

**XXII AIEL Conference of Labour Economics**

**Naples, 13-14 September 2007**

**1<sup>st</sup> Thematic Session**

***Institutional Change, Regional Features and Labour Market Performance  
in eight EU's Transition Countries***

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**Abstract<sup>1</sup>**

The aim of this paper is to throw some light on the main differences/similarities and dynamics in institutional frameworks, regional/sectoral features and labour market performances in the eight transition countries that became EU members in May 2004 (8-CEECs).

In the second section, a partial review of the main theoretical and empirical literature on the "*great transformation*" (Kornai, 2006) is presented, with a particular attention to the researches focusing on the relationship between institutional change and economic/employment performance and to the studies considering some regional features of the transition processes.

Some stylized facts for the eight CEECs are presented in the third section, by distinguishing (i) initial conditions, (ii) institutional changes and progress in transition and (iii) economic/employment performance (GDP growth, unemployment and employment rates, etc.).

In the fourth section, the empirical results on some regional (NUTS 3) features (convergence, concentration and specialisation) of the 8-CEECs are discussed.

Finally, an attempt to econometrically investigate some determinants of regional income convergence and national GDP and employment dynamics is presented in the fifth section, by highlighting the role of institutional change and some regional features.

The main policy implications, concerning both European and national economic policies, are presented in the conclusive section.

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<sup>1</sup> We thank Milica Uvalic, Cristiano Perugini, Matteo Ricciarelli and David Aristei for useful comments and suggestions. A previous research on the same topic was presented at the XVI AISSEC Conference (Parma, June 21-23, 2007). We thank the participants to the above conference.

## 1. Introduction

The aim of the paper is to empirically investigate (1989-2006) some key characters of the institutional changes, regional/sectoral dynamics and aggregate performances (especially regarding the labour market) in the eight transition countries that became EU members in May 2004 (8-CEECs). We consider the period 1989-2006 and we use data from many sources (Cambridge Econometrics, Eurostat, EBRD, World Bank, etc.).

The paper has the following structure. In the second Section, a partial review of the main theoretical and empirical literature on transition is presented, by distinguishing the relationship between institutional change and aggregate performance from the analysis of the regional features of labour market dynamics and economic growth.

Some stylized facts for the eight CEECs are presented in the third Section, by considering: (i) initial economic and institutional conditions, (ii) institutional changes and reform policies and (iii) aggregate performance (GDP growth, unemployment and employment rates, etc.) and sigma convergence dynamics.

In the fourth section, the empirical results on some regional (NUTS 3) features (convergence, concentration and specialisation) of the 8-CEECs are discussed. An econometric investigation on some determinants of regional income convergence, national GDP and employment dynamics is presented in the fifth section, by highlighting the role of institutional change. Finally, the main conclusions and policy implications are presented.

## 2. Institutional change, regional features and aggregate performance: a partial review of the literature on the “Great Transformation”

The complexity and peculiarities of the transformation that has taken place in the Central and Eastern European Countries since the collapse of the Berlin Wall (1989) are well described in a long-run historical/comparative perspective by Kornai (2006). In particular, Kornai highlighted that the world history has been characterised by other "great transformations" (Polanyi, 1944), but he showed that the transformation in Central and Eastern European Countries is the only one in the world history presenting the following six characteristics: (i and ii) the changes follow the main direction of development in Western civilisation: in the economic sphere in the direction of the capitalist economic system, and in the political field in the direction of democracy; (iii) there was a complete transformation, parallel in all spheres: in the economy, in the political structure, in the world of political ideology, in the legal system and in the stratification of society; (iv) the transformation was non-violent; (v) the process of transformation took place under peaceful circumstances; it was not preceded by war; the changes were not forced upon society as a result of foreign military occupation; (vi) the transformation took place with incredible speed, within a time-frame of ten to fifteen years<sup>2</sup>.

In this section, a partial review of the huge literature on the “*great transformation*” is presented, by focusing only on some crucial aspects of the following two sub-topics: (i) the relationship between institutional change/transition and economic/employment performance and (ii) the regional<sup>3</sup> features of the transition processes. It should be noted that the vast theoretical and empirical literature produced on the first topic has not been followed, until now, by a similar development of the second one, especially at the NUTS 3 level and as regards the attempt to jointly investigate institutional change and regional features in order to contribute to the explanation of comparative economic and labour market performance in transition countries.

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<sup>2</sup> He also stated that “... the biggest difference can be discerned, of course in characteristic (vi), the speed of the change. It took capitalism centuries to become the prevalent economic system of an entire country. A centuries-long process preceded the realisation of parliamentary democracy. By contrast, all of these have been completed with incredible speed in the Central Eastern European region now. From the perspective of large-scale history, the transformation of the Central Eastern European region was indeed extremely swift. But it is important to recall that there were politicians and economic experts who urged even faster changes.”

<sup>3</sup> We define as "regional" the sub-national levels.

## 2.1. Institutional change, transition and aggregate performance

The “transformational recession and unemployment”<sup>4</sup> was largely unexpected by economists and a rapidly increasing theoretical and empirical literature emerged<sup>5</sup>. The remarkable focus on the role of institutions and institutional change<sup>6</sup> was mainly due to the enormous difficulties in finding explanations of the (differences in the) economic performance of transition countries by using (only) the traditional neoclassical approaches and instruments (partly adopted in development economics)<sup>7</sup>.

As well known, a large theoretical and empirical economic literature analysed the importance of institutions and the role of “institutional change”, partly focusing on the effects on uncertainty (e.g.: Armen 1950; Hirschman 1970; North 1990, 1994 and 2000; Keefer and Knack 1995; Burki and Perry 1998; Dewatripont and Roland 1995; Mehta et al. 1999; Blanchard 2000; Hodgson 2000). In addition, as for transition economies, the crucial role of institutions (initial institutional conditions and institutional changes), has been largely recognised and analysed not only by “heterodox economists” but also by IFIs and “mainstream economists” (e.g. Fisher and Sahay 2004<sup>8</sup>).

In this sub-section we briefly review a part of the vast theoretical and empirical literature on the relationship between institutions/institutional change and economic performances in transition countries<sup>9</sup>, by mainly considering the “methodological/empirical approach” followed in some selected papers<sup>10</sup> distinguished according to the main focus on: (i) the role of initial institutional conditions and reform/institutional policies, (ii) the speed of transition and (iii) the use of wider definitions of institutions and institutional change<sup>11</sup>.

In the first group, De Melo et al. (1997) focused on the role of initial conditions and policies (liberalisation) in explaining economic outcomes (in terms of growth and inflation) in some (groups of) transition countries<sup>12</sup>, by considering many (mainly) economic and geographic variables (initial level of development, urbanisation, industrial distortion, geographic location, repressed inflation, trade distortion, black market exchange rate premium) together with two strictly institutional initial variables (a categorical variable according to characteristics of State formation and a variable of “market memory” measured by the years under central planning). The authors, starting from the non linear relationship between initial conditions, economic liberalisation and performance (De Melo et al., 1996, and Selowsky and Martin, 1997), investigate the relative importance over time of initial conditions and policies. Fisher and Sahay (2004) produced an empirical analysis on the determinants of output performance in 25 transition countries by considering some institutional development variables (reform index<sup>13</sup> and State capture index<sup>14</sup>) together with an initial conditions

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<sup>4</sup> The generally huge GDP decline in early years of transition was accompanied and followed by high and persistent unemployment rates in many countries.

<sup>5</sup> The extremely different policy suggestions of that literature were an evident sign of the “unpreparedness of economic profession for the task of transition” (Ferragina and Pastore 2006).

<sup>6</sup> Cornia and Popov (1995) argued that “*the success of the overall reform efforts depends to a considerable extent on the existence of adequate institutions ...*”. Raiser (1997) stated that what transitions is all about is a redesign of the institutional framework of formerly centrally planned economies and, therefore, a transition theory will necessary be a theory of institutional change.

<sup>7</sup> Stiglitz (1994) draw attention to the weakness of the neoclassical model of a market economy as a basis for advising transition governments on appropriate reform strategies.

<sup>8</sup> However, it is interesting to note that Fisher and Sahay “*argue that the charge that the IFIs did not take account of the importance of institutional development, especially of the rule of law, is without merit.*”

<sup>9</sup> “Transition” usually refers to the particular form of economic and institutional change occurred in Eastern Europe after the collapse of the Communist regime. However, in some papers also China and other Asian countries are included. For a wider discussion on the concept of transition, see Colombatto (2001).

<sup>10</sup> For the aim of this paper (and also considering the remarkable differences), we decided not to concentrate our attention on the results of the different papers (with the only exception of those results that are similar for many researches).

<sup>11</sup> As for the above empirical researches, the use of data at country level (and, sometimes, considering groups of countries) is a shared characteristic, obviously explained by the lack of institutional data at sub-national levels.

<sup>12</sup> With the inclusion of China and other Asian countries.

<sup>13</sup> As for “reform index”, defined as a measure of the extent of reforms and a measure of institutional change, they use the average of the EBRD indices of liberalisation, financial reform, market reform and privatisation.

index derived from factor analysis<sup>15</sup>. They also highlighted the strong correlations among many reform measures<sup>16</sup> and find an exception in the “State capture index”.

In the above literature a positive relationship between institutional change (and initial conditions) and economic performance is obtained. Falcetti et al. (2005) considered the importance of initial conditions<sup>17</sup> for economic performance and showed both the effects of progress in market-oriented reforms on growth and the existence of important feedbacks (from growth to reforms) by using simultaneous equation estimation. The feedback effect of growth to reforms has been recognised in some previous papers (e.g. Heybey and Murrell 1999); in particular, Wolf (1999) analysed the feedback of growth to structural reforms, while Berg et al. (1999) and Ghosh (1997) recognised the potential endogeneity of stabilisation. Generally, in more recent papers the influence of reforms on growth (or other performance variables) has become more controversial, with an increasing attention to: (i) the endogeneity of reforms, (ii) the multicollinearity among different measures of reform and (iii) the sensitivity of results to the exclusion of the early years of transition. In particular, the sensitivity of results to the choice of time period is discussed in Fidrmuc (2003) and Lysenko (2002). It is interesting the use of “transition time” rather than usual calendar time, taking into account that the transition process started at different times in different countries (Falcetti et al. 2002 and 2005). The empirical papers belonging to this first group generally considered the GDP growth as the performance variable to be explained.

