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DIFFERENCES IN RURAL DEVELOPMENT POTENTIAL ACROSS POLISH REGIONS

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Abstract. Socioeconomic development, both at regional and national level, is determined by a set of resources which constitute the development potential. The resources may grow, shrink or even vanish depending on the soundness of the economic policy in place. The purpose of this paper is to assess the heterogeneity of, and changes in, rural development potential under the influence of European Union integration processes. The results of this study suggest that the potential for rural development in Poland varies strongly from one region to another. In 2016, the highest levels were recorded in northern voivodeships (Podlaskie, Warmińsko-Mazurskie and Zachodniopomorskie) and the lowest in southern voivodeships (Śląskie, Dolnośląskie and Opolskie). Within the last 12 years, the former considerably increased their development potential while the latter did so only to a limited extent.

Keywords: regional development factors, development potential at voivodeship level, Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS)

INTRODUCTION

As a consequence of development processes, regions become polarized in terms of resources and outcomes of economic activity (Churski, 2014). The underlying reason is that – within a country's economy – regions which follow a growth trend coexist with those affected by economic stagnation, resulting in economic heterogeneity of territorial structures. Convergence processes at national level are often accompanied by regional divergences which mean the polarization of geographic structures at a lower level of the country's organizational division (Chądzyński et al., 2007). Usually, this becomes evident when the national economy experiences rapid development which is currently the case in Poland. As indicated by K. Gawlikowska-Hueckel and J. M. Nazarczuk, the hypothesis advanced by O.E. Williamson that regional polarization becomes stronger in countries which experience rapid growth might be true for Poland. Areas where a high development level is recorded at the beginning of a reference period (study, planning or assessment period) enjoy numerous competitive advantages which provide more favorable conditions for continued economic growth (Gawlikowska-Hueckel, 2008; Nazarczuk, 2014).

Regional polarization has many adverse consequences in the economic and social field. This is why an outside interference is needed to reverse these negative developments. In European Union countries, economic intervention in national development processes is based on the regional policy, and specifically on the cohesion policy. Its objective is to reduce the development disparities between member countries and between their regions. Interventions are based on multiple measures, including the structural funds and the Cohesion Fund used as a source of financing for operational programs (actions) designed to reduce the economic and social disparities between territorial units and, ultimately, to achieve economic cohesion (Adamowicz, 2018; Famulska and Znaniecka, 2004).

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The cohesion policy is of special importance to countries at lower socioeconomic development levels, such as Poland (Chądzyński et al., 2007). However, as shown by numerous studies, regions of retarded development also include rural areas. From the perspective of long-lasting socioeconomic development, it is important that economic growth processes be durable and sustainable, be relatively evenly distributed across the territory, do not result in the exclusion of some social groups and do not reduce the resources of development factors.

Regional development processes may be assessed in terms of resources of development factors (development potential), development levels, and regional competitiveness (Kudełko, 2005; Łuczak, 2016; Nazarczuk, 2014). In the context of implementing the cohesion policy, a matter of key importance for a durable and sustainable regional development is to assess the development potential, i.e. the set of assets available within a territory and the capacity to use them, which is a prerequisite for the development of spatial structures (Dwilińska, 2005; Gawlikowska-Hueckel, 2008; Kopyściański and Rólczyński, 2013; Nazarczuk, 2014; Starzyk, 1998; Stern et al., 2000; Tarkowski, 2014). This is because these assets provide a basis for the establishment of more sophisticated forms of economic activity, including innovative activities; for the enhancement of international economic networking; and for the establishment of mature relationships with international operators. They also ensure the durability of socioeconomic growth. In this area, particular importance is given to endogenous resources, such as the quality of natural environment, technical infrastructure, and the available resources of physical capital, and human capital.

Poland has been a large beneficiary of structural funds since the beginning of European Union integration processes. The available funds are allocated to various tasks, including measures implemented in rural areas. Therefore, the economic effects of these tasks need to be identified, especially the nature and pace of local development processes (Zawalińska, 2009).

