

# Aspects of Regional Development in Romania

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## Abstract

*The purpose of the article is to highlight synthetically the main features of regional development in Romania compared to the corresponding ones in some European Union member countries. Statistical data shows widening gap between development regions of Romania - expressed in terms of dispersion of regional GDP / capita, physical infrastructures – road, railways, telecommunications -, educational effort intensity (reflected by a few relevant indicators: proportion of pupils and students in all level of education, share of population aged 25-64 years with complete tertiary education, abandon rate in pre-university education), the creative and innovative potential (expressed by: share of employment in high-tech sectors, number of patent applications EOP/1 million inhabitants)-, as well as between NUTS 2 regions in Romania and some EU countries.*

**Keywords:** *regional development; regional disparities; regional statistics*

**JEL Classification:** *R11, R12*

## Introduction

An important component of industrial policy of a country is its regional development, a comprehensive and complex process in which interact elements of legal, institutional, economic and social nature, in order to reduce regional disparities and ensure balanced harmonious development in the country.

In the current conditions of globalization, where relations between countries have unprecedented increased parallel with deepening competitive struggle in international markets, the role of regions has enhanced considerably, engendering apparition of some new concepts, development models and tools.

The main issues to be resolved through regional development policy are: setting up the institutional framework to ensure judicious ranking decision responsibilities between government, regional and local levels; reducing disparities between the levels of economic and social development of the regions, enhancing the development of lagging regions and prevention of new imbalances; harmonization of regional development policy with that of sector development with a view to efficient the use of resources at regional and local level and ensuring sustainable development; enhancing cooperation between regions, both within the country and internationally, particularly cross-border cooperation.

## Regional Disparities in Romania and in Some Countries of the European Union

In Romania, concerns regarding regional development dated from the interwar period and there were extended during the economic regime of centralized economy, when the "balanced development of the productive forces throughout the country" was one of the essential coordinates of the country development strategy. The materialization of this coordinate engendered accelerated development of counties and regions with obvious handicaps, but had profound negative effects manifested virulent after 1989, consisting of the bankruptcy of numerous industrial units artificially created in new preponderant agricultural areas, thus lacking an indispensable "industrial culture", high unemployment in areas where the population of a locality depended only of single existing production unit, insufficient qualification of the workforce in relation to the requirements of industrial activity, pollution of some areas with tourism potential, etc.

Crossing from the centralized economy regime to the market economy has fundamentally changed vision of regional development, in the new one having the precedence economic efficiency and sustainable development criteria, as well as the requirement to align to the principles, guidelines and tools of regional development policy of the European Union. In other words, if within the centralized economy regionally resource allocation was made exclusively on political considerations, unrelated to economic efficiency of exploitation, processing, transport and use them, in the market economy allocation model is oriented towards regions that prove capable to ensure maximizing the beneficial effects of use.

Efforts to reduce regional disparities, intensified after Romania's integration into the European Union, failed, however, to reduce lagging behind of some regions, which have deepened, reality convincingly made out by growth in recent years of regional dispersion of GDP per capita, as shown by the figures in the following two tables.

**Table 1.** Regional GDP (Purchasing Power Standard - PPS per capita), by NUTS 2 regions in Romania, 2007...2011

	2007	2008	2009	2010	2011	2011/2007
<b>Nord-Vest</b>	9900	10500	10100	10500	10500	106.1
<b>Centru</b>	10400	11100	10700	11200	11400	109.6
<b>Nord-Est</b>	6500	7200	6900	7200	7200	110.8
<b>Sud-Est</b>	8400	9300	8900	9600	9900	117.9
<b>Sud-Muntenia</b>	8500	9600	9500	9700	10000	117.6
<b>București-Ilfov</b>	23900	29100	26100	27800	30700	120.4
<b>Sud-Vest Oltenia</b>	8000	8700	8400	9000	9300	116.3
<b>Vest</b>	11500	12800	12100	13300	13500	117.4

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00005)

