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## **ECONOMIC INTEGRATION AND CONVERGENCE OF EU MEMBER STATES**

The EU enlargement and the new challenges related with the integration processes raise the necessity of EU regional policy reconsidering. The paper supports the understanding that accepting one or another theoretical formulation about the convergence processes feel deeply about the formation of the EU regional policy, respectively for its effectiveness. The relation between the economic development and the convergence within the EU were analysed in the light of the two main theoretical directions (the neoclassical one and the new economic theories). Their correspondence to the empirical results is critically evaluated. The positive and the negative consequences related with the development of the integration processes have been investigated. Finally some conclusions are drawn as regards the applicability of the convergence hypothesis and the formation of the EU regional policy

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### **Regional convergence and EU regional policy**

The EU enlargement and the new challenges related to the integration processes raise the necessity of EU regional policy reconsidering.<sup>1</sup> This necessity also suggests the obvious lack of commonly accepted theoretical vision supported by empirical investigations for the regional development in the EU framework; hence the choice of one or another policy. The countries from Central and Eastern Europe in their development are giving quite different economic picture and problems from those of the EU-15. This imposes the searching of new proofs and empirical evidence supporting the applying of specific cohesion policy (policy for regional convergence). This is why the accepting of well-grounded ("valid") one or another theoretical framework concerning the convergence processes has important meaning for the EU regional policy formation.

The possibilities for economic convergence are a subject of a different interpretation depending on the specific economic theory. The main question related to the development (in theoretical as well as in practical aspect) is, whether the basic (initial) economic conditions are decisive for the observed economic difference between countries and regions. In case they are not, according to the neoclassical postulate that will mean to observe convergence between different countries if the structural economic indicators are controlled in a same way; in

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<sup>1</sup> The EU regional policy is related with a lot of different spheres of the socio-economic development but before all it is pointed for achieving of regional convergence. In the paper when the word comes to the EU regional policy it is having in mind the one pointed for achieving regional economic convergence. In the Barca Report: Commissioner Danuta Hübner (responsible for the regional policy) and Minister Fabrizio Barca underlined the necessity of "serious reconsidering of the future policy after 2013", for the economic and social cohesion (European Commission, 2009).

other words, in its economic development the countries and the regions to incline to one general economic model of development (the general dynamic equilibrium regime of development), (Solow, 1956).

In case that the initial conditions are decisive for the development, according to the new economic theories formulations, the countries and the regions will have different economic models of development (regimes of development) corresponding to the specific initial conditions. Even if the structural economic indicators are controlled in a same way it cannot be expected the economic development to lead always to convergence.

The debate about the process of economic convergence of the EU countries is becoming one of the leading science areas in the light of these two formulations (Armstrong, 1995; Crafts, 1996; Puga, 2001; Petrakos et al., 2005; Fischer, Stirböck, 2006). It is provoked from the necessity of accepting of well grounded and workable regional policy of the European Commission.

*Why is it so important to have a clearness about the process of convergence for the EU regional policy*

From the regional policy point of view and particularly for the cohesion policy the main EU goal is to support the economic development of the lagging countries and regions. In this way the differences can be decreased and all the adverse socio-economic effects thereof. The achieving of economic convergence is also a kind of evaluation of the possibilities and the effectiveness of the EU regional policy. It should not be forgotten that one third of the EU budget is spent for carrying out the cohesion policy (Bradley, 2008). The importance of the regional policy for the Union can be estimated also from the fact that the question on the regional cohesion is foreseen to "... become the goal of all EU policies" (Panorama Inforegio, 2009, p. 30). The convergence processes are of special interest for the new member states like Bulgaria and the other Central and East European countries, since they can shed light on the place these countries are expected to have in the European economic space.

The mainstream comprehension of the economists associated with the implanted EU cohesion policy is linked with the paradigm incorporated in the neoclassical development theory; the economic growth is leading to diminishing regional differences and carrying out the effect of convergence (European Commission, 1999). In other words the maintaining of as high as possible economic growth within the EU countries will lead to the desirable convergence. However the available new serious theoretical and empirical researches support the understanding that the development cannot be always related to achieving of convergence, moreover, sometimes it can be the main reason for increasing the divergences (Solow, 1999; Puga, 2001; Petrakos et al., 2005).

