

## SOCIO-ECONOMIC DIFFERENTIATION OF POLISH REGIONS

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### Abstract

The publication's objective is presentation of the interregional differentiation among the Polish voivodeships. On the basis of the statistical measures applied – mainly, coefficient of variation and the median – author attempts to present the regional differentiation of the Polish voivodeships and to evaluate which voivodeships manage to improve their competitive position and which ones face its deterioration. However, the changes in the statistical indicators are not sizeable, which on one hand attests to the durability of the said differences, while at the same time calls for cautious formulation of decisive opinions about the effectiveness of regional development policy. Simultaneously, author points out that the period 2000–2004 has resulted in significant deterioration of the Polish regions; competitiveness vis-à-vis many EU regions.

### SPOŁECZNO-GOSPODARCZE ZRÓŻNICOWANIE POLSKICH REGIONÓW

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**Słowa kluczowe:** zróżnicowanie regionalne, spójność społeczno-gospodarcza, polskie regiony, polskie województwa, polityka regionalna, ranking regionów europejskich, konkurencyjność polskich regionów, mediana, współczynnik zmienności.

## Abstrakt

Celem artykułu jest analiza społeczno-gospodarcza spójności Polski z krajami Unii Europejskiej w ujęciu regionalnym. Wykorzystując miary statystyczne, przede wszystkim współczynnik zmienności i medianę, próbowano odpowiedzieć na pytanie, jak się kształtują różnice społeczno-gospodarcze między regionami Polski. Zmiany wskaźników statystycznych nie są duże, co z jednej strony potwierdza trwałość zróżnicowań, z drugiej zaś nakazuje dużą ostrożność w formułowaniu wniosków dotyczących np. skuteczności polityki rozwoju regionalnego. W latach 2000–2004 spadła konkurencyjność regionów Polski w stosunku do wielu regionów innych krajów Unii Europejskiej.

## Research problem, hypothesis

The publication's objective is presentation of interregional differentiations among the Polish voivodeships. The research hypothesis of the paper is a statement that in years 2000–2004 there was a change in the process of deepening of regional differentiations of 16 voivodeships, however the appearing changes, despite a high tempo of the country's development are not significant.

In order to solve the hypothesis there were put three research questions:

1) Do GDP indicators per capita reveal an increase of differentiations at the level of NUTS 2 and NUTS 3 or not?

2) What is the competitive position of subregions of the five poorest voivodeships?

3) How are the biggest Polish cities changing?

For calculations there was used a statistical packet Statistica PL. 8. In the analysed period 2000–2004, for which statistical data is available, one could observe a reduction of differentiations both in the scale of all units type NUTS 2 as well as among big cities and in relation town- village.

## Introduction

In this article a region means NUTS (abbrev. from French *Nomenclature des Unites Territoriales Statistique*, English *Nomenclature of Units for Territorial Statistics*), that is, a standard of geocoding which was developed in the European Union for the needs of identification of statistical territorial units. The NUTS classification has been in the Community law since 1988, however not earlier than 2003 there appeared Decree of the European Parliament and Council about the NUTS classification. The basic objective of the NUTS classification is to solve the problem of variety of administrative divisions of the EU countries and inevitable changes of these divisions, which endangers the access and comparison of statistic data in space and time. The NUTS division does not always reflect the administrative division of the country. On the NUTS 2 level problem areas of the low level of development are supported.

Poland which is divided into sixteen voivodeships simultaneously consists of sixteen NUTS-2 territorial units. To evaluate interregional differentiations, the rankings of four indicators have been used: GDP per capita, employment indicator, proportion of the employed to the unemployed and gross value added per one employed person (*Zbiór aktów prawnych WE*, 2006, pp. 5–13).

In the preaccession period it was known that succession of new member states (the enlargement to 25 countries) will cause a statistical effect, that is, a decrease of the average for “new EU”. The same effect took place again in 2007 after the succession of Romania and Bulgaria. However, the NUTS-2 comparison in years 2000–2004, on the assumption that EU includes 27 member states, allows to catch relative moves among the regions.

