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Brand of the region in context of socio-economic development in Poland

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BRAND OF THE REGION IN CONTEXT
OF SOCIO-ECONOMIC DEVELOPMENT IN POLAND

Summary

   Purpose of this analysis includes theoretical and empirical attempt to contemplate over socio-economic development of regions in Poland at the level of NUTS 2. Brand of the region may be analyzed in context of ranking position of a given province (voivodeship) according to criteria adopted for a diagnosis. Attention was paid to conditions of the regional development and complexity of this process, which results in problems with quantification of the research area. In the research part of the paper, results of linear ordering of Polish regions analyzed in terms of adopted diagnostic variables were presented.

Keywords: development, region, multivariate analyses, ranking

Introduction

   For the purpose of science, politics or business, a brand of the region may be perceived through the prism of ranking position in the regional development according to adopted criteria of evaluation. Purpose of this analysis includes theoretical and empirical attempt to contemplate over socio-economic development and moving towards conditions or forms of Polish regions that are better in some respect, which are indentified with each of sixteen existing provinces. Analysis and diagnosis is not simple because socio-economic development is a complex economic category and despite many undertaken attempts to define it, it is generally used nowadays, but it is still perceptively interpreted and intuitively understood. There is lack of one universal and specific expression for this

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concept, which partially results from the fact that it is multidimensional characteristics including spectrum of various social and economic phenomena, so measurement method remains ambiguous. Many research methods were used in this paper, in theoretical part – mainly description method, and in empirical part – statistical methods of multivariate analysis (*pol.* SAW).

Brief theoretical background of conditions for regional development

In the light of in-depth literature research and own elaboration, it should be emphasized that process nature of positive changes, which are to obtain quantitative growth and at the same time, qualitative changes, lead to the situation that social and economic transformation in the regional area results from action of many various factors, which diversity causes that their strength or direction of interaction is finally not identical. Condition specifics determine how they contribute to observed changes, but their effect may not only be positive, but also negative. Literature often classifies factors as:[2] endogenous, exogenous and the ones defining ability of the region to respond to changes in macro-environment. From different point of view, conditions for regional development are analyzed in specific dimensions including such aspects as i.a.:[3] spatial, economic, social, technical and technological, ecological or political. It should be emphasized that development factors are subject to many deliberations and analyses, but until now, no such classification has been developed, which would be universal and generally accepted as well as used by majority of investigators. S. Korenik rightly notices that factors of regional development are typologically consistent with conditions of development of the whole economy.[4] Therefore, it is important that correlation of processes observed in macro- and mezzo-economic results in fact that effective regional policy is a significant factor for modeling

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[2] *Metody oceny rozwoju regionalnego*, ed. D. Strahl, Wyd. Akademii Ekonomicznej, Wrocław 2006, p. 16.

[3] See e.g. S. Korenik, *Nowe zjawiska występujące w rozwoju aktywizujących się regionów*, w: *Przestrzeń a rozwój*, eds. S. Korenik, A. Dybała, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 241, Wyd. Uniwersytetu Ekonomicznego, Wrocław 2011, pp. 78–79; M. Markowska, *Czynniki rozwoju regionalnego*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu nr 939, Wyd. Akademii Ekonomicznej, Wrocław 2002, p. 25; D. Głuszczuk, *Istota rozwoju regionalnego i jego determinanty*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 214, Wyd. Uniwersytetu Ekonomicznego, Wrocław 2011, p. 75; W. Kosiedowski, *Regiony Europy Środkowo-Wschodniej w procesie integracji ze szczególnym uwzględnieniem wschodniego pogranicza Unii Europejskiej*, Wyd. Naukowe Uniwersytetu Mikołaja Kopernika, Toruń 2008, p. 46.

