in the understanding of the fact that the disparity can be the engine of development and source of comparative advantage. Regional policy is focused on the chances and mobilization of local resources to improve the quality of life of people as a result of development.

The basic structure of disparities is based on defining spheres of appearance. There are regional disparities in the social, economic and territorial spheres. Economic disparities are related to a regional economic performance, the structure of the regional economy, development and human potential.

We can include the indicators of employment, unemployment, gross domestic product, labor productivity, industry, agriculture, services and others. Social disparities are related to population in the wider context of quality of life, standard of living, social equality. We can monitor the density of population, demographic structure, migration activity of the population, labor mobility, health, mortality, educational structure, professional structure, housing, social background, cultural background and educational background. Territorial disparities are associated with geographic, natural, traffic and technical conditions. In this group we can include for example area, climate, air, water, nature, waste, forests, land, transport infrastructure, technical infrastructure and availability.

It is possible to look at the theory of regional economics in the context of regional inequalities. In spite of that the existence of regional inequality represents a serious problem, and yet there is still no general agreement as to the given inequalities accessed from a theoretical and methodological point of view [7]. Grasping territorial disparities impedes a number of factors such as different definitions of convergence and divergence, socio-economic level compared territories, reliability and comparability of the used data, character and duration of the period in where the territory is compared, numerous difficult quantify sphere and many others. Similarly, the amounts of the identified causes and mechanisms that regulate trends regional systems in time is considerable and additionally will increase over time. View of the theories of regional inequalities shows that "liberal, ie. endogenous developing paradigm for regional development, which dealt with regional issues chronologically as first, consider spatial tendency for convergence in the long term. Also because it is a non-interventional approach, where is not recommended greater interference to market processes". Furthermore then "all the paradigms of regional development that have followed, ie. Keynesian, a Marxist - Socialist and a modern neo-endogenous approach to the regional development after that consider spatial development as divergent. These paradigms are significantly different in terms of recommendations for the creation of socio-economic conditions and also in terms of their rate of interventionism."

It is important to define the neoclassical approach to the analysis of regional differences in economic performance [6]. The undisputed focus of neoclassical conception of spatial analysis are "so called disparities in regional growth against the background of the principle that the spatial movement of factors of production arises from the possibility of increasing their effectiveness. In reaction to these options are investment decisions caused by the price differences that are gradually diminishing, theoretically up to the level where further redeployments of factors can't bring improved overall performance" [7]. Spatial balance of this type can be understood as "status when all factors are geographically distributed that their use brings in a given market and technological conditions the maximum achievable effect. It is necessary to calculate the basic assumptions characteristic of the neoclassical interpretation: atomistic competition in all markets; full information on prices on the part of economic

actors; efforts of operators (companies, households), regardless of use of the possibility to increase own personal gain (profit); All prices (including labor costs - wages) are characterized by unlimited flexibility; "reward" (wages, capital gain) factors of production determines the threshold of their contribution.

A. *New Definition of Regional Disparities*

Regional disparities are defined on the basis of predefined indicators and it is possible to determine whether the disparities are considered positive or negative. To determine the positive and negative disparity is firstly necessary to clarify the general definition of regional disparities.

Regional disparities are by the author's contribution defined in general as the difference of regional development from the critical (fractional) values of the indicators in the economic, social and territorial area where the critical value is defined as the median of the whole country together with the upper limit of + 5% from the median and lower limit - 5% of the median. The value of +/- 5% is determined based on tolerated deviations from the median, which is set at this level. It can also rely on the traditional concept of the value of the level of significance, that is 0.05 (this value has been introduced into the statistics in 1925 by Ronald Fisher).

Disparity can be determined to be positive and negative depending on the character of the selected indicator. Negative regional disparity according to author is considered such a disparity, which is not desirable in the region, has a negative impact on the region and there is a need to remove this disparity. As positive regional disparity is considered one that is desirable in the region and it is possible to find an advantage as the examined object. To distinguish the disparity in each year, it is always determined the median, where is intended tolerated deviation, ie. upper and lower limits of the median. For every predetermined indicator is set an upper limit of +5% of the median and the lower limit is -5% of the median. Determining whether it is positive or negative disparity depends on the nature of the chosen indicator. If the value of the indicator is above the upper limit, it can be considered as positive the existence of disparities in a given year and region, for example, with the indicator of export performance (in the case of the indicator unemployment rate is a negative disparity). If the value of the indicator is below the lower limit, it can be considered as negative the existence of disparities in a given year and region, for example, with the indicator of export performance (in the case of the indicator unemployment rate is a positive disparity).