The two main economic schools related to the convergence (the neoclassical model and the new endogenous economic theories) defined quite a different regional (cohesion) policy – both for the EU countries and for the regional

policy provided on national level. If the neoclassical formulation is accepted as valid for the ongoing processes in the EU framework (as well as for the regions for a given country), the regional policy will be supposed to be provided in accordance with it. This will mean to expect the effect of the regional policy to take place in the long run from one hand and from the other this policy is not expected to guarantee by all means the achievement of obvious positive convergence results. In this case, the effect of the EU cohesion policy can be improvident also because of the circumstance that this policy is applicable for a specific period; meaning that the regional policy formulation is not presupposing its obligatory following as a long run policy,<sup>2</sup> according the neoclassical paradigm the processes of convergence will be fulfilled in the long run in case of maintaining of certain constant conditions.

On the contrary, in case of accepting the new economic theories (the new trade theory, the new economic geography theory and the new location theory) as adequate for the ongoing economic development and they are really valid, the EU regional policy can have a significant effect for realizing the process of convergence among the countries, resp. regions. According to the new economic theories the regional policy can be effective tool in short and midterm period for obtaining economic growth and realising regional convergence.

### **Economic development and convergence**

There are different theories related with the economic development (Рангелова, 2008). Each one revealed different indicators as such that determine the structure of the economic development. It is not possible the theories to be presented completely in the paper, the ambition of the research is to analyse the relations between the economic development and convergence processes in the framework of the EU in the light of the two main theoretical formulations (the neoclassical and the new economic theories) as well as critically to appraise their conformity to the empirical results.

#### *Neoclassical theories*

##### ● *Neoclassical model of growth*

The achievement of convergence under given conditions is a cardinal rule for the neoclassical model of development,<sup>3</sup> a model supplemented and adopted by a lot of authors as a basic theory for the long run economic growth. The main admissions of this model are based on the neoclassical production function – constant return of scale of the production, diminishing marginal productivity of the capital, exogenous determined technical progress and existing of mutual

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<sup>2</sup> EU regional policy has long run aims, however their reaching is foreseeing by carrying out of specific policy in the framework of exactly determine time period; the regional policy can be different in these periods.

<sup>3</sup> Known also as the exogenous model of growth; the Solow model of growth; or the Solow–Swan model of growth, (Solow, 1956; Swan, 1956).

substitutions of production factors (Тотев, 1985).<sup>4</sup> The technical progress is accepted as exogenous factor and as such it cannot interfere the process of convergence no matter that it influences the development.

The followers of Solow (1956) reduce the neoclassical theory to the simple statement – the economies incline to a steady state development with diminishing rates (Barro, Sala-i-Martin, 2003). The decisive conditions for achieving convergence for the different economies is to be homogenous concerning some main indicators like: rate of saving, increase in the population, to have approximately same inflation, the development to be carried out in the framework of unlimited (full) competition, etc. In this case according to the neoclassical theory, the initial conditions are not decisive for the economic development in the long run and in the presence of the above mentioned homogeneous conditions the convergence will be realized in long run period. Vice versa, if the economics are heterogeneous - they differ concerning the rate of saving, increase in the population or have not similar rate of inflation - they will incline to different steady state of development. The followers of the neoclassical theory are explaining the fact of existing of divergence of the incomes and labour productivity due to the different forms of state interference that disturb the effect of the factors that should lead to their equalizing.<sup>5</sup>

● *Neoclassical trade theory*

In general the trade theories foresee that the decline of the trade expenses within the trade partners results in increase in the specialisation. The traditional neoclassical trade theory focuses on the existing of ex ante known advantages of the regions and the countries. Thus, the production factors, determined by the comparative advantages determine also the differences in the relative cost price of the production. As a result one comes to specialisation and establishing of trade relations. Under these circumstances the spatial distribution (location) of the economic activity (distribution of resources, technologies and production factors) is determined exogenously. They are described by Krugman (1993) as 'first nature' factors determining the trade relations.

The neoclassical trade theory presupposes the circumstances related with the comparative advantages to lead to specialisation of the countries and regions and to observe the so called inter-industry trade (higher share of the inter-industry trade compare with those of the intra-industry trade).<sup>6</sup> According the neoclassical

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<sup>4</sup> Increasing return of scale is typical for activities (industries), where with the expanding of the production the average spending for one unit production are decreasing, respectfully under the constant return of scale these spending are not changing with the production expanding.

