INTEGRATION THROUGH CONVERGENCE

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Abstract. This paper aims and objectives emphasise the relation between technological intra-EU trade exchange and the regional development, the interaction between regions through foreign direct investment, the competitive advantages obtained under these circumstances, the elaboration of analytical framework for sustaining the empirical research at regional and national level, that would support economic development on the basis of comparative advantage. The author will use a theoretical approach. The reason author considers the methods appropriate and reliable consists is the fact that disparities inside union can compromise Economic and Monetary Union success being necessary to measure the convergence degree inside EU. The reason consists in the importance to recover the disparities between regions inside EU, before the present crises and especially after it. The realization of a strong convergence of macroeconomic policies and the limitation of the area national policies are applied, acquired by achieving EMU, supposes special efforts. The study limitations are linked by the lack and difficulty of interpretation the recover process.

Keywords: convergence, EMU, FDI, competitive advantage

1. What, why and how

The main objectives of the paper are:
- to study regional convergence inside EU;
- to notice the influence of regional convergence on foreign direct investment (henceforth FDI);
- to emphasize the role of FDI in technological transfer and catching-up process.
- to reflect catching-up process using empirical and stochastic tools;
- to study convergence and cohesion degree in the frame of EU, and Central and Eastern Europe (henceforth CEE) including Romania;
- to simulate nominal and real convergence for CEE (included Romania);
- to search examples and solution in convergence process.

The paper's structure intends to give a study and analysis in order to respond following *challenges*:
-is it correct to approach European integration as a "widen globalization approximation"?
-how can be explained the convergence / divergence process?
- which are the disparities between regions in the frame of EU?
-how quick and sustainable is convergence process?
-which is the perspective of Romania in convergence path, especially EMU perspective for Romania?
- which is the cost of technological transfers?
- can technological changes lead to competitive advantage in the regions?

The author will use empirical (the average growth rate - GDP - and dispersion rate) and stochastic approach (using time series tests) in order to capture the research evidence and to achieve the paper's objectives. The reason author considers the methods appropriate and reliable consists is the fact that disparities inside union can compromise EMU success being necessary to measure the convergence degree inside EU.

2. What about convergence in integration

The convergence problem is very current and fashioned one and it is related to the homogeneity of the structure. This problem very complex one: European integration achievement through convergence (real, nominal, and structural convergence).

In mathematics, convergence notion supposes an initiation through terms like "space", an "appli-cation" defined on this space, "sets" included in this space, "functions" (correspondences) defined on those sets, "series" with *k* rank, "vicinities" and "limits". Even if we can consider analogically EU is a "space" (topological or metric one) with certain "sets" of states, with certain "functions" (correspondences) defined on these sets that can be considered "series" (such as GDP, inflation rate, public debt, unemployment rate etc), and they want to converge towards certain "limits" (forecast or not, imposed or not) with their "vicinities" (neighbourhoods), economical speaking the study of convergence, as an integration principle, is based on classical and

neoclassical theories regarding free trading, also on new theories on growth and also custom union theories elaborated by Viner in 1950 [1].

European Union is the result of a cooperation and integration process, has started in 1951, in order to eliminate the economic barriers between the member states and to stimulate the competition with major consequences over standard level.

An essential issue is the interpretation of the integration process either as an economic phenomenon or a politic phenomenon [2, 3]. If it starts from the idea that the integration process is an economic phenomenon, than it will appear interdependence level between groups of national economies (free trade areas, custom unions, common market, economic and monetary union also) that leads implicitly to political integration. On the other hand, if it starts from the idea that the integration process is politic phenomenon, that will lead to the dissolution of the national authorities. Anyway, the dilemma of integration phenomenon interpretation and perception persists as a process or result. In this way, the contribution of Donald Puchala in 1974 is very suggestive, which has compared the science man endeavour to define the integration with the situation of the difficulties of a blind man to define an elephant [1].

