

Convergence or divergence? The Position of Romania in the Spatial Structure of the European Union

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Abstract. The political and economic changes that have occurred at the end of the 1980s have brought about considerable changes in the spatial structure of Romania. The goal to achieve a rapid economic growth has overshadowed the objectives of social equity, economic and territorial cohesion, having contributed to the increase of regional disparities. Based on earlier studies (Benedek, Kurko 2010, Kurko 2010) the main goal of the study is the presentation of the spatial structure of the European Union and the analysis of the regional disparities using two basic indicators: GDP/person and the Human Development Index. In this framework a distinct attention will be given to the position of Romania and of the Romanian regions in the spatial structure of the European Union.

Keywords: Convergence, cohesion, Romania, European Union.

The spatial structure of the European Union

The spatial structure of the EU reflects not only the existence of the West-East disparities, but also outlines an area known as the "Blue Banana", which stretches from London to Milano, comprising the most developed agglomerations (London, Bruxelles, Amsterdam, Köln and Frankfurt), having a GDP/capita between Euro 30,000 and 68,000 (*figure 1*). The most developed regions are Inner-London, with Euro 83,200/inhabitant, Luxembourg (Euro 68,500/inhabitant), and Bruxelles (Euro 55,000/inhabitant) (*table 1*). A high level of development can also be observed within the triangle of the Sunbelt zone, which comprises the area between Barcelona, Lyon and Bologna urban agglomerations, with a GDP/capita between Euro 25,000 and 35,000/capita. In the Eastern European countries, the GDP/capita shows a low level, only some regions managing to reach a higher development (GDP/capita between Euro 25,000 and 40,000/capita). The lowest development is recorded in Bulgaria and Romania. Within the countries, the lowest gross domestic product is recorded by Severozapaden region in Bulgaria (Euro 6,400/capita), with GDP/capita values 13 times lower than the maximum amount recorded in the Inner-London region. In these two countries, only the regions of the capitals, Bucharest-Ilfov and Sofia, show a relatively high economic performance.

The fact must be noticed that over the last years the peripheries of the European Union showed a remarkable growth of the gross domestic product, which evidences a more balanced territorial development of the European Union. The correlation between the GDP/capita and

the annual average rate of GDP growth is high, but negative, of -0.527. Thus, the highest increases were recorded in Latvia, Estonia, Lithuania, Slovenia, Poland (over 6%), in Romania the recorded increase being 6.9% in 2007 as compared to 2006, while in some countries belonging to the European nucleus this increase stayed below 2% (Luxembourg, Italy or Netherlands).