[4] S. Korenik, *Rozwój regionalny – nowe tendencje*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu nr 1016, Wyd. Akademii Ekonomicznej, Wrocław 2004, p. 110.

regional development. According to B. Winiarski, it is assumed that it constitutes conscious influence of public organs on socio-economic development[5], nowadays established goals and assumptions, new challenges and evolution of adopted priorities as well as defined rules for undertaken actions are especially important not only at over-regional level (interregional policy), but also at regional level (intraregional policy).[6] Then, substitution and at the same time complementary nature of both of these policies cause that relations between them should be suitably modeled. Executing these actions causes continues need to conduct various researches within this area. Many analyses confirm popular opinion regarding polarization of socio-economic area in Poland. Theory of economics does not provide an unambiguous answer for a question about influence of these disproportions on development of the whole economy, and scientific discussions relate to problems of regional convergence and divergence. Opinions on this subject are evolving and now it is difficult to say, whether undertaken actions will lead to reduction of differences among regions in the future or solidify or even increase inequalities in their development.

In order to summarize aforementioned deliberations, it should be emphasized that for a long time, theoreticians have been searching for characteristic determinants of development, i.e. such factors, which make the most significant impact, and analysts select (the most often based on substantive factors) and finally match (sometimes making use suitable formal procedures) diagnostic variables, which in possible comprehensive manner – with limitations noticed nowadays, which mainly result from incomplete availability, and frequently from lack of reliable and comparable statistical data – would describe socio-economic development.

Methodical comments and results of empirical studies

Multidimensionality of socio-economic development – which has been indicated before – caused significant difficulties in its identification. Complexity of developmental processes results in lack of generally accepted set of measures, which would characterize these constant quantitative and qualitative changes in regions in complete and universal manner. Signalized theoretical principles allow considering some groups of factors influencing socio-economic development, but measurement remains ambiguous. In undertaken empirical

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[5] *Promowanie rozwoju lokalnego i regionalnego*, eds. B. Winiarski, L. Patrzałek, Zakład Graficzny Akademii Ekonomicznej we Wrocławiu, Wrocław 1994, p. 18.
    [6] Read more on this subject, e.g. *Koncepcja nowej polityki regionalnej*, Ministerstwo Rozwoju Regionalnego, Warszawa 2009.

studies, quantification of the research area is always a methodical dilemma and it is a significant challenge for the investigator. There is no consensus in terms of number of adopted indicators or their substantive value. For example, M. Pięta-Kanurska considers seven identifiers,[7] and I. Pawlas – forty.[8] However, in-depth literature studies indicate that the most commonly used measures include: GDP *per capita*, unemployment rate, employment structure or outlays for R&D, but assumed sets of indicators constitute a compromise between substantive factors and availability of statistical data and decision within this area is arbitrarily made by an investigator. However, one should be aware that the list of adopted diagnostic variables mainly determines results of multivariate analyses; therefore, it requires well thought-out and reasonable evaluation. Substantive selection should always precisely constitute priority.[9] Hence, it is very important to recognize problems of analyzed phenomenon in reliable manner, to be familiar with previous achievements within this area, expert opinions, as well as experience in conducting such research. In addition, formal and statistical selection is also possible, but despite many previously developed procedures[10] it is not obligatory in nature, but it may sometimes turn out to be very helpful.

While trying to specify variables, which would describe socio-economic development in Poland for the purpose of this elaboration, starting point would include in-depth diagnosis of involved problems by literature research of numerous articles and study reports paying special attention to expert opinions included in these publications. Then, a few hundred of various indicators were analyzed in public databases of the Polish Central Statistical Office (mainly including: Local Data Bank, Statistical Yearbooks, Statistical Yearbooks of Provinces and STRATEG system). Substantive selection was mainly limited with information availability of aforementioned databases. Initially proposed set of measures undertook an additional statistical selection in terms of dispersion (eliminating such all variables from further analysis, for which a classic coeffi-

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[7] M. Pięta-Kanurska, *Zróżnicowania rozwoju społeczno-gospodarczego w Polsce na początku XXI wieku*, Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu nr 1083, Wyd. Akademii Ekonomicznej, Wrocław 2005, pp. 36–43.

[8] I. Pawlas, *Zastosowanie wielowymiarowej analizy porównawczej do oceny poziomu rozwoju społeczno-gospodarczego województw Polski*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 113, Wyd. Uniwersytetu Ekonomicznego, Wrocław 2010, pp. 674–675.

