

## **REAL CONVERGENCE IN ROMANIA - A COMPARATIVE APPROACH TO NON-ERM II COUNTRIES FROM CENTRAL AND EASTERN EUROPE**

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**ABSTRACT:** *The purpose of this paper is to survey the issue of real convergence in Central and Eastern Europe, based our approach on the literature review in the field and intended to develop a comparative approach of the main criteria of real convergence. We comparatively study Romania's situation face to European Union Member States that did not adhere until now to ERM Exchange Rate Mechanism II and that do not benefit of special opt-outs stipulations - Czech Republic, Hungary, Poland and Bulgaria. The challenges of the paper consisted in identification and choose of the criteria which properly characterize the real convergence issue of the national economies. This approach is imposed by the widespread concept of real convergence and its different meanings or measurement manners.*

**KEY WORDS:** *Real convergence, Non-ERM II Central and Eastern European countries, Inequalities.*

**JEL CLASSIFICATION:** *F36, F42, F33, E58.*

### **1. AIM AND RESEARCH METHODOLOGY**

The starting point of this research is the provision contained by the 174 article of the Consolidated Version of the Treaty on the Functioning of the European Union, that presents the obligation of the European Union which, in order to promote its overall harmonious development, shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion.

The specialized literature and economic communities did not take over the economic cohesion concept and preferred and assigned like substitute the convergence concept, in order to describe the way whereby the subjects come from different

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directions and meet at the same point to become one thing. If we consider the national economies the subjects of the above definition, we can identify the convergence item in the European significance, according to its Treaty of Functioning. Although the Treaty does not mention the real convergence concept, this last term represents a significant concept of the contemporary economic life. Real convergence issue does not benefit of the same regulatory circumstances like the nominal convergence aspect, detailed in 140 article of the Treaty on the Functioning of the European Union, which require for each Member States the achievement of a high degree of sustainable convergence, equivalent to the fulfilment of the criteria of the nominal convergence on a long term.

According to national Convergence Programme 2011-2014, Romania maintains its commitment of adopting the euro currency in 2015 (Prime Minister's Decision no. 58/2011), even if until middle 2012, Romania did not assume the participation in the Exchange Rate Mechanism II, the Euro zone antechamber. The same situation regarding to not adopting of ERM II appears in the case of another countries from Central and Eastern Europe - Czech Republic, Hungary, Poland and Bulgaria. In this context, we consider this group of countries the subject of our research, in terms of real convergence. The previous research (Socol, 2012) studied the situation of these countries comparatively with Romania, from nominal convergence perspective. The results of the mentioned study suggests that no one of the countries does not fulfil the nominal convergence criteria during 2007-2011, even if there are countries that lonely achieve some criteria in few years, but looking back over the entire period, the analyzed countries do not fulfil the complete series of the nominal convergence criteria.

In the present paper, we analyzed specialized literature in the field and presented the theme from the general approach of the concept of real convergence towards the quantitative and qualitative techniques of interpreting the indicators of real convergence. These techniques belong to interpretive and critical paradigm and also to constructivist approach, based on the interpreting research. We underline the harsh way in selecting the representative studies in the area, considering the impressive number of them. Therefore, a major challenge was to distinguish among the indicators that provide measurement of real convergence. The research continues the similar steps initiated according to Monfort, 2008 and from methodological point of view, we studied some disparate indicators which can suggest the real convergence degree - GDP (Gross Domestic Product) per capita, the Gini coefficient GDP per capita, the unemployment rate and intra and extra-EU trade for the group of mentioned countries, based on the data provided by the European Commission EUROSTAT. Our research is a survey that conducts an update assessment of the real convergence aspects at the non-ERM II countries from Central and Eastern Europe - Czech Republic, Hungary, Poland, Bulgaria and Romania.