### **Interregional differentiations – Polish voivodeships in the ranking of European regions**

In the ranking of GDP according to PPP (parity of purchasing power) per capita, Polish regions took in 2000 places from 198 (Mazowieckie) to 256 (Podkarpackie). It is worth saying that the second by rotation Polish voivodeship (Śląskie) took a place of 230. Next voivodeships from a place of 232 (Wielkopolskie) to a place of 243 (Opolskie) constitute quite a compact group. It is separated only by one Hungarian and one Slovak regions and Estonia (the whole country is NUTS-2 because of its small size). And the poorest Polish voivodeships (Eastern Poland) took places from 247 (Warmińsko-Mazurskie) to the earlier mentioned Podkarpackie. Among the voivodeships of Eastern Poland are 5 units from other countries (one Slovak, two Hungarian, one Bulgarian and Latvia- the whole country is NUTS-2 because of its small size).

In the period 2000–2004 there were noted the most important changes as follows:

a) four Polish voivodeships moved higher in regard of GDP according to PPP and Mazowsze moved higher than other regions (4 positions), and Śląskie, Podkarpackie and Wielkopolskie moved one – two places higher. One cannot omit those regions which changed most in the mentioned period. They are: Bratislavsky Kraj (Slovak region), a rise of 63 places from 102 to 39; Greek region Attiki (a rise of 58 places from 135 to 77), East Anglia (a rise of 40 places from 117 to 73). The rest 19 UE regions which improved their positions in the ranking by moving at least 20 places, rose from low places to a place of 55 at most in 2004. Among the spectacular rises is the region of Praha (a rise of 19 places to position nr 12 in 2004) and Gloucestershire, Wiltshire and North Somerset regions (South- Western Britain which moved higher from 38 to 20 position). The above changes confirm a quite stable situation in the group of the strongest regions in EU;

b) the rest voivodeships, apart from Łódzkie, which did not change its position, moved lower in the ranking. The biggest drop in regard to GDP per capita took place in Kujawsko-Pomorskie and Małopolskie Voivodeships (of 8 and 7 places respectively). In years 2000–2004 26 EU regions totally dropped their positions at least 20 places down, which shows GDP per capita, and a record-holder is Italian Abruzzo (52 places down) and Umbria (51 places down). Among the mentioned 26 regions only 3 regions were in 2000 in the first “50” regions (places 22,36 and 37).

It should be emphasized that changes of the positions of the Polish voivodeships taking percentage of the employed into account are absolutely highest among all analysed variables and in 2000–2004 years they were of a negative character. In 2004 the highest positions among the described 254 NUTS2 belonged to Lubelskie, Podlaskie, Mazowieckie and Małopolskie Voivodeships (the end of the second hundred). Simultaneously Śląskie, Dolnośląskie, Zachodniopomorskie and Warmińsko-Mazurskie took positions from 240 to 244 (in the worse situation were only 6 regions in Southern Italy, two Hungarian regions and one region in France and one in Greece). In the analysed period only Lubuskie Voivodeship rose its position in the ranking, but drops in cases of Małopolskie, Mazowieckie, Wielkopolskie, Podlaskie and Świętokrzyskie belong to the biggest ones in EU.

In years 2000–2004 the positions of almost all Polish regions (except Warmińsko-Mazurskie and Lubuskie) lowered in the ranking. The biggest drops had Małopolskie and Wielkopolskie Voivodeships. Changes which appeared in the mentioned period caused that Polish regions took ones of the lowest positions in the ranking in regard to all four categories which were evaluated (compare Table 1).

To sum up, in years 2000–2004 the position of Polish voivodeships lowered but only the position of Lubuskie dropped significantly (20 places down) and only Lubelskie did not changed its position.