The regions with the highest levels of their GDP are, in descending order, the Bucuresti-Ilfov, with GDP per capita of 2.27 times higher in 2011 than the next ranked, Vest and Centru, while those with the lowest level, also in descending order, are Sud-Est, Sud-Vest Oltenia, and Nord-Est. If the Bucuresti-Ilfov region recorded the highest growth rate of its GDP in 2011 compared to 2007, and the Sud-Est the second largest, the other two regions mentioned as lagged behind showed more modest increases during the period, which shows that the convergence process is highly selective. Developments are fully accountable, whereas investment is oriented towards regions that offer the best conditions in terms of natural resource endowment, existing infrastructure, availability of skilled labor, etc. In other words, the higher is the level of development of a region, the more is its potential for self-development; is the task of regional development policy to counteract this natural tendency and ensure higher rates of growth of lagging regions, provided that regional authorities are able to effectively exploit opportunities.

The trend of increasing regional disparities becomes manifest, in fact, in a good part of the European Union member countries, the following table showing that in most shown countries dispersion of regional GDP per capita increased between 2006-2010, Austria, Germany, Poland and Slovenia being the only countries that have reduced the dispersion or have maintained it approximately constant.

**Table 2.** Dispersion of regional GDP per capita in some EU member states (% of national GDP per capita), 2006 ... 2010

	2006	2007	2008	2009	2010
EU27	:	:	:	:	32.2
Austria	23.9	22.8	22.6	22.9	22.4
Bulgaria	38.0	42.7	44.4	46.7	47.6
Czech Republic	25.5	26.5	27.3	26.8	27.6
Danemark	18.9	18.5	18.5	18.4	20.5
Finland	18.8	18.8	18.8	20.9	21.1
France	23.1	25.8	25.9	25.8	27.0
Germany	:	:	29.2	28.4	29.0
Hungary	41.3	40.7	42.0	43.7	43.1
Italy	.	.	:	:	24.6
Netherlands	1.6	15.9	18.0	17.6	18.4
Poland	34.2	34.4	33.5	34.1	34.7
Romania	34.4	35.3	38.2	37.4	37.8
Slovakia	34.4	34.9	32.6	35.2	35.1
Slovenia	22.7	22.3	21.7	22.8	22.4
Sweden	15.2	15.5	15.9	18.3	16.5
United Kingdom	28.1	28.9	30.1	30.5	30.1

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tsdec220)

It should be noted that the dispersion recorded by Romania is not very far from the EU average, which means that there are countries with the most acute problems in this respect (for example, of the countries shown in the table, Bulgaria and Hungary).

## Gaps in Many Areas between Development Regions in Romania

Synthesized regional disparities in GDP per capita result from gaps existing in different areas - energy, transport and communications infrastructure, education, science and technology, availability of skilled labor at different levels, tourist attraction, etc.

For example, in physical infrastructure – road, railway, telecommunications - considerable differences between development regions are clearly highlighted by the figures presented in the table below.

**Table 3.** Level of some physical infrastructure indicators, by development regions, in 2011

NUTS 2 development region	Public roads, at territorial level (km.)		Railways under operation, at territorial level (km.)		Telephony activities, at territorial level	
	Total	Density of public roads per 1000 km <sup>2</sup> of territory	Total	Density of railways per 1000 km <sup>2</sup> of territory	Number of conexions, end of year (thousand)	Internet acces traffic *
Nord-Vest	12,459	36.5	1,668	48.8	597.8	0.3
Centru	11,057	32.4	1,332	39.1	597.5	0.8

Table 3 (cont.)

<b>Nord-Est</b>	14,239	38.6	1,620	44.0	552.3	0.5
<b>Sud-Est</b>	10,898	30.5	1,745	48.8	554.4	0.5
<b>Sud-Muntenia</b>	12,707	36.9	1,251	36.3	504.9	0.4
<b>București-Ilfov</b>	890	48.9	279	153.2	1.024.7	1.6
<b>Sud-Vest Oltenia</b>	11,001	37.7	988	33.8	351.6	0.5
<b>Vest</b>	10,452	32.6	1,894	59.1	503.7	0.4

\* Services that grant public access to internet and ISDN for internet users through the national public fixed telephony network, differentiated as against basic telephony service

Source: Romanian Statistical Yearbook 2012, NIS, Bucharest, tables, respectively, 17.18., 17.19., and 17.21.