III. SELECTED REGIONS

Border regions are opposed to national regions a specific status, which is trying to countervail. From the perspective of national centers are often the peripheral areas. Border regions in general often suffer from the historical consequences of their peripheral location, lack of integration into the prevailing structures and from that the resulting isolation. Cross-border cooperation in the European Union should help compensate these disadvantages and improve living conditions in the

border regions. The peripheral areas also include regions in the Czech-Polish border.

Czech-Polish border regions have in business and labor market considerable economic potential, both countries combines many elements in common, including in particular the similarity of languages, cultural and historical heritage, competitive industries (wood processing, construction) etc. Both countries are currently making great efforts to establish closer business and trade bonds, which would contribute significantly to the economic development of the regions. Economic Chamber of the Czech-Polish border area strive to provide support to economic and trade cooperation, including strengthening the border market. Interested chambers of commerce on both sides of the border want to achieve full utilization of the potential of local businesses and enhancing their competitiveness in the European Union.

Generally, the regions of the European Union countries are divided according to a uniform system of classifying territorial units for statistics NUTS. Czech Republic is divided into one region NUTS 1, eight NUTS 2 regions (cohesion regions) and fourteen NUTS 3 regions (county). The Republic of Poland is divided into six regions NUTS 1, sixteen NUTS 2 regions (cohesion regions, in the Republic of Poland is a voivodship) and sixty-NUTS 3 regions (sub-regions).

The territory of the Czech-Polish borderland is formed by certain regions of the Czech Republic and Poland. It is problematic to define of regions, which forms the borderland area, there are some discrepancies in terms of data availability and area of the regions of the two countries. In the Czech Republic, the Czech-Polish borderland area is defined by five Czech regions (ie. Regions at NUTS 3). These are the Moravian-Silesian region, Olomouc region, Pardubice region, Hradec Králové region and Liberec region. Statistical data for these regions are in terms of availability at a good level. Czech Statistical Office provides a great variety of data that allow comparison of these regions. A different view is the definition of the Czech-Polish borderland area for the Polish side, where it is not so clear. This area consists of six Polish subregions (NUTS level 3). This is a region Bielski and Rybnicki (Silesianvoivodship) Jeleniogórski and Wałbrzyski (Lower Silesia voivodship), Nyski and Opolski (Opolevoivodship), also township Strzeliński (sub-region of Wroclaw in Lower Silesia province) and Pszczyński district (sub-region Tyska in the Silesian voivodship). Availability of data at the regional level in Poland is not as sufficient as in the Czech Republic. Additionally, the NUTS 3 regions of Poland are considerably smaller than NUTS 3 regions of the Czech Republic. In Poland, there are statistically more monitored NUTS 2 regions, which are quite a bit larger than the NUTS 2 regions of the Czech Republic. Therefore, there occur a problem in terms of comparability regions Czech-Polish borderland across the borders of both countries.

The author focuses on Czech regions Czech-Polish borderland. It is already mentioned five regions - the Moravian-Silesian Region (abbreviation MSK), Olomouc region (abbreviation OLK), Pardubice region (abbreviation PAK), Hradec Králové region (abbreviation HKK) and

Liberec region (abbreviation LBK). It is dropped from the analysis of Polish regions and attention is paid to the Czech regions because of the analysis at the lowest possible regional level in terms of data availability. For the analysis of the Polish Republic would need to monitor regional level higher, which would not be possible in terms of the needs analysis of specific indicators that are not available. In general it is alleged that the Polish market has a certain resemblance to the Czech market, and that cooperation between Czech companies with Polish firms should be no problems. But the reality is different from interviews with business representatives as well as the survey shows that this is not like that, to establish cooperation with Polish companies is sometimes complicated.

In tables in this paper there are using abbreviations of regions.