The purpose of this study is to reveal the heterogeneity of rural development potential across Polish regions and to discover the nature of, and changing trends in, development processes triggered by the inflow of European funds. Thus, the question to be answered is whether polarization or convergence processes take place in the territorial structures.

MATERIALS AND METHODOLOGY OF STUDIES

This study focuses on rural areas in 16 voivodeships which are local government units. In this paper, the authors analyze rural areas identified based on the administrative division defined by the National Official Register of the Territorial Division of the Country (TERYT). Accordingly, rural areas are considered to be rural municipalities and rural parts of urban-rural municipalities. The analysis period is 2005–2016 where both the Polish economy and the rural areas were intensively supported with European Union funds. The initial year of the above time interval was selected because this is when Poland accessed the structural funds and the Cohesion Fund for the first time after the integration. The final year was set to be 2016 based on data availability.

The study was focused on variations in the development potential of rural areas across the country and across the availability period of Union funds. The calculations were based on Statistical Yearbooks for the Voivodeships published by the Central Statistical Office (Central Statistical Office 2006 and 2017). Nearly forty variables describing rural areas were analyzed. Six of them with the best statistical properties (no correlation, normal distribution) were included in the study:

- area of arable land (hectares per inhabitant),
- percentage of the rural population,
- number of employed (per 1,000 population),
- gross value of fixed assets in agriculture, forestry, hunting and fisheries per employee (PLN thousand), referred to as "gross value of fixed assets" later in this paper,
- budgetary expenditure per inhabitant (PLN thousand),
- public roads (km per 100 km^2).

The first of the characteristics listed above is a geographic and natural feature; the second is a demographic feature; the third and the fourth are economic features; the fifth is a financial feature; and the sixth is an infrastructural feature. In terms of development factors, the first one refers to land resources; the second one to labor; and the other ones to capital. The variables were selected based on a substantive analysis of 29 characteristics of socioeconomic rural development, as available in Central Statistical Office publications. All characteristics are considered to have a stimulating effect on development.

The study used a classical TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution) approach, which currently is one of the most widely adopted ordering methods and consists in comparing objects by strictly defined characteristics (Hwang and Yoon, 1981). The essence of TOPSIS is to calculate Euclidean distances between an object and a predefined pattern (positive ideal solution) and anti-pattern (negative ideal solution), resulting in the calculation of synthetic development indicators for particular objects which, in turn, enable the identification of development types (Łuczak, 2016; Paszkowski and Sarniak, 2018; Wysocki, 2010).

The zero unitarization procedure was used to rank the voivodeships by the synthetic indicator value in 2005 and 2016, and to identify the development types of units covered by this study based on arithmetic means and standard deviations of the synthetic characteristic (Wysocki, 2010). For the purposes of this analysis, the values of the synthetic indicator were grouped into 4 classes: 1) high development level: $s_i \geq \overline{s}$ + odch.st.; 2) upper-medium development level: $\overline{s} \leq s_i < \overline{s}$ + odch.st.; 3) lower-medium development level: s – odch.st. $\leq s_i < \overline{s}$; and 4) low development level: $s_i < \overline{s}$ – odch.st., where: s_i – the value of the synthetic characteristic for object i, $\overline{s}$ – is the mean value of the synthetic characteristic; odch.st. – is the standard deviation of the synthetic characteristic.

Afterwards, the calculated values of synthetic indicators were assessed for variability over time (in the 2005–2016 period). To do so, the Walesiak's similarity indicator for object sets (Łuczak, 2016; Walesiak, 2011) was used in accordance with the following principle:

$$W^2(s_{2005}s_{2016}) = \frac{1}{N}\Sigma_{i=1}^{n} \ (s_{i2005} - s_{i2016})^2$$

To complete the study process, the following was determined: the flows of units between the classes of the TOPSIS synthetic indicator; changes in the ranking of the units; changes in resources of development factors taking place in rural areas.

RESULTS OF THE STUDY

The characteristics covered by these analyses differ in size. The classic coefficient of variation reached the highest values for the area of arable land, gross value of fixed assets and number of employed (Table 1). Conversely, the lowest level was observed for budgetary expenditure.