In the second group, the seminal paper of Aghion and Blanchard (1994) was followed by a huge literature focusing, theoretically and/or empirically, on the costs and benefits of the speed of transition and on the role of Government in favouring an optimal speed of transition (OST). The transition is described as a regime change from an allocation system based on central planning to one based on market forces. In particular, the optimal pace of worker and job reallocation was/is the source of great debate with an initial division between a “gradualist approach” (e.g. Dewatripont and Roland 1995) and the proponents of rapid “big bang” reform (e.g. Murphy, Shleifer and Vishny 1992).

Roland (2000) distinguished the following three main positions in the literature: (i) a first group of supporters of the “shock therapy” suggested a fast and comprehensive reform process in order to avoid the risk of “gradualism”, mainly in terms of probable individual measures ineffectiveness and consequent public opposition (e.g. Lipton and Sachs 1990; Aslund 2001; Sachs 1992; Balcerowicz 1994; Berg 1994); (ii) a second group of authors suggested “gradualism” (and attention to national differences in sequencing) in order to minimise the social costs of transition, especially avoiding that too rapid reforms produced permanently high levels of unemployment (Svejnar 1991; Portes 1990; Roland 1991; Aghion and Blanchard 1994; Dewatripont and Roland 1995; Murrell 1996); (iii) a third group highlighted the need for rapid change along some dimensions and for gradualism along others (e.g. Kornai 1992). Boeri (1999) analysed the role played by the relatively high level of non-employment benefits offered during the first years of transition in favouring a (too) speed<sup>18</sup> reduction of employment in the state sector with a consequent high level of “stagnant” unemployment in most countries. Popov (2006) reconsidered the debate between “shock therapy” and “gradualism” producing an empirical investigation of 15 years of reforms, distinguishing the first years of transformational recession from the following period of economic growth. Many other papers analysed some effects of the speed of transition (Chandha and

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<sup>14</sup> The “State capture index” is taken from Hellman et al. (2000) and it measures the extent to which businesses have been affected by the sale of government decisions and policies to private interests. It is based on the business environment and enterprise performance survey implemented in 1999 by the EBRD in collaboration with the World Bank.

<sup>15</sup> This “initial condition index” (EBRD Transition report, 1999) represents a weighted average of measures for the level of development, trade dependence on CMEA, macroeconomic disequilibria, distance to the EU, natural resources endowments, market memory and state capacity.

<sup>16</sup> Once a country is reforming, it typically advances in many fronts. Obvious econometric difficulties in assessing the impact of each measure on economic performance arise.

<sup>17</sup> They found that the impact of initial condition on growth was declining over time, but it was still persistent in recent years suggesting the existence of indirect effects (possibly) through their impact on reforms.

<sup>18</sup> Compared to the number of job created in the new private sector.

Coricelli 1994; Castanheira and Roland 2000; Kolodko 2004; Perugini and Signorelli 2004; Bruno 2006). The theoretical and empirical papers belonging to this second group generally considered, with few exceptions, the unemployment rate change (and persistence) as the performance variable to be explained.

In the third group we briefly present authors that tried to define and empirically use a wider definition of institutions and institutional change<sup>19</sup>. Raiser (1997 and 1999) discussed the relationship between formal and informal institutions; he highlighted that any process of rapid formal institutional change, such as in transition economies, must contend with the legacy of an inherited set of informal institutions that may or may not be efficient under a changing economic and social environment and, in addition, he compared “top-down” versus “bottom up” institutional reforms by also considering the role of social capital and trust in transition. Hare (2001) considered the role of some key institutions (such as private property and business contracts, banking and financial regulation, labour market institutions, clear fiscal environment for firms, institutions dealing with competition/industrial/trade policies and, finally, trust between economic agents and trust and honesty in public institutions) and highlighted the importance of “missing institutions” in the early stage of transition. Schneider and Enste (2000) stressed the remarkable impact of the shadow economy on official institutions, norms and rules, and they proposed the shadow economy (around 20% in CEECs in 1999) as an indicator of the deficit of legitimacy of the present social order and the existing rules of official economic activities. Raiser et al. (2001) treated institutional change as a multidimensional unobserved variable and examined the determinants of institutional change (initial conditions and path dependence, changes in the structure of market demand, interaction with outside world and the capacity of the State for the implementation and enforcement of new rules) using a panel dataset for 25 transition economies. Nuti (2004) highlighted the complexity of the “great transformation”, the role of institutional vacuum (still persisting in some countries), the huge national differences in the paths of institutional transition and the possibility of distinguishing three groups of transition economies<sup>20</sup>. Roland (2001) considered some stylized facts of the transition process in Central and Eastern European Countries and China and proposed an “evolutionary-institutionalist” interpretation founded on: (i) the institutional perspective, (ii) the evolutionary approach (e.g. Murrell 1992), (iii) the great importance of economists’ relative ignorance of economic and social systems and their transformations and (iv) the emphasis on the high uncertainty associated to societal engineering<sup>21</sup> (aversion toward large-scale institutional transformation). The theoretical and empirical papers belonging to this third group are much more heterogeneous with respect to the first two groups and, in some cases, they assessed a sort of “dynamic systemic performance”<sup>22</sup>.

## 2.2. Regional features of labour market dynamics and economic growth

The theoretical and, especially, empirical (cross countries) literature on the regional (sub-national) features of transition processes significantly increased in recent years<sup>23</sup>. The recent EU enlargements<sup>24</sup> with the membership of ten formerly planned economies further contributed to the attractiveness of the sub-national levels of investigation (e.g. Caroleo and Pastore 2007). In empirical (comparative) regional researches the NUTS 2 level is usually considered, while the NUTS 3 level is rarely analysed.

In this section we briefly review a part of the theoretical and empirical literature highlighting some key regional features in transition economies, by distinguishing two groups of papers focusing

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<sup>19</sup> Some authors try to distinguish much more clearly between “reform progresses” and “institutional change”.

<sup>20</sup> The more advanced group is composed by the eight countries that became EU members in 2004.

<sup>21</sup> See also Dallago (1997).

<sup>22</sup> Implicitly rejecting the adoption of a single (simple) performance variable to be explained.

<sup>23</sup> Regional (sub-national levels) studies have a very long tradition in theoretical and empirical economics. As for the empirical researches, the increasing availability of comparable international data permitted to shift the focus from the initially prevailing analyses of a single country to cross countries and panel investigations.

<sup>24</sup> As well known, eight countries became EU members in May 2004 (Poland, Hungary, Czech Republic, Slovak Republic, Estonia, Latvia, Lithuania and Slovenia) and two more countries in January 2007 (Romania and Bulgaria).

on: (i) the explanations of labour market performance differences and dynamics and (ii) the investigations of economic and structural convergence.

### **2.2.1. Regional labour market dynamics in transition economies**

First of all, it is useful:

- i. to recall the situation of chronic labour shortage (over-employment)<sup>25</sup> typical of planned economies (Kornai, 1980 and 1992), especially the more developed and industrialised (CEECs),
- ii. to highlight that the new unemployment phenomenon emerged in early stage of transition was largely unexpected in its main characters (two digits levels and wide regional differences); moreover, it was wrongly considered of short duration by the initial (optimistic) theoretical models of transition (e.g. Aghion and Blanchard 1994)<sup>26</sup>.

As for the explanation of regional labour market performance differences, some authors highlighted the importance of the regional differences in initial conditions. Scarpetta (1995) showed that transition particularly affected the regions in which the planned economy had concentrated the largest part of economic activities (especially in the manufacturing sector), while Gorzelak (1996) stressed the importance of the regional distance from the core of Europe. Other authors focused on the role of the degree of restructuring affected by the depth and speed of the reform process: Newell and Pastore (2000) showed that when unemployment is positively related to workers' reallocation across regions, spatial unemployment differentials increase and the main reason is a different degree of industrial change.

In order to explain regional unemployment, Boeri (2000) especially focused on the immobility of workers (caused by lack of housing in potential destination area) and the existence of wage rigidities. A survey on the "mystery" of regional labour market performance differentials can be found in Elhorst (2003), while Ferragina and Pastore (2006) presented a complete review of the theoretical literature focusing on regional unemployment and OST and, especially, they compare the Aghion-Blanchard model (based on the role of demand side factors) and the Boeri model (centred on the importance of supply side factors).

With reference to the empirical literature, Scarpetta and Huber (1995) developed a taxonomy of the candidate countries' regional development and highlighted the better performance of capital cities and border regions (see also Brulhart and Koenig, 2006), mainly due to better initial conditions, market accessibility and ability to attract FDI. Some authors attempted to identify the mechanisms of regional labour market adjustment in transition (e.g. Bornhorst and Commander, 2006; Huber, 2004; Gacs and Huber, 2005), while Fidrmuc (2004) highlighted the scarce role of migration in reducing regional disparities in the CEECs. Concerning the regional labour market developments in transition, Huber (2007) presented a complete survey of the empirical literature.

### **2.2.2. Economic and structural convergence of regions in Europe and in the transition countries**

It is well known that, in Europe as a whole, *interregional disparities* in per capita income or productivity are large and persisting. For instance, they are wider in the EU than in the USA. Over time, they decreased from the '50s to the mid-'70s of the last century, but they did so quite slowly: 2% was the annual reduction in the  $\beta$ -convergence estimations. This is an unsatisfactory pace, given

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<sup>25</sup> As highlighted by Kornai (2006): "Open unemployment was unknown in the socialist economy; the employment rate was very high, every worker could feel secure at his or her workplace. Indeed, an inverse disequilibrium prevailed. The socialist economy created chronic shortages, including a chronic labor shortage - at least, in the more developed and industrialised Central Eastern European countries. This has come to the end. The employment rate has significantly declined and open unemployment has appeared."

<sup>26</sup> Some authors focused on the role played by high non-employment benefits (at the outset of transition) in increasing both the reservation wage and the unemployment or the inactive (e.g. Rutkowski and Przybila, 2002).

the goal of *economic and social cohesion* set by the EU's institutions, so that regional convergence is an explicit objective of the EU.<sup>27</sup>

More recently, in the last three decades, the trends have become even more unclear, with convergence limited to certain sub-groups of countries (club convergence) and specific time intervals, and, in any case, still weaker.<sup>28</sup> Interregional disparities seem to be substantial with reference to other economic variables as well, such as the unemployment rate or the employment growth rates (see Boldrin and Canova, 2001, among others).

