COMPARATIVE STATISTICAL ANALYSIS OF EXISTING DIFFERENCES IN THE REGIONAL DEVELOPMENT OF ROMANIA REGARDING THE MAIN SOCIO-ECONOMIC INDICATORS

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Abstract. *The main objective of our research paper is the statistical analysis of socio-demographic and educational problems of more efficient labor resources employment in Romania. Capitalizing valences analysis unit on a time horizon of fifteen years in the 2000-2014 period, we intend to contribute to shaping the strategic coordinates of training in our land and more exactly the developing regions of Romania, focusing on the role of education and training. To this end we have taken as parameters of analysis: "Rate of unemployment", "participation in education and training", "the percentage of employment", "gross domestic product" to highlight the differences between Romanian regions, especially the situation of region northeast. The link between these indicators allows their use in conjunction with a considerable effect on the dynamics of economic and social phenomena. These statistical results are needed to make it possible to conduct statistical research to measure the performance of socio-economic processes of the regions to formulate alternative ways of action in a process of decision-making and to give scientific rigor decisions in specific situations. Despite the fact that they were created more than 10 years ago, there are still significant gaps in development between regions, especially between the West region (second in terms of level of development), which has a diversified infrastructure and high demographic potential and highly qualified and Northeast region (least developed), located among the poorest areas in the EU, according to the latest economic statistics. Considering these aspects, the present study we intend to identify the factors that caused these disparities and to analyze the evolution, over time, the development gap between the Northeast and other regions by comparison, in the light indicators macroeconomic. To achieve these goals, we collected and analyzed information in different empirical studies, databases, directories and statistical reports.*

Keywords: *regional disparities; economic development; development regions; socio-economic indicators.*

Introduction

In Romania, the development regions represent "zones which correspond to groups of counties, formed by voluntary association of their basic convention ... regions constituting the design, implementation, and evaluation of regional development policies and data collection of specific statistical in accordance with European regulations issued by Eurostat for the second level of territorial classification, NUTS II, existing in the European Union".

An essential attribute of a region is the common interest of the welfare and development in order to boost socio-economic progress. In the European Union, it has been created a system called territorial unit NUTS (Nomenclature of Territorial Units for Statistics), organized in five steps of which the most important are the top three levels. In the EU, the regional development policy is implemented at the level NUTS II regions. In Romania, to be applied to regional development policy were established eight regions throughout the country, each region including several counties. The development regions are not administrative units and have no legal personality, they result from an agreement between the county councils and local ones. The main areas covered by the regional policy are business development, employment, investment, technology transfer, SME sector, infrastructure, environment, rural development, education, health, and culture. The eight regions have certain features in the economic structure, which makes certain sectors play a decisive role in their future development. In turn, Romania is the sum of the interior regions, so the overall economic growth of Romania depends on the development of these regions. As in the EU, there are different levels of development of the countries likewise between the Romanian regions are also gaps.

Over the past few years, it has developed a so-called "geographical economy" based on a spatial agglomeration of industries and long-term convergence of regional income. Leading the way in this direction were scientists like Paul Krugman, Michael Porter, Robert Barro and W. Brian Arthur. Thus, subjects who initially showed interest only to economists and geographers are now investigated also by sociologists, political scientists and researchers from other subfields of social sciences. Jeffrey Sachs (2005) explains the regional differences as influenced by geographic differences that are present worldwide. Paul Krugman argued emphasized the idea that the geographic location is an important component for building the new "geographical economy". Perroux (1950) pointed out the geographical space as a web sustained by centripetal forces, idea on which were based most of the polls of growth theories. According to Perroux's (1950) vision, a growth pole is represented by the connections between companies and industries. The companies that launch the development are large and generating growth through inter-linkages. While Hirschman (1958) develops this theory of links between firms of an industry, Boudeville (1966) positions the Perroux's (1950) approach to spatial context.

We analyze an overall perspective of various influences, upon regional disparities, by using data of statistical report of macroeconomic indices, of social aspects of NE region in comparison with other regions of Romania.

Comparative statistical analysis of regional indicators

In order to achieve an accurate assessment of the economic development of regions is necessary to analyze the relationship between variables "unemployment", "participation in education and training", "the percentage of employment", "gross domestic product" and the variable "regions" by testing the differences between regions in terms of these indicators. Statistical logics requires us to accept that statistical data is inherently variable and therefore the identification, measurement, control and reduction of variation provides opportunities for improving the activity concerned.

Variations of unemployment rate by regions

To perform this analysis we used data collected for the unemployment rate in the 2000-2014 period for the eight development regions and Romania. Analysis results are presented in Figure 1. (Annex 1).