In both years considered, the area of arable land ranged between 0.8 ha and 4.1 ha, with a mean value of 1.9 ha and 2.0 ha, respectively. The standard deviations for this variable were also high. The gross value of fixed assets ranged from PLN 28,100 to PLN 130,600 and from PLN 32,000 to PLN 139,200 in 2005 and 2016, respectively. Their mean value was PLN 67,800 in 2005 and PLN 79,100 in 2016. The standard deviation for this variable was also high. The variation in the percentage of rural population was not significant. In both years, the coefficient of variation for this variable ranged between 0.2 and 0.3, with standard deviation ranging from 9.4 to 9.7. In turn, relatively high levels of variation were observed for the number of employed. The mean value was 152.8. Public roads in rural areas were less developed than in cities, with 73.8 km per 100 km^2 in 2005 and 84.7 km per 100 km^2 in 2016. The coefficient of variation for that variable was at an average level of 0.33.

The variables included in the analysis varied strongly across the national territory. The largest area of arable land was found in the Podlaskie, Warmińsko-Mazurskie and Zachodniopomorskie voivodeships, and the smallest in Małopolskie, Śląskie and Podkarpackie voivodeships. The largest percentage of rural population was recorded in Podkarpackie, Świętokrzyskie and Lubelskie voivodeships and the smallest in Śląskie, Dolnośląskie and Zachodniopomorskie voivodeships. The population's involvement in economic activity, measured as the number of employed, reached the highest level in the Podlaskie voivodeship, followed by Lubelskie and Świętokrzyskie voivodeships. Low levels of economic activity were reported in the Pomorskie, Zachodniopomorskie, Śląskie and Dolnośląskie voivodeships, whereas the rates recorded in the Lubuskie and Opolskie voivodeships were slightly higher. In 2016, the highest gross value of fixed assets was observed in the Warmińsko-Mazurskie and Zachodniopomorskie voivodeships, followed by the Opolskie voivodeship. High levels were also reported in the Wielkopolskie, Pomorskie and Lubuskie voivodeships. In turn, Podkarpackie, Świętokrzyskie and Lubelskie voivodeships had the smallest resources of fixed assets. In 2005–2016, the resources of factors covered by this analysis did not evolve in the same direction. While there was a slight decline in the area of arable land in 2016 compared to the one observed in 2005, other factors (especially budgetary expenditure) followed a growth trend. Also, there was a rapid growth in the gross value of fixed assets and

Table 1. Values and statistics for the characteristics covered by this analysis in 2016 (by region)