The major problem for Central and Eastern European (CEE) countries is to surpass the great gap existing between the newer and the older European Union (EU) countries (i.e. Gross Domestic Product (GDP)/capita, income/capita, average wage, etc.), in order to obtain real economic growth, that will favour Balassa-Samuelson effect to appear and will attempt to inflation and exchange rate criteria (as solution we can mention restraining fiscal policies, nominal exchange rate appreciation in Exchange Rate Mechanism II) [2, 4, 5].

European integration can be realized, *par-excellence,* somehow homogenizing its compounds, if we admit European integration as a necessary process for world and regional nowadays context, not just being and extra-used fashioned term. Furthermore, it is necessary "to play" the convergence on EU stage by reason of European integration process achievement – reason of stability, civilisation and development on Europe. Term like growth and convergence became key words for extended EU, by reason of integration process achievement [1].

Table 1. Balassa economic integration process steps

Step	Features	Debates
Free Trade Area (FTA)	• No taxes inside • Own tariff for outsiders	• The essence of GATT definition • No positive integration
Custom Union	• No discrimination on markets for insiders • The same tariff for outsiders	• The essence of GATT definition • No positive integration
Common Market	• A custom union plus four liberties (free movement of people, capitals, goods and services)	• No positive integration
Economic Union	• A common market plus the policies harmonization	• Fuzzy positive integration
Total economic integration	• Unification of monetary, fiscal and social policies • Settlement of supranational authority and the decisions are made by member states	• The vision of an unitary state • Supranational settlement

Integration process is a *process in steps*, gradually and progressive process, passing from preferential agreement to Free Trade Area, Custom Union, Common Market, Economic Union, Monetary Union, etc. (table 1) This process of *integration in steps* are related to variable geometry formula, that can be either like concentric circles or inter-blocks agreements.

3. How convergence can be measured

The heterogeneity of European regions from NUTS 1 (Nomenclature of Units for Territorial Statistics) – more than a half of the 89 regions reflect important disparities – can be measured using GDP/capita, at PPP.

The convergence hypothesis is based on neoclassic growth model of Solow and Swan and it supposes the trend to equalize the growth rates of different regions on long run (expressed in income or productivity per capita) [3, 5]. With other word, it say there is convergence when an less developed economy tent to increase quickly than a developed economy, such as the poorer countries to catch-up, on long run the income or production of the rich countries. In literature regarding economic growth Barro and Sala-i-Martin developed in 1995 some

convergence tests starting with growth model of Solow, in order to verify the catching-up process [2]. Thus, they have proposed two kinds of tests: β-convergence (it studies the behaviour to return to average value of a set of variables) and σ-convergence (it studies the evolution of dispersion).

3.1. β-convergence

Nevertheless, an upper growth rate can be obtained by using the expression 'the poorer countries will catch the richer countries'. The testing procedure consists in reducing the countries series growth rate. According to integration structural variables, it is presented conditioned convergence and absolute (unconditioned) convergence.

The first is tested using equation 1:

$$\frac{\ln(Y_{i,T}) - \ln(Y_{i,0})}{T} = \alpha - \beta \cdot \ln(Y_{i,0}) + \varepsilon_{i,T}, \qquad (1)$$

where

- $(Y_{i,t})$ - GDP per capita for region i (i = 1, …, n) in moment t, T represents the total period of time;
- α, β - unknown estimated parameters;
- $\varepsilon_{i,T}$ - a set of free variables reflecting the error of convergence level, $\varepsilon_{i,t} i.i.d(0, \sigma_\varepsilon^2)$.

There exists β -convergence if β is negative (between 0 and T the average growth rate is negatively correlated with the initial GDP/capita). Estimating β -coefficient allow to compute the speed of convergence, θ, and the time necessary for the economies to catch the steady level, τ (equations 2 and 3):

$$\theta = -\frac{\ln(1+T\beta)}{T}, \qquad (2)$$

$$\tau = -\frac{\ln(2)}{\ln(1+\beta)}. \qquad (3)$$

For β-conditioned convergence, the model estimations are isolated by some variables that make difference between regions (equation 4):

$$\frac{\ln(Y_{i,T}) - \ln(Y_{i,0})}{T} = \alpha - \beta \cdot \ln(Y_{i,0}) + \gamma X_i + \varepsilon_{i,T} \qquad (4)$$

where X_i – is vector of variables for maintaining steady state constant of economy i (where can be find state variables as technologies stock or human stock) and control variables (i.e. ratio between public consumption and GDP, ration between domestic investments and GDP, etc.)