The figures highlight, in terms of the indicators analyzed, the remarkable advances of the Bucharest-Ilfov region compared to other regions, in all indicators, as well as variable positions of the regions, except in Bucharest-Ilfov, in the hierarchies established in relation to the three indicators.

Differences in the level of indicators recorded between the first and last ranked region are also high: 1.60 on public roads per 1000 km<sup>2</sup> of territory (1.26 between the second and last ranked); 4.53 on density railways under operation per 1000 km<sup>2</sup> of territory (1.74 between the second and last ranked); 5.33 on internet access traffic (2.66 between the second and the last ranked). It is noteworthy that the Nord-Est and Sud-Est development regions which, as shown above, are situated, on the whole, on modest places, at some indicators are positioned, however, better than other regions with generally higher social and economic development.

In education, the percentage of pupils and students enrolled in all levels of education as a percentage of the total population at the regional level, does not clearly differentiate the developed regions of the least developed, as do regional GDP per capita (see table below).

**Table 4.** The proportion of pupils and students in all levels of education (ISCED 0-6 \*) by NUTS 2 regions, 2008 ... 2012

<b>NUTS 2 development region</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>Nord-Vest</b>	21.4	21.2	21.2	20.8	20.1
<b>Centru</b>	20.8	21.2	20.9	20.1	18.7
<b>Nord-Est</b>	20.6	20.3	20.2	19.7	19.1
<b>Sud-Est</b>	18.3	18.1	17.9	17.7	17.0
<b>Sud-Muntenia</b>	17.1	16.7	16.8	16.4	15.9
<b>București-Ilfov</b>	33.3	34.0	29.6	25.9	23.1
<b>Sud-Vest Oltenia</b>	19.5	19.3	19.0	18.5	17.5
<b>Vest</b>	21.2	21.0	20.7	20.7	19.2

\* ISCED 0-6. The seven levels of education are: ISCED 0 - Pre-primary; ISCED 1 - Primary; ISCED 2 - Lower secondary; ISCED 3 - Upper Secondary; ISCED 4 - Post-secondary non-tertiary education; ISCED 5 - First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 - Second stage of tertiary education (leading to an advanced research qualification). UNESCO Institute of Statistics. International Standard Classification on Education (ISCED)

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00091)

Thus, the Bucuresti-Ilfov region has the highest percentage of population comprised in all education levels, followed by the Nord-Vest region, and Sud-Muntenia region, which on the level of GDP per capita holds a middle position, has the lowest share. A disturbing fact is that the mentioned share decreased between 2008-2012, to varying degrees, in all eight NUTS 2 regions of Romania, in a surprising contrast with the increasing, also in all eight regions, the

share of population with tertiary comprehensive university, as shown by the figures in the table below.

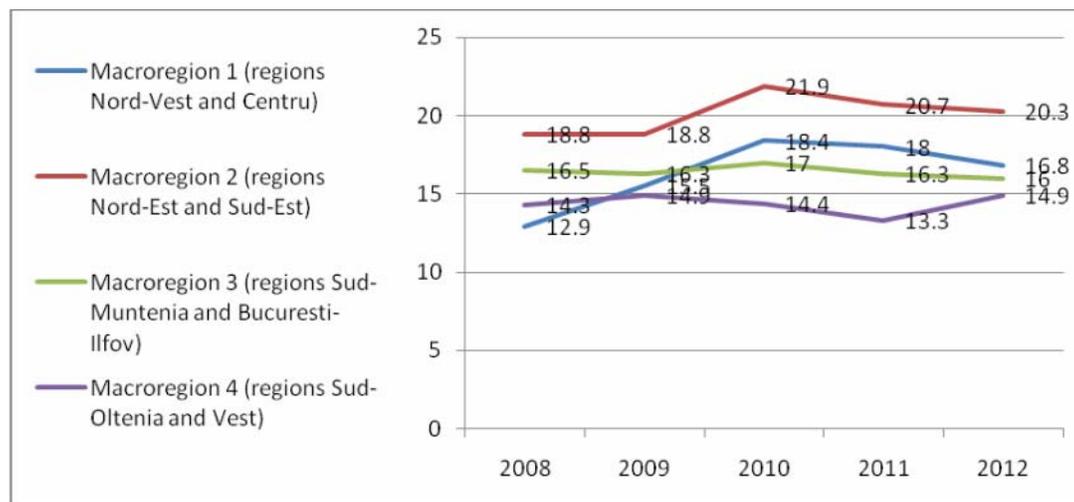
**Table 5.** Share of population aged 25-64 years with complete tertiary education, by NUTS 2 regions, 2008 ... 2012