## **2. THEORETICAL BACKGROUND**

The modern reference studies in the area are considered to be the '90<sup>th</sup> years papers which promoted the convergence concept in the sense that economies tend to grow faster in per capita terms when they are further below steady-state position (Barro

and Sala-i-Martin, 1992). In the same period were studied two considerable concepts of convergence -  $\beta$  convergence and  $\sigma$  convergence, especially through the empirical approaches.  $\beta$  convergence in its absolute sense is considered to exist if poor economies tend to grow faster than rich ones and  $\sigma$  convergence appears if the dispersion of real per capita levels of the group of economies tends to decrease over time (Sala-i-Martin, 1996).

In the last few years, we identify multiple studies which develop comprehensive literature review and original calculations regarding to European real convergence. In Romania, the Governor of the National Bank of Romania (Isărescu, 2008) underlined the necessity to focus not only on nominal convergence, in order to adopt euro, but also on several issues pertaining to real economic convergence, regarding to put in place the conditions necessary for a rapid, sound and sustainable economic growth.

Studied issued at the level of public institutions of European Union approached the convergence theme through the large size and very elaborated studies. Examination of the nominal convergence that implies studying of the provisions contained by the Treaty on the Functioning of the European Union, are periodically presented in the European Central Bank Report of Convergence (ECB, Convergence Reports, 2010). On the other hand, the real convergence European process is not official one and does not benefit by an official report. Nevertheless, we identify studies which present the measures and evolutions of the different criteria of real convergence. One of these types of studies presents both beta and sigma convergence EU-15 versus EU-27 and an analysis of disparities among European Union regions (Monfort, 2008).

Some authors studied the real convergence face to monetary convergence at the level of Central and Eastern European member states, in the EMU context, used the Balassa-Samuelson theory (De Grauwe & Schnabl, 2004). The authors underlined and explored the convergence dilemma, regarding to the developing countries in the economic catch-up process, which have higher productivity gains in the tradable sector than industrial countries and higher consumer price inflation which contributes to a secular catch-up of prices.

Real convergence concept benefits by many various definitions, which grasp affiliation to the growth theory, related to neoclassical growth model. These studies also present the Romania's situation comparative with the European Union's, referring to empirical analyses of  $\beta$  and  $\sigma$  convergence (Putinelu, 2010), (Begu, et al., 2010). Some authors (Drăgan & Pascariu, 2008) studied Romania's real convergence between 1999-2008 and the regional disparities in the context of European convergence, inclusively between Beta and Sigma. Also, Romania was the subject of the analysis from nominal and real convergence point of view in the EU context (Triandafil, 2011), (Ungureanu, et. al, 2009).

Regional imbalances and convergence were studied based on dispersion method in order to identify the dynamics and amplitude differences in the level of regional development in European Union and Romania (Antonescu, 2012). The author describes the convergence tendency for the European regions in the last 10 years.

The econometric testing of the two types of real convergence - beta and sigma - was realized at the level of the development regions of Romania and showed the

inexistence of regional convergence process, which means that certain regions represent strong attraction poles that absorb larger amounts of capital and high-quality workforce to the detriment of less development regions (Sîrghi, 2009).

Also, the real convergence was a subject to others authors (Stoica, 2008) (Drigă & Niță, 2009), that underline that Romania should think at real convergence, not at the nominal one, to conscience the dangers of entering the euro area without the real convergence.

Iancu (Iancu, 2008) described three categories of convergence approaches, according to the existing studied and models: *the first* - real convergence as a natural process, based exclusively on the market forces, *the second* - actual real convergence between the poor and the rich countries, and *the third* - necessary and possible real convergence in a competitive market. The author analyzed GDP per capita and the variation coefficient of GDP per capita or the  $\sigma$ -convergence, for the EU Member States, between 1995 and 2006 and concluded about the necessity of EU sectoral policies, with favourable effects on the economic convergence of the less developed countries with the developed ones.