Notice that, according to some theoretical hypothesis, e.g. by Williamson (1965), if we consider the long-run evolution of regional disparities in individual countries, they normally increase in the early stages of development and then start to decrease, thus confirming an inverted-U relationship between the regional dispersion in per capita incomes and the level of development.

Two possible "dilemmas" now arise: (i) whether we are more interested in "*regional convergence*" in production rather than "*regional cohesion*" in terms of income, consumption or welfare (the two concepts may differ because of public transfers); (ii) whether disparities *between* countries are more relevant than disparities *within* countries. In fact, in order to strengthen the *catching-up* process at the country level, a rise<sup>29</sup> in regional inequalities within individual countries may be a necessary by-product of the growth process, i.e. regional concentration of production may lead to efficiency gains. This evolution, that seems predominant in recent European trends, raises some key questions also to the European regional policy (Martin, 2006).

*Real convergence*<sup>30</sup> can be evaluated in terms of the similarity of final outcomes for real economic variables: production, income, employment, etc.; for instance, differences in levels of development, competitiveness, labour market performance may reveal the degree of real convergence. Not to mention here the more far-reaching, economic and political, criteria (specified by the EU Commission in more than 30 chapters) that the new member states had to satisfy before joining the EU.

Convergence in outcomes is more likely if the *economics structures* are more similar; as a matter of fact<sup>31</sup>: (a) in the *long run*, the narrowing of differences in the structural conditions of different countries or regions allows the achievement of similar steady states and development levels (as maintained by the "conditional convergence" hypothesis in the economic growth literature); (b) in the *short run*, more homogeneous economic structures make the economic shocks more symmetric, thus producing similar reactions of real variables to the shocks.

Considering for the moment the issue of convergence *between countries* and focusing on the degree of synchronicity, Frankel and Rose (1998) analyze the positive effects of growing foreign trade on synchronicity, proposing the well-known argument of the *endogeneity of "optimum currency area" (OCA)'s criteria*: even if the latter are not satisfied ex-ante, they come to be validated (endogenously) ex-post when a group of countries decide to create a monetary union. The endogeneity argument has been extended, in later studies, from trade deepening to institutional convergence, flexibility of product and labour markets, equalization of prices, fiscal integration, financial convergence. However, Imbs (1999) underplay the impact of trade and rather emphasize the role of bilateral differences in sectoral structures (together with differences in GDP levels).

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<sup>27</sup> The goal of EU includes, among others, also the *economic and social cohesion*, both between the member states (as the mention of *solidarity* in the EU Treaty indicates) and within themselves. This goal should be achieved through the *common market*, the *economic and monetary union*, and more specific instruments, such as the *regional policy* and *structural funds*.

<sup>28</sup> Since 1995, in eight countries of EU15 internal regional disparities have increased, while inequalities among countries diminished (Martin, 2006).

<sup>29</sup> Many aspects of the increase in regional "within countries" inequality are still partly unclear (both theoretically and empirically): (i) is it a "temporary" phenomenon? (ii) how long is "temporary"? (iii) is it possible to detect an U-inverted shape phenomenon? (iv) are there hysteresis and persistence characters?

<sup>30</sup> To be distinguished from *nominal convergence*, e.g. concerning the compliance with the Maastricht criteria (related to inflation rate, interest rate, exchange rate, public sector debt and deficit), which are relevant for the admission of new member states to the *euro club* (as did Slovenia in January 2007).

<sup>31</sup> For a concise summary of the two views, see Marelli (2007); many arguments in this sub-section draw from this paper.

Synchronicity has augmented not only within the Eurozone or the EU15 group of countries, but also between “old” and “new” Europe. In particular, the *new member states* had in recent years a robust pace of nominal convergence (although with some unbalances in the deficit/GDP ratios), growing trade openness (trade deepening of new members developed even before the official EU accession), trade integration with EU15, significant reforms in labour markets and in institutions, and finally increasing business cycle synchronicity with the euro area.<sup>32</sup>

More explicitly, Hungary, Poland and Slovenia exhibit the highest correlations with the euro area, comparable to those of some “core” EU15 countries and higher than those of the peripheral countries (Greece, Portugal, Spain, Ireland, and Finland); the lowest correlations, close to zero, are found in the Baltic states (Darvas and Szapáry, 2005; Fidrmuc and Korhonen, 2006).<sup>33</sup>

Coming now to the *regional business cycles*, many authors in the past, e.g. Fatàs (1997), discovered that a rising correlation of national cycles in Europe has been accompanied by declining co-movements across regions. However, regional growth is more synchronised when regions look alike in the *sectoral structure*, where the latter can be analysed by using some synthetic “indicators of similarity” (see Belke and Heine, 2004). Regions are not only more open, but also *more specialised* than national economic systems; the probability that sector-specific shocks may generate asymmetric responses is consequently much higher at the regional level (see e.g. De Nardis et al., 1996).<sup>34</sup>

As to the empirical studies, the convergence or divergence outcomes in regional economic structures depend not only on the individual countries considered, but also on the specific sectors (non-convergence is more likely in the industrial sector than in the services), on the level of sectoral disaggregation (manufacturing branches exhibit frequently heterogeneous behaviour), on the consideration of the economic structure in terms of trade rather than production (convergence in trade is more probable thanks to the growing importance of intra-industry trade).<sup>35</sup>

There many studies concerning the evolving specialisation of new member states (see e.g. Zaghini, 2005): these countries have been able to change rapidly their specialisation toward high-tech products (including machinery and transport equipment), for which the world demand grows at fast rates. These countries can take advantage, among other things, of high skilled labour forces, huge FDI inflows, restructuring in production, and modernisation of the capital stock.

In addition to sectoral structure, many other *structural transformations* and *institutional reforms* may affect the evolution of regional disparities. For example, the transition to a market economy in new member states has implied heavy restructuring processes, reallocation of labour between sectors (particularly from old state-owned branches to new private activities), with an important “transitional” (or transformational) recession in the early stages of transition. Such structural changes had differentiated impacts across the various countries and regions (Boeri and Terrel, 2002).

### **3. Initial conditions, institutional changes and aggregate performance: some stylized facts**

As also highlighted by Kornai (2006), the economic structure and its transformation is different in the various countries; nevertheless, there are common elements, and we can only truly understand the unique properties of each country if we compare it with other countries.

In this section we present (and briefly discuss) some up date (1989-2006) stylized facts for the 8-CEECs new EU members in 2004, by distinguishing: (i) initial conditions, (ii) institutional change and reform policies and (iii) economic performance (GDP growth, unemployment and employment rates, etc.)<sup>36</sup>.

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<sup>32</sup> However, the record is more mixed as regards real convergence (growth, productivity, price levels), output specialisation, delays in the modernisation of the financial systems (Angeloni et al., 2005).

<sup>33</sup> More specific studies, by distinguishing between supply and demand shocks, demonstrate that the latter have converged, thanks to the endogeneity processes, while asymmetries have prevailed in supply shocks (Babetskii, 2005).

<sup>34</sup> Many economists are willing to concede that Krugman's hypothesis of a growing sectoral specialisation is more realistic at the regional level than at the national one.

<sup>35</sup> See Böwer and Guillemineau (2006), Giannone and Reichlin (2006), Marelli (2004).

<sup>36</sup> It is possible to find a literature on the “stylized facts” of transition (e.g. Campos and Coricelli, 2002).



Before doing that, some well known population differences and geographical characteristics are presented (Table A1 in Appendix). Poland (38 millions, stable in the period 1990-2006) has more than half of the total population of the area; Hungary and Czech Republic have a similar population (10 millions, partly declining in the period 1990-2006, especially in Hungary); Slovak republic accounts about half of the population (5 millions) of the latter countries. The small total population of Slovenia and the three Baltic countries declined in the period 1990-2006, with the exception of Slovenia.

### 3.1. Initial economic and institutional conditions

We selected some of the many possible quantitative variables able to highlight the "initial"<sup>37</sup> national differences in economic and institutional conditions (Table 1). The years under central planning, generally considered as a proxy of "market memory", range from 5 decades (the three Baltic countries) to 4 decades (the four bigger countries), with Slovenia in an intermediate situation<sup>38</sup>. As well known, the histories and State formation in the eight countries were significantly different and they can be summarised with some difficulty by simple (categorical) variables. Poland presented the lowest initial per capita GNP and an initial higher share of private sector (30%) compared to other countries. Slovenia showed the highest level of economic development (expressed in per capita GNP in 1989), followed by Czech. The phenomenon of repressed inflation (1987-90) was remarkable in the Baltic countries and significant in Poland and Slovenia.

**Table 1 - Initial conditions (a): some institutional and development "distortions"**

	Years under central planning <sup>1</sup> (and first year of transition <sup>2</sup> )	State <sup>3</sup>	Private sector % share in GDP 1989	per capita GNP at PPP <sup>4</sup> (US \$ 1989)	Public expenditure in % of GDP 1989	Repressed inflation <sup>5</sup> 1987-90
PL	41 (1990)	2	30	4,718	48.8	13.6
HU	42 (1990)	2	5	6,155	61.5	-7.7
CZ	42 (1991)	1	5	8,460	64.5	-7.1
SK	42 (1991)	0	5	6,680	64.5	-7.1
EE	51 (1992)	0	10	5,237	31.8	25.7
LV	51 (1992)	0	10	5,105	31.0	25.7
LT	51 (1992)	0	10	5,523	53.8	25.7
SI	46 (1990)	1	10	9,384	41.1	12.0

Source: EBRD and The World Bank, Syrquin and Chenery (1989), Tarr (1993).

<sup>1</sup> As calculated in De Melo et al. (1997).

<sup>2</sup> Transition year is defined as the year in which central planning was dismantled (Fisher and Sahay, 2004).

<sup>3</sup> State is an indicator variable which takes the value 2 for independent states prior to 1989, 1 for decentralised states and 0 for new nations.

<sup>4</sup> Data on per capita GNP at PPP reflect the most recent EBRD estimates.

<sup>5</sup> Repressed inflation is calculated as percent change in real wage less the percent change in real GDP over 1987-90.

The data for Czech Republic and Slovak Republic are referred to the two regions that formally became separated countries in 1993.