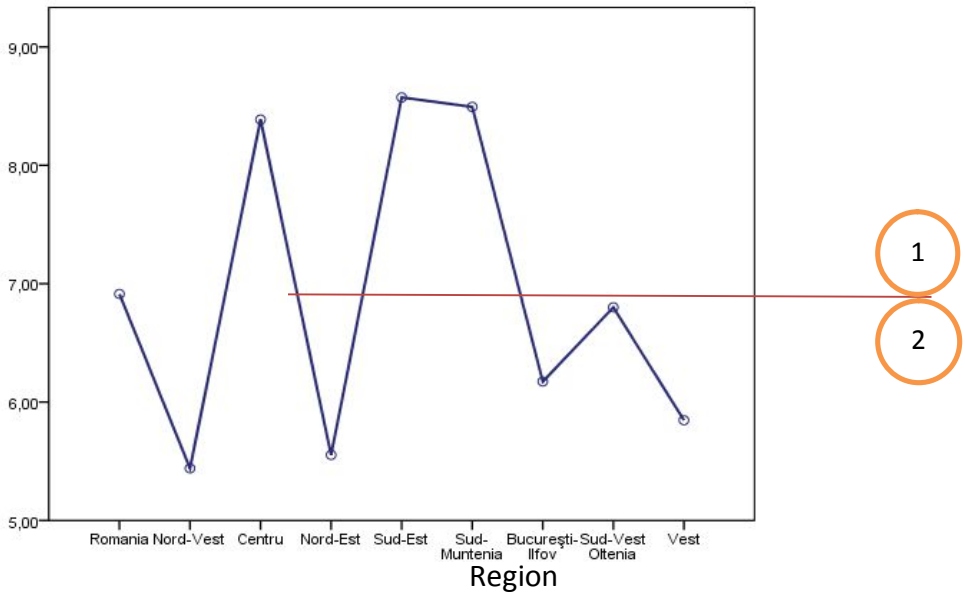

Figure 1. Representation of unemployment rate by Romania's regions

To analyze the relationship between variable "Regions" and the variable "Unemployment" we applied the statistical method of variance ANOVA using SPSS. This analysis allows us to compare all developing regions and Romania variable depending on the unemployment rate. We applied for analysis the test Post HocDunnett T3. Statistical differences between regions regarding unemployment rate are presented in Table 1.

Table 1. Results of statistical differences between regions regarding unemployment rate

Compared regions		t-test ANOVA
Region 1	**Region 2**	
1.Romania	3.North-West	M_{diff} = 1,47, p = ,028
	4.Centre	M_{diff} = -1,47, p = ,017
	6.North-East	M_{diff} = 1,36, p = ,005
	7.South-East	M_{diff} = -1,66, p = ,001
	9.South-Muntenia	M_{diff} = -1,58, p = ,008
	13.West	M_{diff} = 1,06, p = ,042
2.North-West	4.Centre	M_{diff} = -2,94, p = ,000
	7.South-East	M_{diff} = -3,13, p = ,000
	9.South-Muntenia	M_{diff} = -3,05, p = ,000
3.Centre	6.North-East	M_{diff} = 2,83, p = ,000
	10.Bucharest-Ilfov	M_{diff} = 2,21, p = ,047
	12.South-West Oltenia	M_{diff} = 1,58, p = ,012
	13.West	M_{diff} = 2,54, p = ,000
4.North-East	7. South-East	M_{diff} = -3,02, p = ,000
	12.South-West Oltenia	M_{diff} = -1,24, p = ,021
5.South-East	10.Bucharest-Ilfov	M_{diff} = 2,40, p = ,018
	12.South-West Oltenia	M_{diff} = 1,77 p = ,001
	13.West	M_{diff} = 2,72 p = ,000
6.South-Muntenia	10.Bucharest-Ilfov	M_{diff} = 2,32, p = ,031
	12.South-West Oltenia	M_{diff} = 1,69, p = ,005
	13.West	M_{diff} = 2,64, p = ,000

Note: in the table are reported only the significant statistical result for a level of significance of 0,05 and are presented just once

The results indicate that there are significant differences between regions in the unemployment rate as follows:

- Analysis indicated that there are many differences between the levels of variable statistical analysis (see Table 1). However, based on the results it can be seen that there are two categories of regions that are grouped according to whether or not there exist statistical differences. Therefore, there is a category of regions that have high numerical values and between which there are no statistically significant differences. They are Central region, Southeast and South region (see Figure 1, category denoted by 1).
- There is a category of regions that have the lowest numerical values, among which there are statistically significant differences. They are Romania, Northeast, North-West, Bucharest-Ilfov region, region South-West Oltenia and West region (see Figure 1, category denoted by 2).

Medium variations of participation to training and education programs

To perform this analysis we used data collected for the rate of participation in education and training during the period 2000-2014 for Romania and surrounding regions development. The results of the analysis are shown in Figure 2.