<sup>5</sup> In the paper the theoretical discussion and the presented empirical results are related with the EU. Main reason for that is the admission that the form of the above mentioned „state interference” in the EU framework is from one hand quite reduced and from the other unified.

<sup>6</sup> Inter-industry trade – trade of goods from different sectors or manufacture branches; intra-industry trade – trade with goods from same sectors or manufacture branches.

trade theory the economic integration stimulates the labour division depending on the comparative advantages; increases the common prosperity in every country and region involved in these processes; equalises the price of the production factors. The equalising of the prices according the neoclassical paradigm of Solow (1956) is leading to regional convergence as was mentioned.

*Conformity of the neoclassical theories to the EU economic development*

The neoclassical theories are not able to provide entire explanation of the current global economic development and especially that of the EU. The view, that a balanced equilibrium economic development can be achieved (even as a theoretical concept) is quite restricted having in mind the influence of various factors.<sup>7</sup> The logical question also arises, what is the balanced economic development and why comprehensive real examples for its realisation cannot be provided.

As it was mentioned according to the neoclassical theory, in certain circumstances convergence can be achieved in the long run. That is one of the main explanations for the inconformity of the theoretical paradigms to the empirical results. The empirical results even in the EU framework are showing that the requirements for homogeneity cannot be obtained easily -- for example what about the similar inflation or population growth rate (labour forces rate), (Barro, Sala-i-Martin, 2003). Another factor, difficult to be obtained is the requirement for achieving full (perfect) competitiveness (Crafts, 1996). Even when such homogeneity is achieved the empirical results are not supporting this theory.

Some economists maintain the proposition that the hypothesis of the neoclassical theory related with the specialisation, concentration and the regional divergence should be accepted as such that can be realised in a long run perspective, respectively depends on achieving a definite economic development level. In other words the neoclassical paradigm is valid before all for the developed economies (Williamson, 1965). However even in this case the neoclassical theory cannot always explain the different location of the industries within countries and regions that have similar production factors and technologies – specifically in the case of EU-15. In the same time the trade between the developed and industrialised countries is carried out mainly as intra-industry trade instead of inter-industry trade that should be according to the neoclassical hypothesis (Traistaru, Nijkamp, Longhic, 2003).

One of the main critiques to the neoclassical model is the accepting of the technical progress as exogenous factor. The thesis outlined by a lot of opponents to the neoclassical theory is, that in fact the role of the technical progress is decisive to the economic development in the long run. Their views focus the exogenous nature of the technological progress, respectively the endogenous development theory. They maintain that new production factors (instead of capital

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<sup>7</sup> An example for that is the global economic crisis in the last two years.

and labour force) like knowledge, innovation are also inducing economic growth. Lewis-Guodo, Premus (2000) also marked off that a bunch of other factors are accepted as exogenous while their character definitely is endogenous. The existences of differences of the mentioned factors define and the impossibility to achieve homogeneity that the neoclassical theory presupposes (Romer, 1990; Grossman, Helpman, 1991; Aghion, Howitt, 1992).

No matter that the neoclassical theories are not in conformity with the contemporary development, therefore they are theories, to make assumptions that in practice cannot entirely exist. That make them theories and that does not lessen their value for analysis by admission different hypothesis for possible development under given specific conditions. However the admission that these formulations will be realised in reality is not advisable.

#### *New economic theories*

In the economic literature the belief is spread that if one wants to understand the spatial distribution of the economic activity he should go further than the definitions given solely by the comparative advantages (Venables, 1998). One of the reasons for the appearance of the new economic theories is the necessity to take into consideration the empirical results that cannot be explained in the light of the neoclassical theories. This way, no matter that the mainstream part of the theoretical outputs relate the economic development with the processes of regional convergence (in unison with the neoclassical paradigm), other, also quite serious theoretical outputs (in unison with the new economic theories) are based on the understanding that the growth is the main cause for increasing of the differences.

The new economic geography theory as well as the new trade theory foresee different results (effects) from the regional integration and specialisation processes. They consider possibilities for positive convergence results but also the possible unfavourable consequences related to the development of the integration processes (Ottaviano, Puga, 1998; Fujita, Krugman, Venables, 2001). According to them the equalisation of the factor prices of the production is not a process that should be realised by all means (Helpman, Krugman, 1985). They also accept that the trade can be realised in conformity with the neoclassical theory but not in all countries and regions. That determines the integration processes (at least in its beginning) as such that lead to more gains for the industrialised regions what reflect to increasing the differences between the countries and regions.

