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ASSESSMENT OF BORDER REGION DEVELOPMENT BASED ON THE CASE STUDY OF THE LUBUSZ VOIVODESHIP

OCENA ROZWOJU OBSZARU PRZYGRANICZNEGO NA PRZYKŁADZIE WOJEWÓDZTWA LUBUSKIEGO

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Streszczenie. Celem artykułu jest ocena poziomu rozwoju społeczno-gospodarczego województwa lubuskiego. W badaniach wykorzystano metodologię opartą na wskaźniku rozwoju Perkala. Doboru zmiennych dokonano na podstawie literatury przemiotu. Zmienne wykorzystane w modelu opisują sytuację społeczno-gospodarczą regionu. Badania przeprowadzono w latach 2004 i 2013 dla wszystkich 16 polskich województw, co pozwoliło na dokonanie porównań. Badania wykazały, że poziom rozwoju społeczno-gospodarczego województwa lubuskiego należy ocenić jako dobry i stabilny. Jednocześnie istotne jest podnoszenie poziomu innowacyjności regionu.

Key words: socio-economic development, the Lubusz Voivodeship, peripheral region, border region, Perkal's taxonomic method, Poland.

Słowa kluczowe: rozwój społeczno-gospodarczy, województwo lubuskie, region peryferyjny, region przygraniczny, metoda Perkala.

INTRODUCTION

The functioning of peripheral regions constitutes a particular area of scholarly activity and regional research. Widely regarded as peripheral and, as such, less developed than central regions, they play a vital role in the integration processes taking place in Europe. This applies especially to the Polish-German border region. Increased research interest in the issues of socio-economic development of the border zones from the perspective of regional and international arrangements is manifested in scholarly publications, among others (Chojnicki 1998; Ciok 2004; Crescenzi 2012; Dumala 2012; Malkowska 2016).

In the light of the hitherto analysis of the research on regional development and the development of peripheral regions, it seems justified to continue and advance the analyses concerning the development of border regions.

The aim of the article is to assess the socio-economic development of the border regions, with a special focus on the Lubusz Voivodeship.

According to data from December 31, 2013, it was the second smallest voivodeship in terms of population, with over one million inhabitants. It encompasses an area of 13,987.89 km². It is located in Western Poland and, along with the West-Pomeranian and the Lower Silesian Voivodeships, it constitutes the Polish-German borderland. It neighbors the federal states of Brandenburg and Mecklenburg-West Pomerania.

The following article draws on Polish and foreign literature on the subject, as well as strategic documents concerning the area in question, and statistical data obtained from the Regional Data Bank and the Cross-Border Friendship Database. Perkal's taxonomic method was used to assess the degree of socio-economic development of the voivodeships. (WP). The so called Perkal's index is classified as one of the methods of multidimensional comparative analysis. It was calculated for 2004 and 2013 for all sixteen voivodeships, which allowed to make comparisons over time and against the remaining regions¹ of the country. The choice of the study period was determined by the availability of homogenous statistical data.

THE DEVELOPMENT OF PERIPHERAL AREAS

Peripheries are most often underdeveloped areas, technologically, economically, and socially dependent on stronger central areas.

The concept of center and peripheries, popular and widely described in the literature on international relations, uses an asymmetric model of spatial relations to describe globally diversified demographic, social and economic processes which lead to the division between central and peripheral regions. The co-dependencies between the dominant center and the peripheries result from uneven development caused by differences in spatial concentration of capital, innovations, and social potential.

The notions of „center” and „peripheries” refer to social and economic but also political, worldview, and cultural phenomena. They determine the directions of development of the regions and fuel the debate on their future. Peripheries and centers are undoubtedly multidimensional notions.

Peripheries are most often mentioned with their unfavorable geographic location in mind, which contributes to their regional marginalization. A large distance from the center is supposed to be the reason behind insufficient economic development.

In the existing economic discourse, a general classification of factors conditioning a region's peripheral character has not yet been agreed upon and established. In economic terms, what decides on classifying a region as peripheral is its location outside of the area with the highest economic activity.

Another feature of peripheries, brought up frequently, is their low level of innovation, decreasing with the increase of distance from the center. Peripherality has also a cultural and social dimension. It is then identified a kind of social inertia, which is manifested in the community's passivity or unwillingness to shape the social space and embrace change. It is the center which determines the directions of development, shares the resources, creates ideas. Peripheries are passive and in a sense handicapped politically, economically, and socially.