### **Dynamics of changes in relation to median**

A rise or drop on the list of the analysed regions depends largely not only on the change of the value but also on the potential of the neighbouring regions in the ranking. This is why a slightly different situation in comparison with the one presented earlier we can observe in the case of changes of the place of each region in relation to median (Table 2).

The most important changes are:

a) improvement of the situation in Śląskie Voivodeship which although in years 2000–2004 rose only 2 places in the GDP ranking according to PPP but it improved its position in relation to median at most;

Table 1

Polish voivodeships in the ranking of NUTS2 in comparison to EU countries

Voivodeships	GDP PPP <sup>1</sup>		Employment indicator <sup>2</sup>		The Employed/Unemployed <sup>3</sup>		Gross value added per one employed person <sup>4</sup>	
	position 2004	change of position 2000–2004	position 2005	change of position 2000–2005	position 2005	change of position 2000–2005	position 2004	change of position 2000–2004
Dolnośląskie	235	-2	241	-23	250	-9	207	-9
Kujawsko-pomorskie	245	-8	223	-15	243	-10	222	-8
Lubelskie	258	-3	175	-30	216	-8	233	0
Lubuskie	244	-5	225	+5	239	0	224	-20
Łódzkie	240	0	215	-32	231	-7	228	-7
Małopolskie	248	-7	199	-63	222	-34	227	-8
Mazowieckie	194	+4	193	-53	220	-5	198	-1
Opolskie	247	-4	220	-28	228	-11	216	-1
Podkarpackie	257	+1	217	-38	227	-8	232	-7
Podlaskie	255	-4	186	-43	217	-2	229	-3
Pomorskie	237	-2	230	-25	236	-10	205	-5
Śląskie	228	+2	240	-6	238	-7	201	-6
Świętokrzyskie	253	-5	227	-42	237	-19	230	-2
Warmińsko-Mazurskie	252	-5	244	-12	244	+1	225	-9
Wielkopolskie	231	+1	203	-51	229	-28	212	-6
Zachodnio-pomorskie	239	-5	242	-27	249	-14	213	-11

<sup>1</sup> ranking based on data for 268 units NUTS2.

<sup>2</sup> ranking based on data for 254 units NUTS2 (without 5 Bulgarian units, 5 German and 4 French units).

<sup>3</sup> ranking based on data for 251 units NUTS2 (without 5 Bulgarian units, 2 Portugal, 5 German, 4 French and one Finnish units).

<sup>4</sup> ranking based on data for 255 units NUTS2 (without 13 Greek units).

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

b) voivodeships: Łódzkie, Mazowieckie, Opolskie and Wielkopolskie improved their situations. It is worth mentioning here that Opolskie Voivodeship moved quite significantly and it dropped in the previous ranking 4 places down. This shows a high competition of the regions whose positions are close to Opolszczyzna;

c) all regions of Eastern Poland improved their situations in the analysed period in relation to median but it is definitely smaller than in the case of the voivodeships listed above;