Region (voivodeship)	2016						2005					
	Area of arable land in hectares per inhabitant	Percentage of the rural population	Number of employed per 1,000 population	Gross value of fixed assets (thous. PLN)	Budgetary expenditure (thous. PLN)	Public roads, km per 100 km^2	Area of arable land in hectares per inhabitant	Percentage of the rural population	Number of employed per 1,000 population	Gross value of fixed assets (thous. PLN)	Budgetary expenditure (thous. PLN)	Public roads, km per 100 km^2
Poland	1.9	39.8	156.2	65.8	3.8	81.1	1.9	38.6	145.5	55.3	1.8	69.7
Dolnośląskie	1.9	31.0	98.6	98.9	3.8	80.3	2.1	28.9	89.6	94.2	1.9	77.6
Kujawsko-Pomorskie	2.0	40.5	127.4	91.8	3.9	87.2	2.1	38.5	148.3	62.3	1.8	69.1
Lubelskie	2.1	53.6	269.3	41.5	3.5	80.1	2.0	53.3	239.6	37.8	1.6	66.5
Lubuskie	3.6	35.1	106.2	102.9	3.7	52.5	3.6	35.9	75.9	106.5	1.9	49.0
Łódzkie	1.8	37.1	194.9	60.9	3.7	98.7	1.8	35.4	211.0	45.3	1.7	79.1
Małopolskie	0.7	51.6	156.3	28.4	3.7	151.3	0.8	50.4	111.9	32.0	1.7	132.0
Mazowieckie	1.7	35.7	158.3	70.7	4.0	89.3	1.8	35.3	176.4	48.1	1.8	70.4
Opolskie	1.8	48.1	105.4	114.1	3.4	78.5	1.7	47.4	101.8	77.7	1.7	80.2
Podkarpackie	1.3	58.8	207.7	28.1	3.6	83.4	1.3	59.6	127.0	37.3	1.7	70.3
Podlaskie	4.1	39.4	271.9	79.6	3.5	58.6	3.9	40.8	284.9	51.1	1.7	49.1
Pomorskie	2.0	35.8	81.3	102.2	4.2	61.4	2.3	32.7	86.8	89.7	1.9	52.0
Śląskie	0.8	23	97.6	62.4	3.6	139.1	0.8	21.4	71.0	70.3	1.7	128.5
Świętokrzyskie	1.5	55.4	215.4	39.0	3.5	114.3	1.5	54.6	205.3	32.5	1.6	96.0
Warmińsko-Mazurskie	4.0	41	120.3	130.6	3.8	48.7	4.1	40.0	117.9	102.7	1.8	45.3
Wielkopolskie	1.7	35.3	136.0	101.3	3.8	83.9	1.9	42.9	144.7	69.9	1.8	72.4
Zachodniopomorskie	3.9	31.5	94.0	124.9	4.0	51.0	4.1	30.8	85.4	139.2	2.0	47.8
Min	0.7	23.0	81.3	28.1	3.4	48.7	0.8	21.4	71.00	32.0	1.6	45.3
Max	4.1	58.8	271.9	130.6	4.2	151.3	4.1	59.6	284.90	139.2	2.0	132.0
Average	2.2	40.7	152.7	79.0	3.7	84.6	2.2	40.38	142.53	67.8	1.8	73.82
Standard deviation	1.0	9.4	58.1	31.7	0.2	27.9	1.0	9.75	60.24	29.5	106	24.57
Coefficient of variation	0.47	0.23	0.38	0.40	0.05	0.33	0.45	0.24	0.42	0.44	0.06	0.33

Source: own calculations based on Central Statistical Office data.

in the length of public roads. The percentage of rural population increased slightly by 3.1%.

In 2005–2015, the characteristics covered by this analysis evolved at a different pace across the country. The area of arable land slightly increased in four voivodeships, mainly in Podlaskie and Opolskie. Conversely, the Pomorskie, Dolnośląskie and Wielkopolskie voivodeships witnessed a considerable decline

in the area of arable land. The greatest decrease in its value was recorded in Pomorskie voivodeship, and then in Wielkopolskie and Dolnośląskie voivodeships. The area of land increased the most in the Opolskie and Podlaskie voivodeships. The share of the rural population in total population increased in the Pomorskie, Śląskie and Dolnośląskie voivodeships, and dropped considerably in the Wielkopolskie voivodeship. The Kujawsko-Pomorskie voivodeship also experienced a significant increase of this ratio.

The study period witnessed a dynamic growth of the Polish economy, reflected by declining unemployment figures and an increased economic activity measured by the number of employed. This was particularly true for the Podkarpackie voivodeship and, to a lesser extent, for the Lubuskie, Małopolskie and Śląskie voivodeships. In the 2005–2016 period, the number of employed increased by 63.5% percent in the Podkarpackie voivodeship, while in the other three voivodeships the growth rate ranged from 37.5% to 39.9%. However, a decline in employment figures was experienced in the Kujawsko-Pomorskie and Mazowieckie voivodeships.

The gross value of fixed assets per employee increased in 11 voivodeships, including the Podlaskie voivodeship (by 55.6%) and the Kujawsko-Pomorskie, Mazowieckie, Opolskie and Wielkopolskie voivodeships (by 45% to 56%). However, a decline was recorded in the Podkarpackie voivodeship (by 24.6%), Małopolskie voivodeship (by 11.1%), Śląskie voivodeship (by 11.2%) and Zachodniopomorskie voivodeship (by 10.3%). This suggests that decapitalization of fixed assets occurs in rural areas within these regions.