The opponents of the neoclassical theory for convergence hold on the thesis drawn by Myrdal (1957) that accepts the economic development as a process, accumulating spatial differences. They based their understanding mainly on the empirical investigations in the EU framework, which do not manage to prove the validity of the neoclassical model and assume that this model can be valid only for given countries and regions and for given periods. In this case it will be not possible to achieve convergence in the sense of obtaining a general regime of development. They recommend a revision of the already made conclusions for

convergence in the EU framework in the light of the neoclassical theory because they do not include the countries from the European South – mainly the lagging countries and regions for which these processes are not typical (Armstrong, 1995; Puga, 2001, Petrakos et al., 2005).

● *New economic geography theory*

The new economic geography theory is explaining the location processes and trade by means of a theoretical framework that is trying to achieve both correspondences of macro economic paradigms with micro economic processes. The basic differences of this theory to the neoclassical model is in rejecting the concept of constant return of scale, accepting the existence of non-perfect competition conditions and differences in consumer preferences – the latter determine that a same good will not be sellable in a same way in different countries and regions. These specific features are defined by Krugman (1993) as 'second nature' development factors. Another main difference is the accepting of the endogenous nature of the technical progress and the human factor; outlining also the role of the investment as an important element of the endogenous growth.

The neoclassical and the new economic geography theory differ a lot about the explanation of the regional specialisation and industrial concentration. While the neoclassical theory is concentrated on the regional comparative advantages (accepting that they exist as a fact) and the immobility of production factors; the new economic geography theory sticks to the understanding in achieving of comparative advantages above all as a result of their realisation with the development – what presupposes increasing return of scale.

Quite important element concerning the convergence process is the assumption of the new economic geography theory that the geographical advantages of the big markets are endogenous factor and that the process of specialisations is a result of forming of agglomerations with high economic activity. The relations between the decreasing transport expenditures (due to the integration) on the one hand and on the other - the concentration of economic activity in some other regions is inherited in the new economic geography model (Krugman, 1991; Krugman, Venables, 1995; Venables, 1996). Thus the appearance of the economic agglomerations is explained as a result of relocation of firms and labour from one region to another. It is accepted that when the trade expenditures are too high every region is producing goods for its own local market and therefore the manufacturing sector is fully divided within separate regions; thus the so called economics of type „Robinson Crusoe” is achieved (Тотев, 1993). The decreasing trade expenditures allow the firms to serve not only the local markets, but it also results in the formation of the above-mentioned industrial agglomeration centres.

In the light of the new economic geography theory Mack, Jacobson (1996) defends the understanding that these processes depend on the spatial specialisation concerning the extent of technological treatment – the EU central regions show tendency to specialise and export to the periphery high technological

production while the periphery is specialised in production with low technological treatment or products mainly from the primary sector. Consequently the regional differences are increasing.

To a certain extent the new economic geography theory is putting aside the differences related with the natural resources and outlining the effect of the economies of scale, consumer taste to various goods and in that way putting the accent on the endogenous nature of the production factors. The new economic geography theory is focusing on the acquired comparative advantages of the regions explaining the processes of regional concentration as well as those of convergence-divergence processes as a result of the ongoing integration.

● *New trade theory*

The new trade theory model accepts the possibilities for both constant return of scale and for increasing return of scale, diversity of the goods (differences in the consumer preferences concerning the quality of the goods) and lack of full (perfect) competitiveness – assumptions on which the new economic geography theory is based as well. The new trade theory model takes into consideration the spatial advantages of the big regions and the regions with good access to the markets as an explanation for the specialisation and location processes. It assumes also that intra-industry and inter-industry trade can exist in parallel. According to the new trade theory the integration processes determine a development with U- shape form of distribution concerning the industries concentration.<sup>8</sup> The relation between the trade expenditure and the share of the industrial production determined that U-distribution. When the trade barriers and the transport expenditures are sufficiently low, the spatial advantage of the central regions compensate the higher production factors prices (above all that of the labour force) and production concentration is observed. From one intermediate stage they cannot compensate the higher production factors prices and then starts the process of production relocation – the firms are leaving the regions with high production concentration and search for alternative places for development in more peripheral regions.