As the globalization and polarization processes in the contemporary world deepen, there is a growing need to analyze endogenous developmental factors, typical of regional structures. This especially concerns border areas, which due to their specific nature, are a very interesting area of research (Zagożdżon 1980).

¹ In this article, region means: a territorial unit in Poland on the level of a voivodeship. The choice of 2013 was dictated by the access to the latest statistical data concerning regional accounts published by Polish Central Statistical Office.

The very notion of regional development is defined ambiguously. According to Kornelik, regional development is a predominantly economic process, during which regional production factors are transformed into goods and services. It seems to be an appropriate approach to development. Defining development as a process is a best way to capture its complexity. So understood, regional development is synonymous with the socio-economic development of an area, in result of which the region's potential increases in many respects.

Development means a permanent improvement in the region's competitiveness and in the living standards and prosperity of inhabitants (Chądzyński et al 2007). It should be emphasized that social development conditions economic development and vice versa.

Development of regions is determined by many factors, among which there is also international cooperation (Blakely and Bradshaw 2002), which is significant for border areas, and can overcome their peripherality and lessen regional disproportions thanks to cross-border cooperation (Malkowski and Malkowska 2011). The development of border areas is determined by processes and phenomena taking place on both sides of the border, hence a larger number of stimuli which can influence development, but also a more complicated nature of the occurring changes in comparison with the rest of the country.

Among other factors of regional development highlighted by the EU in the second decade of the twenty-first century, the following should be mentioned:

- the modern structure of economic activity,
- the intensity of activity in the area of innovation,
- the quality of technical infrastructure,
- the human capital accumulated in the region,
- business environment institutions,
- scientific and innovative potential,
- social and economic activity of inhabitants.

In contemporary times, regions are forced to compete with one another. This competition also includes attempts at the acquisition and optimal use of the indicated development factors. A region's development is inextricably linked to its competitiveness, but in order to achieve it, it is crucial to thoroughly analyze available resources and identify the special features and assets of the region, which are the basis of creating its competitive advantages (Słodowa-Hełpa 2013).

ASSESSMENT OF THE DEVELOPMENT OF THE LUBUSZ VOIVODESHIP

Literature on the subject indicates that there is no universal measuring instrument for the development of territorial units. A handful of solutions are commonly implemented, based on a multidimensional comparative analysis. According to Gorzelak (1981), a multidimensional comparative analysis (MCA, in Polish: WAP) is a formally cohesive group of statistical methods for the purpose of intentional selection of information about elements of a certain collectivity and detection of regularities in their mutual relations. The multitude of factors which affect regional development justify the use of multi-criteria models for the assessment of the said development. A consequence of using multidimensional comparative analysis in regional research is the construction of an aggregated index which constitutes a basis for the hierarchy of analyzed objects. The first to suggest this was Hellwig (1968), with his so-called synthetic measure of development used for a typological division of countries with regards to their levels of development, and the resources and structure of qualified staff.

The selection of variables characterizing the dynamic phenomenon of regional development is also an area with no generally accepted solutions. To compare the levels of socio-economic development of regions, both synthetic (encompassing the whole economy), as well as partial (showing only a fraction of it) measuring instruments are used. The construction of the development index differs, depending on: the way of accounting for stimulants and destimulants; the way of determining the coordinates of the development pattern; the procedure of standardizing the variables; the form of the analytical aggregating function and the weights of diagnostic features (Kurkiewicz et al. 1991).

For the purpose of this article, the method of multidimensional comparative analysis, and in particular Perkal's index (WP) were used for the assessment of the socio-economic development of the Lubusz Voivodeship. Perkal's index allows to compare particular measuring tools and obtain one synthetic regional development level index. The process comprises two stages (Karmowska 2011):

- standardization of the measuring tools employed in the research, in result of which all measures expressed in standardized units become comparable and can be added up,
- calculation of synthetic indexes (WP) of the degree of regional development.

The observation matrix was created by using a set of eight indexes capturing selected aspects of each voivodeship. Specific selection criteria were considered in the selection of diagnostic variables. Among other factors, the author bore in mind that too many variables could disrupt an effective classification of objects, or even render it futile.

Selection criteria for variables cannot be universal; therefore, the selected variables were important from the point of view of the socio-economic development of borderland areas, accounting for their developmental potential, economic activity of the inhabitants, and their problems and relations with foreign countries. At the same time, data was available in a common format for 2004 and 2013, which allowed to make comparisons in time and notice changes.