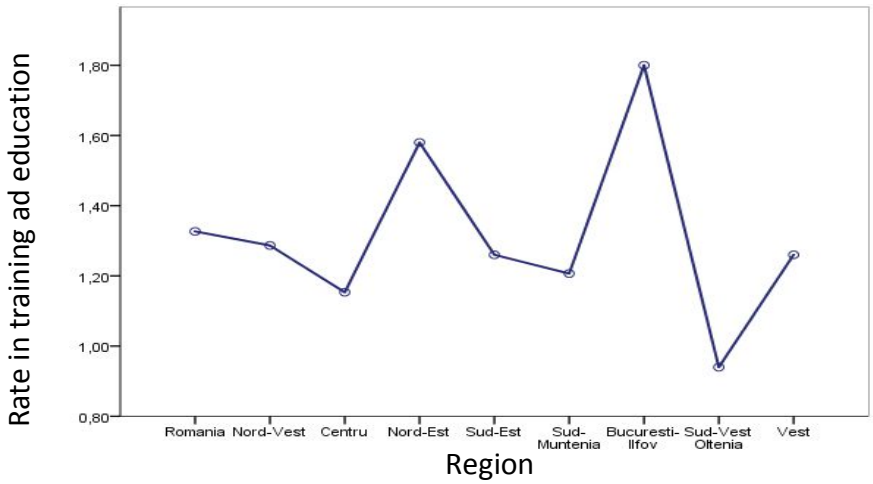

Figure 2. Representation of participation rate in training and education programs by region

To analyze the relationship between variable "Regions" and the variable "rate of participation in education and training" we applied ANOVA in SPSS. For further investigation of the differences, we applied the test Post Hoc Dunnett T3 and used the bootstrapping method for a number of 1,000 samples to a range of 95% by selecting the option Bias-corrected accelerated (BCA).

Table 2. Results of statistical differences between regions regarding the rate of participation in education and training

Compared regions		t-test ANOVA
Region 1	**Region 2**	
1.Romania	Bucharest-Ilfov	M_{diff} = -.473, CI[-.667, -.277]
	South -West Oltenia	M_{diff} = .386, CI[.210, .575]
2.North-West	Bucharest -Ilfov	M_{diff} = -.513, CI[-.746, -.275]
	South -West Oltenia	M_{diff} = .346, CI[.137, .547]
3.Centre	Bucharest -Ilfov	M_{diff} = -.646, CI[-.861, -.417]
	South -West Oltenia	M_{diff} = .213, CI[.015, .431]
4.North-East	South -West Oltenia	M_{diff} = .640, CI[.268, 1.101]
5.South-East	Bucharest -Ilfov	M_{diff} = -.540, CI[-.778, -.315]
	South -West Oltenia	M_{diff} = .320, CI[.105, .515]
6.South-Muntenia	Bucharest -Ilfov	M_{diff} = -.593, CI[-.846, -.308]
	South -West Oltenia	M_{diff} = .266, CI[.030, .528]
	South -West Oltenia	M_{diff} = .860, CI[.678, 1.035]
	West	M_{diff} = .540, CI[.339, .754]
7.South-West Oltenia	West	M_{diff} = -.320, CI[-.508, -.102]

Note: in the table are reported only the significant statistical result for a level of significance of 0,05 and are presented just once

The results indicate that there are significant differences in participation rates in education and training, as follows:

- Between 2000-2014 the average rate of participation in education and training in Bucharest-Ilfov region was significantly higher than in other 5 regions, such as North-

West region, Central region, South-East, South -Muntenia and Romania. These results place the Bucharest-Ilfov region the first in the country regions.
- During the same period, the Northeast region recorded a participation rate in education and training significantly higher than the South-West Oltenia.
- Also, South-West Oltenia registered a participation rate in education and training significantly lower than other 7 regions and Romania, which shows that this region scores least compared to the other.

Variations of employment rate by regions

To perform this analysis we used data collected for the period 2000-2014 regarding the percentage of employment in the 25-64 age-segment in Romania and regional. Analysis results are shown in Figure 3.

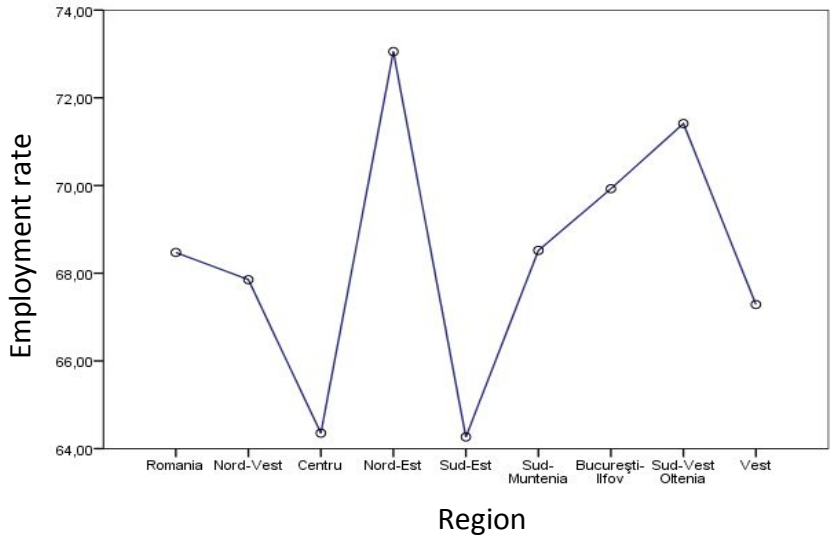

Figure 3. Representation of employment rate by region

To analyze the relationship between the variable "Regions" and the variable "percentage of employment", in statistical terms we have applied ANOVA in SPSS. We applied for further investigation Games-Howell post hoc test for a confidence interval of 95%.