The process of concentration and later on of relocation takes place in different moments depending on the effect of the economies of scale of a given production. The recent situation of economic integration in the EU framework for the sectors not having a high effect of economies of scale are at a stage of relocation of the industry (Totev, Sariiski, 2010). On the contrary the sectors with prevailing high effect of economies of scale in the EU framework are at a stage of production concentration (Totev, 2008). The technological changes (the technical progress) can alter the price of the production factors, which on its part can return the processes of concentration to an initial stage of the U- distribution.

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<sup>8</sup> Getting down on the left shoulder of the U- distribution is related with the production concentration, this way the concentration is coming to its highest value in the intermediate stage of the distribution; afterward is passing to the right shoulder of the U- distribution – related with the relocation (deconcentration) of the production.

*New economic theories - conformity to the EU development*

A lot of different factors are observed in the new economic theories as endogenous. Those are economic, social and demographic factors. It very often leads to inclusions of such indicators, which sometimes is difficult to combine together; in other words it is not possible to investigate the convergence processes under fulfilment of conditions that are not possible to combine or they are incompatible (Schmutzler, 1999). Including of a lot of factors is leading to details that should not be inherent for a theory. Thus, sometimes different studies are coming to contradictive results for the same investigated economic object. The great heterogeneity of the models, assumptions and the initial information is also one of the reasons for the different visions concerning the convergence processes. Martin, Sunley (1998) noticed that the new endogenous theories have an important meaning in their attempt to explain the regional processes but at the same time they are facing a lot of obstacles in their attempt to be approbated in reality.

Some authors like Bosker et al. (2007) reduce their criticisms to the fact that most of the new economic theories models lead to significant simplifications of the endogenous variables related to the geographical factor. Other authors relate the forming of the agglomerations centres (important element of the new economic theories) not so much to the processes of specialisation as a result of the intensive economic activity, but to the concentration of institutions related to the government, forming of cultural centres and other factors, not directly related to the economic development.

Regardless of the well grounded ideas of the new trade theory and the new economic geography theory especially with regard to integration processes, these theories are not providing a general explanation of the trade relations and location processes. They cannot specifically explain why economies with similar conditions form different production structures, why firms with similar activity sometimes are located nearby, leading to a regional specialisation (in this case the authors do not have in mind the search of the clusters effect) and finally why industrial activities are successfully spread from one country to another (Ottaviano, Puga, 1998). Obviously these processes cannot find one entire comprehensive explanation why a lot of different factors influence the observed processes; something more, their influence is changing in a way that cannot be predicted in the course of time.

Main weakness of the most researches in accordance with the new economic theories is that their models are accepted as adequate based only on the fact that they rejected the adequacy and validity of the neoclassical model by means of outlining the incompatibility of the latter with the empirical results. However that fact does not always mean that this is a proof for the validity of the new economic theories.

**Regional and economic convergence – hypothesis and formulations**

The hypotheses of convergence within countries or regions are subject of different interpretations. The convergence can be accepted in different ways

depending on the economic characteristics, the object of the research or the economic formulation (Islam, 2003). The choice depending on the economic characteristics most often is reduced to looking of convergence of the economic growth rate, convergence of the incomes or of the production factor efficiency. Above all it should be pointed out that the economic investigations are dealing mainly with income convergence; the convergence of the factor productivity is actually a variant of the income convergence – in case of having similar efficiency of the production factor that will lead to similar incomes. The other possibility, the convergence of the economic development rate – equal or similar rates means in practice maintaining the relative differences and increasing the absolute one. In general the choosing of the object of the investigation is looking for convergence in the framework of an economy (convergence among the regions in an economy) or convergence among separate economies (among separate countries).

#### *Differences in the hypotheses and the formulations*

There are a lot of hypotheses and formulations related with the economic convergence (Amplatz, 2003). Sala-i-Martin (1995) reduce the convergence to two main types,  $\beta$ - convergence and  $\sigma$ - convergence and determine the existing  $\beta$ -convergence as a necessary but not enough condition for observing  $\sigma$ -convergence. Other authors extend those main types to three ones – absolute  $\beta$ -convergence, conditional  $\beta$ - convergence and  $\sigma$ - convergence (Petraokos, Artelaris, 2006).

An attempt to organize the different formulation of convergence on the basis of the theoretical concepts was made by Galor (1996). He defines three type of convergence. His formulation is accepted by the economists as the most appropriate for the interpretation of the convergence processes according to the economic theories.

