Theoretical and Applied Economics
Volume XXII (2015), No. 2(603), pp. Summer, 183-188

Regional convergence. Case of Romania

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Abstract. *Regional convergence represents a major objective of economic development. The regional imbalances lead to failure of this objective. This paper presents a number of methods developed for the analysis of economic inequalities in Romania. The purpose of this study is to show the degree of convergence (or divergence) of the eight development regions of Romania, during 2000-2010. Mainly, sigma-convergence and beta-convergence are used. Considering that convergence is more visible at regions level, it is desired to see if the differences deepened between the regions, in the analyzed period.*

Keywords: economic convergence, regional convergence.

JEL Classification: R11, O47.

1. Introduction

Economic convergence by reducing development disparities, is the purpose of the European model.

The main concern of studies of convergence is to see whether poorer countries catch up with richer ones over a period of time. Various methods are used to measure convergence, given the complexity of regional growth. Beta convergence was introduced by Barro and Sala-i-Martin, along with sigma indicator. The two concepts are closely related, convergence beta is necessary for sigma convergence but not sufficient (Iancu, 2009). In case of sigma convergence distribution of income should be reduced.

Regional convergence process in the European Union has become a quite interesting subject, especially in recent years as one of the basic principles of regional policy. The purpose of regional development is to increase quality of life. The European Union wants to stimulate regions of the Member States through regional development programs and strategies, thus helping to reduce disparities between regions.

Another way to achieve the convergence and reduce regional disparities is the effective use of structural funds.

The causes that may underlie the widening disparities between regions are:
- Economic sectors with low productivity that are part of the economic structure;
- A small part of the population have higher education;
- Research and innovation potential decreased due to insufficient allocation of funds from the state budget, on the one hand and on the other hand, migration of skilled and educated people to more developed regions (Talmaciu and Borza, 2011).

This paper presents some of the tools used to analyze inequalities in Romania, focusing mainly on the beta convergence and sigma between development regions of Romania, in the period 2000-2010.

2. Literature review

Many studies on the subject of convergence or divergence, referring to the neoclassical theory of economic growth. Solow-Swan model is based on the appearance of exogenous growth. Beta convergence is of two types: absolute (occurs when all regions converge to the same steady state) and conditional (on long term, the regions which have the same initial conditions obtained the same level of Gross Domestic Product or GDP per capita). It manifests a process of economic convergence absolute if, as income levels approaching steady state, growth rate is reduced. Also, the assumption of absolute convergence means that between countries, the poorest will grow faster than initially richer by the same long-term equilibrium. If conditional convergence, there must be a negative relationship between economic growth rate and the initial level of income (Marinas, 2007).

The Mankiw-Romer-Weil brought Solow-Swan model improvements by including human capital. The model starts from the assumption that countries are structurally different. The same author states that conditional convergence is met if Member States converge to the equilibrium level, economic and structural characteristics of economies lead to different equilibrium levels. Endogenous economic growth presents models with or without research and development (AK model, designed by Romer in 1986, model of Lucas in 1988).

There are also so-called groups convergence (convergence-clubs). The convergence process is multipolar, not one unit for all countries and regions (Iancu, 2009). Income per capita of the countries that have structural similarities (government policies, technologies, preferences) converge in the long run, if their initial conditions are similar (Galor, 1996). Compared to conditional convergence, where convergence does not depend on the initial conditions, the group's convergence occurs if the initial conditions are similar in terms of preferences, policies etc.

New economy models support the idea geographic economic divergence. Myrdal (1957) argues that overcrowding and lack of complementary factors flows are missing from neoclassical theory. Krugman (1991) explains that the absence of the convergence is either based on constant yields scale hypothesis, or the fact that the neoclassical model does not take into account the externalities between producers and consumers. Specific models of the new economic geography make reference to the fact that the main determinant of long-term regional development are transport costs. Regional concentration of workers and divergence are explained by the low costs of transporting goods.

Sigma convergence can be calculated using several measures such as the coefficient of variation, Lorenz curve, Gini index, Atkinson index, Theil index etc.