Table 3. Statistical results regarding the differences between regions of employment rate

Compared regions		t-test ANOVA
Region 1	Region 2	
1.Romania	Centre	M_{diff} = 4,12, Sig. = 0,14
	North-East	M_{diff} = - 4.58, Sig. = 0,000
	South-East	M_{diff} = 4,20, Sig. = 0,002
2. North - West	North-East	M_{diff} = -5,20, Sig. = 0,001
3. Centre	North -East	M_{diff} = -8,70, Sig. = 0,000
	Bucharest - Ilfov	M_{diff} = -5,57, Sig. = 0,002
	South -West Oltenia	M_{diff} = -7,06, Sig. = 0,001

4. North -East	South -East	M_{diff} = 8,78, Sig. = 0,000
	South - Muntenia	M_{diff} = 4,53, Sig. = 0,007
	West	M_{diff} = 5,76, Sig. = 0,000
5. South -East	South - Muntenia	M_{diff} = -4,25, Sig. =0,020
	Bucharest - Ilfov	M_{diff} = -5,66, Sig. = 0,000
	South -West Oltenia	M_{diff} = -7,14, Sig. = 0,000
	West	M_{diff} = -3,02, Sig. = 0,033
6. South -West Oltenia	West	M_{diff} = 4,12, Sig. = 0,041

Note: in the table are reported only the significant statistical result for a level of significance of 0,05 and are presented just once

In the 2000-2014 period the average share of employment in the North East region was significantly higher than the other six regions, such as Southeast, South region, West, North-Western, Central region, and Romania. These results place the North East region ranked first in the country among regions, the average proportion of employment. In addition, the South East region recorded compared to other regions averaged 6 percentages statistically significantly lower employment, a result that ranks last in the region with the lowest average percentage of employment. Central Region recorded an average share of employment that is significantly lower than the other four regions, namely Northeast, Bucharest-Ilfov, South-West Oltenia, and Romania, which places it second to last in the list of regions.

Variations of GDP rate by regions

For this analysis, we used data collected for GDP in the 2000-2014 period, by region and Romania. Results of the analysis are shown in Figure 4.

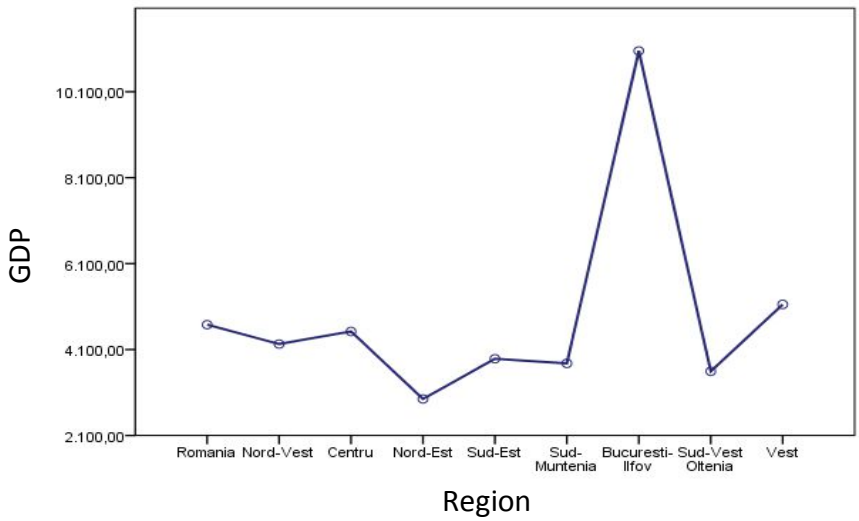

Figure 4. Representation of GDP by region

To analyze the relationship between variable "Regions" and the variable "gross domestic product" we applied ANOVA in SPSS. We applied for analysis Games-Howell post hoc test for a confidence interval of 95%.

Table 4. Statistical results regarding the differences between regions of GDP

Compared regions		t-test ANOVA
Region 1	**Region 2**	
1.Romania	Bucharest - Ilfov	M_{diff} = -6371, Sig. = 0,029
2.North-West	Bucharest - Ilfov	M_{diff} = -6821, Sig. = 0,016
3.Centre	Bucharest - Ilfov	M_{diff} = -6528, Sig. = 0,023
4.North-East	Bucharest - Ilfov	M_{diff} = -8100, Sig. = 0,003
5.South-East	Bucharest - Ilfov	M_{diff} = -7164, Sig. = 0,010
6.South – Muntenia	Bucharest - Ilfov	M_{diff} = -7271, Sig. = 0,009
7.Bucharest – Ilfov	Southwest Oltenia	M_{diff} = 7457, Sig. = 0,007

Note: in the table are reported only the significant statistical result for a level of significance of 0,05 and are presented just once

The results show that GDP is significantly higher in Bucharest-Ilfov than other seven regions, which is the biggest difference of GDP compared to other regions. Otherwise, there were no significant differences between groups. In other words, the differences are only between Bucharest-Ilfov region and the other regions.

Correlative analysis of research variables

To analyze the relationships between the main variables of the research we applied the Pearson correlation analysis in Table 5.