IV. REGIONAL DISPARITIES BY SELECTED ECONOMIC INDICATORS

For measuring regional disparities are determined the following indicators that define the regional disparity among the regions of the Czech-Polish border. Determined indicators, that regional disparity among the regions of the Czech-Polish borderland are defined through are according to the author:

1. Export performance
2. The level of unemployment
3. Costs of Work
4. Educational level of the unemployed
5. Transport Infrastructure
6. Emissions of pollutants
7. Construction work

As indicated the general definition provided for regional disparities, disparities can be observed in three separate spheres. It is an economic, social and territorial sphere. To these spheres it is possible to assign by the author selected indicators, which allows to define regional disparity. Regional disparities in the economic sphere can be measured by an indicator export performance and the unemployment rate. Regional disparities in the social sphere can be measured by an indicator labor costs and the educational level of the unemployed. A regional disparities in the territorial sphere can be measured by an indicator Transport infrastructure and pollutant emissions and construction work.

In the following subchapters, the individual disparities are identified by two established economic indicators. For individual subchapters it is kept uniform style methodology. Is selected time series for ten years, i.e. since 2004 (when the Czech Republic entered the European Union) in 2013 (which is most of the indicators last year detectable in terms of available data).

A. Disparity by Indicator Export Performance

Using established indicator of export performance is possible to monitor the disparity, which is formed in the regions of the Czech-Polish borderland to the whole. In this set of indicator disparity is defined as the difference between

exports of goods per capita of each region and the critical value of goods exports per capita in the Czech Republic. The disparity is possible to distinguish as an positive and negative. To distinguish the disparity in individual years is set critical value which is intended for upper and lower limits. Specifically, the export performance indicator is calculated upper limit of +5% of the median and the lower limit is -5% of the median. In the case that the value of the export performance in the region is above the upper limit, there occurs a positive disparity and in the case that the value of the export performance is below the lower limit, there occurs a negative disparity.

On the basis of predetermined criteria for determining positive and negative disparities in case of monitoring indicators of export performance, we can say that in regions where the median indicator of the country is higher than 5%, it is a positive disparity. Further, in case that the value of the indicator is lower than 5% it is a negative disparity. And if there is a difference only slightly from the median (range +5% and - 5%) is not possible to determine positivity/negativity disparities. Specific values of the upper and lower limits are provided in table no. 1 below. In the table are also intended positive and negative disparities across regions and in individual years. Positive disparity is highlighted in green, negative disparity is highlighted in red, and the objective value is highlighted in yellow.

In table no. 1, it is possible to see the indicator value export performance in regions of the Czech-Polish border. For determining the length of the time series for all indicators set out a ten-year time series, i.e., from 2004 to 2013. However, in the case of export performance indicator (applies only to this single indicator) it is the most recent year available, 2010.

In Moravian-Silesian region is a positive disparity reported in the last three monitored years, where the indicator exceeds the upper limit criterion value. In the Olomouc region are proved negative disparity in all years of the period, the indicator value export performance is always below the lower limit criterion value. Positive disparities are evident in the Pardubice and Liberec region, where export performance is at a high level and the value of the indicator moves above the upper limit criterion value. Very fluctuating development is in the Hradec Králové, where the disparity in export performance in 2004 proves to be positive, then oscillates between the objective value (the lack of disparity) and negative disparity (in 2006 and 2008).

In tables in this paper there are using abbreviations of regions.

TABLE I: POSITIVE AND NEGATIVE DISPARITY WITH INDICATOR EXPORT PERFORMANCE (IN CZK)

	2004	2005	2006	2007	2008	2009	2010
MSK	142111	161477	180496	200288	207680	181309	223209
OLK	124653	121709	129789	147475	150927	111410	122926
PAK	259711	282003	303342	374748	366362	339557	456111
HKK	170942	169493	163126	186921	177633	149945	185131
LBK	193209	216562	217734	232053	205273	180157	202906
Median	158399	162091	175500	194382	192344	152675	183728
Upper Limit	166319	170196	184275	204101	201961	160309	192914
Lower Limit	150479	153986	166725	184663	182727	145041	174542

By determining the upper and lower limit criterion value, which is compared to the value of the indicator in individual regions of the Czech-Polish border, it is not possible to directly quantify the disparity, but it is possible to determine whether in a given case there is a positive or negative disparity.

By comparing the first and the last year for which it is possible to determine the value of the indicator of export performance can be characterized by the development in some regions as a positive. The situation is shown in Table no. 2. In comparing the two years of border selected time series has been positive situation only in the Moravian-Silesian Region.