The overindustrialisation phenomenon<sup>39</sup> is confirmed in Table 2, especially for the two regions of the former Czechoslovakia. Poland presented one of the highest contributions of industry to GDP formation in 1990 together with the lowest employment in industry sector and the highest

<sup>37</sup> The initial conditions are generally related to 1989 or 1990.

<sup>38</sup> As well known, Slovenia experimented the particular "institutional framework and evolution" realised in the former Yugoslavia.

<sup>39</sup> Generally the planned economies were characterised by a higher share of industrial sector, compared to market economies of similar development level.

agricultural employment<sup>40</sup>. The urbanisation index was high in the Baltic republics. Initial distortions in trade flows can be captured by the share of export towards CMEA countries (extremely high in the Baltic republics, remarkable in Poland and very low in Slovenia<sup>41</sup>) and by an indicator of "black market exchange rate premium" (particularly high in the Baltic republics and quite low in Slovenia).

**Table 2 - Initial conditions (b): sectoral employment, urbanisation and exports**

	Employment (GDP curr. prices and <i>predicted</i> <sup>1</sup> ) % share in Industry 1990	Employment % share in Agriculture 1990	Urbanization (% of pop.) 1990	Total Exports in % of GDP and CMEA Exp. <sup>2</sup> 1990	Black market exchange rate % premium <sup>3</sup> 1990
PL	31.5 (52; 39)	24.8	61.4	33 (50)	277
HU	32.0 (36; 37)	12.8	61.5	28 (35)	46.7
CZ	41.9 (58; 37)	7.6	64.8	24 (41)	185
SK	42.3 (59; 36)	12.6	56.0	24 (41)	185
EE	37.4 (44; 34)	19.9	71.6	29 (94)	1828
LV	36.7 (45; 35)	17.9	70.9	33 (96)	1828
LT	42.0 (45; 35)	19.2	68.0	37 (91)	1828
SI	41.8 (44; 39)	14.3	50.3	24 (19)	27

Source: Cambridge Econometrics (only for sectoral employment), EBRD and The World Bank, History of Planned Economies, World Development Report (various issues).

<sup>1</sup> The *predicted* share of industry is derived using the regression results in Syrquin and Chenery (1986).

<sup>2</sup> Percentage shares of export with CMEA (Council for Mutual Economic Assistance) countries are presented in parenthesis.

<sup>3</sup> The black market exchange rate premium is an indicator of expectations and foreign exchange rationing.

Finally, as for the countries considered in this paper, we present in Table 3 the initial (1989) condition synthetic indexes (calculated in EBRD Transition report 1999), used in many empirical papers (e.g. Hare, 2001 and Fisher-Sahay, 2004)<sup>42</sup>. Better initial conditions were detected in Czech region, Hungary, Slovenia and Slovak region, with Poland in an intermediate position, while the Baltic countries largely resulted with the worst initial conditions<sup>43</sup>.

**Table 3 - Initial condition synthetic indexes (1989)**

PL	1.9
HU	3.3
CZ	3.5
SK	2.9
EE	-0.4
LV	-0.2
LT	0.0
SI	3.2

Source: EBRD Transition report (1999).

Note: These indexes are derived from factor analysis and represents a weighted average of measures for the level of development, trade dependence on CMEA, macroeconomic disequilibria, distance to the EU, natural resources endowments, market memory and state capacity. The higher values of the index relate to more favourable starting positions.

<sup>40</sup> This is also related to the highest share of private sector on total GNP.

<sup>41</sup> Obviously, this significantly depends also on geographical reasons.

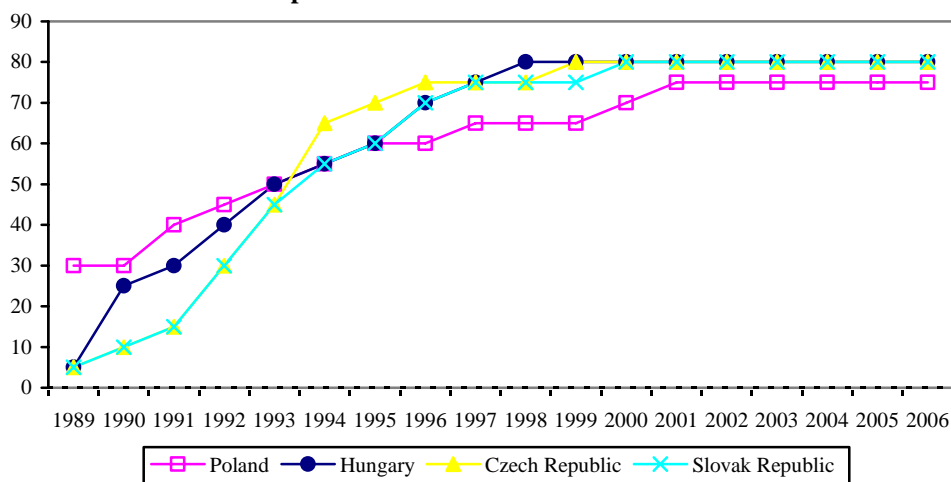
<sup>42</sup> Other indexes (like the FDI restriction index presented in Appendix) are calculated for specific periods only.

<sup>43</sup> These synthetic indexes have been calculated by considering all together 25 transition countries and, therefore, they do not necessarily reflect a precise ranking for the initial conditions in the group of the 8-CEECs.

### 3.2. Institutional change and reform policies

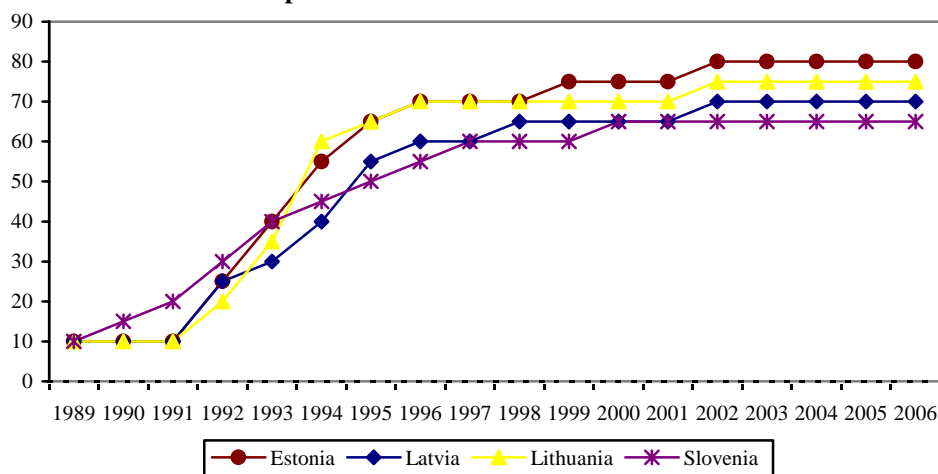
As shown in many papers reviewed in Section 2.1, institutional change is a very complex phenomenon that in transition countries occurred at a very rapid speed. In this Section we briefly present the available quantitative indicators<sup>44</sup> that can be used as proxy of institutional change and policy reforms in the eight CEECs (graphically distinguished in "four big" and "four small").

**Graph 1 - Private sector % share in GDP**



Source: EBRD data

**Graph 2 - Private sector % share in GDP**



Source: EBRD data

A common distinction is between initial-phase reforms, such as price and trade liberalisation and small-scale privatisation, and second-phase reforms which address deeper institutional reforms such as corporate governance, competition policy and reform of financial institutions. In addition, the 8 CEECs became EU members in May 2004 and in the previous years they had also to accomplish the objective of reaching the "*acquis communautaire*".

A first important stylized fact is that, in a very short period, the share of private sector in GDP, from an initial level lower than 10% (with the exception of Poland), remarkably increased up to 70-80%. Poland started with the highest share of private sector on GDP in 1989 (30%), it was reached in 1993-4 by the other three larger countries and it continued its lower "speed of privatisation" also in the second half of 1990s<sup>45</sup>.

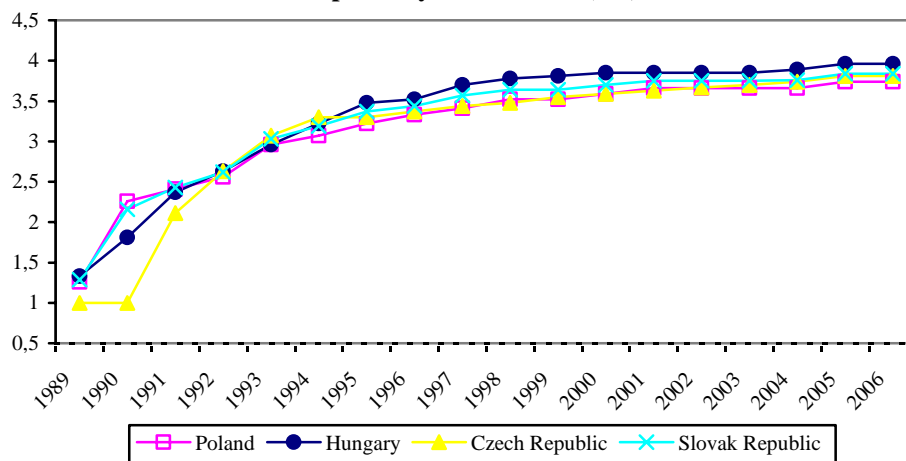
<sup>44</sup> Other researches devote more attention to the "quality" of institutions and factors affecting the business environment (e.g. Havrylyshyn and van Rooden 2003).

<sup>45</sup> The available data on employment in private sector are presented in the Appendix.

Every year the EBRD Transition report provides numerical scores for a set of nine reform indicators (the score ranges from 1, which represents little or no change from a planned economy, to 4+, which represents the standard of an advanced market economy). The nine EBRD transition indicators are highly correlated over time as shown by the Polish case (Table A2 in Appendix).

As a first step and as highlighted in some econometric researches (e.g. Raiser et al. 2001), the use of simple averages of some selected transition indicators "may not be a bad approximation of institutional change". We present the simple mean of the nine EBRD transition index in Graph 3 and 4. For example, Czech Region (that became an independent state in 1993) showed a rapid transition between 1990 and 1994, while Slovenia started from better initial conditions and exhibited a rather gradual transition in subsequent years. It should be noted that the largest part of transition progress occurred within a decade and, especially, in the first 5-6 years of transition.