Table 2

Polish voivodeships in relation to median for NUTS2 in the EU

Voivodeships	GDP PPP <sup>1</sup>		Employment indicator <sup>2</sup>		The Employed/ /Unemployed <sup>3</sup>		Gross value added per one employed person <sup>4</sup>	
	% of median 2004	change in relation to median (2005-2000)	% of median 2005	change in relation to median (2005-2000)	% of median 2005	change in relation to median (2005-2000)	% of median 2004	change in relation to median (2005-2000)
Dolnośląskie	52.60	.50	80.38	-8.66	28.46	-.49	30.90	1.76
Kujawsko- pomorskie	46.18	.31	85.36	-7.51	34.00	-2.25	24.05	1.26
Lubelskie	35.82	.72	93.01	-8.49	50.51	2.86	16.84	.71
Lubuskie	46.22	1.07	85.17	-0.66	35.64	5.60	23.79	-1.86
Łódzkie	47.57	2.45	87.46	-9.02	40.14	.78	21.63	1.81
Małopolskie	44.14	.50	90.72	-11.79	46.79	-12.50	22.85	2.17
Mazowieckie	78.21	2.46	91.48	-10.63	48.57	-3.26	39.42	2.65
Opolskie	44.39	2.07	85.55	-9.93	41.38	-1.39	27.90	5.41
Podkarpackie	36.05	1.08	86.51	-10.58	42.14	.47	19.81	.70
Podlaskie	38.57	.84	91.87	-9.84	50.10	6.40	21.22	2.40
Pomorskie	50.45	.63	83.25	-10.01	36.07	-3.16	31.30	1.23
Śląskie	58.03	4.02	80.96	-3.67	35.93	-1.11	32.39	-4.68
Świętokrzyskie	39.96	1.11	84.21	-12.07	36.02	-6.20	20.65	2.46
Warmińsko- Mazurskie	40.09	.83	79.62	-6.21	32.87	7.46	23.62	1.67
Wielkopolskie	55.51	2.14	90.33	-10.37	40.67	-8.93	28.69	3.95
Zachodnio- pomorskie	48.04	-2.95	80.19	-10.06	28.73	-4.39	28.65	-.32

<sup>1</sup> ranking based on data for 268 units NUTS2.

<sup>2</sup> ranking based on data for 254 units NUTS2 (without 5 Bulgarian units, 5 German and 4 French units).

<sup>3</sup> ranking based on data for 251 units NUTS2 (without 5 Bulgarian units, 2 Portugal, 5 German, 4 French and one Finnish units).

<sup>4</sup> ranking based on data for 255 units NUTS2 (without 13 Greek units).

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

d) the only voivodeship which worsened its position in relation to median is Zachodniopomorskie, which at the same time dropped 5 places down in the GDP ranking according to PPP.

The presented in Table 2 displacements in relation to median are at the average level. Record-holders in the EU in improving their positions in relation to median (over 21 percentage points) are the Czech Praha and Bratislavsky Kraj. In the group of the next 10 regions which moved at least 10 percentage points are two Romanian NUTS, two British NUTS, one NUTS from Bulgaria,

Hungary, Greece, and Latvia, Estonia and Luxembourg (taken as one NUTS because of their small areas).

In 2005 none of Polish voivodeships was higher than median for all NUTS2 in the EU. The closest to this value were voivodeships: Lubelskie, Podlaskie and Mazowieckie (about 90–93% of median). However, this level was achieved only because of the worsened competitive position, and in the case of voivodeships such as Małopolskie, Świętokrzyskie, Wielkopolskie, and Zachodniopomorskie one can say about a considerable drop. In voivodeships like: Świętokrzyskie, Małopolskie, Mazowieckie, Wielkopolskie, Zachodniopomorskie and Pomorskie there was a deterioration of their positions in relation to median about at least 10 percentage points. This means that in 2000 voivodeships such as: Mazowieckie, Małopolskie, Podlaskie, Wielkopolskie were placed above the middle value for the ranking (like Lubelskie which had a slightly smaller deterioration of its position, but in 2005 it was below median).

In the period 2000–2004 one can observe that six Polish voivodeships improved their position in relation to median (Warmińsko-Mazurskie, Podlaskie, Lubuskie, Lubelskie, Łódzkie and Podkarpackie), however, only Lubuskie, Podkarpackie and Warmińsko-Mazurskie show an improvement of the said indicator. It can be assumed that a relative improvement of the region in relation to median took place in several cases not as a result of an increase of indicators but as a result of a decrease of the median value for all European regions.

Two voivodeships which definitely lost most (in relation to median) are Małopolskie and Wielkopolskie which simultaneously dropped significantly in the ranking.

In 2004 Mazowieckie Voivodeship came the closest to the middle value (almost 40% of median), slightly worse were such voivodeships as: Śląskie, Pomorskie and Dolnośląskie. The worst outcomes belong to voivodeships in Eastern Poland which in the previous rankings about employment went relatively well (Lubelskie and Podkarpackie).