In 2016, budgetary expenses were by 110.3% percent higher than in 2005. This variable grew the most over the period starting in 2005 while also being characterized by the most evenly distributed growth. The highest increase in budgetary expenses took place in the Mazowieckie voivodeship (by 118.5%), followed by Łódzkie, Lubelskie and Pomorskie voivodeships. The relatively smallest growth rates were recorded in the Lubuskie voivodeship and Zachodniopomorskie voivodeships (by 88.8% and 99.1%, respectively). The absorption of European Union funds stimulated the growth of budgetary expenses allocated to investments and current operations.

As a member of the European Union, Poland may access European funds and, as a consequence, implement operational programs. The outcomes include the development of technical infrastructures in rural areas. However, the amounts of funds absorbed vary across the country, and so does the development of the public road network. Over the 11-year study period, the biggest increase in the length of roads (at a rate of 24.8% to 26.8%) was recorded in eastern Poland (in Mazowieckie, Kujawsko-Pomorskie and Łódzkie voivodeships). The road network developed less rapidly in western Poland (in Dolnośląskie, Lubuskie and Śląskie voivodeships) and in northern Poland (in the Warmińsko-Mazurskie voivodeship). Surprisingly, in the Opolskie voivodeship, the length of public roads decreased by 2.1% over the study period.

TOPSIS enables arranging the objects (in this case, voivodeships) within the boundary values of the synthetic indicator (from 0 to 1). However, what is important in this case is not only the sequence of units subject to analysis but also the value of the indicator itself and its evolution over the study period. In 2005, the highest values of the synthetic measure were found in the Zachodniopomorskie, Warmińsko-Mazurskie and Lubuskie voivodeships which were therefore ranked at the top. Ranked below were the Świętokrzyskie, Małopolskie and Lubelskie voivodeships, followed by Pomorskie, Dolnośląskie, Wielkopolskie, Kujawsko-Pomorskie, Podkarpackie, Mazowieckie, Opolskie and Łódzkie voivodeships. The indicator reached the lowest value in the Śląskie voivodeship (Table 2, Fig. 1).

The value of the indicator used in this study evolved over time which resulted in a rearrangement in the ranking. These changes were analyzed based on: differences in the value of the synthetic indicator; allocation of voivodeships to classes defined by indicator levels; and the voivodeships' ranking. In 2016, the highest value of the indicator was recorded in the Podlaskie, Warmińsko-Mazurskie and Zachodniopomorskie voivodeships. Lower values were found in the Lubelskie, Świętokrzyskie, Kujawsko-Pomorskie, Małopolskie, Pomorskie and Mazowieckie voivodeships. The Lubuskie, Wielkopolskie, Podkarpackie, Łódzkie, Opolskie and Dolnośląskie voivodeships were ranked even lower. The lowest value, just as in 2005, was recorded in the Śląskie voivodeship.

The significance of changes in the value of the synthetic value over time is shown by the Walesiak's similarity indicator (Łuczak, 2016). In this study, it was 0.0023 which suggests that the resources of development factors evolved over the study period.

Table 2. Level of the TOPSIS synthetic coefficient in 2005 and 2016; changes in the coefficient of similarity over time by voivodeships (arranged alphabetically)