[9] K. Jajuga, *Statystyka ekonomicznych zjawisk złożonych – wykrywanie i analiza niejednorodnych rozkładów wielowymiarowych*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu nr 371, Wyd. Akademii Ekonomicznej, Wrocław 1987, p. 44.

[10] See e.g. *Metody taksonomii numerycznej w modelowaniu zjawisk społeczno-gospodarczych*, eds. T. Grabiński, S. Wydmus, A. Zeliaś, PWN, Warszawa 1989.

cient of variation did not exceed arbitrarily adopted threshold value at the level of 10%) and correlation (calculated Pearson's correlation coefficient informed about strength and direction of observed correlated relations, which each time were undertaken detailed substantive evaluation). Set of diagnostic variables finally adopted for the purpose of conducted study is presented in the table 1. In order to present current statistical portrait of development of regions in Poland in terms of analyzed variables and compare obtained study results with different moment in the past, the decision was made that collected data has to demonstrate conditions at the end of 2012 and 2005.[11] Limited availability of statistical data published nowadays[12] caused that 2012 assumed as the last year and 2005 as reference point seems to be justified, because it is the first full year after accession of our country to the EU structures.

Table 1

Indicators of socio-economic development in Poland adopted for the study

Indicator's symbol	Developmental aspect/indicator
I. Social aspect	
X_1	Population density
X_2	Neonatal mortality rate per 1000 live births
X_3	At-risk of poverty rate (%)
X_4	Number of students per 10 000 population
X_5	Registered unemployment rate (%)
X_6	Road traffic death rate per 100 000 citizens
X_7	Water consumption for needs of the national economy and population (hm^3) per 10 000 population
II. Economic aspect	
X_8	GDP (current prices) per 1 citizen in PLN
X_9	Share of capital expenditures of business entities in capital expenditures for R&D, total (%)
X_{10}	Share of employed in R&D in professionally active population (%)
X_{11}	Number of newly registered entities of the national economy in private sector per 10 000 population
X_{12}	Employed per 1000 population
X_{13}	Total investment outlays (current prices) per 1 citizen in PLN

Source: own elaboration based on data provided by the Polish Central Statistical Office.

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[11] While numerical material for 2005 is completely reliable, some inconvenience of statistical reporting is the fact that the most recently published data are delayed in time, which is usually at least one year, so it was assumed that current condition would be described by data for 2012. Despite this fact, in reference to thirteen adopted diagnostic variables, at this moment, real data related to three of them were incomplete, and they were finally estimated using extrapolation method for this purpose, and in order to established means for missing data or for unavailable data of the reference year, values of the closest available were adopted, which seems to be consistent with EU nomenclature.

[12] Last update of data took place on 5.02.2014.

While using methods of multivariate statistical analysis, which use is extremely helpful in regional studies, suitable aggregate measures, i.e. so-called synthetic measures of development (*pol.* SMR) are used in order to valuate analyzed objects (here: provinces in Poland). Significant contribution of Polish statisticians and econometricians in development of these procedures caused that in case of methods of linear ordering, generally used expression was established: comparative multivariate analysis (*pol.* WAP).[13] For the purpose of this analysis, the formula (SMR) was used, which was arithmetic mean of unweighted[14] diagnostic variables normalized with zero unitarization method multiplied by one hundred. This approach seems to be convergent in terms of the method with *Human Development Index* (HDI), which is generally accepted all over the world and promoted by the UN. While identifying nature of each of thirteen features presented in the table – which is a basis of WAP – it was assumed that majority of them are stimulants, and only variables marked with symbols X_2, X_3, X_5 and X_6 reveal unstimulating effect on socio-economic development in Poland. Introducing minus sign in adopted normalization formula in case of these four indicated variables allowed fulfilling an occasionally presented postulate of uniform preference. Results obtained after conducted studies are presented in the table 2.