TABLE II: DETERMINE OF DISPARITY IN FIRST AND LAST YEAR

	Disparity in 2004	Disparity in 2010
MSK	NEGATIVE	POSITIVE
OLK	NEGATIVE	NEGATIVE
PAK	POSITIVE	POSITIVE
HKK	POSITIVE	X
LBK	POSITIVE	POSITIVE

B. Disparity by Indicator Unemployment Rate

The second selected indicator is the unemployment rate. The indicator can be used to measure regional disparities in the economic sphere. Disparity measured by this indicator is defined as the difference between unemployment counties Czech-Polish border and the median unemployment rate of the Czech Republic. In the case of this indicator it is necessary to clarify the possible disparity considered positive and the negative. It is important to clarify from what point of view is the disparity seen. In this thesis, it is seen in the higher unemployment rate as a negative phenomenon also from a business perspective, as they are then faced with the problem of employment of workers sufficiently competent in their area of business.

In case of monitoring indicators of unemployment rate, it is possible to say that in regions where it is an indicator of the country's median higher than + 5%, with a negative disparity. Further, in case that the value of the indicator is lower than -

5% it is a positive disparity. And if there is a difference only slightly from the median (range + 5% to - 5%) it is not possible to determine positivity / negativity disparities. Specific values of the upper and lower limits are provided in Table. 3. In the table are also intended positive and negative disparities in different regions and in different years using a color distribution, the positive disparity is highlighted in green, negative disparity is highlighted in red and criterion value is highlighted in yellow.

The Moravian-Silesian region occur throughout the period to exhibit negative disparities, since the value of the indicator unemployment rate is well above the criterion value. The negative trend is also evident in the Olomouc Region, where the exception of 2012 (which is the value level criterion values) are also being reflected negative disparity in the unemployment rate indicator. The Pardubice Region was the unemployment situation is positive, but in 2013 it has already demonstrated a negative disparity. A similar situation is seen also in the Hradec Kralove region. Also, there is the development of moderately volatile. In 2004, the value of the indicator unemployment rate with a positive manifestation of disparity but then there is an increase of this indicator and also the speech negative disparity.

TABLE II: POSITIVE AND NEGATIVE DISPARITY WITH INDICATOR UNEMPLOYMENT RATE (IN %)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
MSK	14,5	13,9	12,0	8,5	7,4	9,7	10,2	9,3	9,5	9,9
OLK	12,0	10,0	8,2	6,3	5,9	7,6	9,1	7,6	7,7	9,2
PAK	7,0	5,6	5,5	4,4	3,6	6,4	7,2	5,6	7,7	8,4
HKK	6,6	4,8	5,4	4,2	3,9	7,7	6,9	7,1	7,1	8,2
LBK	6,4	6,5	7,7	6,1	4,6	7,8	7,0	7,2	9,3	8,3
Median	6,9	6,6	6,3	5,0	3,9	7,1	7,1	7,2	7,5	7,5
Upper Limit	7,3	7,0	6,6	5,3	4,1	7,4	7,5	7,5	7,9	7,9
Lower Limit	6,6	6,3	5,9	4,8	3,7	6,7	6,8	6,8	7,2	7,1

For comparison, the first and last year of the reference period is processed Table no. 4, where it is clearly visible, where the county shifted in terms of disparities towards the whole of unemployment. All of the monitored counties have moved into the level of negative disparity to the community in monitoring indicator unemployment rate.

TABLE IV: DETERMINE OF DISPARITY IN FIRST AND LAST YEAR

	Disparity in 2004	Disparity in 2013
MSK	NEGATIVE	NEGATIVE
OLK	NEGATIVE	NEGATIVE
PAK	X	NEGATIVE
HKK	X	NEGATIVE
LBK	POSITIVE	NEGATIVE

V. CONCLUSION

The main contribution of this paper is to introduce a new definition of regional disparities and then use this definition in analyze of disparities in the Czech-Polish border. Analysis of disparities is done through export performance indicator and the unemployment rate.

Regional disparities are by the author's contribution defined in general as the difference of regional development from the critical (fracture) values of the indicators in the economic, social and territorial area where the critical value is defined as the median of the whole country together with the upper limit of + 5% from the median and lower limit - 5% of the median. And it is possible to identify positive or negative disparity. In the Czech regions of the Czech-Polish border fluctuates between positive and negative disparities within the selected time series. However bad the situation is largely the monitoring indicator disparities through unemployment rates where they are in the final year of negative disparity in five selected counties.

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