Table 5. Results of Pearson correlation analysis, for the main research variables

Correlations					
		GDP	**Rate employment**	**Unemployment**	**Education**
GDP	Pearson Correlation	1	-,060	-,262**	,389**
	Sig. (2-tailed)		,422	,000	,000
	N	122	122	122	122
Rate employment	Pearson Correlation		1	-,513**	-,075
	Sig. (2-tailed)			,000	,294
	N		135	135	135
Unemployment	Pearson Correlation			1	-,135
	Sig. (2-tailed)				,060
	N			135	135
Education and Training	Pearson Correlation				1
	Sig. (2-tailed)				
	N				135

**. Correlations are significant for a level of significance of 0,01 (bidirectional)

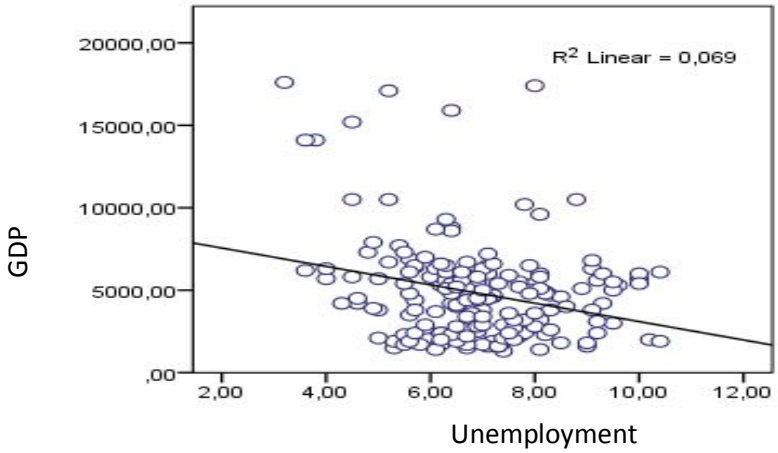

Figure 5. Scatterplot for Unemployment and GDP variables

Correlation between the regions and Romania, during 2000-2014, of the Unemployment rate and GDP is represented by the *Scatterplot* in Figure 5. Representation within the same system of axes of pairs of numbers corresponding to unemployment and GDP in the eight regions and Romania shows a correlation of corresponding values. Among the analyzed variables, there is a direct correlation. The intensity of the relationship between the unemployment rate and GDP per capita was studied using Pearson correlation coefficient, according to Table 5.

After applying the Pearson correlation coefficient, the results indicated that there is a negative correlation between GDP and unemployment rate variable, which yield a negative value of 0.262, statistically significant but of low intensity. We can say that, as GDP grows, unemployment rate decreases. In regions where there is a higher unemployment rate, gross domestic product has a much lower value.

Regarding the analysis of the variables GDP and the rate of participation in education and training over the 2000-2014 period, according to the graph in Figure 6, we find that there is a direct link between the two variables.

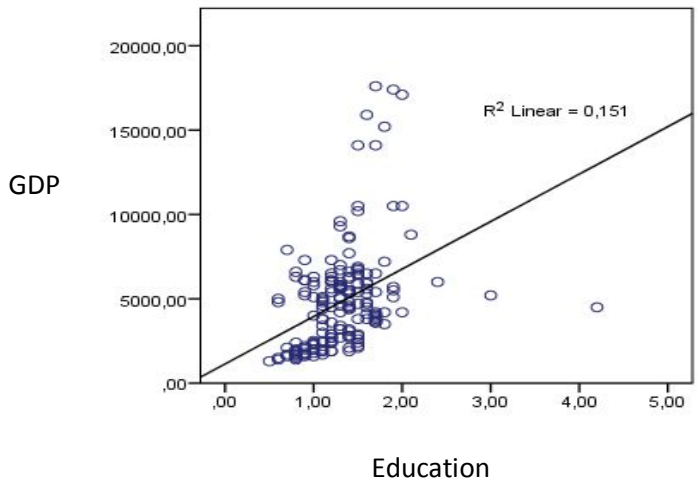

Figure 6. Scatterplot for GDP and education variables

The intensity of the relationship between the rate of participation in education and training and GDP per capita was studied using Pearson correlation coefficient, according to Table. 5. The value of the Pearson correlation coefficient shows that there is a direct and positive correlation of medium intensity, between the rate of participation in education and training and GDP per capita in the eight regions and Romania. In this regard, we note that as the gross domestic product recorded an upward trend also the rate of participation in education and training is positioned on an upward trend.

If we make an analysis of the employment rate and unemployment rate, as expected, correlogram shows a direct link between the two variables. We find that unemployment is associated with a declining rate of increase employability.