NUTS 2 development region	2008	2009	2010	2011	2012
<b>Nord-Vest</b>	12,1	12,1	13,1	13,5	13,8
<b>Centru</b>	11,4	11,8	11,7	13,0	14,0
<b>Nord-Est</b>	11,1	11,2	11,6	12,5	13,1
<b>Sud-Est</b>	9,4	10,0	10,5	11,6	12,2
<b>Sud-Muntenia</b>	8,6	9,1	10,1	11,2	11,5
<b>București-Ilfov</b>	27,7	27,7	28,6	31,4	32,0
<b>Sud-Vest Oltenia</b>	12,8	13,0	13,5	13,6	14,2
<b>Vest</b>	12,8	14,3	14,3	14,9	15,4

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00109)

The differences between the data presented in Tables 4 and 5 highlight the existence of worrying imbalances in existing education system, which provides to labor market a growing number of professionals with tertiary education and a steadily decreasing number of graduates with lower levels of education.

Regarding regional abandon rate in pre-university education, it is shown in the statistics EUROSTAT by NUTS 1 regions in the European Union, namely the macro-regions in Romania, making it difficult to draw clear conclusions whereas a macro-region can include regions with significantly different levels of development, as macro-regions 3 and 4 (see figure below).



**Fig. 1.** Abandon rate in pre-university education, by NUTS 1 regions, 2008...2012

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00106)

Despite this difficulty of interpretation, however, appears clear that the lowest rate was recorded, in 2012, in Macro-region 3 (probably as a result of presence within it of the Bucharest-Ilfov region, with a rate far below the national average), and the highest in Macro-region 2, which contains two regions with the most significant lags. Deficiencies and handicaps of regions in the training of the population is reflected in unfavorable differences recorded by the same regions in Science and Technology area. Thus, the share of staff employed in the specific activities in the economically active population, by region, is significantly lower in regions lagging behind compared to most developed ones (see table below).

**Table 6.** Share of human resources in science and technology area, in the economically active population, by NUTS 2 regions, 2008 ... 2012

NUTS 2 development region	2008	2009	2010	2011	2012
Nord-Vest	22,4	22,2	22,2	22,4 <sup>a</sup>	21,2
Centru	22,2	22,9	23,1	24,7 <sup>a</sup>	26,1
Nord-Est	17,0	17,0	17,0	17,7 <sup>a</sup>	18,5
Sud-Est	18,5	19,1	18,6	20,5 <sup>a</sup>	20,7
Sud-Muntenia	16,0	17,0	18,0	19,4 <sup>a</sup>	18,8
București-Ilfov	42,2	42,6	43,5	46,7 <sup>a</sup>	47,0
Sud-vest Oltenia	18,5	18,3	18,8	19,2 <sup>a</sup>	19,2
Vest	21,8	23,7	24,5	25,1 <sup>a</sup>	24,3

Note: a – breaks in the time series

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00038)

Again, Bucharest-Ilfov, Centru and Vest regions appear with the largest weights, situation favored by the fact that have better educational and research & development infrastructure than other regions.

Implicitly, the share of employment in high tech sectors (i.e. high-tech manufacturing industries and high-tech knowledge intensive services), shown below, follows, roughly, the same configuration by regions as that resulting from the above table; an exception is to highlight, namely that the Centru region was outrun, in terms of the mentioned indicator, by Nord – Vest region.