Voivodeships	2005			2016 r.			Change of class	Change in the region's position in 2016 compared to 2005	Difference in the value of the indicator in 2016 compared to 2005	Dynamics of indicator changes in 2016 to 2005 (%)
	Synthetic indicator value	Rank	Class*	Synthetic indicator value	Rank	Class*				
Dolnośląskie	0.403	9	III	0.397	15	III	–	–6	–0.003	–0.8
Kujawsko-Pomorskie	0.381	11	III	0.459	6	II	increase	5	0.08	20.8
Lubelskie	0.420	7	II	0.481	4	II	–	3	0.06	14.4
Lubuskie	0.489	3	I	0.441	10	III	decline	–7	–0.049	–10.1
Łódzkie	0.367	15	III	0.432	13	III	–	2	0.063	17.2
Małopolskie	0.423	6	II	0.455	7	II	–	–1	0.027	6.4
Mazowieckie	0.373	13	III	0.451	9	II	increase	4	0.077	20.8
Opolskie	0.369	14	III	0.411	14	III	–	0	0.041	11.2
Podkarpackie	0.378	12	III	0.432	12	III	–	0	0.052	13.7
Podlaskie	0.487	4	I	0.531	1	I	–	3	0.043	8.7
Pomorskie	0.407	8	III	0.454	8	II	increase	0	0.043	10.6
Śląskie	0.361	16	IV	0.335	16	IV	–	0	–0.021	–5.7
Świętokrzyskie	0.435	5	II	0.465	5	II	–	0	0.035	8.1
Warmińsko-Mazurskie	0.500	2	I	0.528	2	I	–	0	0.030	6.1
Wielkopolskie	0.395	10	III	0.434	11	III	–	–1	0.035	8.9
Zachodniopomorskie	0.531	1	I	0.501	3	I	–	–2	–0.031	–5.9

* I – high (1.00–0.47), II – upper-medium (0.46–0.42), III – lower-medium (0.41–0.37), IV – low (0.36–0).
Source: own calculations based on Table 1.

This study also determined the absolute and relative (percent) differences in the values of the synthetic indicator between the years considered, the classification by level of the synthetic indicator, and the rearrangements in the ranking (Table 2). When it comes to the first of these analyses, an increase in the value of the indicator was recorded by 12 units (75% of the total number). The greatest differences in the value of the synthetic indicator were found in the Kujawsko-Pomorskie and Mazowieckie voivodeships, followed by the Łódzkie, Lubelskie and Podkarpackie voivodeships. It follows from the above that these units experienced the highest increase in development potential over the 2005–2016 period. However, the indicator decreased in four (one quarter of all) voivodeships. This was especially marked in the Lubuskie voivodeship (a decline by 10.1%), Zachodniopomorskie voivodeship (a decline by 5.9%) and Śląskie voivodeship (a decline by 5.7%). The calculated results show a decline in the development potential of rural areas in these voivodeships.

When assessing the evolution of the voivodeships' development potential based on their ranks, it turns out that 3 units moved up while 5 moved down, including 2 regions which experienced a pronounced drop in the

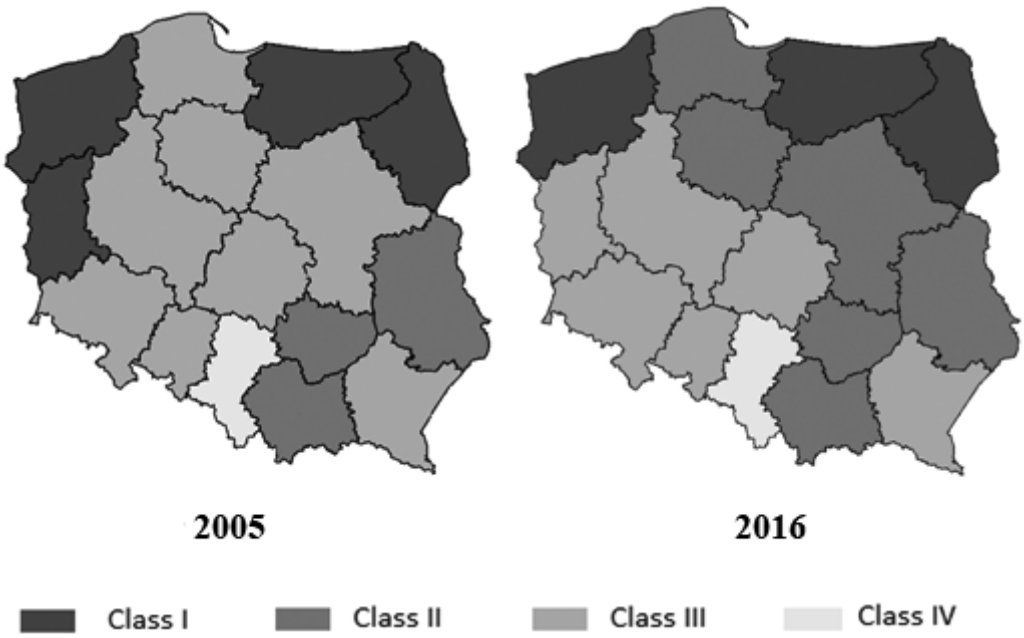

Fig. 1. Voivodeship groups defined by the values of the synthetic index in 2005 and 2016
Source: own elaboration based on Table 2.