We are interested in the real convergence indicators which can contribute to convergence measurement and identified many landings, below synthesized:

- $\beta$  convergence and  $\sigma$  convergence (Iancu, 2008);
- Income convergence, productivity convergence, relative prices convergence, employment structure convergence, educational convergence (Angelescu et. al, 2009);
- GDP per inhabitant, the structure of the national economy branches (% of GDP), the openness of the economy, foreign trade and its degree of integration into EU and the costs of labor (Ciobanu (Sireteanu), 2010);
- Synthetic indicators such as the dispersion ( $\sigma^2$ ), the square average diversion ( $\sigma$ ), the variation coefficient ( $CV$ ) or the linear average deviation ( $d$ ) (Tănasie, 2010), (Pecican, 2010).

### 3. ANALYSIS

The purpose of this section is to examine the state of real convergence between Romania and the others European Union Member States that did not adhere until now to ERM Exchange Rate Mechanism II and that do not benefit of special opt-outs stipulations - Czech Republic CZ, Hungary HU, Poland PL and Bulgaria BG. According to information published by the European Commission, Czech Republic, Hungary, Poland and Bulgaria do not currently have a target date for adoption of the euro and for Romania, national target date for adoption of the euro is established for 01.01.2015 (European Commission, 2012). Communication on the euro adoption is an important task of the national banking authorities - central banks, which have to inform the citizens on your plans to adopt the euro, the technical ways of changes of the national currency, the benefits and challenges of the euro adoption.

In order to establish the Romania's real convergence situation comparative with the others non-ERM II countries from Central and Eastern Europe, we selected and analyzed some criteria from the literature, mentioned in the table below. Initial, the

proposed analysis horizon was 2002-2011, but unfortunately, the analysis horizon is not the same for all the studied criteria, in accordance with the data founded in the public reports of EUROSTAT Database.

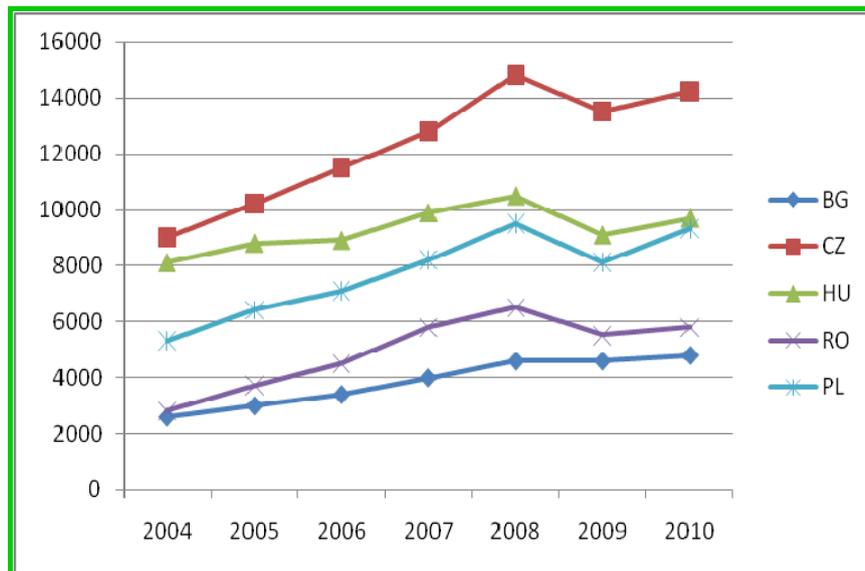
**Table 1. The analyzed real convergence criteria**

Reference	Criterion of Measurement	Explanations	Analysis horizon
Nation's economic situation	GDP per capita - at market prices	It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size.	2004-2010 (EUROSTAT publish GDP per capita - at market prices, only since 2003)
Inequality of distribution of personal income	The Gini coefficient GDP per capita	The Gini coefficient is defined as the relationship of cumulative shares of the population arranged according to the level of equalised disposable income, to the cumulative share of the equalised total disposable income received by them.	2005-2009 (The Gini coefficient GDP per capita is not reported by the different countries - for example, in the Czech Republic case lacks data for 2000, 2002, 2003, 2004; in the Poland case lacks data for 2002, 2003, 2004)
Labor market	Unemployment rate, annual average	The unemployment rate represents unemployed persons as a percentage of the labour force based on International Labour Office (ILO) definition. The labour force is the total number of people employed and unemployed. Unemployed persons comprise persons aged 15 to 74 who: - Are without work during the reference week; - Are available to start work within the next two weeks; - And have been actively seeking work in the past four weeks or had already found a job to start within the next three months.	2002-2011
International trade	Share of exports by member state	Intra and Extra-EU trade by Member State and by product group.	2002-2011