The criticism is related to the lack of clarity regarding results interpretation of catching-up process.

3.2. α-convergence

The α-convergence analysis consists in studying the dispersion evolution and its reduction, measured using standard deviation of income or production per capita [2]. It is based on computing and comparing standard deviation of GDP per capita at steady moment with the final one (the considered moment). The most used indicator is variation coefficient (equation 5):

$$C_T = \frac{\sigma_T}{\Pi_T}, \qquad (5)$$

where

- σ_T – represents the squared average deviation of regional development in moment t;
- Π_T – represents the average level of European welfare in moment t. It supplies a vision about the evolution of some inter-regions.

If $C_{Tt} > C_0$ than there is *σ-divergence*, if not it is *σ-convergence*.

3.3. Stochastic convergence

The third concept of convergence is defined by Bernard and Durlauf [2], with the property of stationary for time series. It is stochastic convergence if long term forecasting regarding GDP per capita between two or more regions tents to zero.

The empirical results obtained in σ-convergence, β-convergence and stochastic convergence are contradictory. Firsts of them emphasize the existence of convergence and the final don't reject the non-convergence hypothesis.

4. Why can competitive advantage be a convergence problem?

The convergence concept is referring to the decreasing of the gaps in the performance frame as a condition for economic-social homogeneity assurance. In European context, the *convergence* concept is approached in real terms or in nominal terms.

The real convergence pointedly refers to the long run process to reduce the disparities regarding the living standard in member states – the main objective of the European Union.

The main problems is not only to fulfil the EU accession conditions, but to realize the economic convergence by GDP/capita, for not overtax the cohesion funds and create durable lacks of balance.

The nominal convergence pointedly refers to the domestic stability and extern stability, but to the performance in price and cost terms, budgetary situations and current operations balance, the

exchange rate, etc. Such approach, in fact an extremely restrictive one, supposes a progressive decreasing of inflation rate until the lowest level and, in the same time, to maintain the favourable conditions for exchange courses stability. The conditions of Maastricht Treaty don't explicitly take into account the real variables convergence, very important for standard living enhancement and unemployment reduction, but encourages the cohesion policy.

The base of the decisions and actions is the economic interest, the advantage resulted from an activity (action) reported with another alternative. So, any decision is intuitive or consciously based on the competitive advantage theory, suggested by Adam Smith and grounded by D. Ricardo. The comparative costs theory had become the base of the decision in more opportunities (alternatives) situation. It is saying about disposing comparative (relative) advantage reporting to other countries if the desired target is achieved with a lower opportunity cost.

An economic entity (either a person or a country) have an absolute advantage when it produce goods with less resources or, reciprocally when from same resources it obtain more goods than others. Regarding the relative (comparative) advantage, the issue is more complex. For its determination it is necessary to determine the opportunity cost (C_o), it means the appreciation a country give to the relinquished alternative when it makes a choice.

Moreover, competitive advantages can result from capital (especially technological) changes but also from FDI infusion or knowledge transfers.

5. Conclusions

The realization of a strong convergence of macroeconomic policies and the limitation of the area national policies are applied, acquired by achieving European Monetary Union, supposes special efforts, such as: radically changes in economic policies framework, because European Union is characterized by a strong heterogeneity both of economies and macroeconomics performance registered by any country.

The conclusion emerged from the present studies emphasises that EU-27 benefits will surpass the today difficulties especially on long run, and problems like trade liberalization, foreign direct investment increase, technological transfers, capital migration, labour migration will be taken into consideration.

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