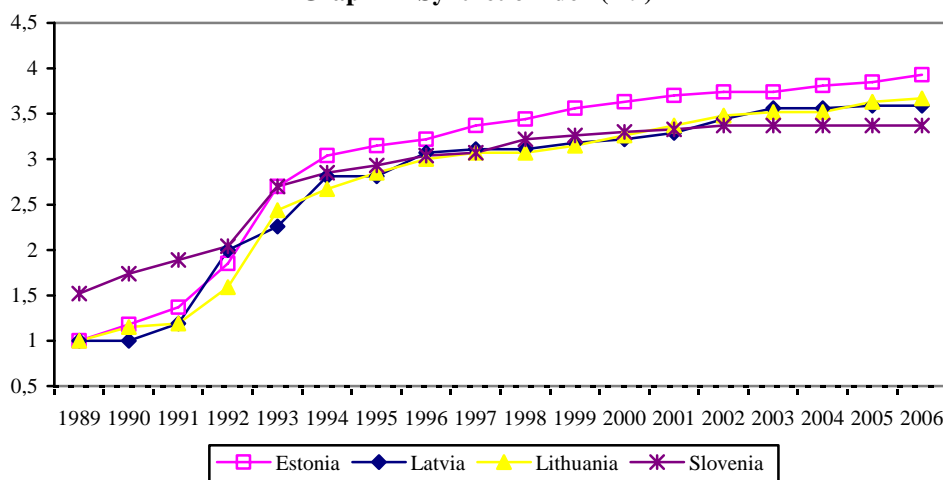
**Graph 3 - Synthetic index (1-9)**



Source: EBRD data

Note: The synthetic index is the simple mean of the following nine EBRD indexes: (i) large scale privatisation, (ii) small scale privatisation, (iii) enterprise restructuring, (iv) price liberalisation, (v) trade and foreign exchange system, (vi) competition policy, (vii) banking reform and interest rate liberalisation, (viii) securities markets and non-bank financial institutions, (ix) overall infrastructure reform.

**Graph 4 - Synthetic index (1-9)**



Source: EBRD data

Note: The synthetic index is the simple mean of the following nine EBRD index: (i) large scale privatisation, (ii) small scale privatisation, (iii) enterprise restructuring, (iv) price liberalisation, (v) trade and foreign exchange system, (vi) competition policy, (vii) banking reform and interest rate liberalisation, (viii) securities markets and non-bank financial institutions, (ix) overall infrastructure reform.

### 3. 3. Aggregate performance

In this section we present the main stylized facts at the national level, regarding (i) the intensity and duration of the "transitional recession", (ii) the economic performance measured in terms of per capita GDP, unemployment and employment rates, net job creation/destruction and inflation rate for the whole period 1989-2006 and (iii) the sigma convergence/divergence dynamics of per capita GDP and the rates of unemployment and employment.

**Table 4 - Duration and intensity of the "transitional recession"**

	First Transition year (T)	Lowest Output year (T <sub>M</sub> )	Total Output decline (from T-1 to T <sub>M</sub> )
CZECH REPUBLIC* (1948)	1991	1992	-12.1
SLOVAK REPUBLIC* (1948)	1991	1993	-24.4
POLAND (1948)	1990	1991	-13.7
HUNGARY (1948)	1990	1993	-18.1
Slovenia (1945)	1990	1992	-20.4
Estonia (1940)	1992	1994	-29.4
Latvia (1940)	1992	1993	-44.2
Lithuania (1940)	1992	1994	-40.6

Source: World Bank

Legend: T = the year in which central planning was dismantled. T<sub>M</sub> = the year in which the output was lowest.

CIS-5 = Russia, Belarus, Kazakhstan, Turkmenistan and Ukraine. CIS-7 = Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Tajikistan and Uzbekistan.

\* = We use the data of the two regions which became independent in 1993. \*\* = average. \*\*\* = with the exception of Moldova (1940).

In parenthesis the first year of communism is indicated.

The "transitional recession" was particularly severe in Latvia (-44.2% between 1991 and 1993) and Lithuania (-40.6% between 1991 and 1994), but also in Estonia (-29.4% between 1991 and 1994), Slovak Region (-24.4% between 1990 and 1993), Slovenia (-20.4% between 1989 and 1992) and Hungary (-18.1% between 1989 and 1993). The output decline was lower in Poland (-13.7% between 1989 and 1991) and Czech Region (-12.1% between 1990 and 1992). As already noted, the "transitional recessions" have been (generally) much more severe than expected (especially, considering that in some countries the recession started before the "first year of transition" considered below). The duration of the recession range from two years (Poland) to five years (Estonia and Lithuania).

The official figures of GDP and its growth are also related to the extent of the shadow economy<sup>46</sup>. The existing estimation (1999) highlighted significant differences (from the quite low levels of Slovak and Czech republics to the extremely high level in Latvia).

**Table 5 - The size (% of GDP) of the shadow economy in CEE countries in 1999**

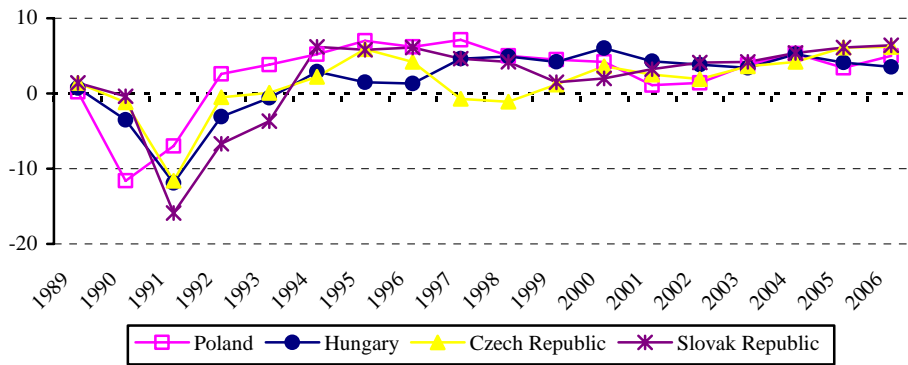
PL	HU	CH	SK	ES	LT	LV	SI
27.6	25.1	19.1	18.9	n.a.	30.3	39.9	27.1

Source: Schneider (2003), calculations based on World Bank data (2002)

The transitional recession has been followed by a gradual recovery of the initial per capita GDP and then by a significant development (Graph 5 and 6), with growth rates generally higher than those of the old EU members.

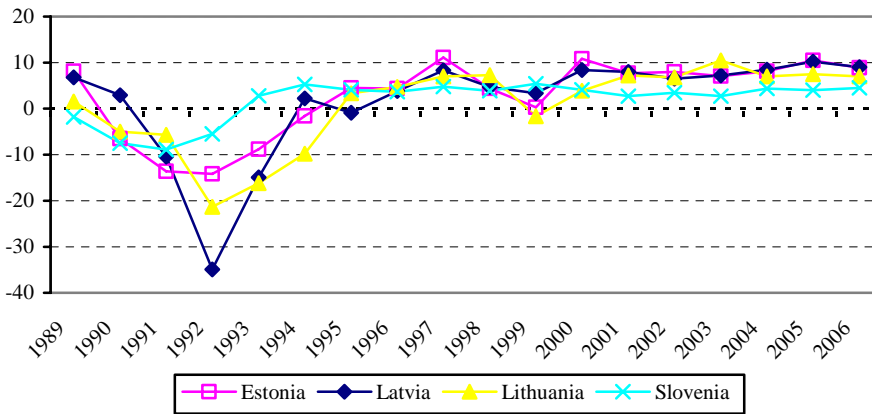
<sup>46</sup> Obviously, the difficulties in the estimation of the size of the shadow economy and its partial (and different) incorporation in official GDP estimates, partly reduced the comparability of data on GDP levels and changes.

Graph 5 - annual GDP growth rates 1989-2006



Source: EBRD data

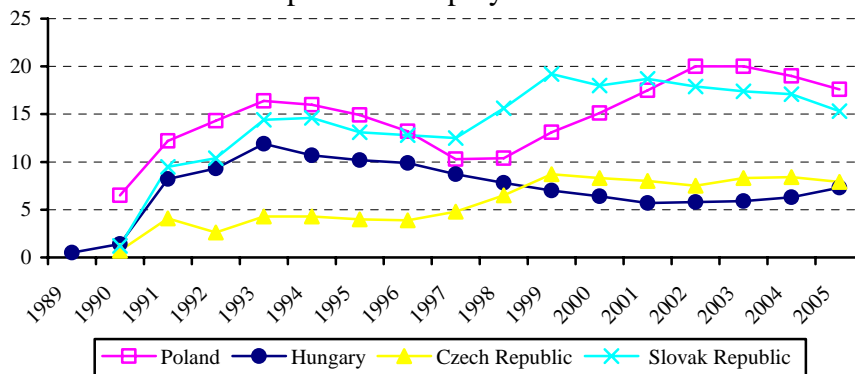
Graph 6 - annual GDP growth rates 1989-2006



Source: EBRD data

The unemployment rates exhibited complex national evolutions and differences between countries. In particular, Poland experimented the worst performance with a huge increase in the period 1990-93 (up to 16.4%) followed by a partial decline in 1994-97 (10.3% in 1997), a new increase in 1998-2002 (up to 20%) and a reduction in recent years (17.6% in 2005).

Graph 7 - Unemployment rates

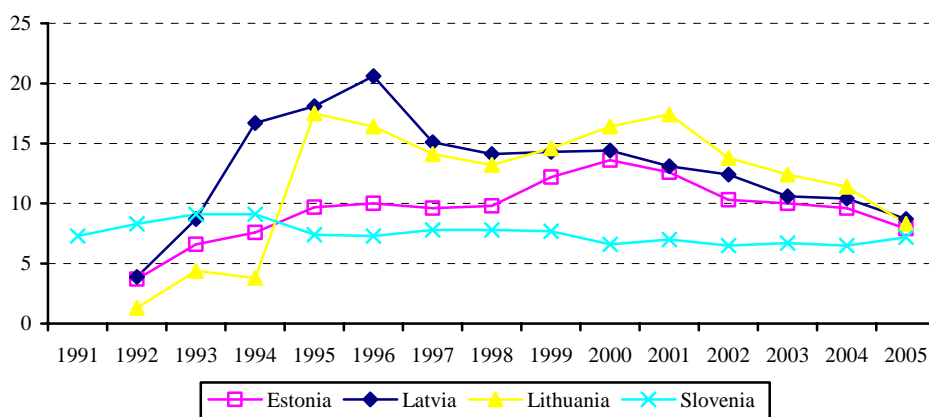


Source: EBRD data.