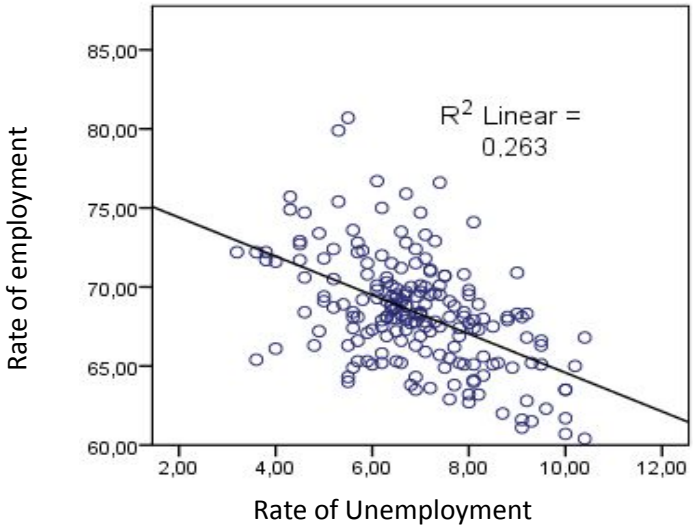

Figure 7. Scatterplot for Rate of employment and Unemployment

To determine the intensity of the relationship we applied the Pearson correlation coefficient. According to the values obtained in Table 5, coefficient shows that there is a negative correlation of high intensity between the two variables. We can say that as there is a decrease in the rate of employment, unemployment increases, according to Figure 7.

Normally, between the employment rate and the unemployment rate would be an almost perfect negative correlation (-1) because hiring reduces unemployment. However, our results refute this hypothesis. Although the correlation result obtained is oversized, we did not get a perfect correlation. One of the arguments supporting it would be that there are other variables that could influence the results, such as lack of accurate data on unemployment and properly recorded in the percentage of employment, illegal hiring, migration and other variables.

Comparative results of statistical differences conversion between the averages of advantages and disadvantages among Romania's regions

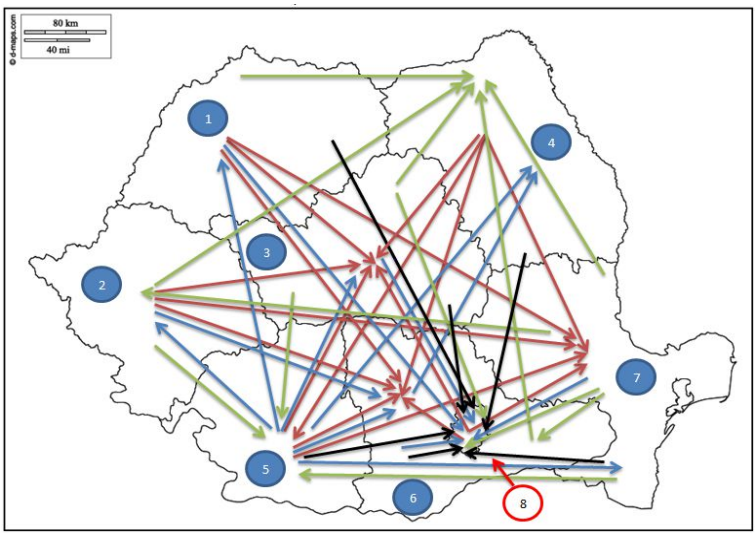

Figure 8. Representation of significant average differences between regions regarding the four indicators

Legend

	Rate unemployment
	Rate participation to education and training programs
	Rate employment
	GDP

Note: Each line has its ends located in two regions, which shows a comparison between the two regions. The arrow in a region shows that the average of the region is significantly higher than the other region. This graphic was based on the significance tests of the regions' averages for the four indicators.

Regions have as representation in Figure 8 the following numbers:
1. North-West
2. West
3. Centre
4. North-East
5. South-West Oltenia
6. South Muntenia
7. South-East
8. Bucharest-Ilfov

Table 6. Conversion of all significant differences between advantages and disadvantages averages by region of the four indicators and hierarchy related to total disadvantage (decreasing order)

	Rate unemployment		Rate participation to education and formation programs		Percentage Employment		GDP		TOTAL	
	+	-	+	-	+	-	+	-	+	-
7. South-East	0	5	1	1	0	5	0	1	1	12
3. Centre	0	5	1	1	0	3	0	0	1	9
6. South-Muntenia	0	5	2	2	1	1	0	1	3	9
5. South-West Oltenia	3	1	0	6	3	0	0	1	6	8
1. North-West	4	0	1	1	0	1	0	1	5	3
2. West	3	0	1	1	1	2	0	0	5	3
4. North-East	4	0	2	0	5	0	0	0	11	0
8. Bucharest-Ilfov	3	0	4	0	2	0	6	0	15	0

Note:
(1) + represents the advantage, - represents the disadvantage.
(2) For variables „Rate participation to education and formation programs", „Percentage of employment", and „GDP" the ‚+' sign corresponds to an average significantly bigger than that of other regions. For Rate of Unemployment, the sign ‚-, corresponds to an average significantly bigger than that of other regions.
(3)The gray color cells represent big values