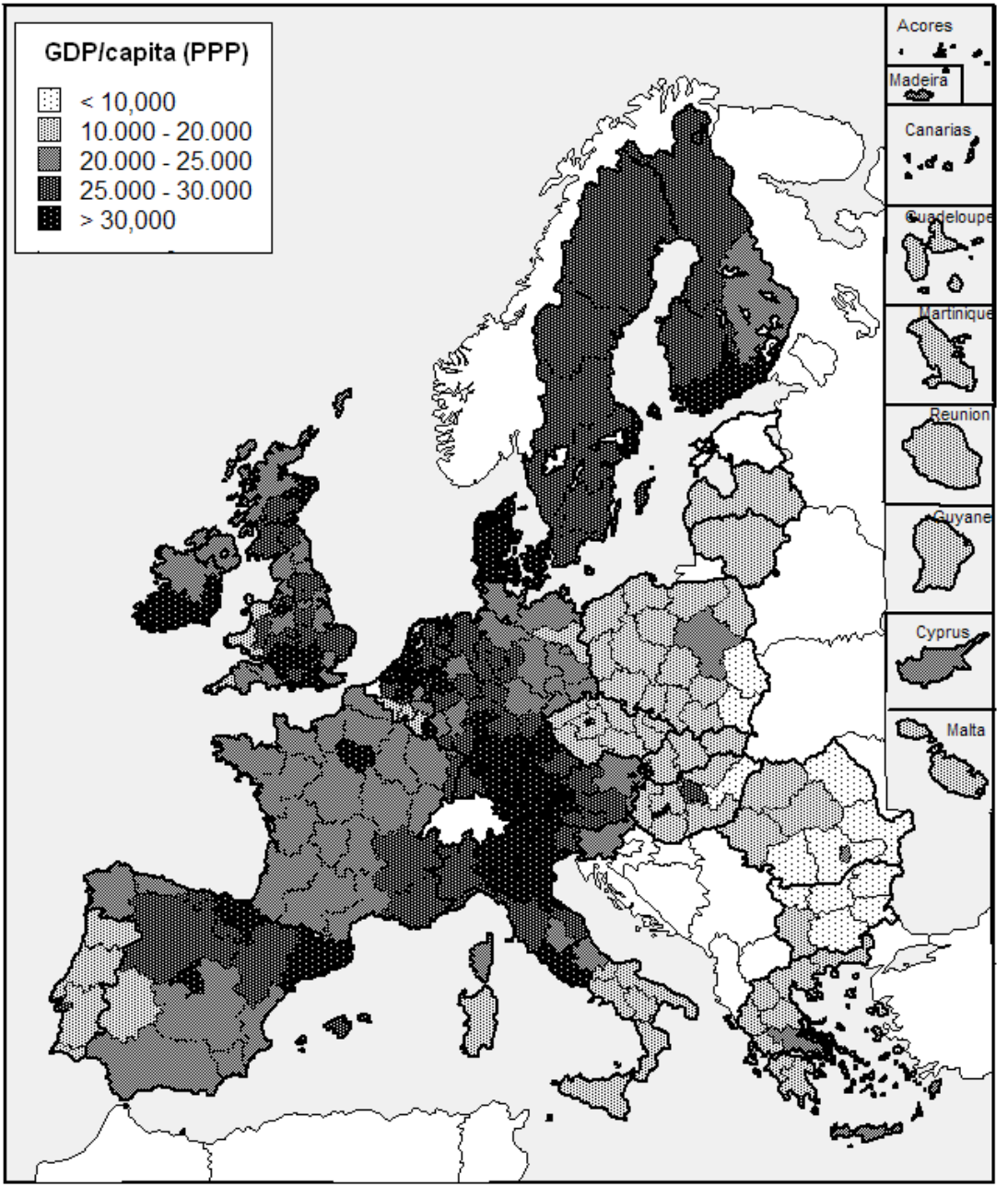


Figure 1. *Development Differences between European Countries*
 Based on GDP/Capita, in 2008
 Source: authors, based on the Eurostat data

An important aspect of the analysis of the GDP/capita within the European Union refers to the evolution of the development differences. Can the existence of the convergence within the European regions be proved, or is there an ever more significant regional differentiation? In his longitudinal analysis of the GDP/capital evolution, Verspagen indicated that several

periods of convergence between the European regions (Verspagen, 1995) existed over the 20th century.

Table 1. *The "Richest" and the "Poorest" Regions
In the European Union, 2008*

	Countries	Regions	GDP/Capita (PPC)	% In EU-27
"Richest" European Union Regions, 2008				
1	United Kingdom	Inner-London	85,800	343
2	Luxembourg	Luxembourg	70,000	279
3	Belgium	Bruxelles	54,100	216
4	Netherlands	Groningen	49,700	198
5	Germany	Hamburg	47,100	188
6	Czech Republic	Prague	43,200	172
7	France	Île de France	42,000	168
8	Sweden	Stockholm	41,900	167
9	Slovakia	Bratislavský kraj	41,800	167
10	Austria	Wien	40,900	163
"Poorest" European Union Regions, 2008				
1	Bulgaria	Severozapaden	7,100	28
2	Romania	Nord-Est	7,200	27
3	Bulgaria	Severen tsentralen	7,500	30
4	Bulgaria	Yuzhen tsentralen	7,600	30
5	Bulgaria	Yugoiztochen	9,000	36
6	Romania	Sud-Vest Oltenia	9,100	36
7	Bulgaria	Severoiztochen	9,400	37
8	Romania	Sud-Est	9,700	39
9	Poland	Podkarpackie	9,700	39
10	Romania	Sud-Muntenia	9,800	39