Apart from that the essential fact is that only three regions made their positions worse in relation to median, including Śląskie Voivodeship, and the rest voivodeships show an improvement of their positions.

### **Dynamics of regional differentiations**

In the evaluation of regional differentiations in the EU it was assumed that the basic indicator of the level of socio-economic development would be GDP PPP per capita and the main measure would be coefficient of variation.

Table 3

Evaluation of regional differentiations in the EU on the level of NUTS 2

Indicator	2000	2004
Coefficient of variation (GDP PPP in %)	40.8	39.1
Coefficient of variation (Employment indicator in %)	14.0	12.6
Coefficient of variation (Employed/unemployed in %)	63.1	52.7
Coefficient of variation (Gross value added per one employed person in %)	49.1	47.5
Max/Min (GDP PPP in %)	15.8	12.8
Max/Min (Employment indicator in%)	2.6	2.0
Max/Min (Employed/unemployed in %)	16.5	11.3
Max/Min (Gross value added per one employed person in %)	56.4	37.5
Mean value 20 Max/ Mean value 20 Min (GDP PPP in %)	6.2	5.3
Mean value 20 Max/ Mean value 20 Min (Employment indicator in %)	1.7	1.6
Mean value 20 Max/ Mean value 20 Min (Employed/unemployed in%)	10.1	7.2
Mean value 20 Max/ Mean value 20 Min (Gross value added per one employed person in%)	12.1	9.7
Mean value 20 Max as % of median (GDP PPP)	182.1	180.2
Mean value 20 Max as % of median (Employment indicator)	130.5	122.4
Mean value 20 Max as % of median (Employed/Unemployed)	288.6	244.2
Mean value 20 Max as % of median (Gross value added per one employed person)	168.8	175.0
Mean value 20 Min as % of median (GDP PPP)	29.6	34.1
Mean value 20 Min as % of median (Employment indicator)	76.3	77.0
Mean value 20 Min as % of median (Employed/unemployed)	28.7	33.8
Mean value 20 Min as % of median (Gross value added per one employed person)	14.0	18.0

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

On the base of the presented in the table values of the coefficient of variation one can say about the following changes which took place in units of NUTS 2 type:

- a) in years 2000–2004 there was a slight reduction of regional differentiations measured with GDP per capita according to parity of purchasing power;
- b) bigger changes, but also in the direction of minimizing of regional differences, were noted in other analysed indicators;
- c) generally we can say about a reduction of the disparity between the best and the worst regions in the EU both when we analyse two marginal regions and groups of 20 best and 20 worst regions. Particularly big changes take place in productivity measured with gross value added per one employed person;
- d) changes of the position of 20 best and 20 worst regions in relation to median also allow to speak about the fact of approaching the average by the



two groups, and greater improvements in GDP are made by regions of a smaller economic potential;

e) definitely the biggest deterioration of the strong regions took place in the case of indicator of the employed per one unemployed person (a drop of over 40 percentage points in relation to median), but it should be emphasized that these regions still are at the level of 240% of median (a record-breaking difference in the analysed variables);

f) the only indicator which slightly differs from the described above changes in the positions of the said changes is gross value added per one employed person. 20 weaker regions in this respect moved towards median 4 percentage points, while 20 strongest regions achieved the value above median over 6 percentage points.

### **Regional differentiations at the country level**

This part of the study relates to dynamics of intervoivodeship differentiations in Poland described in the previous parts of the study.

Comparing dynamics of interregional differentiations in Poland with the previous indicators one can notice important differences, which is presented in Table 4. Thus, for example, between 2000 and 2004 we can notice a drop of coefficient of variation of employment, proportion of the employed to the unemployed and gross value added per capita. Changes are not big and the time in which they occurred is not long too.