The following were qualified as diagnostic variables:

- x1 – rate of registered unemployment,
- x2 – demographic dependency ratio – number of people of non-working age per 100 persons of working age,
- x3 – GDP per capita, (current prices)
- x4 – employed in R&D – employed per 1000 professionally active persons,
- x5 – expenditure on innovation activities in industrial enterprises,
- x6 – newly registered operators in the National Business Register per 1000 inhabitants,
- x7 – operators in the National Business Register per 10 000 inhabitants,
- x8 – operators with foreign capital per 10 000 inhabitants.

In accordance with the premises of the model, variables were standardized, since they had different weights and units, which did not allow to compare them directly. In the next stage, a synthetic Perkal's index was constructed, being the sum of standardized contribution values.

On the basis of the obtained values of Perkal's index (WP), a classification of units was carried out, classes were assigned on the basis of arithmetic average and standard deviation (see Table 1).

Thanks to the studies conducted in 2004 and 2013, it was possible not only to define the level of development of the Lubusz Voivodeship in relation to other voivodeships, but also to analyze whether a decade of socio-economic changes in the Polish-German borderland brought about any changes in the overall development of the voivodeship.

Table 1. Classification of objects with the use of average value and standard deviation

Class	Range	Level of development
A	$WP > \bar{x} + s$	very good
B	$\bar{x} < WP < \bar{x} + s$	good
C	$\bar{x} - s < WP < \bar{x}$	medium
D	$WP < \bar{x} - s$	poor

ASSESSMENT OF THE SOCIO-ECONOMIC DEVELOPMENT OF THE WEST POMERANIAN VOIVODESHIP

On the basis of the obtained values of the synthetic Perkal's index, a classification of voivodeships was performed, taking into account their levels of socio-economic development (see Table 2). Next, the region of West Pomerania was assessed in the context of other voivodeships.

Table 2. Classification of the level of socio-economic development of voivodeships for 2004 and 2013, with the use of synthetic Perkal's index

Classes	Level of development	2004		2013	
		voivodeship	WP	voivodeship	WP
A	very good	Masovian	0.88	mazowieckie	0.79
B	good	Silesian	0.26	Lower Silesian	0.15
		Lower Silesian	0.23	Lódź	0.17
		Greater Poland	0.21	Greater Poland	0.11
		West Pomeranian	0.14	West Pomeranian	0.10
		Pomeranian	0.12	Pomeranian	0.06
		Lubusz	0.10	Lesser Poland	0.05
		Lesser Poland	0.06		
C	medium	Warmia-Masuria	0.00	Silesian	-0.05
		Opole	-0.05	Lubusz	-0.11
		Lódź	-0.09	Kuyavia-Pomerania	-0.12
		Kuyavia-Pomerania	-0.12	Holy Cross	-0.13
				Subcarpathia	-0.15
				Podlasie	-0.17
				Warmia-Masuria	-0.19
		Lublin	-0.21		
D	poor	Podlasie	-0.34	Opole	-0.34
		Lublin	-0.35		
		Subcarpathia	-0.36		
		Holy Cross	-0.38		

On the basis of the classification results it was ascertained that the level of development for Polish voivodeships was varied. The Lubusz Voivodeship in 2004 (WP = 0.10) was classified in group B out of the four selected classes. This means that its socio-economic development was assessed as good compared to other voivodeships. In 2013, with the same 8 partial indexes, the development level (WP = -0.11) classified as medium. In the researched years, the Lubusz Voivodeship unfortunately proved to be the weakest province of Poland's West borderland. Both West Pomerania and Lower Silesia classified as provinces with a good degree of development in 2004 as well as in 2013. Significant differences in development levels between the

voivodeships of the West borderland were evident in terms of GDP per capita. In this regard, the best situation occurred in Lower Silesia, where GDP per capita in 2013 was PLN 48,141, which was 119% of the national average. In the same year, GDP of PLN 35,768 (in 2004 – PLN 21,579) was recorded in the Lubusz Voivodeship, which was 83% of the national average. In this regard, the Lubusz Voivodeship can be compared to West Pomerania, where GDP per capita was PLN 35,838 (in 2004 – PLN 21,917). In regional perspective, the index pointed to a high polarization of the development levels of Polish voivodeships. With regard to GDP per capita, the Lubusz Voivodeship and West Pomerania ranked 7 and 8, respectively.