Slovak Republic showed a similar (negative) unemployment dynamics (up to 19.2% in 1999), with a slow reduction in recent years (15.3% in 2005). In Hungary the initial significant increase (up to 11.9% in 1993) was followed by a reduction in 1994-2001 (5.7% in 2001) and a moderate increase in recent years (up to 7.3% in 2005). Czech Republic displayed the best performance, with an unemployment rate lower than 5% in the period 1990-1997 followed by a partial increase and a stabilization near 7.5% in recent years.

As for the four smaller economies (Graph 8), the unemployment rate rapidly increased in Latvia (more than 20% in 1996) with a following reduction below 10%. In Lithuania, the increase in mid 1990s (17% in 1995) was followed by a period of stability around 15% and a clear decline in recent years. The unemployment rate gradually increased in Estonia (up to 14% in 2000) with a reduction in recent years. In Slovenia the unemployment rate never went over 10% and remained quite stable around 7%.

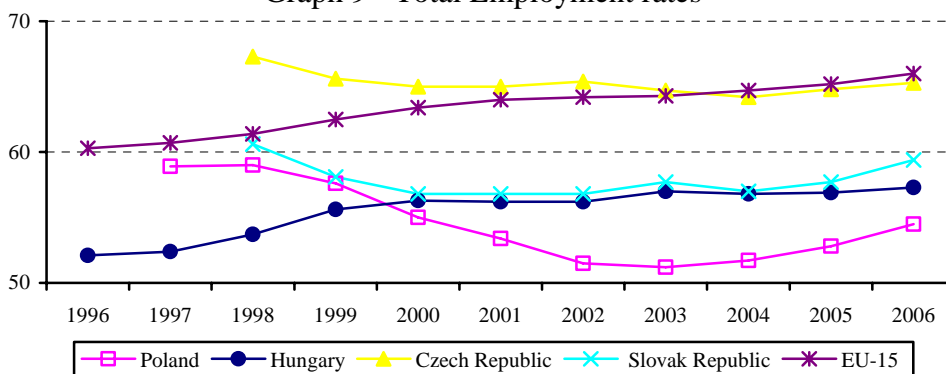
Graph 8 - Unemployment rates



Source: EBRD data.

If we consider the three quantitative objectives of the European Employment Strategy<sup>47</sup>, some interesting national differences arise. If we compare the total employment rate<sup>48</sup> (in recent years)<sup>49</sup> for the four big countries, the best performance of Czech Republic (with a recent trend similar to EU-15) and the dramatic position of Poland (with a distance of more than 15 points from European objective), are largely confirmed.

Graph 9 - Total Employment rates



Source: Eurostat data

<sup>47</sup> In the Lisbon European Council (2000) the following two objectives have been defined: (i) a total employment rate at 70% (calculated on working age population 15-64) and (ii) a female employment rate higher than 60%. Besides, at the Stockholm European Council (2001) the following objective for "older workers" has been defined: an employment rate higher than 50% for the population between 55 and 64 years. All the three objectives have to be reached by 2010.

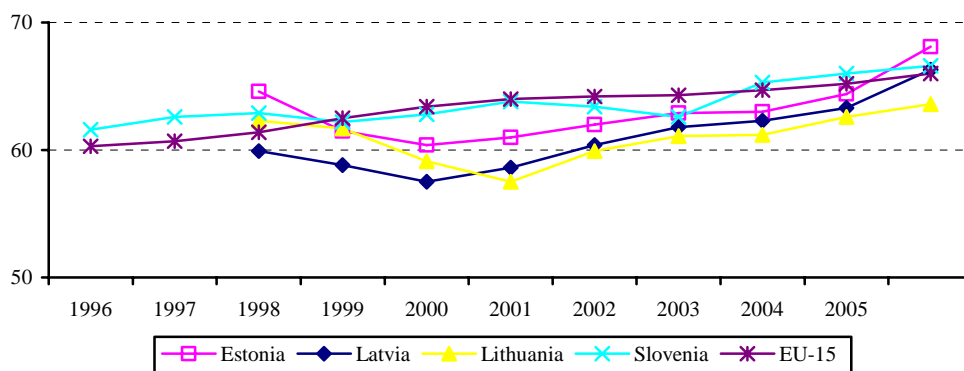
<sup>48</sup> The data for the other two European objectives are presented in the Appendix.

<sup>49</sup> The comparable (Eurostat) data are available only since 1996-98.

On the contrary, the labour market performance of Slovak Republic and Hungary appear much less positive with respect to the unemployment rate indicator. The four smaller economies experimented employment rates generally higher than 60%, with significant progress towards the European objective in recent year.

The economic and labour market performance can be measured by using other variables, like net job creation/destruction and inflation rate (see the Appendix).

Graph 10 - Total Employment rates



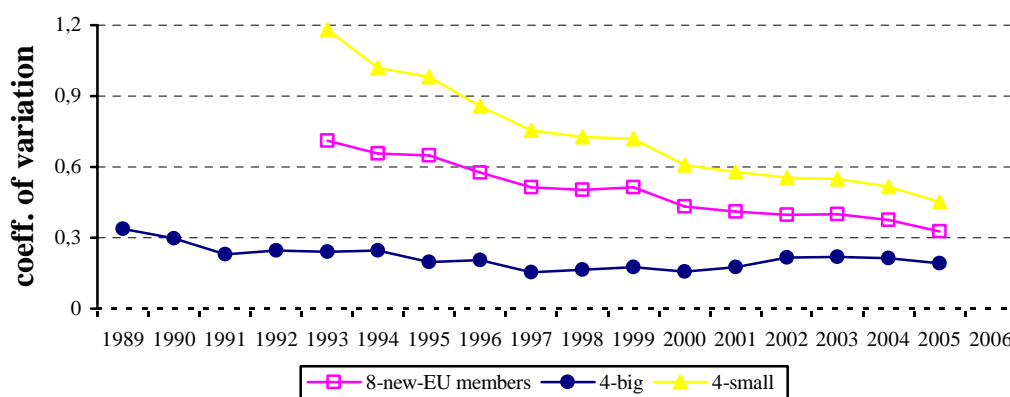
Source: Eurostat data

If we compare the relative growth of the eight countries, it is interesting to note that a general “sigma convergence” of national per capita GDP can be detected, with a stronger tendency for the four smaller countries.

Considering the unemployment rates, a sigma convergence for the period 1993-98 was followed by a moderate divergence (1998-2002) and a new slow convergence (2002-05). The above dynamics is the result of a significant sigma convergence between the four smaller countries (excluding the year 1993) and a substantial persistence of the disparities in the four big countries.<sup>50</sup>

By using the national total employment rates, any significant sigma convergence dynamic emerged, but the coefficient of variation resulted extremely low for the four smaller economies<sup>51</sup>.

Graph 11 - Disparities in national per capita GDP



Source: our elaboration on EBRD database.

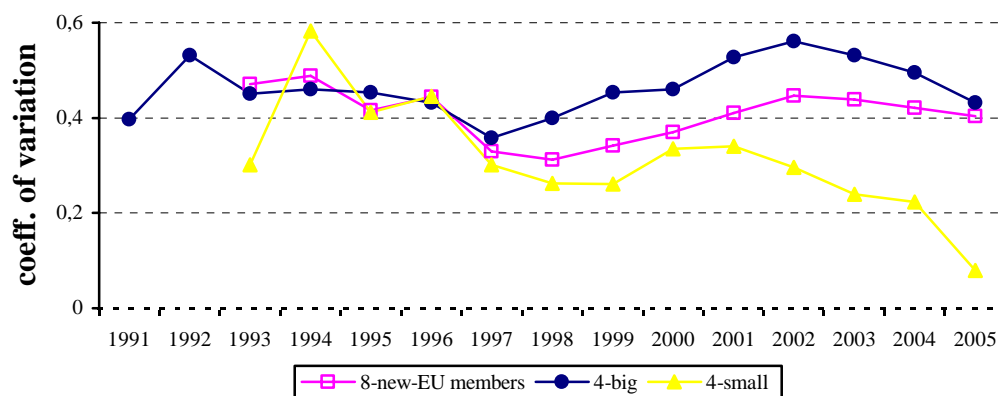
Note: 4-big = Poland, Hungary, Czech Republic and Slovak Republic; 4-small = Estonia, Latvia, Lithuania and Slovenia. The coefficient of variation is calculated on per capita GDP (in US Dollar).

<sup>50</sup> As highlighted in the Appendix, the sigma convergence for the inflation rate showed an unstable tendency, with a prevailing reduction of disparities in the first period and an unstable persistence in the more recent period.

<sup>51</sup> As for the sigma convergence on the other two European indicators, see the Appendix.



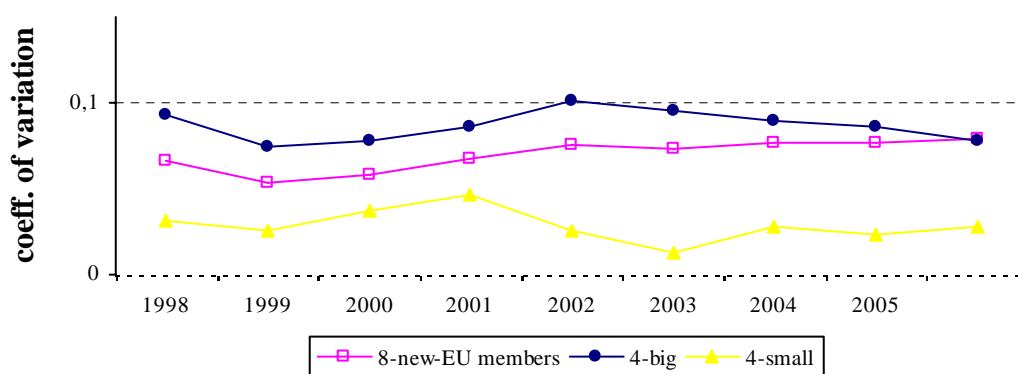
Graph 12 - Disparities in national unemployment rates



Source: our elaboration on EBRD database.