Changes of GDP per capita value in years 2000-2004 allow to speak about a slight increase of differentiations at the level of NUTS2. It is confirmed by the rise of coefficient of variation at the stable relation of maximum and minimum values and the improved position of the strongest region in relation to median. and no changes of the weakest region.

When comparing changes of employment indicator in the analysed period we can say about reducing of interregional differences. It should be remembered, however, that the situation in all regions worsened then. Thus, it can be thought that the improvement of indicators showing regional differentiations was more a result of a relatively bigger drop in the regions which are better in this respect, and a relatively small deterioration of the situation in weakest regions.

The outcomes concerning productivity differentiation are slightly different. They seem to minimize but at a slightly increasing range. Changes of the value of this indicator in years 2000–2004 indicate that the best region improved in relation to median and the weakest region made its position worse.

Table 4

Evaluation of intervoivodeship differentiations in Poland

Indicator	2000	2004
Coefficient of variation (GDP per capita in %)	21.5	21.9
Coefficient of variation (Employment in %)	6.5	5.2
Coefficient of variation (Employed/unemployed in %)	22.0	17.9
Coefficient of variation (Gross value added per one employed person in %)	25.9	22.5
Max/Min (GDP per capita in %)	2.17	2.18
Max/Min (Employment in%)	1.21	1.17
Max/Min (Employed/unemployed in %)	2.33	1.78
Max/Min (Gross value added per one employed person in %)	2.30	2.34
Max as % of median (GDP per capita)	167.8	169.3
Max as % of median (Employment in %)	106.9	108.8
Max as % of median (Employed/unemployed in %)	146.4	132.5
Max as % of median (Gross value added per one employed person)	163.8	164.8
Min as % of median (GDP per capita)	77.5	77.5
Min as % of median (Employment in%)	88.3	93.2
Min as % of median (Employed/unemployed in %)	62.7	74.6
Min as % of median (Gross value added per one employed person)	71.2	70.4

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

The characteristics of changes is supplemented by data on differentiations at the NUTS3 level which point out a slightly different situation than the one described case above (compare Table 5). NUTS3 mean regions (a group of several poviats). Poland's territory consists of 45 subregions NUTS 3. The value of coefficient of variation for the years 2000 and 2004 indicates that regional differentiations at the NUTS 3 level in Poland decreased slightly. Also the proportion of the maximum value to the minimum value decreased slightly. Admittedly, both changes are very small but in comparison to the earlier calculations, this fact seems to be somewhat surprising. The explanation of this is a decrease of the relative position of the strongest region rather than a slightly better position of the weakest subregion in relation to median. In years 2000–2004 in Warsaw GDP per capita increased over 23% (23 position in the ranking of the growth), while in subregions: Rybnicko-Jastrzębskie and Ciechanowsko-Płockie an increase was almost 40%. Even some of the poorest subregions had a quicker increase than Warsaw (Nowosądecki, Chełmsko-Zamojski, Łomżyński).

Table 5

Evaluation of differentiations among subregions (NUTS 3) in Poland

Indicator	2000	2004
Coefficient of variation (GDP per capita in %)	42.9	42.1
Max/Min (GDP per capita)	4.89	4.84
Max as % of median (GDP per capita)	339.1	335.9
Min as % of median (GDP per capita)	69.2	69.4

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

A completion of data on interregional differentiations in years 2000-2004 is evaluation of changes among big cities in Europe including Polish cities. On the base of available information a characterization of changes of the value of GDP PPP per capita in 20 selected big cities was done. In the analysis was used data concerning the following cities (NUTS 3 level): Vienna, Prague, Munich, Berlin, Hamburg, Barcelona, Madrid, Paris, Turin, Rome, Łódź, Warsaw, Cracow, Poznań, Wrocław, Trójmiasto, Stockholm, Bratislava, London Inner, Sofia. As one can notice an exception among the presented units is London for which average data on the NUTS 2 level was taken because division of this unit into smaller ones on the NUTS3 level would cause multiplication of differences and it would be necessary to analyse parts of the city, which had not been done with other big cities, for example Berlin.