- Unconditional (absolute)  $\beta$ -convergence – related to the neoclassical theories;
- Conditional  $\beta$ - convergence – related to the new economic theories;
- Club convergence – this hypothesis is in unison with the new economic theories, but at the same time it has elements of the unconditional  $\beta$ - convergence paradigm as well.

These three categories of convergence can be supplemented by categories that are not in any case related with specific theoretical formulations:

- $\sigma$ - convergence – it observed convergence if the dispersion of the income per capita is diminishing in the course of time;
- Stochastic convergence – evaluated by applying econometric methods and models for fixing the existing or lack of convergence.

#### • *Unconditional $\beta$ - convergence*

The unconditional  $\beta$ - convergence is bound up with the neoclassical theory (Fujita, Krugman, Venables, 2001). It presupposes that the poor economies grow

faster than the rich ones and thus in the long run the income convergence is fulfilled. That type of convergence can be easily tested by the Barro, Sala-i-Martin (1992) method for estimation of the changes in the GDP or the incomes. Unconditional  $\beta$ - convergence can be observed among countries when significant negative relations can be specified between growth of rate and the income per capita.

There are empirical studies, leading to the conclusion that the dynamics of regional differences follows the unconditional  $\beta$ - convergence (Sala-i-Martin, 1996). However there are also other investigations that cannot manage to prove that. The latter accept that unconditional convergence can be realised only for given countries and regions and only for certain periods; that do not allow achieving convergence in the sense of one common regime of development. Some authors based on empirical researches define that unconditional convergence is observed only within underdeveloped countries what implicitly means that it is valid on a given stage of development (Paci, Pigliaru, 1997). Barro, Sala-i-Martin (2003) are considering that the unconditional convergence is more likely to happen between the regions in one country where the conditions are same instead of between different countries. Baumol (1986) came to a different conclusion. He accepted that convergence is observed within the rich countries but not for the world in general.

In practice these opinions lead to the conclusion that the accomplishment of unconditional  $\beta$ - convergence is possible in the framework of a group of countries what supports before all the thesis of existence of club convergence. In general it can be summarised that the recent empirical researches concerning the convergence processes are more likely to support the conditional convergence (including the club convergence) instead of unconditional ones (De la Fuente, 2002; Barro, Sala-i-Martin, 1991).

● *Conditional  $\beta$ - convergence*

The conditional  $\beta$ - convergence is related to the new economic theories and specifically to the new economic geography theory (Fujita, Krugman, Venables, 2001). The hypothesis of conditional  $\beta$ - convergence presupposes that every economy is developing (inclined) to its own balance development depending on the conditions defined by the new economic geography theory. In other words when it is settled differences in the economic characteristics between the countries and regions (as level of technology and others) the regions can be in a process of convergence but inclining to different steady state – in this case one can speak about the existence of conditional  $\beta$ - convergence. Obviously in this case the differences can decline but they can also remain or even increase in the course of time.

Many authors share the understanding that in the EU framework the empirical investigations provide proofs supporting the conditional  $\beta$ - convergence instead of unconditional (Herz, Vogel, 2003). Obviously the hypothesis of conditional  $\beta$ - convergence allows higher variability about the possibilities for development – every country and region incline to its own steady state (balanced) development.

The criticism that faces the conditional  $\beta$ -convergence hypothesis is that it has not clear formulation as the unconditional  $\beta$ -convergence. The lack of a clear theoretical formulation leads many researchers in their empirical investigations to try to determine the existence of convergence using quite a different assumption, respectively to use different indicators for evaluation of convergence. A lot of critics are related and with the way of applying the econometric models; the models accept a lot of different assumptions (conventionality) what make disputable their results. It is also considered that the testing of the conditional convergence can lead to incorrect results especially in case that there exists club convergence (Petraikos et al., 2005).

• *Club convergence*

Another leading hypothesis is that of a “club convergence” – different regimes of development of the different clubs. It refers to countries (regions) with relatively similar conditions (similar economic, political, government and social environment). According to the club convergence, countries and regions with similar conditions have tendency to converge.

The concept of club convergence is related with the conditional  $\beta$ -convergence formulations. The difference in this case is that countries belong to separate groups (clubs) with similar characteristics in the framework of the club and different between the different clubs (Galor, 1996). Thus the hypothesis of club convergence related to the countries in a given club can be tested for the existence of unconditional  $\beta$ -convergence in the framework of the club. In this sense the club convergence hypothesis throws over a link between the unconditional and conditional  $\beta$ -convergence.