Source: computation made by the authors, based on the Eurostat data

This conclusion is also presented in the works of Williamson and his colleagues, who compared the development of the European regions in the aftermath of the second world war with the previous periods, delineating four phases of convergence and divergence (Nemes Nagy, 2005). Meliciani (2006), upon reviewing the evolution of the revenues in the period 1988 to 1996, reached the conclusion that this period is characterized by a process of slow convergence between the regions, and of divergence within them. If the labor productivity contributes to a territorial convergence, the population occupancy and the participation rate (which results from the difference between the workforce and the population capable of work) rather reveals a divergence trend (Meliciani, 2006). According to the Le Gallo and Dall'Erba analyses (2005), in the 90s the convergence was characteristic only for the peripheral regions of the EU, emerging rather as convergence "clubs" in these regions. Fischer and Stirböck (2006) talk about two convergence clubs: one is composed of the Central-European regions, and the other one integrates the Eastern and Southern European regions. Having in view that during the period 1995 to 2003 the economy of the Central-Eastern European countries increased at a faster pace, we can expect the continuation of the territorial convergence process. However, it is very important to retain Meliciani's general idea that even if the EU

countries might show a diminution of the territorial disparities, within the NUTS 3 regions the differences are on the rise (Marelli, 2007).

Further on, we had in view the hypothesis of a territorial convergence between the European regions, taking into account the decrease in the variation coefficient during the period 1995 to 2005, in the 27 member countries, from 1.12 to 1.08. Prior to establishing the existence of an absolute convergence (β convergence), the regional development inequalities were analyzed with the aid of the relative amplitude index, the weighted relative average deviation index, and the Hoover index.

With reference to the evolution of the relative amplitude index, it is certain that the inequalities increased constantly, ever since 1995 (*figure 2*), which reflects the fact that the accession of the 10 countries in 2004 did not significantly influence the level of the regional disparities in the EU-27. As a matter of fact, an analysis of only the regions of the central nucleus of the EU (EU-15) reveals that the differences are constantly deepening, however these differences are much smaller in the case of the EU-25 regions. Thus, in the case of the EU-15 regions, the relative amplitude is 2.20 in 1995, going up to 2.69 in 2007, while in the case of the EU-25 this index was 2.29 in 1995, going up to 2.72 in 2007. This increase is ever more marked if we include as well the two newly acceded states, Romania and Bulgaria: the relative amplitude in relation to EU-27 indicates an increase from 2.44 in 1995 to 2.98 in 2005.