In the group being described here, the highest value of the analysed indicator was achieved in 2004 by Paris, next was London, then but close were Munich, Hamburg and Vienna, and the list was closed by: Trójmiasto, Wrocław, Sofia and Łódź. The highest dynamics of changes in years 2000–2004 took place in Sofia (158%), then in Bratislava (138%), Prague (131%) and London (119%). Behind these four cities were three Polish cities (Poznań – 118%, Warsaw – 117% and Łódź – also 117%). The lowest dynamics was seen in Turin (102%), Berlin and Paris (106% each) and Rome, Munich and Stockholm (108% each).

In years 2000–2004 in the presented group of cities there was a decrease of differences in the GDP value, though it should be pointed out that the relation of the maximum value to the minimum value was still on the high level (compare Table 6). A decrease of the value of coefficient of variation and a reduction of the distance of the strongest region from median and an increase of the weakest city at the same time allow to assume that in big European cities there is a tendency to eliminate differences.

Table 6

Evaluation of differentiations in the group of 20 big European cities

Indicator	2000	2004
Coefficient of variation (GDP PPP)	52.9	50.1
Max/Min (GDP PPP)	7.42	5.18
Max as % of median (GDP per capita)	253.1	241.8
Min as % of median (GDP per capita)	34.1	46.7

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

In this group Polish cities, as it was said above, took high positions with regard to dynamics of growth. However, when analysing the ranking of 20 cities in 2004, the highest 8 place belonged to Warsaw (after Prague). Poznań took 14 and Cracow 16 position, and further places belonged to Trójmiasto and Wrocław, and at the end was Łódź. In comparison to the year 2000 there were minor changes. Warsaw and Cracow managed to keep the same positions. Poznań and Trójmiasto rose one place, but Łódź and Wrocław fell one place.

The characteristics of the changes is completed by evaluation of the interregional differentiations between rural and urban areas. Firstly 15 cities were chosen from the previous analysis (without 5 which had the highest GDP value in 2004) and 15 units of NUTS 3 type characterized by density of population 60 people per km<sup>2</sup>. The analysis used data of the following subregions: Etcki, Bialskopodlaski, Koszaliński, Słupski and Łomżyński- from Poland; Ostvorpommern from Germany; Belluno from Italy; Vienne from France; Lleida from Spain; Alentejo Central from Portugal; Osttirol from Austria; Powys from Great Britain; Varsinais-Suomi from Finland; Trikala from Greece and Caras-Severin from Romania.

It is worth saying that even regions of low density of population can be characterized by a high socio-economic potential. Although in the ranking of 30 selected NUTS 3 units the first four places with regard to the height of GDP per capita belong to urban areas, the 5 place already belongs to Belluno and 9 to Lleida. The list is closed by 7 subregions of low density of population, though Ostvorpommern's GDP per capita is only slightly lower than that of Łódź and Sofia.

The described group of regions reduced in years 2000–2004 internal differentiations (compare Table 7) which are smaller than in the case of the analysis of urban cities only, which is a result of excluding from the analysis the richest cities. It also proves that these cities influence statistics concerning regional differentiations most.

Table 7

Evaluation of differentiations in the group of urban and rural regions in Poland in comparison to the EU<sup>1</sup>

Indicator	2000	2004
Coefficient of variation (GDP PPP)	48.0	45.6
Max/Min (GDP PPP)	7.99	5.50
Max as % of median (GDP per capita)	193.88	185.44
Min as % of median (GDP per capita)	24.26	33.74

<sup>1</sup> "rusticity" of the region was evaluated on the base of low density of population

Source: Own study on the base of Eurostat data with the use of the statistical packet Statistica PL. 8.