Club convergence can also be linked to the  $\sigma$ -convergence, since it presupposes with the economic development, the countries (regions) income in a given club to become closer and the GDP variation per capita to diminish – in other words - realising of  $\sigma$ -convergence in the framework of the separate clubs.

For countries and regions with obvious differences in the basic conditions (belonging to different „convergence clubs”), both decreasing and increasing differences<sup>9</sup> can be observed. It is assumed that when applying a specific economic policy for overcoming the influence of the initial conditions, a country can get out from one club of convergence – the direction of changes can lead to positive effects, but in case of inadequate economic policy it is possible the effect to be negative (Тотев, 2008). In other words a country or a region can move from one convergence club to another club for which the higher production effectiveness and level of personal consumption are typical. However that move may result in entering another club where the effectiveness of the production is lower with lower level of personal consumption in case of inadequate economic policy.

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<sup>9</sup> As an example for observing divergence processes in one country can be given the case of Italy where significant differences between the „rich North” and the „poor South” are observed; both in the case of GDP per capita as well as what concerns to the sectoral economic structures or the structure of the manufacture sector by sub-branches.

●  *$\sigma$ -convergence*

It is assumed that the countries (regions) are in  $\sigma$ -convergence process where the dispersions of the income per capita measured by the standard deviation or the coefficient of variance decrease in the course of time (Barro, Sala-i-Martin, 2003). Quah (1993) define the higher „consistency” of  $\sigma$ -convergence towards the  $\beta$ -convergence because it specifies directly whether the differences between the economies are decreasing. That makes using the  $\sigma$ -convergence quite pragmatic since it is not presupposing steady state (balance development); in other words it is not related with any specific theoretical formulation or given initial assumptions. That is the reason for many researches to interpret economic development and convergence processes on the basis of  $\sigma$ -convergence and not to analyse these processes without the need to link them with any specific theory. In this light using the  $\sigma$ -convergence is a quite precise indicator for researching the convergence processes when one does not intend to make theoretical interpretations.

● *Stochastic convergence*

Another approach of investigating the economic convergence processes, not related with the specific economic theory is the stochastic convergence. This concept is based on applying econometric methods and models when analysing time series. It is typical for this approach the using of co-integration analysis for testing the hypothesis whether economies are in a process of convergence (Kevin, Pesaran, Smith, 1997). One can say that two countries are in conditions of stochastic convergence if on the basis of a long run forecast the differences of GDP per capita are inclining to nil. According to Mauro, Lupi (2005), the idea of using of these methods is not to reject at any price the results of research based on theoretical formulations; the case is only to provide one different approach by using applied econometric methods.

*Empirical results*

The empirical results related with convergence-divergence processes do not provide synonymous answer what development is observed. One can find quite contradictive statements in the literature – whether convergence between the rich and poor countries is observed or not (Friedman, 1992; Quah, 1997). There are also different approaches where it is more possible to observe convergence – between the countries or between the regions in given countries (Barro, Sala-i-Martin, 1991; Bradley, Untiedt, 2008).

Regarding the convergence in the EU framework, Battisti, Di Vaio (2006) mark that if it is to exclude given regions that are obviously lagging and where can be observed convergence, the other are not showing convergence at all, or convergence and divergence happen simultaneously. According to Amplatz (2003) economic convergence is observed between the countries of Central and Eastern Europe, but not between these countries and the Western European countries; at the same time no convergence is observed for the European countries that are not involved in the process of association to the Union.

There are authors, relating directly the economic cycles with the convergence-divergence processes. According to them the developed regions grow faster in a period of expansion and slower than the average development in a period of recession (Fotopoulos, Spence, 1999; Thisse, 2000). In this connection it should be noted that the regional policy should take into consideration the economic cycles; when increasing of the differences in period of expansion is observed this fact should not be accepted as a negative result for convergence at any rate; vice versa, the decreasing of the differences in a period of recession cannot be accepted always as a positive tendency for the convergence.