Source: EUROSTAT Database - definitions of indicators

The evolution of GDP was presented for the period 2004-2010, based on the data provided by the European Commission EUROSTAT and emphasized the differences between the analyzed countries.

GDP per capita records the highest level in the case of Czech Republic, during the entire analyzed period. Hungary and Poland, the others two countries that adhered to European Union in 2004, registers also the superior values of GDP per capita, comparatively with the two countries that adhered in 2007 - Bulgaria and Romania. Romania get ahead only of Bulgaria, as opposite of the three leaders, our country is at significant distance. The significant differences of GDP per capita values between the studied countries indicate the inexistence of a real convergence process, owing to the inhomogeneous indicators for each country.



**Figure 1. Evolution of GDP per capita of non-EMU Countries from Central and Eastern Europe, 2004-2010**

We based our approach on Monfort (2008) that described the Gini coefficient which can be used in order to compare income distributions among countries. Monfort explained that the Gini coefficient varies between 0 and 1 and measures the inequality in the distribution of personal income or wealth. A low value indicates more equal distribution - 0 corresponding to perfect equality, while a high Gini coefficient indicates more unequal distribution - 1 corresponding to perfect inequality where income is concentrated in the hands of one individual.

From the Gini coefficient GDP per capita perspective, Romania presents the values which are not much over that the coefficient afferent of the EU-27, around 30. If we compare the distribution of personal income item, this situation shows a high level of convergence of our country with the EU-27. The analysis of Gini coefficient at the level of the other countries denotes the same supremacy of the countries that adhered to European Union in 2004 - Czech Republic, Hungary and Poland. These countries registered lower values of the Gini coefficient, associated with a great higher of equality in the distribution of personal income.

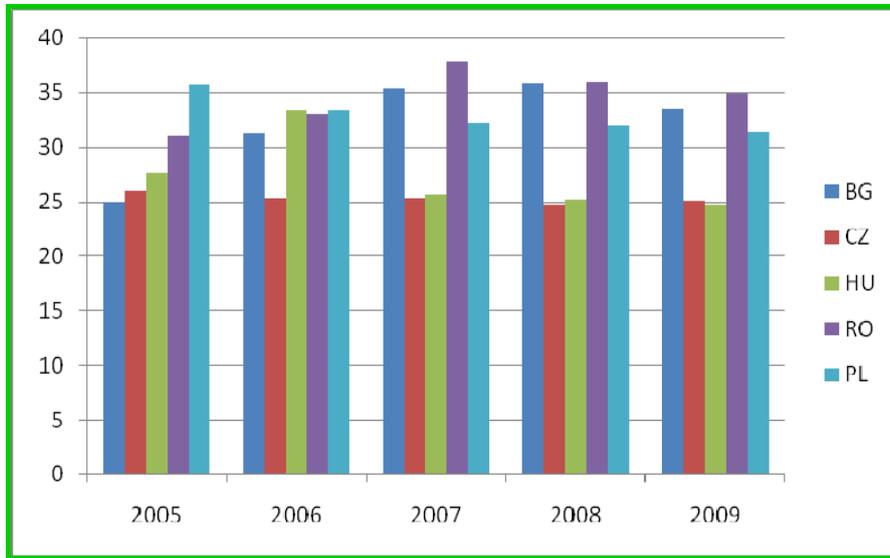


Figure 2. Evolution of Gini coefficient GDP per capita of non-EMU Countries from Central and Eastern Europe, 2005-2009

Taken into consideration the unemployment rate during 2002-2011, we observe that since 2008, the indicator records closed values in the studied countries, comparatively with the period 2002-2008, when the indicator varies in larger interval.