The relation of the best region to the weakest one definitely looked better. In the presented group the highest dynamics of growth is seen in the Romanian region of Caras-Severin (the poorest region in the analysed group) and a rise over 22% in the Łomżyńskie subregion gives it the 5 place in the ranking.

However, it should be emphasized that rural areas are characterized by diverse dynamics of growth. In two analysed regions (Belluno and Alentejo Central) there was a decrease of GDP per capita in years 2000-2004, and the first of them belonged to the richest among 30 presented regions, and the second to the poorest ones.

The important factor which influences the decreasing of differentiations is a change of the position in relation to median. Thus, the strongest region lost almost 9 percentage points in relation to median. These points moved to the poorest region. In 2000 the poorest region in the presented group was the Romanian region mentioned above. Four years later it was the Polish sub-region Bielsko-Podlaski which became the poorest as a result of the significant dynamics of growth in Caras-Severin.

## Conclusions

Data about the GDP values in Poland requires a greater caution in formulating directions of change in the development of regions. It was probably for the first time that in the period of transformation there occurred a situation in which statistics about GDP per capita show the increasing of differentiations on the NUTS 2 level and they are practically unchanged on the NUTS 3 level. It should be taken into account that the described changes are very small and movements in relation to the average take place in the case of

the strongest region when the poorest region's position is stable. The slight reduction of differences on the NUTS 3 level at almost stable range shows that the final outcome is influenced first of all by data of regions whose values oscillated close to the average. This hypothesis seems to be confirmed by a very weak but negative correlation of GDP per capita values and the dynamics of GDP per capita growth in years 2000–2004. The regions of the biggest growth are regions which take places 9,10,24 and 27 in the ranking of 45 subregions in Poland.

On the basis of observation one can relate to the main dilemma about the regional development policy and the usage of different instruments in order to help the poorest regions.

According to the presented research hypothesis and the outcome of the carried out research it should be claimed that years 2000–2004 are the period in which there was a change of the direction of the increasing of regional differentiations at the level of 16 voivodeships. The changes which are taking place despite a high tempo of growth of the whole country and accepted methods of data comparison are quite small. Here is an open question about further years, when effects of the first years of Poland's membership in the EU will turn out.

Dynamics of changes of the subregions shows that Warsaw, for example, is developing less dynamically than Mazowsze, and Poznań has got lower dynamics than the whole Wielkopolska. Moreover, in the area of Mazowieckie voivodeship higher dynamics of growth than Warsaw has been achieved by three subregions, in Wielkopolska among others the Poznański subregion is developing quicker than Poznań, similarly the Wrocławski subregion shows greater dynamics than Wrocław. It is obvious that this state is influenced by the effect of statistical database but it is also clear that more and more visible are effects of the growth of competitiveness and economic potential of the regions neighbouring with the biggest agglomerations. In particular these areas dominate with regard to attractiveness, residence and investment attractiveness (free investment areas, lower costs, still good communication etc.). However, this does not mean that in a while big agglomerations will lose high positions since not all big cities seem to influence in the same way on the surroundings. For example, Gdański and Łódzki subregions take 36 and 32 positions respectively in the ranking of 45 subregions in the country.

Five voivodeships of Eastern Poland had in years 2000-2004 the GDP growth similar to Mazowsze and higher than in voivodeships: Pomorskie, Małopolskie and Dolnośląskie, which means that also in this part of the country there can be changes which dynamize the development. Subregions of these voivodeships have despite the high tempo of growth in some cases, big difficulties in improving their positions in relation to stronger regions. It is so

because of the still big distance separating them from the rest of the country. Experiences of the poorly populated regions of the EU show that they can be competitive and the potential counted with the GDP value per capita can be comparable to big cities. It is sure that one of the important factors which influence this state is high productivity which more and more often goes together with innovation. That is why it will be so important to use by Polish regions resources from structural funds first of all to develop the two dimensions of development independently from the existing economic structures in the region since high productivity and innovation can exist in each sector.

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