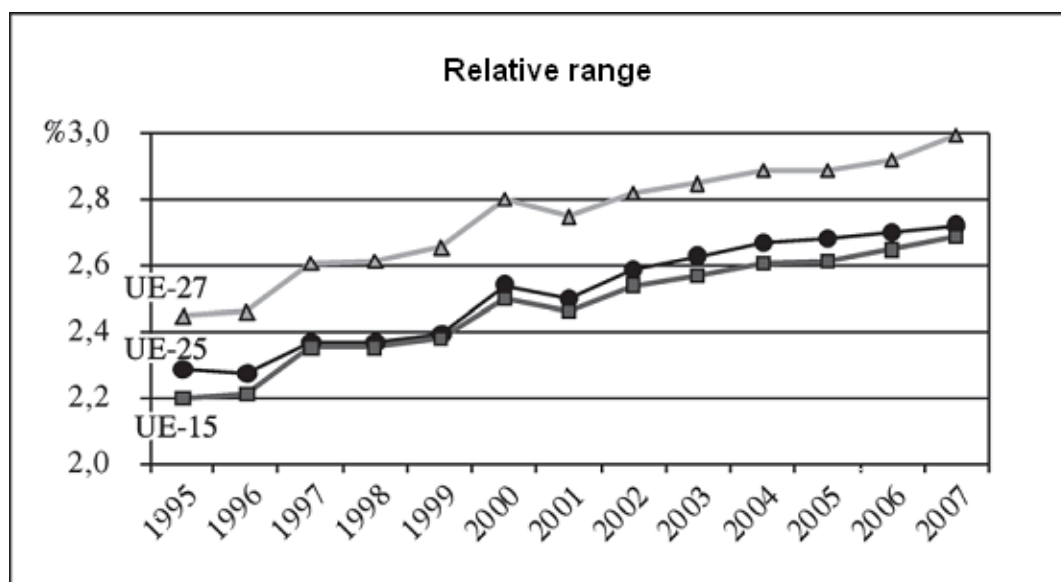


Figure 2. *Inequalities in the European Union*

Source: computation made by the authors, based on the Eurostat data

As regards the evolution of other two indices, that is to say, the weighted relative average deviation index and the Hoover index, the development related inequalities indicate a constant diminution, which can be explained as well by the efforts of the European community to implement the regional policies (*figure 3*).

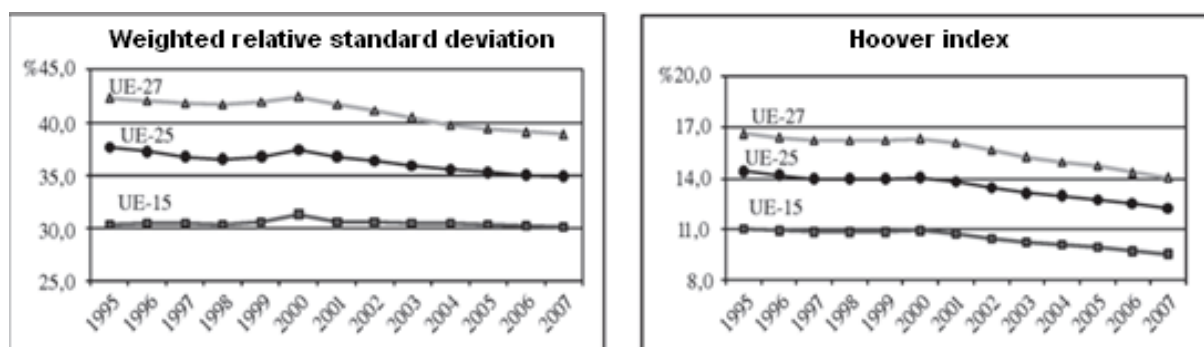


Figure 3. *Inequalities in the Development of EU Countries*

Source: authors, based on the Eurostat data

If in the case of the EU-15 the weighted linear average deviation was 30.12% in 2007, in the EU-25 this goes up to 34.89%, reaching the maximum level within the EU-27, of 38.80%. Such an evolution can also be ascertained in the case of the Hoover index, its value increasing in the respective year from 9.50% (EU-15) to 12.23% (EU-25), respectively to 14.01% in EU-27. Nevertheless, both in the case of the EU-15 and of the EU-27, the development related inequalities diminished gradually, which actually reveals the existence of a territorial convergence¹. In order to be able to talk about a convergence, the β value must be negative, which also happened in the case of this analysis: if we take into account the 15 EU countries, the β value is -0.095, and can also be explained by the accession of the Ireland and Portugal to the EU; in the case of the 25 countries, this value is -0.123; and in the case of 27 states, this decreases to -0.115, which indicates a lower increase dynamics in the more developed countries. Having in view that the significance level is not very high (0.025), these results must be treated with high caution, since other development factors, such as the population occupational rate, labour productivity, human capital level, may influence to a large extent both the evolution of the GDP/capita, as well as the evolution of the regional development differences.