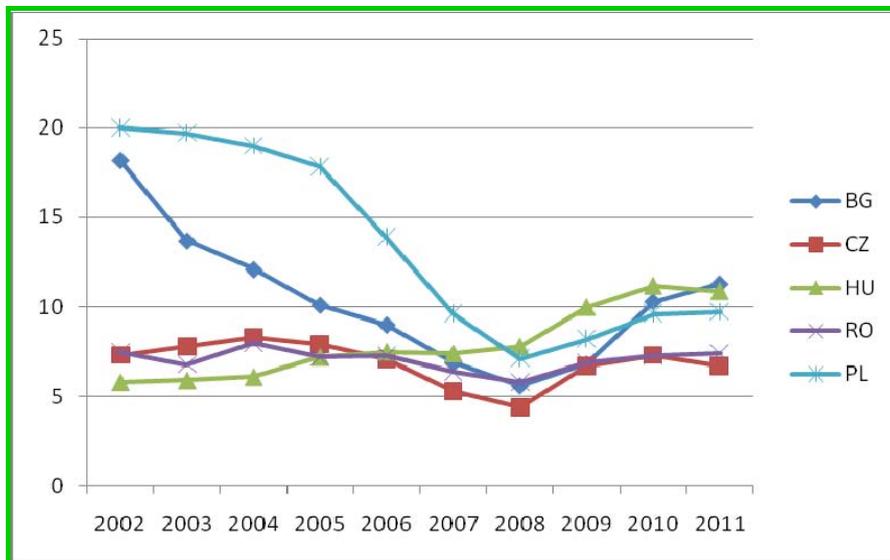
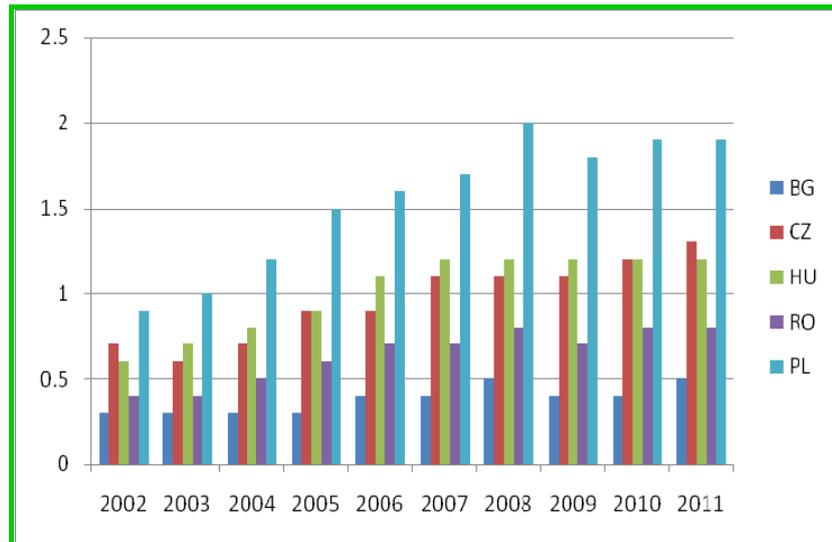


Figure 3. The unemployment rate of non-EMU Countries from Central and Eastern Europe, 2002-2011

Figure 3 shows that the unemployment rate registered dissimilar evolution in the analyzed countries. None of the countries present the linear evolutions and the group of the countries that adhered in 2004 is not the leaders of the sample. Without the establishment of a clear limit that characterizes the convergence, we consider that the evolution of the unemployment rate suggests rather the disparities during the period of observation.



**Figure 4. The share of exports by member state of non-EMU Countries from Central and Eastern Europe, 2002-2011**

We consider that another sign of real convergence have to be the similar behaviour of the state in the international trade domain. We studied only one indicator of this area - the share of exports of the states and we observed that all the countries present the scanty percents, fewer than 2%. This suggests the similar behaviour between the analyzed countries, even Poland, Czech Republic and Hungary detach through higher values than Romania and Bulgaria.