Table 2

Evaluation of regions in Poland analyzed in terms of socio-economic development
in 2005 and 2012

Province (voivodeship)	Year 2005		Year 2012	
	Point score of assumed SMR	Ranking position	Point score of assumed SMR	Ranking position
dolnośląskie	45	5	54	6
kujawsko-pomorskie	37	9	29	13
lubelskie	25	14	24	14
lubuskie	35	10	30	11
łódzkie	41	7	42	8
małopolskie	50	3	59	2
mazowieckie	66	1	76	1
opolskie	33	11	36	9
podkarpackie	24	15	33	10

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[13] See e.g. T. Grabiński, *Wielowymiarowa analiza porównawcza w badaniach dynamiki zjawisk ekonomicznych*, Wyd. Akademii Ekonomicznej w Krakowie, Kraków 1984.

[14] Problem of weighting variables, despite many proposals in this manner, constitutes methodical dilemma and it has not been unambiguously resolved so far, and majority of investigators practically use even weights, i.e., so-called unweighted variables.

podlaskie	29	13	23	15
pomorskie	44	6	55	5
śląskie	49	4	56	3
świętokrzyskie	31	12	30	12
warmińsko-mazurskie	15	16	18	16
wielkopolskie	52	2	56	4
zachodniopomorskie	40	8	46	7

Source: own calculations and elaboration.

Results of conducted linear ordering of provinces in Poland according to the level of socio-economic development in 2005 and 2012 turned out to be quite similar. Mazovia (mazowieckie voivodeship) is a leader and its dominating position constitutes characteristic brand of the region. In both timeframes, leading positions are taken by the following provinces: Lesser Poland (małopolskie), Silesia (śląskie) and Greater Poland (wielkopolskie), but in comparable years, some changes in ranking positions took place among other regions. Besides the winner of these rankings, three more provinces maintained the same rank in 2005 as well as in 2012, but there were ranks in the second ten. Inglorious last place in both rankings is taken by Warmia-Masuria (warmińsko-mazurskie). It is also worth noticing that Subcarpathia (podkarpackie) moved up the most of all provinces (increase by five positions), and Kuyavia-Pomerania (kujawsko--pomorskie) experienced the largest fall in this hierarchy (by four places). While comparing the level of socio-economic development of regions in Poland measured assumed SMR, it should be stated that this process of continuous changes leading to improvement of existing condition may be positively evaluated from the point of view of criteria assumed for eleven out of sixteen provinces. In the remaining five provinces, value of the synthetic formula in 2012 comparing to 2005, was lower, which from pro-growth point of view is clearly unfavorable.

Conclusions

Presented deliberations and results of empirical studies allowed achieving the goal of this paper set at the beginning. In conclusion, it is worth to state that methods of comparative multivariate analysis may be successfully used in regional studies, but one of the main methodical dilemmas, which requires well thought-out and reasonable decision arbitrarily made by the investigator, is identification and selection of measures for socio-economic development, i.e. quantification of the research area. Besides, taxonomic methods used further, it

mainly determines research results. Therefore, ambiguity of measures of analyzed complex economic category leads to the situation that results of different elaborations, frequently non-identical methodical assumptions, make their direct comparison impossible. Careful selection of final set of diagnostic variables and their reliable analysis allows ranking analyzed regions in terms of adopted criteria, and not only static but also dynamic grades for ranking positions may constitute valuable source of information for decision-makers or investors. Research within this area should be conducted on regular basis, and their practical use may turn out to be helpful in determining brand of the region.

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MARKA REGIONU W KONTEKŚCIE ROZWOJU SPOŁECZNO-GOSPODARCZEGO W POLSCE

Streszczenie

Celem artykułu jest próba teoretycznej i empirycznej refleksji nad rozwojem społeczno--gospodarczym regionów w Polsce na poziomie NUTS 2. Marka regionu może być bowiem rozpatrywana w kontekście pozycji rankingowej danego województwa zgodnie z przyjętymi do diagnozy kryteriami. Zwrócono uwagę na uwarunkowania rozwoju regionów oraz złożoność tego procesu czego konsekwencją są problemy z kwantyfikacją obszaru badawczego. W części badawczej opracowania zaprezentowano rezultaty porządkowania liniowego polskich regionów rozpatrywanych w ujęciu przyjętych zmiennych diagnostycznych.

Słowa kluczowe: rozwój, region, analizy wielowymiarowe, ranking

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