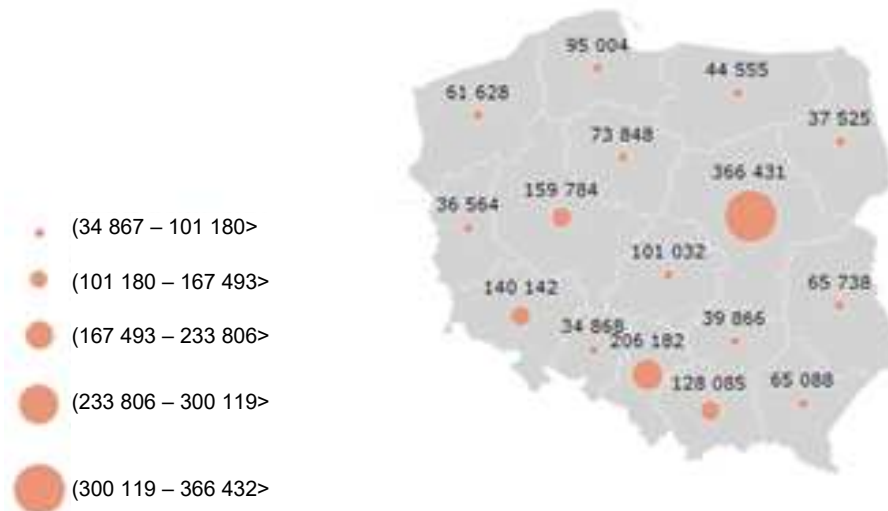


Fig. 1. GDP (current prices [mln PLN])

Source: own elaboration based on data retrieved from Local Data Banks.

In absolute values, the GDP generated in the Lubusz Voivodeship is three times lower than in Lower Silesia.

Innovations are one of the key factors determining regional development (Nowicki 2013). In the rankings of innovation, the Lubusz Voivodeship ranked among the last of all Polish provinces. Comparing expenditure on R&D, significant differences should be noted between Lower Silesia, where for this particular purpose 1070.1 million were spent in 2013, and the Lubusz province, with expenditures at the level of 94.6 million.

As far as the assessment of social situation in the Lubusz Voivodeship is concerned, the unemployment rate in 2004 was 25.6% (national average: 19.1%), and in 2013 it was 15.7% (national average: 13.4%). Factors which negatively impact the job market in the Lubusz province are the decrease in and aging of the population, especially on the German side. It is estimated that the number of inhabitants of the German borderland in question will diminish by approximately 15% by the year 2030, compared to the figures for 2010. This phenomenon is accompanied by the increase in the percentage of older people. The demographic situation in German borderland regions causes more and more inhabitants of the borderland to not only seek occupation there, but also to buy apartments, educate their children, or get medical care. For the region this means an outflow of very often young and enterprising people. Demographic problems and their impact on the job market in West Pomerania are further exacerbated by the situation in the neighboring West borderland, which is a challenge for the future.

CONCLUSIONS

Peripheral areas play an important role in integration processes taking place in Europe. In the case of internal borders, they often become a bridge for cross-border cooperation. Therefore, monitoring the development of borderland areas is an important direction in economic research.

Development of regions is determined by processes and phenomena occurring across the entire economy. In the case of borderland areas, processes taking place on both sides of the borders also have to be considered.

Research has shown that the level of socio-economic development of Polish voivodeships is varied. The socio-economic development of the Lubusz region in the researched years classified it among well- and medium-developed regions. However, in comparison with the remaining voivodeships of Poland's Western borderland, the Lubusz province proved to be the least-developed one.

Among the factors determining the socio-economic development of the Lubusz Voivodeship, we should mention the entrepreneurship of its population, the investment attractiveness of the region, and its border location. Innovation is the region's weakness and this constitutes a challenge for the future, especially in the context of new EU structural and investment funds for the years 2014–2020. Using them to develop regional strategies for smart specialization in designated areas such as bioeconomy, maritime activities and logistics, metal and machine industry, services of tomorrow, tourism and health, should raise the level of innovation in West Pomerania.

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Summary. The aim of the article is to assess the degree of socio-economic development of the Lubusz Voivodeship. For the purposes of this research, methodology based on Perkal's taxonomic method was employed. Variables were selected based on literature on the subject. The variables used in the model describe the socio-economic situation of the region. The research was conducted in 2004 and 2013 for all sixteen voivodeships (provinces) Poland is administratively divided into, which made comparisons possible. Research has shown that the degree of socio-economic development in the Lubusz Voivodeship should be assessed as good and stable. At the same time, it is important to raise the region's level of innovation.