#### 4. CONCLUSIONS

The paper mentions some specialized studies regarding to real convergence European process and analyses some real convergence criteria, without comprehensive pretensions, based on the lack of the official European real convergence criteria. We recognize that a complex analysis of real convergence cannot be based on only few disparate criteria, considering that the numerous and complex potential indicators can characterize the real convergence process. Our analyses join to simple measures to comment upon the convergence real process. GDP (Gross Domestic Product) per capita, the Gini coefficient GDP per capita, the unemployment rate and intra and extra-EU trade for the group of mentioned countries were used for examining disparities

among non-ERM II countries from Central and Eastern Europe - Czech Republic, Hungary, Poland, Bulgaria and Romania. The results suggest the regional disparities between the analyzed countries and the gaps of the two countries that adhered to European Union in 2007 - Bulgaria and Romania, especially in terms of GDP per capita.

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Annexes

**Table 2. GDP per capita of non-EMU Countries from Central and Eastern Europe, 2004-2010**

GDP per capita (Euro per inhabitant)					
Year	Romania	Czech Republic	Hungary	Poland	Bulgaria
2004	2800	9000	8100	5300	2600
2005	3700	10200	8800	6400	3000
2006	4500	11500	8900	7100	3400
2007	5800	12800	9900	8200	4000
2008	6500	14800	10500	9500	4600
2009	5500	13500	9100	8100	4600
2010	5800	14200	9700	9300	4800

Source: European Commission EUROSTAT 2004-2010

**Table 3. The Gini coefficient GDP per capita of non-EMU Countries from Central and Eastern Europe, 2005-2009**

The Gini coefficient GDP per capita (%)					
Year	Romania	Czech Republic	Hungary	Poland	Bulgaria
2005	31	26 <sup>b</sup>	27.6 <sup>b</sup>	35.6 <sup>b</sup>	25
2006	33	25.3	33.3	33.3	31.2
2007	37.8 <sup>b</sup>	25.3	25.6	32.2	35.3
2008	36	24.7	25.2	32	35.9
2009	34.9	25.1	24.7	31.4	33.4

Source: European Commission EUROSTAT 2005-2009 (b- break in series)

**Table 4. The unemployment rate of non-EMU Countries from Central and Eastern Europe, 2002-2011**

Unemployment rate, annual average (%)					
Year	Romania	Czech Republic	Hungary	Poland	Bulgaria
2002	7.5	7.3	5.8	20	18.2
2003	6.8	7.8	5.9	19.7	13.7
2004	8	8.3	6.1	19	12.1
2005	7.2	7.9	7.2	17.8	10.1
2006	7.3	7.1	7.5	13.9	9
2007	6.4	5.3	7.4	9.6	6.9
2008	5.8	4.4	7.8	7.1	5.6
2009	6.9	6.7	10	8.2	6.8
2010	7.3	7.3	11.2	9.6	10.3
2011	7.4	6.7	10.9	9.7	11.3

Source: European Commission EUROSTAT 2002-2011

**Table 5. The share of exports by member state of non-EMU Countries from Central and Eastern Europe, 2002-2011**

Share of exports by member state (%)					
Year	Romania	Czech Republic	Hungary	Poland	Bulgaria
2002	0.4	0.7	0.6	0.9	0.3
2003	0.4	0.6	0.7	1	0.3
2004	0.5	0.7	0.8	1.2	0.3
2005	0.6	0.9	0.9	1.5	0.3
2006	0.7	0.9	1.1	1.6	0.4
2007	0.7	1.1	1.2	1.7	0.4
2008	0.8	1.1	1.2	2	0.5
2009	0.7	1.1	1.2	1.8	0.4
2010	0.8	1.2	1.2	1.9	0.4
2011	0.8	1.3	1.2	1.9	0.5

Source: European Commission EUROSTAT 2002-2011