ranking: the Lubuskie voivodeship moved down from rank 3 to rank 10 (down seven places) and the Dolnośląskie voivodeship moved down from rank 9 to rank 15 (down six places). Having in mind that 6 voivodeships remained stable in the ranking, it may be concluded that stagnation of the voivodeships' development potential was the dominant trend in 2005–2016. Another adverse aspect is the fact that south-western voivodeships were the mostly affected by the lack of development potential.

The voivodeship's development potential was classified by level of the synthetic indicator (the directions of flows between the classes were also analyzed) and was additionally reflected in the ranking of voivodeships by level of the indicator. As shown by this study, three quarters (12) of voivodeships remained in the same class; one fifth (18.8%) moved to a higher class of the synthetic indicator; and one out of sixteen (6.3%) moved down.

The observed directions of flows suggest that regional convergence of voivodeships takes place in Poland as a consequence of the cohesion policy implemented with a financial contribution from the European Union (Adamowicz, 2018). While this trend is intensive in a small group of regions (as evidenced by the differences in indicator values), it is not general; only 3 voivodeships (Pomorskie, Kujawsko-Pomorskie and Mazowieckie) moved to a higher class.

The distribution of voivodeships across the classes of the synthetic indicator suggests they tend to cumulate in medium intervals. This is because the voivodeships flow out of the lower-middle class and upper class while cumulating in the upper-middle class. In 2005, numerous voivodeships were grouped in classes corresponding to (lower and upper) medium levels of the synthetic indicator. Extreme classes (with high and low levels of the indicator) were smaller. In 2016, the number of voivodeships in both middle classes increased; this is especially true for the upper-middle class (an increase from 3 to 6 units). In turn, extreme classes (grouping voivodeships with high or low levels of the indicator) became even smaller. Therefore, Polish rural areas currently experience a process where voivodeships are flowing away from the upper and middle-low classes to concentrate in the upper-middle class of the indicator. However, this is not true for voivodeships at low levels of development potential (the bottom class) which include one voivodeship (Śląskie) with a decreasing value of the synthetic indicator.

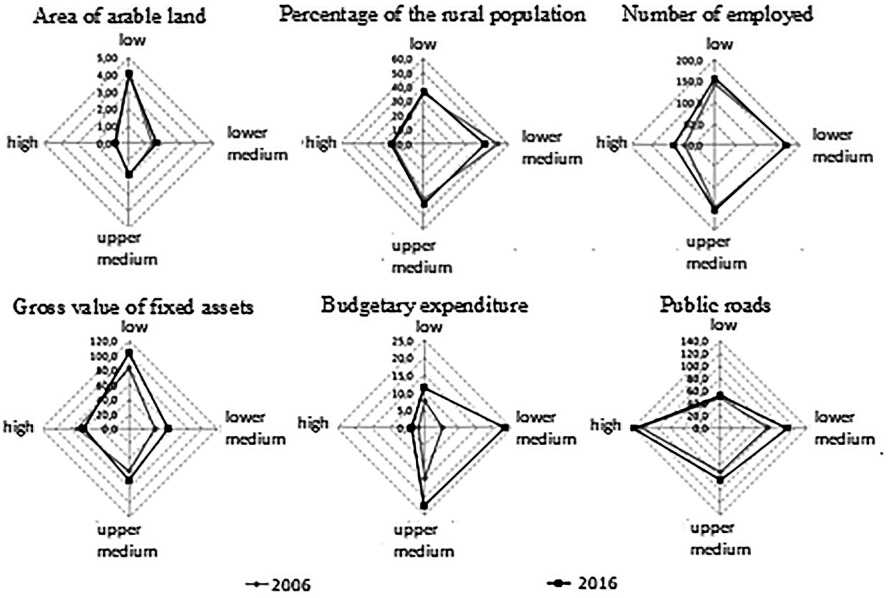

Fig. 2. Values, growth rates and statistics of the characteristics studied in 2005 and 2016
Source: own elaboration based on Table 1.