Results and conclusions

This analysis allows us to make some global conclusions, namely:
- In this respect, the Bucharest-Ilfov and North East regions are most advantaged in terms of indicators, because:
a. The Bucharest-Ilfov has clear benefits for all four indicators and registers no disadvantage compared with other regions. Has the largest GDP in the country, the highest rate of participation in education and training, the unemployment rate is one of the lowest in the country, and the percentage of employment is not significantly exceeded by any region.
b. North-East ranks second as the most advantageous region in terms of indicators analyzed. Only three indicators have advantages and no disadvantage compared to other regions. It has one of the lowest unemployment rates in the country, has a rate of participation in education and training good and the percentage of employment is the largest in the country given that has the lowest numerical value of GDP but not the least significant value of GDP compared to other regions.
- At the opposite, results indicate that there are three regions that can be classified as the most disadvantaged regions according to those four indicators analyzed.
a. South East is the most disadvantaged of all because: has the highest rate of unemployment in the country, the percentage of employment is numeric and in the application test of significance lowest in the country and the rate of participation in education and training is low.
b. the Centre and South-Muntenia obtained a total score equal to their ranks after the Southeast, the most disadvantaged in terms of the four indicators. The employment

rate in Central region is one of the lowest in the country, and the unemployment rate in the Centre and South Mountain are among the lowest in the country as well.
- The results of the three surveys show that three regions, namely West, North-West and South-West Oltenia region recorded an average score, based on four indicators. All three regions are located in the West. Although there are regions with average values, in terms of total values, these three regions meet, and in small individual values - such as in South-West Oltenia, where the participation rate for their education and training. Also in the South-West Oltenia unemployment rate is lower than in each region, taken separately in the category of disadvantaged regions. Also in the North-West region Unemployment is one of the lowest in the country. Although there are the extreme values of these three regions are in the middle between the three regions, as presented in Figure 9.

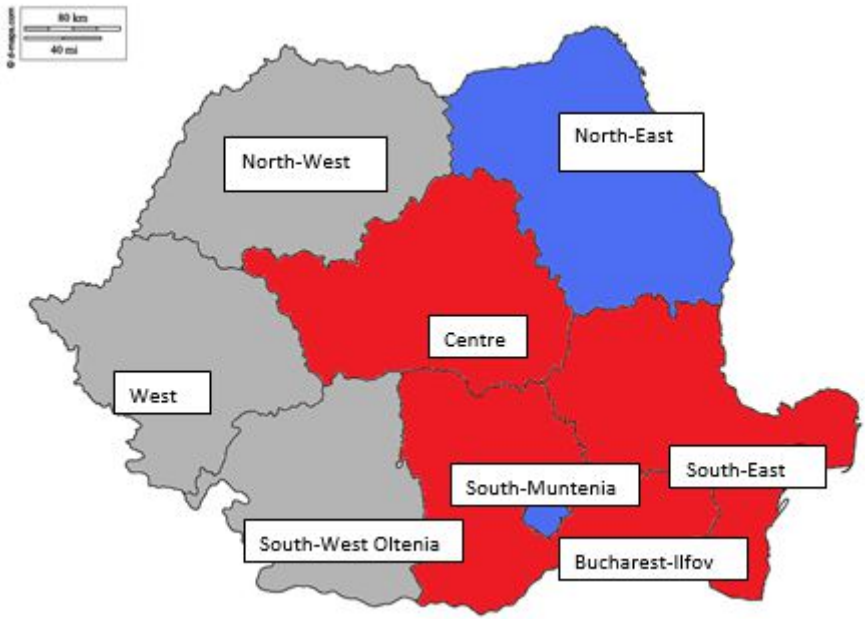

Figure 9. Visual representation of regions' which are advantaged, disadvantaged or intermediary with respect to the value of the global indicator formed by the four individual indicators

Note:
Blue color = most advantaged regions in comparison to other regions,
Red color = most disadvantaged regions in comparison to other regions,
Grey color = regions that are intermediary regarding the advantages vs disadvantages in comparison to other regions.

In Figure 9 we represented three categories of regions: advantaged, intermediate and disadvantaged in terms of increasing global indicator consists of the four individual indicators analyzed. Thus, in the advantaged regions category are: Bucharest-Ilfov region and the Northeast region; the category of intermediate regions, in terms of advantage / disadvantage relative to other regions are: North-West, West, South-West Oltenia; and disadvantaged regions in the latter category belong the following regions: Central region, South-Muntenia, Southeast region.

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Annex 1.

GDP by regions and Romania during 2000-2013

GEO/ TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Romania	1.800	2.000	2.300	2.500	2.900	3.800	4.600	6.000	6.900	5.900	6.300	6.600	6.700	7.200
North-West	1.600	1.900	2.100	2.300	2.700	3.500	4.400	5.700	6.200	5.400	5.600	5.700	5.800	6.300
Centre	1.900	2.100	2.400	2.500	2.800	3.600	4.600	6.000	6.500	5.700	6.000	6.100	6.300	6.800
North-East	1.300	1.400	1.600	1.700	1.900	2.400	2.900	3.800	4.200	3.700	3.800	3.900	4.200	4.500
South-East	1.600	1.800	2.000	2.100	2.600	3.200	4.000	4.900	5.500	4.700	5.100	5.300	5.600	6.000
South-Muntenia	1.500	1.700	1.900	2.000	2.400	3.100	3.800	4.800	5.600	5.000	5.200	5.400	5.000	5.500
Bucharest-Ilfov	4.000	4.200	4.700	5.100	6.000	8.800	10.500	14.100	17.600	14.100	15.200	17.100	15.900	17.400
South-West Oltenia	1.500	1.700	1.700	2.000	2.400	2.900	3.600	4.600	5.100	4.500	4.800	5.000	5.100	5.400
West	1.900	2.100	2.400	2.700	3.200	4.100	5.300	6.700	7.700	6.500	7.000	7.300	7.300	7.900