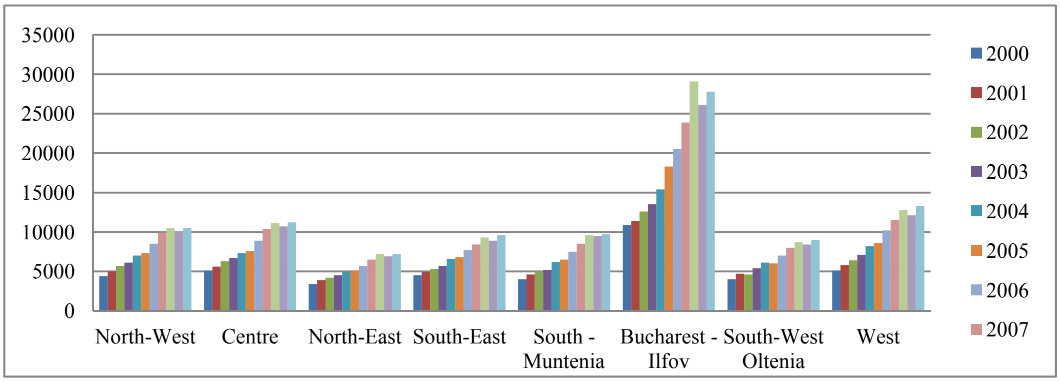
3. Regional disparities in Romania

To determine the degree of disparity is used both territorial dimension and the period considered in the analysis. The role of territorial space is recognized in the literature on regional convergence. Generally understanding, regional convergence studies focus on the catching-up: the less developed regions make great efforts to catch up with the rich ones (Antonescu, 2012).

The eight development regions were created after joining the European Union (2007). The indicator used to determine economic development is GDP / capita. Economic growth has followed a direction from West to East. It is noted that underdeveloped areas focuse in the North-East, on the border with Moldova and on South, along the Danube and have a number of characteristics: inability to attract foreign direct investment, mainly rural activities and unemployment.

Among the more developed regions is Bucharest-Ilfov, West and Central region, occupying the first three places on GDP/capita. These had a positive trend during the period under review.

Figure 1. *Regional GDP/Inhabitant- PPS/Inhabitant*



Source: Eurostat database.

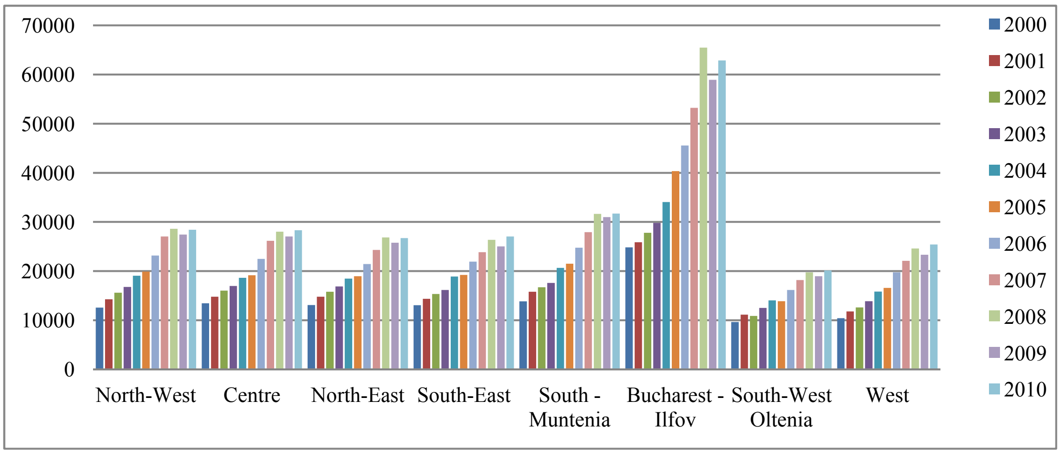
North-East, South-West Oltenia, South East and South-Muntenia are at the opposite side, recording indicator values below the national average.

Of course, the population plays an important role. Romania has a population decreasing in all regions. Regarding population density as inhabitant / km², in the period analyzed, it is observed that the Bucharest-Ilfov has a level of over 1250 inhabitants / km², and the West region at around 60 inhabitants/km².

Regarding the contribution of each region to the GDP, it can be said that the smaller parties are brought by the South-West Oltenia and West. One explanation would be that the West region occupies a smaller area than the other regions.

The Bucharest-Ilfov region is the most developed region. Both in this region and in the South-Muntenia region and the West side of the country, the number of employees in the industrial sector and the services is higher and is characterized by higher labor productivity than in agriculture.

