The impact of economic and financial crisis on the regional disparities in Romania and European Union

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Abstract

The reduction of economic disparities represents one of the priorities of the European Union. This is the reason why we aim to study the evolution of disparities both at national level among the economic development regions of Romania and at the level of the European Union, by taking into consideration all the member countries. In order to study the disparities among the economic development regions of Romania, we took into account the following variables: the available income of private households, the rate of occupied population, the human resources in sciences and technology (as a percentage of the occupied population), the life expectancy at birth, the gross domestic product and the unemployment rate. For the study we used the method of multivariate data analysis, the analysis of main components by taking into consideration the variables used and recorded at the end of the year 2006, in the moment of Romania’s adherence to the European Union and at the end of the year 2009.

Keywords: Economic disparities, multivariate data analysis;

1. Introduction

The reduction of economic disparities between the regions of European countries represents one of the goals of the Rome Treaty in 1957 and of the Single European Act in 1986.

There are numerous studies on the social and economic development disparities of Romania. Jaba et al. (2009), (2007) uses a range of multivariate methods of data analysis for the counties of Romania and obtains five homogeneous groups. Pintilescu C. (2011) undertakes an analysis of the macroeconomic development regions of Romania and identifies the greatest disparities in Romania, in 2008 between on one hand the North-East, West and Center regions and on the other hand between North-East and South-East.

We aimed to analyse the disparities between the economic development regions of Romania at the end of the year 2006, meaning before Romania’s adherence to the European Union in comparison with the year 2009 (the last year for which we have found most of the available macroeconomic data both at the level of economic development regions and at country level). The macroeconomic development regions of Romania are: Northwest, Center, Northeast, Southeast, South – Muntenia, Bucharest – Ilfov, Southwest and West.
2. The analysis of regional disparities in Romania

For the analysis of disparities we took into consideration the following variables: the available income of private households, the rate of occupied population, human resources in sciences and technology (percentage of the occupied population), life expectancy at birth, the gross domestic product and unemployment rate. The data are taken from the Eurostat database.

We shall use a method of multivariate data analysis, the analysis of main components in order to analyze the differences and resemblances between the economic development regions of Romania from the perspective of the variables under analysis.

Before applying the method we will focus on the analysis of variables taken into consideration to see if we can apply the method of main component analysis (Pintilescu C., 2007). The matrix of correlations between the variables considered shows correlation indicators higher than +0.5 or -0.5, which means that there are significant correlations among variables and suggests that we can apply the main component method both for the variables considered in 2006 and in 2009.

The Kaiser-Mazers-Oklin (KMO) and Barlett tests also help us to see whether between variables there is a statistical correlation or not. The null hypothesis implies the independence hypothesis while the alternative hypothesis implies the dependence hypothesis between variables.

The significance associated to the Barlet test is lower than the risk taken in testing (0.05), therefore we may say that there are significant correlations between the statistical variables. The results of the main component analysis can be accepted since the KMO value is higher than 0.5. We obtain the same results as well for the variables registered in 2009.

The ACP solution is to group the variables by two main components, which have an explanatory power of 86.68% of the total variance.

The figure shows that the greatest disparities in 2006 are indicated by the first factorial axis, which is horizontally represented. This indicates a positive correlation among all the variables analyzed. The exception is represented by the unemployment that is negatively correlated with all the other variables.

The graphical representation of the economic development regions of Romania on the two factorial axes (figure 1b) shows the regional disparities from the point of view of the variables considered. It can be clearly noticed that there is a major difference between the Bucharest region and the other regions. The Bucharest region is characterized by high values of the available income of private households, the occupied population rate, the human resources in science and technology, life expectancy at birth and the gross domestic product and low values for the
unemployment rate. In comparison, the other regions are characterized by high rates of unemployment rate and low values of the other variables under consideration. The highest unemployment rate is registered in the Centre, South-East and South regions while the South-West, North-East, North-West and West regions have lower values of unemployment rate which are still high in comparison with Bucharest.