Note: 4-big = Poland, Hungary, Czech Republic and Slovak Republic; 4-small = Estonia, Latvia, Lithuania and Slovenia.

Graph 13 - Disparities in national total employment rates



Source: our elaboration on Source: Eurostat data

Note: 4-big = Poland, Hungary, Czech Republic and Slovak Republic; 4-small = Estonia, Latvia, Lithuania and Slovenia.

#### 4. Regional features of transition countries: some empirical results

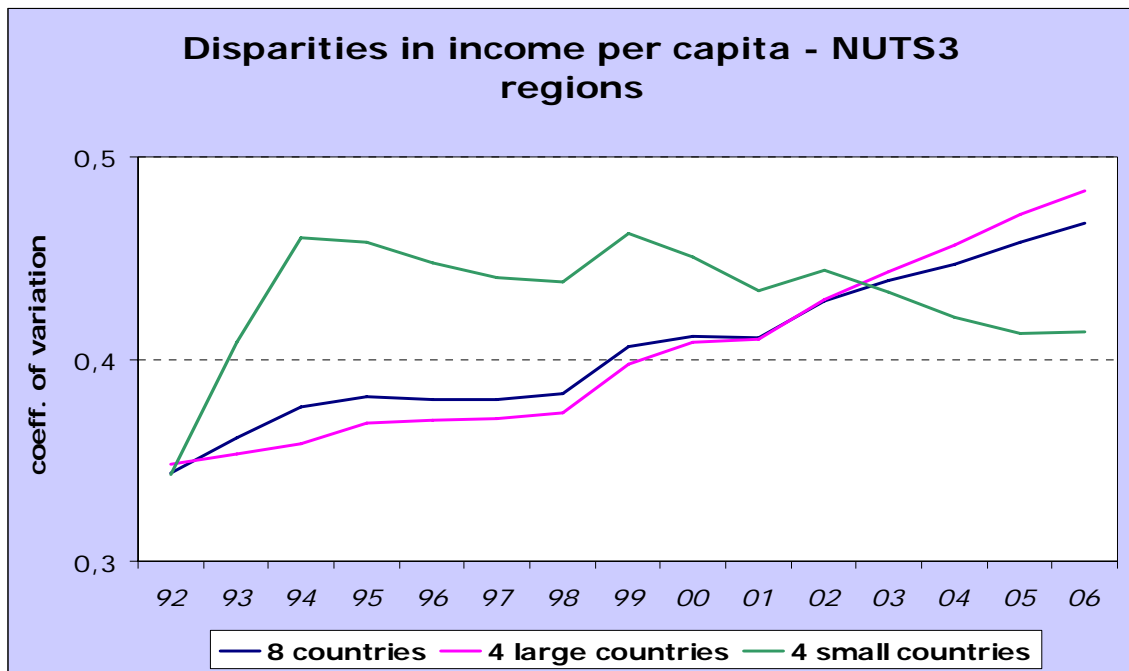
The eight transition countries, that have joined the EU in 2004, have shown in the period 1990-2006 a clear *catching-up* process, as confirmed by the growth of the index of per capita income toward the European (EU-25) average (Graphs A22 and A23 in the Appendix).<sup>52</sup> This can be appreciated both in large and in small countries of Eastern Europe. Apart from an initial period, corresponding to the “transitional recession” (see Section 3), we can notice a growing trend in all countries.

But now a possible question arises, which is the specific topic of this section. Was the growth and catching-up process a generalised phenomenon, common not only to all the eight countries, but also to all regions within those countries? The answer is clearly negative, since the growth process has been extremely heterogeneous. Just consider the dispersion in per capita

<sup>52</sup> The data are taken from Cambridge Econometrics’ European regional databank, which is based on the Eurostat series.

incomes of all (120) regions of the EU-8 group of countries. We refer to the NUTS-3 regions, a territorial disaggregation that is rather uncommon in research papers.<sup>53</sup>

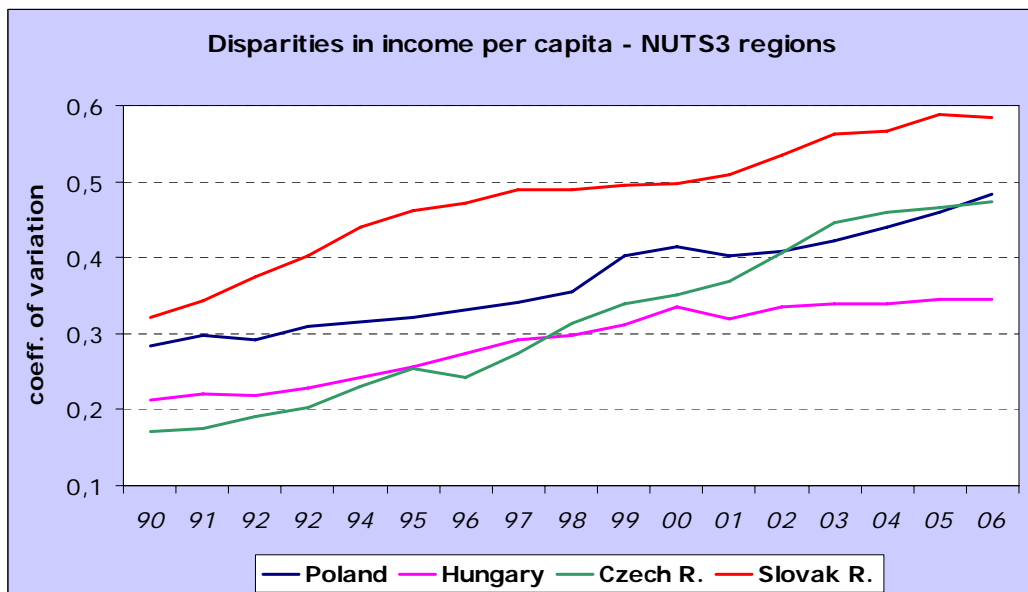
Graph 14



Source: our elaborations on Cambridge Econometrics data

Relative to the European average, income disparities have increased in all regions of large countries; in the small ones, they start to decrease in the recent years thanks to the *catching-up* at the country level (Graph 14). Considering now disparities *within countries* (Graphs 15 and 16), all of them, both large and small, exhibit a growing dispersion (only in Slovenia disparities have been more or less steady).

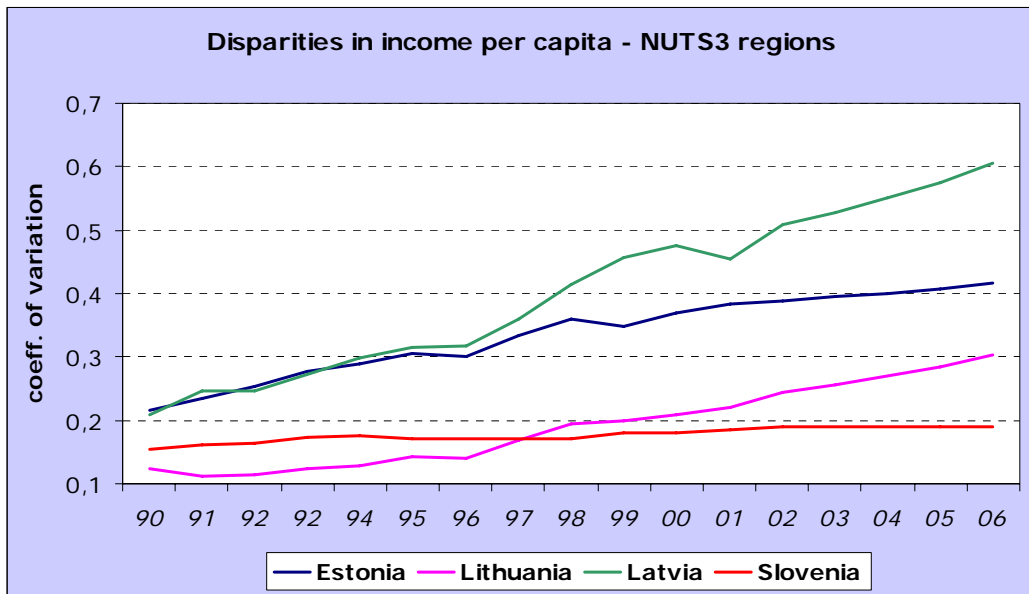
Graph 15



Source: our elaborations on Cambridge Econometrics data

<sup>53</sup> As an exception, see Aumayr (2007). For certain analysis this disaggregation does not have alternative solutions, also because the four smallest countries do not have a regional breakdown in NUTS-2 regions.

Graph 16

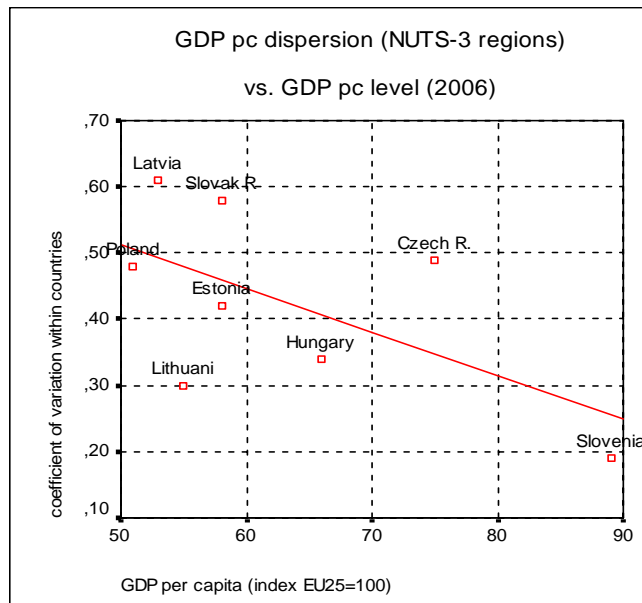


Source: our elaborations on Cambridge Econometrics data

By comparing Graph 11 of the previous section, exhibiting a sigma-convergence at the *national level* and the two latter graphs, displaying on the contrary a clear *divergence* at the *regional level*, a trade-off between fast growth of countries and the internal income distribution unambiguously emerges. This trade-off is more likely in the early stages of development, such as the transition period of the new members, coherently with the assumptions of the Williamson's law (1965).

A cross-section snap-shot of the *beta-convergence*, or rather – in our case – divergence, is offered by this Graph, concerning the situation in 2006: incomes disparities are highest in low-income countries.