Figure 2. *GDP millions PPS-NUTS 2*



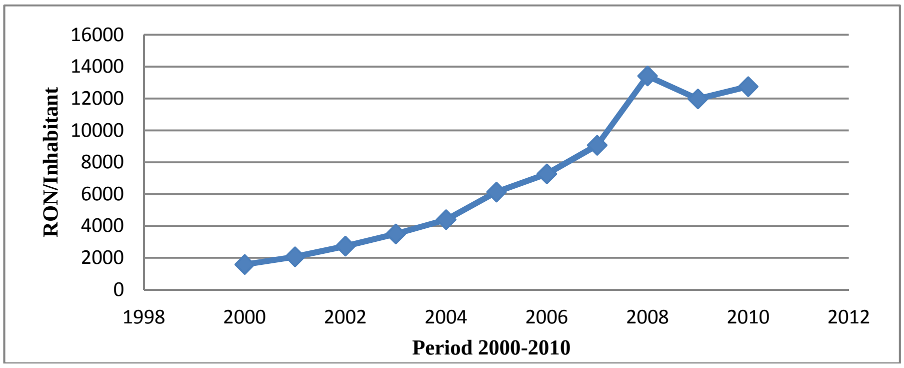
Source: Eurostat database.

The gap between the regions is based on location, size of foreign direct investments in developing regions and lack of competitive ability of enterprises (especially in the east of the country). The faster growth in the regions surrounding municipalities shows a center-periphery structure type. This is based on labor migration, investment and government intervention in the developed regions (Ceauşescu, 2012).

Study reveals lack of convergence between regions, differences between income regions tend to grow, some of which are poles of attraction for labor and capital (Bucharest-Ilfov).

Sigma convergence is an index of divergence. Between 2000 and 2008 convergence decreases between the 8 regions, i.e. regions diverge. Only in 2009 there is convergence between the NUTS 2 regions of Romania.

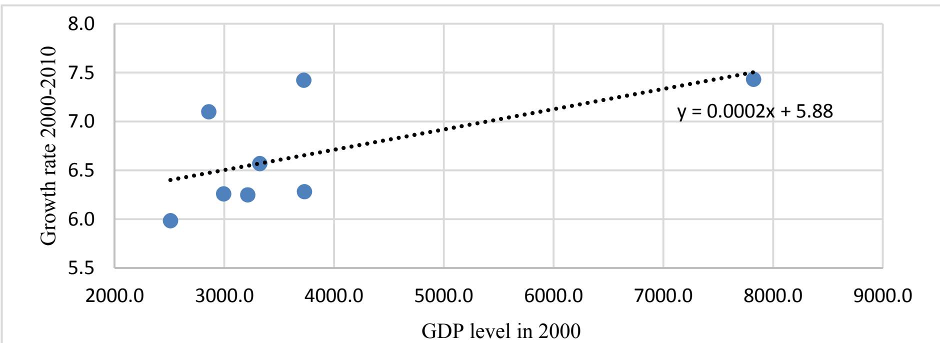
Graph 1. *Convergence index (Standard deviation)*



Source: Own calculations based on National Institute of Statistics.

Beta convergence regression is the growth rate of GDP according to its initial level (2000). Poor regions should have higher growth rates than the rich ones. Thus, the more the level of GDP is lower, the growth rate should be higher. Regression coefficient should be negative. The equation shows a positive relationship between the two variables, indicating that between NUTS 2 regions of Romania there is not a relationship of convergence but of divergence.

Graph 2. *Beta convergence 2000-2010 between NUTS 2*



Source: Own calculations based on National Institute of Statistics.

It is observed a process of increasing inequalities between regions and counties of Romania, during 2000-2010. This process is explained Lorenz curve from 2010 to 2000, the area between the diagonal and the Lorenz curve is wider in 2010. This instrument was used to express the unequal distribution of GDP among the Romanian counties and indicates a tendency for divergence. Also in the period, the Gini coefficient is not high (0.19 to 0.25). Indices for measuring inequality (Theil, Atkinson) explain regional disparities in the proportion of 71.67-82.24% (Neagu, 2013).

4. Conclusions

Reducing regional disparities is intended to be achieved through economic and social cohesion. Using inputs more efficiently, increasing their mobility, income in the region may increase thus serving the purpose of regional integration.

In the period 2000-2010, Romania went through a process of divergence, especially noticeable in the regions. Poor regions should have higher growth rates than rich ones, which never happened.

Development regions of our country are among the most underdeveloped regions in the European Union, being employed in the development environment, the Bucharest-Ilfov region is only at the intermediate level. By far, the North-East is the poorest region, GDP/ capita accounting for 27% of the EU27 average.

Acknowledgements

This work was cofinanced from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/ 159/1.5/S/142115 „Performance and excellence in doctoral and postdoctoral research in Romanian economics science domain”

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*** Eurostat Database.

*** National Institute of Statistics, Romania.