Figure 2. The representation of macroeconomic variables and of economic development regions in Romania on the first two factorial axes (Year 2009)

Figure 2a shows that the greatest important disparities in 2009 are also indicated by the first factorial axis. This indicates a positive correlation among all the analyzed variables. The exception is made by the unemployment, which is negatively correlated with all the other variables, situation which is identical to the one from the year 2006.

The graphical representation of economic development regions in Romania on the two factorial axes (figure 2b) indicates the regional disparities from the point of view of the variables considered for the year 2009. As for the year 2006, it can be clearly noticed that there is a major difference between the Bucharest region and the other regions. The Bucharest region is characterised by high values of the available income of private households, the rate of occupied population, human resources in science and technology, life expectancy at birth and gross domestic product and low values for unemployment rate.

We can observe on the graphs a movement of the Southeast and South regions in 2009 in comparison with the year 2006. As a consequence, these macroeconomic development regions register a decrease in the unemployment rate, even if during this period the global economic and financial crisis has already been felt. The Centre economic development region maintains in 2009 as well a high unemployment rate.

3. The analysis of disparities among the European Union countries

For the analysis of disparities among the European Union countries we took into consideration the following variables: the rate of occupied population (%), the long-term unemployment rate (% of the active population), life expectancy at birth (years), human resources in science aged between 15 and 74 (thousands of persons), gross domestic product (millions of Euros), number of students at ISCED 3 level (% of the total students) and the domestic demand (millions of Euros).

The variables comprised in the study were analyzed and the results obtained allow us to apply the method of main component analysis.
As the results presented in the figure above also show, in the year 2006 most of the Central and East European countries (Estonia, Bulgaria, Romania, Croatia, Poland, Latvia, Lithuania) make up a group for which the variables considered in the analysis have the lowest values. France, Germany, Spain and Italy for the variables gross domestic product and domestic demand registered the highest values in the year 2006.

In 2009, a great part of the Central and East European countries maintain the same position determined by low values of the registered variables, exception making Bulgaria which, from 2006 until 2009, succeeds, even if to a small extent, to register a decrease in the unemployment rate and increases in all the other variables considered. As for Romania, even if in 2006 it was part of the group of countries with the lowest values for the variables analyzed, in 2009 within the same group of countries it occupied one of the most extreme positions along with Lithuania. We can remark Sweden and Holland, which have the highest values of the variables life expectancy and rate of occupied population.
4. Conclusions

The 2006 analysis shows that there is a major difference between the region of Bucharest and the other regions. Bucharest is characterised by high values of available income of private households, the rate of occupied population, the human resources in science and technology, life expectancy at birth and the gross domestic product and low values for the unemployment rate. Comparatively, the other regions are characterised by high values of the unemployment rate and low values for the other variables under analysis. The highest unemployment rate is recorded in the Center, South-East and South while the South-West, North-East, North-West and West regions have lower values of unemployment rate but higher than those registered in Bucharest.

In 2009, as in 2006, a major difference between the Bucharest region and the other regions can still be noticed. The Southeast and South regions record a drop in unemployment rate in 2009 in comparison with 2006. The Center region maintains in 2009 a very high unemployment rate. The Southeast and South regions record a drop in unemployment rate even if during this period the global economic and financial crisis had already been felt in Romania.

For the analysis of disparities among the European Union countries we took into consideration the following variables: the rate of occupied population (%), the rate of long-term unemployment (% of the active population), life expectancy at birth (years), human resources in sciences aged between 15 and 74 (thousands of persons), the gross domestic product (millions of Euros), the number of students from the ISCED 3 (% of the total students) and the domestic demand (millions of Euros).

The countries from Central and East Europe (Estonia, Bulgaria, Czech Republic, Croatia, Poland, Latvia, and Lithuania) form a group for which the variables considered in the analysis have the lowest values. The highest values for the variables gross domestic product and domestic demand are recorded in 2006 in France, Germany, Italy and Spain.

In 2009, a great part of the Central and Eastern European countries maintain the same position determined by low values of the recorded variables. Even if Romania was part in 2006 of the group of countries with the lowest variables analysed, in 2009 within this group of countries it occupies one of the most extreme positions, along with Lithuania.

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References