¹ In order to prove this hypothesis, the existence of a β convergence is computed. In accordance with the Solow's theory, it is presumed that on long term the less developed countries will draw closer to the more developed countries. This hypothesis is tested by using an estimation of the linear regression for transverse data, where the independent variables are the data taken into account for an initial period, and the dependant (explicative) variable is the average rate of growth of the revenues over the reviewed period. The equation of the estimated linear regression is: $\Delta \ln y_i = \alpha + \beta \ln y_{i0} + \varepsilon_t$, where α and β are the unknown parameters, and ε_t is the aleatory factor effect, being 0.

Territorial differences according the Human Development Index

The development of the education and health system is best expressed by the Human Development Index (HDI). The efforts over the last years for the improvement of the population's living standard are also reflected into the increase of this index. It is important to mention that, within a short time, in the period 2000 to 2007, Romania managed to pass from an average human development into the class of the countries with a high HDI. If we take into account the 182 countries of the world, Romania ranked 74th in 1995, with a value of 0.767, going up to 63rd place by 2007 (0.837). Notwithstanding that, Romania is ranked the last in the European Union, being left behind even by Bulgaria. The differences are of over 0.100 points, if we have in view that the country with the highest value, Ireland, has a value of 0.965. The classification of the 27 countries by the HDI both in 2000 and in 2005 indicates that no significant shifts of positions occurred. At the same time, it can also be noticed that this index grows faster in the case of the underdeveloped countries, as compared to the Western European countries. In 2007, based on the HDI value, the European Union countries can be grouped as follows:

- countries with high HDI (0.900-0.965): Ireland, Netherlands, Sweden, France, Luxembourg, Finland, Austria, Spain, Denmark, Belgium, Italy, Great Britain, Germany, Greece, Slovenia, Cyprus, Portugal, Czech Republic and Malta;
- countries with an average IDU (0.850-0.900): Estonia, Poland, Slovakia, Hungary, Lithuania and Latvia;
- countries with a low IDU (0.800-0.850): Bulgaria and Romania.

While in the case of the developed countries, the HDI value increase in the period 2000 to 2007 stabilized between 0.1% and 0.2%, in the Central-Eastern European countries the respective indicator increased even up to 1% in the case of Estonia, Latvia and Romania.

While the EU related regional development differences expressed by GDP/capita indicate a constant diminution, and HDI an ongoing improvement, it is important to verify the evolution of the inequalities existing at the income level. As a general objective of the economic policies, the diminution of the inequalities existing in relation to the level of income is a purpose just as important as growth of the population's income, and generally of the economy. The most often used indicator to express the income related inequalities is the Gini coefficient. The higher the Gini coefficient, the less uniform are the income allocated, and the more marked are the inequalities between various countries². For a better comparison of the EU countries, we also computed the rate of deviation from the average medium values. It can be noticed that, in the most countries with income above the average value, the territorial inequalities are much lower than in those countries where the income does not reach even the EU average (*table 2*). Ireland, Italy and Spain are the exceptions, since although their income is higher; the inequalities are also more accentuated.

² The Gini coefficient can also be calculated using only the revenues, total revenues, money revenues or any other income form. Both the gross revenues and the net revenues shall be used as base of the computations. In our study, the Gini coefficient is computed based on the net revenues, which include both pecuniary and non-pecuniary income, and the source of data is World Income Inequality Database, and the Eurostat database comprising data referring to the territorial income allocation.