**Table 7.** Share of employment in high tech sectors, by NUTS 2 regions, 2004 .... 2008

NUTS 2 development region	2004	2005	2006	2007	2008
Nord-Vest	1,58	1,28	1,47 <sup>a</sup>	1,50	2,03
Centru	1,67	1,35	1,73 <sup>a</sup>	1,58	1,71
Nord-Est	1,06	1,00	1,20 <sup>a</sup>	0,89	1,31
Sud-Est	1,00	0,89 <sup>b</sup>	1,11 <sup>a</sup>	1,03	1,21
Sud-Muntenia	1,20	1,13	1,33 <sup>a</sup>	1,24	1,23
București-Ilfov	6,52	5,89	5,79 <sup>a</sup>	5,73	6,55
Sud-Vest Oltenia	1,17	0,97 <sup>b</sup>	1,07 <sup>a</sup>	1,02 <sup>b</sup>	0,95 <sup>b</sup>
Vest	2,73	2,76	2,72 <sup>a</sup>	3,86	4,16

Note: a – breaks in the time series; b – low confidence

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00039)

As a result, the creative potential of the regions, reflected by the number of patent applications to the European Patent Office, has approximately the same picture as the distribution of labor in creative activities, meaning that the regions with the best performance are, generally, Bucuresti-Ilfov, Vest and Centru. Assessment should be seen with many reserves, whereas evolutions in development regions are very tortuous, sometimes with extremely steep changes from one year to another, which significantly reduce the possibility of making net judgments. The fact is that the creative potential of the development regions of Romania is generally modest, reality demonstrated by comparing it with the level of the mentioned indicator recorded in three development regions in the Czech Republic, Germany and Hungary (see table below).

**Table 8.** Number of patent applications European Patent Office / 1 million inhabitants, by priority year and NUTS 2 regions, 2000, 2005, 2007, 2010

NUTS 2 development region	2000	2005	2007	2010
Nord-Vest	:	1,488	0,711	0,831 <sup>f</sup>
Centru	:	2,143	1,913	0,693 <sup>f</sup>
Nord-Est	0,065	0,209	0,384	0,369 <sup>f</sup>
Sud-Est	:	0,351	:	:
Sud-Muntenia	0,049	0,398	0,263	0,174 <sup>f</sup>
București-Ilfov	1,860	6,856	5,389	4,121 <sup>f</sup>
Sud-Vest Oltenia	0,487	:	1,094	0,298 <sup>f</sup>
Vest	0,064	0,465	2,948	:
Praha (Republica Cehă)	13,018	23,031	39,625	18,358 <sup>f</sup>
Köln (Germania)	331,465	339,810	270,791	143,031 <sup>f</sup>
Közép – Magyarország (Ungaria)	30,809	34,129	39,893	13,81 <sup>f</sup>

Note: f – foresight

Source: EUROSTAT. Regions and Cities, Regional Statistics, 2011 (Code tgs00040)

Figures show that, at the level of regions from abroad taken in comparison, developments in the number of patent applications to the European Patent Office have fluctuated widely, but significant differences against the number recorded in Romania remained almost constant throughout the years analyzed; thus, as compared to the average number of patent applications to the European Patent Office recorded annual by Bucharest-Ilfov region, by far the most powerful in this regard in Romania, the average number reported by Praha region was more than about five times, that reported by the Köln region - about 62 times, and that recorded by Közép - Magyarország region - almost seven times.

## Conclusions

- Regional development in Romania achieved after 1990 maintained, despite the efforts made and intensified after its accession to the European Union, regional disparity perpetuated from the interwar period and the regime of centralized economy. The most advanced development regions turned out to be those with established industrial tradition – Bucuresti-Ilfov, Vest, Centru, Nord - Vest, and the worst performing Sud - Est, Sud - Vest and Nord - Est. Regional disparities, expressed synthetically by regional differences in GDP per capita, are not much more pronounced compared to the EU average, which means that the convergence process of regions development at national and Community level has favorable prerequisites for achievement;
- Regional disparities, which ranks development regions in mentioned order, are maintained in the three areas examined – physical infrastructure (road, railways, tele-communications), educational and creative and innovation potential -, but also in other areas that were not included in our analysis - labor, health, transport and so on;
- Among the eight regions delimited in Romania, the Bucharest-Ilfov region is far removed from the other seven in all areas, due to the concentration in the capital of a large number of production units, educational institutions, research & development units, etc., which significantly enhanced attractiveness of the area to investment and determined a particularly dynamic development; differences between performance and development potential of this advanced region in Romania and those of most similar regions in the European Union are, however, large, consistent with differences in levels of development between Romania and most European countries.

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