No matter that the economies of the EU members are interrelated due to the integration processes there are good reasons to outline that they do not have similar economic cycling – not only in terms of the moment of appearance but also what about the duration of the cycle. The “development rhythm” of the new member states is different from those of the developed EU-15 countries it should be taken into consideration when investigating the convergence processes.<sup>10</sup>

Obviously the economists are not united regarding the convergence processes. Quite often they are of opposite opinions about the course of action, the object and the possibilities for evaluation of the convergence processes, its theoretical formulation in case of the same research object, etc. All this is leading to the understanding that the economic development in its entire diversity is difficult to be brought to one or another theoretical model. Meanwhile the development places new challenges to already approbated models to face and respond adequately to the changing new conditions. Even Solow (1999, p. 640) points out that in the theory of growth it is not possible to exist something given once and forever as a common level of convergence for any country at any time, having in mind the development of the technologies, demographic changes and changes in the attitude for saving.

That is why the results from the empirical researches make most of the economists stick to the idea of the dualistic nature of the development in the EU framework (differences in the development of the North and the South or between the centre and the periphery). That means that the convergence-divergence processes are determined by the level of development; development that in the European economic space to a great extent depends on the geopolitical location of the countries and the regions (Quah, 1997; Puga, 2001; Petrakos et al., 2005; Totev, Sariiski, 2008). The main question that still does not find acceptable answer is not whether the two processes exist simultaneously (convergence and divergence) something that is already accepted as a fact, but to make clear when and at what stage of the development these processes take place in the different countries.

The reality and the development always render “richer” and different than the theoretical formulations what impose the needs of searching of new hypothesis and regularities, which for its part makes quite difficult the generalisations for every

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<sup>10</sup> The EU countries development during the recent economic crisis can be given once again, as an example.

case. The theoretical formulations should be accepted as important in order to comprehend and understand the ongoing economic processes. However they should not be used to project the convergence processes for practical needs. In this sense the acceptance of the postulates of the neoclassical theory as a ground to set up the EU regional policy is not advisable – the achieving of economic growth in the EU countries does not always presupposes and the realising of convergence. In view of the above, no matter how attractive it may sound to achieve convergence by means of a general balanced growth, this is not at all supported by the empirical researches.<sup>11</sup> In order to obtain a general positive trend from the integration processes - favourable results not only for the rich but also for the poor countries and regions – the EU should have a clear workable regional policy that will not rely on the economic growth to solve the problems by itself.

What about which formulation of convergence should be used in EU framework, probably the one of club convergence is most appropriate. It is acceptable because of its universality; it can be used without any relation to specific theoretical paradigms – as it was mentioned, the club convergence can be directly related with the  $\sigma$ -convergence hypothesis. A lot of investigations outlined the fact that the acceptance of the club convergence hypothesis provides a quite realistic and detailed picture for the EU development (Quah, 1993; Martin, 2001; Fischer, Stirböck, 2006; Totev, 2009).

Another aspect of the convergence processes should be highlighted, allowing the use of the club convergence formulation; the changes of the production structure of EU countries are interrelated with the convergence processes as far as one or another production structure is decisive for the production efficiency, respectfully for the growth and the level of consumption (OECD, 1987; Pender, 2003; Canova, 2004; Totev, Sariiski, 2008; Moore, 2009).

In fact one cannot expect to have a convergence regarding the incomes, if increasing differences of the production structures of EU countries are observed. In practice clusters of countries (clubs of countries) appear with similar production structures (the structure of the main economic sectors as well as the structure of the manufacture by sub-branches) and the differences of these structures between the clubs grow in the course of time (Landesmann 1996; Totev, Sariiski 2008; Totev 2009). Having observed a close relation between the production structure and incomes and the incomes appear to be the consequence of this relation, it can not be expected in the long run to achieve income convergence in case of existence of obvious process of increasing the production structure differences.

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<sup>11</sup> The author of the paper has yielded to the temptation to discuss the beloved thesis of the Bulgarian economists – when the country will reach the average European level of GDP per capita. If we leave the exotic forecast for achieving convergence in the EU framework for two three centuries (Fingleton, 1999) it can be underlined that in the foreseeable future Bulgaria will never reach the average income of the EU countries. After all if it is average EU level at least half of the EU countries should stay behind Bulgarian level. More clearly this can be illustrated by pointing out that our country should leave behind countries like Check Republic and Slovenia (countries with the higher levels within the new member states) and to level its indicator with those of Italy, Spain and almost to reach the one of France.

So the main goal of one regional policy should not be pointed out only in smoothing the income regional differences but also in searching to overcome the reasons that define these differences. In this light, the regional policy can be effective if it aims at creating prerequisites for development of production structures in the lagging EU countries and regions that will not be based only on manufacture branches with low production effectiveness.

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