Employment rate by regions during 2000-2014

/TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Romania	73,3	72,4	67,3	67,7	67,5	66,9	68,4	68,1	68,1	67,3	68,2	67,2	68,1	67,8	68,8
North-West	71,8	71,1	65,5	64,3	65,3	64,9	66,6	66,1	65,4	64,0	68,2	69,1	71,7	71,6	72,2
Centre	70,1	71,5	66,9	66,3	63,2	62,7	65,1	64,1	65,1	63,5	61,7	60,4	61,1	61,6	62,0
North-East	76,6	76,7	69,6	72,3	73,6	72,2	70,8	71,8	70,6	70,1	72,8	73,4	74,9	74,7	75,7
South-East	70,9	68,3	65,0	65,7	64,4	62,9	65,2	63,2	63,5	63,6	64,0	62,3	62,8	61,5	60,7
South-Muntenia	75,9	74,7	66,8	69,1	68,3	66,8	68,1	68,9	69,2	68,1	68,8	63,5	65,1	66,6	67,9
Bucharest-Ilfov	69,9	65,2	65,6	64,9	67,5	68,9	72,7	71,7	72,2	72,2	72,9	72,4	71,5	69,8	71,5
South-West Oltenia	79,9	80,7	72,8	72,0	70,7	70,1	70,7	69,5	69,7	68,9	68,4	69,7	70,3	67,8	70,0
West	69,5	69,4	65,8	65,2	65,2	65,3	67,9	68,7	68,9	68,1	67,1	66,3	66,3	67,2	68,4

Rate of participating to education and training programs by regions during 2000-2014

GEO/TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Romania	0,9	1,0	1,0	1,1	1,5	1,6	1,3	1,3	1,5	1,5	1,2	1,4	1,3	1,8	1,5
North-West	0,9	1,2	0,9	1,0	1,4	1,8	1,4	1,3	1,4	1,5	1,6	1,9	1,3	0,8	0,9
Centre	0,8	0,7	0,8	1,0	1,4	1,7	1,4	1,2	1,6	1,3	1,0	1,2	1,0	1,5	0,7
North-East	0,5	0,8	1,0	1,1	1,4	1,5	1,2	1,5	1,8	1,7	1,1	1,7	1,7	4,2	2,5
South-East	0,7	0,8	1,1	1,4	1,5	1,4	1,0	1,1	1,4	1,6	1,1	1,4	1,2	1,6	1,6
South-Muntenia	0,8	0,7	0,8	0,9	1,2	1,4	1,1	1,1	1,3	1,3	0,9	1,2	1,1	1,9	2,4
Bucharest-Ilfov	1,7	2,0	1,5	1,9	2,4	2,1	2,0	1,7	1,7	1,5	1,8	2,0	1,6	1,9	1,2
South-West Oltenia	0,6	0,8	0,9	0,8	1,2	1,2	1,2	1,1	1,3	1,2	0,6	0,6	1,0	0,9	0,7
West	1,1	1,5	1,1	1,2	1,3	1,6	1,6	1,5	1,4	1,7	1,3	1,2	0,9	0,7	0,8

Rate of unemployment by regions during 2000-2014

GEO/TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Romania	7,1	6,9	8,2	6,8	7,4	7,0	7,0	6,3	5,6	6,7	7,0	7,2	6,7	7,1	6,7
North-West	7,1	7,2	7,6	5,5	5,9	5,6	5,7	4,0	3,6	5,5	6,6	5,0	4,5	4,0	3,8
Centre	7,4	5,9	7,8	6,9	8,0	8,0	8,5	8,1	7,9	10,0	10,0	10,4	9,1	9,1	8,7
North-East	7,4	6,1	7,3	5,8	5,6	5,7	5,9	5,0	4,6	6,1	5,7	4,9	4,3	4,6	4,3
South-East	9,0	9,0	10,2	7,4	8,3	7,6	8,6	8,2	6,9	7,2	8,1	9,6	9,2	9,3	10,0
South-Muntenia	6,7	7,0	10,4	7,6	9,2	9,2	9,1	8,2	6,6	7,9	7,7	10,0	9,5	9,5	8,8
Bucharest-Ilfov	6,5	9,3	8,3	8,9	7,1	6,4	4,5	3,8	3,2	3,6	4,5	5,2	6,4	8,0	6,9
South-West Oltenia	5,3	5,5	6,7	6,2	7,5	7,0	7,5	7,2	6,7	7,1	7,9	7,0	6,3	7,3	6,8
West	7,4	5,0	6,2	6,6	7,8	6,5	6,2	5,2	5,4	5,7	5,9	5,5	4,8	4,9	4,6