Table 2. *Inequalities in Income Distribution within the European Union Countries*³

	Population's Income		Gini Index	
	Euro/Inhabitant	Rate Compared With Average	%	Rate Compared With Average
Denmark	23,257.7	1.85	24.0	0.80
Sweden	20,872.9	1.66	25.2	0.84
Austria	20,745.2	1.65	26.0	0.87
Ireland	20,510.4	1.63	32.0	1.07
Germany	20,020.6	1.59	26.0	0.87
Belgium	20,019.2	1.59	28.0	0.94
France	19,629.2	1.56	28.0	0.94
Netherlands	19,580.9	1.55	27.0	0.90
Finland	17,961.5	1.43	26.0	0.87
Italy	16,293.8	1.29	33.0	1.10
Spain	14,151.4	1.12	32.0	1.07
Average value	12,602.0	1.00	29.9	1.00
Greece	11,933.4	0.95	33.0	1.10
Portugal	9,461.1	0.75	38.0	1.27
Slovenia	9,037.7	0.72	27.8	0.93
Czech Republic	5,585.9	0.44	25.8	0.86
Hungary	5,424.4	0.43	27.9	0.93
Estonia	4,454.5	0.35	36.1	1.21
Slovakia	4,370.1	0.35	26.0	0.87
Poland	4,130.8	0.33	36.6	1.22
Lithuania	4,076.2	0.32	30.9	1.03
Latvia	3,444.6	0.27	32.1	1.07
Romania	2,282.3	0.18	36.1	1.21

Source: World Income Inequality Database, Eurostat, calculated by authors

At the same time, countries like Slovenia, Czech Republic and Hungary have an income level below the EU average; however, the territorial inequalities remain much lower than in many Western European countries. The highest territorial inequalities can be seen in Portugal (38%), Poland (36.6%), Estonia and Romania (36.1%), these being characterized both by high rates of the population occupied in agriculture, and by a lower education level, especially in the case of Portugal and Romania.

Conclusions

The analysis of Romania's position in the spatial structure of the European Union has revealed the unfavourable position of the Romanian regions, as well as the differences arising between the central territories of the EU and our regions. However, taken as a whole and with the help of several mathematical and statistical indices we concluded that at the level of European regions there is a decreasing tendency of the territorial inequalities, and therefore we can expect that in the future the alignment of the territories to be made at a higher pace. In this

³ There are no data available for Bulgaria, Cyprus, Luxembourg, Malta and Great Britain.

context we could quote Philip Martin (1998), who speaks about a "pan-European convergence and a local divergence".

References

- Benedek J, Kurko I. 2010. Evolutia si caracteristicile disparitatilor teritoriale din Romania. In: Bakk M., Benedek J. Politicile regionale in Romania, Editura Polirom, Iasi.
- Fischer, M.; Stirböck, C. 2006. "Pan-European Regional Income Growth and Club-convergence". *Annals of Regional Science*, 40 (4): 693-721.
- Le Gallo, J.; Dall'Erba, S. 2006. "Evaluating the Temporal and the Spatial Heterogeneity for the European Convergence Process, 1980-1999". *Journal of Regional Science*, 46 (2): 269-288.
- Kurko I. 2010. Disparitati geodemografice si economice din Romania in perioada de tranzitie. Editura Presa Universitara, Cluj-Napoca.
- Marelli, E. 2007. "Specialisation and Convergence of European Regions". *The European Journal of Comparative Economics*, 4 (2): 149-178.
- Martin, P. 1998. "Can Regional Policies Affect Growth and Geography in Europe?", *The World Economy*, 6: 757-774.
- Meliciani, V. 2006. "Income and Employment Disparities across European Regions: The Role of National and Spatial Factors". *Regional Studies* 40 (1): 75-91.
- Nemes Nagy J. 2005. "Fordulatra várva . a regionális egyenlőtlenségek hullámai (Waiting for the change – the wave of regional disparities)", in Dövényi, Z. (coord.), *A földrajz dimenziói*, Budapest: MTA, FKI: 141-158.
- Verspagen, B. 1995. "Convergence in the Global Economy. A broad historical viewpoint", *Structural Change and Economic Dynamics*, 6 (2): 143-165.