The analysis of resources of development factors across the synthetic indicator classes (Fig. 2) provides some important information on how does the development potential evolve over time. In 2005–2016, the area of arable land grew in the upper-middle and upper classes while decreasing in the lower and lower-medium classes. It was the opposite for the percentage of the rural population which increased everywhere except for the upper-middle class. Similarly, the number of employed increased in all classes other than the lower-middle class. As regards gross value of fixed assets, budgetary expenditure and length of roads in rural areas, the largest increase rates were recorded in the upper-middle class, followed by the upper and lower-middle classes. Conversely, a decline was observed in the lower class.

The general finding is that the area of arable land, gross value of fixed assets, budgetary expenditure and length of public roads grew the most in the lower-middle class, followed by the upper and lower classes. An increase in the percentage of the rural population and in the number of employed was observed in the lower and lower-middle classes while a decline was experienced in the upper-middle class. Therefore, as the voivodeships concentrate in the upper-middle class, the value of land resources, capital and infrastructure and budgetary expenditure increase, whereas the percentage of rural population and the number of employed (i.e. labor force characteristics) decrease.

SUMMARY AND CONCLUSIONS

As shown by this study, Polish rural areas are affected by adjustment processes as a consequence of developments taking place in the national and global economy. However, large differences in the development potential (measured with the synthetic TOPSIS indicator) exist between the regional units. In both years covered by this study, the indicator reached the highest levels in northern voivodeships (i.e. Warmińsko-Mazurskie, Zachodniopomorskie and Podlaskie voivodeships) and in the Lubuskie voivodeship (in 2005). The lowest levels were recorded in the Śląskie voivodeship, followed by the Dolnośląskie and Opolskie voivodeships. Central and southern voivodeships form an area characterized by average values of the indicator which, however, grew rapidly, resulting in a greater potential for development.

Over the 2005–2016 period, the synthetic indicator increased in three quarters of voivodeships, which is a positive aspect. However, as shown by the indicator used above, these developments were neither intensive

nor general: only 3 units moved to a class corresponding to a higher level of the synthetic indicator while 5 moved up in the ranking. Conversely, only one voivodeship dropped to a lower class of the synthetic feature while 6 moved down in the ranking. Therefore, in 2005–2016, the development potential of the voivodeships evolved in many directions, although a growth trend was observed. The highest growth rates were recorded in lower-middle class voivodeships. The indicator remained at stable level in upper-middle class voivodeships which suggests they did not experience an increase in their development potential.

As a consequence of these processes, the voivodeships tended to concentrate in middle classes of the synthetic indicator; the top class shrank and the bottom class experienced stagnation. To answer the question asked at the beginning of this paper regarding the nature of development processes, it may be concluded that the convergence of territorial structures is the prevailing trend in rural areas. However, polarization also takes place, as evidenced by the decrease (or stagnation) of the TOPSIS indicator in south-western voivodeships. Therefore, in general, the EU's cohesion policy oriented at lesser developed territorial units proves to be beneficial for rural areas.

The growth of regional development can be presumed to be driven by exogenous factors (support with European funds). Development measures taken within the voivodeships, co-financed by the European Union, triggered growth processes as a result of which certain units move towards upper classes of the synthetic indicator and improve their ranking.

Worryingly, voivodeships located in frontier regions (in the west, south and north) and two central voivodeships (Wielkopolskie and Świętokrzyskie) failed to make such improvements. This is especially true for the Zachodniopomorskie, Lubuskie and Dolnośląskie voivodeships which demonstrated a decline in the value of the synthetic indicator. These units should first launch endogenous development processes to make use of external financing available under the cohesion policy.

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