Graph 17

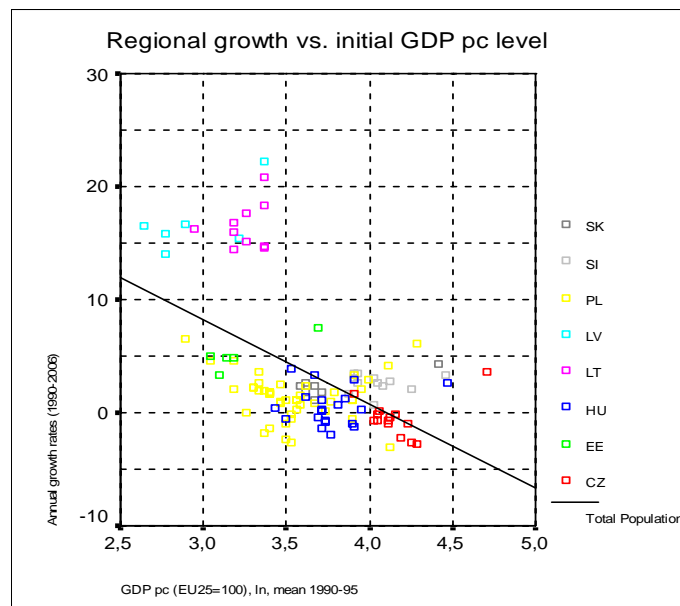


Source: our elaborations on Cambridge Econometrics data

A time-series view of the beta-convergence is instead presented by Graph 18, from which we can see that the rate of growth has been higher in regions with an initial<sup>54</sup> low level of per-capita income. But, again, this is the outcome of the convergence process *between* countries (see the clustering of the regions of each country in specific areas of the graph); *within* countries the situation is much less clear.

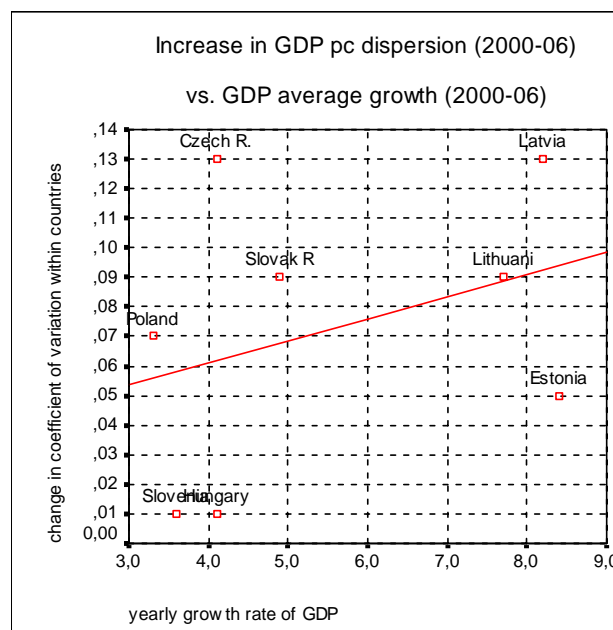
The divergence trends of regional per-capita income *within countries* are evident from Graph 19, where it is shown, with reference to the most recent period (2000-06), that in general disparities increase more in fast-growing countries.

**Graph 18**



Source: our elaborations on Cambridge Econometrics data

**Graph 19**



Source: our elaborations on Cambridge Econometrics data

<sup>54</sup> The average income for the period 1990-95 has been considered, in order to exclude unusual values of per capita GDP for certain regions.

The mentioned trade-off may arise because of spatial polarisation processes, such as those investigated in the *new economic geography* and focusing on the links between trade integration, economies of scale and concentration of production (see e.g. Krugman, 1993). The theoretical models have been further developed by considering spatial accessibility and trade costs.

Thus, as recently explained by Martin (2006), certain regions, although lacking obvious comparative advantages, can become centres of production thanks to the interaction between the working of economies of scale and trade costs: economies of scale, together with easier access to markets, may compensate for higher production costs. This is the case of the leading regions in transition countries.<sup>55</sup> Similar polarization effects can be found also in terms of unemployment (Overman and Puga, 2002).

To get an idea of the extent of *concentration of production* in the eight transition countries, we can compute an index of spatial concentration (à la Gini) of total value added: this variable is better than employment since it takes account of possible differences in productivity due to concentration of production, internal and external economies of scale, etc. Such an index of dissimilarity<sup>56</sup> reveals an increasing concentration in all countries (see Graphs A24 and A25 in the Appendix); Slovenia is the only exception.

A more direct measure of concentration is to consider how production is clustering toward the leading areas of each country, i.e. around the *capital cities*. Table A.4 in the Appendix shows the concentration of Total Value Added (as well as of value added of the three main sectors: agriculture, industry, and the services), in comparison with concentration of Population, for three years: 1990, 2000, 2006. First of all, it is interesting that population has not clustered toward capital cities (differently from the trends in many developing countries): in Budapest and in Riga the share of national population has actually decreased; in other countries, no relevant changes can be detected.

A clustering of *service* activities around capital cities was expected and can actually be observed from the data, ranging in the final year to more than 70% in Estonia and Latvia (of course the highest concentrations are normally found in smaller countries), to a bit less than 20% in Poland. More surprising is the concentration of *industry's* value added: more than half of industrial output – in terms of value added – in Estonia and Latvia comes from capital cities' regions, in all other cases, there has been an increase, at least till 2000 (then in some countries there has been a stationary situation or a slight fall).

As a consequence, given the much more stable distribution of population, the spatial changes in economic activities have led both to huge *increases in productivity* in the “leading” areas of each country and to large *improvements in (relative) per-capita incomes*. This conjecture is confirmed by the data of Jasmand and Stiller (2005), who found higher productivity levels and widening gaps in the capitals (with the largest gap in Budapest, whose productivity is 80% greater than the national average); the authors emphasize too that many capital cities of transition countries already have a per capita income (measured in purchasing power parities) well above the EU15 average. Moreover, unemployment rates are lower than in the rest of the countries.

A possible explanation is that in the '90s capitals' regions were more flexible in adjusting to transition, EU integration and changing economic structures, thanks to their greater diversification (in contrast with former mono-industrialised industrial regions, in particular those specialised on armament, mining, steel and textile industries, under central planning). Moreover, the clustering of

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<sup>55</sup> Martin (2006) illustrates a scenario of *global convergence and local divergence*, that may arise “if the international cost advantage of the poorer country is larger than the national cost advantage of the poorer region”; the cost of production is the main driving cost between countries (in fact wages and labour costs still differ widely between countries), while market access is the main driving force of location between regions. Moreover, the richest regions of poor countries benefit usually both from large domestic markets and good market access to other countries.

<sup>56</sup> It is the summation of vertical deviations between the Lorenz curve and the line of perfect equality (the closer the DIS is to 1, the more dissimilar the distribution is to the line of perfect equality):  $DIS = \frac{1}{2} \sum_r |1/n - s_r|$ ; where  $1/n$  ( $n$  is the number of regions) is the expected share of region  $r$  in case of perfect equality and  $s_r$  is the actual share of each region.

activities around capital cities can also be explained by the interaction between industrial activities, the existence of advanced services, the availability of “superior” resources (human capital, know how, research centres, public services, FDI attraction pools, good infrastructure, etc.), and the accessibility to large (both domestic and foreign) markets.

Besides the spatial concentration, another structural feature of regional economies is their *productive specialisation*. Previous research (Marelli, 2006) has shown that, at the NUTS-2 level, in Europe regional specialisation has decreased in the overall economy and in the services, while it has increased in the industrial sector; in the transition economies, the specialisation index is higher than in other European countries, but in most cases it is decreasing as well. A commonly used index is the *specialization coefficient* or Krugman’s specialization index:

$$KSI_r = \frac{1}{2} \sum_i |s_{i,r} - s_{i,0}|$$

where  $s_{i,r}$  is the share of sector  $i$  out of total employment in region  $r$  and  $s_{i,0}$  is the corresponding share in the reference region (or country).

At the NUTS-3 level, structural convergence can be analyzed just for three sectors ( $i =$  agriculture, industry, services). In our case, the KSI index has been computed on the basis of employment data and  $s_{i,0}$  is the national share of each country (because we are interested in the *within-country* sectoral specialisation). Results are shown in Table A.5 in the Appendix.<sup>57</sup> Apart from 1990 (the results for this year do not seem reliable), the index is falling everywhere, except in Poland (confirming the results of NUTS-2 analysis, but the increase is slight in any case), Lithuania and Latvia. In general, the tertiarisation forces are likely to explain to a large extent the homogenization of employment structures also in this sample of regions.

## 5. Regional convergence, growth, employment and institutional change: econometric investigations

In order to ascertain more rigorously the links between regional convergence and the other relevant variables – spatial and structural characteristics, institutional change – we have carried out some regression analyses. The data are mainly taken from Cambridge Econometrics databank and from the EBRD Transition Report.

The empirical analysis refers to the eight CECCs (joining the EU in 2004), for the period 1990-2006. The territorial units are the NUTS-3 regions of Eurostat classification. The full sample of regions includes 120 NUTS-3 regions.<sup>58</sup>

### 5.1 Income convergence of regions

It is well-known that the *β-convergence* approach implies the estimation of a regression of the following type:

$$(\ln y_{r,t} - \ln y_{r,0})/t = \alpha + \beta \ln y_{r,0} + \gamma x_{r,0} + \varepsilon$$

i.e. a cross-section, for a sample of  $n$  regions ( $r=1, \dots, n$ ), where the regional growth rate of per capita income (at constant prices) in a certain period ( $0, t$ ) is regressed on the initial level of per capita income ( $y_{r,0}$ ). If the  $x$ ’s (one or more) variables are not included, we talk of an *absolute β-convergence* approach; otherwise, in a *conditional β-convergence* approach, the  $x$ ’s may be some “structural” variables. In the latter case, convergence of each region is toward its own steady-state, characterised by such structural variable.<sup>59</sup>

In our case,  $y$  is GDP per capita (in purchasing power parity, index number). Among the control variables  $x$ ’s we include:

- the synthetic EBRD index of institutional change,

<sup>57</sup> Since we have, for each year, as many KSI, as the total number of NUTS-3 regions (120), Table A.5 presents, for each country, the simple means of the regional KSI.

<sup>58</sup> The list of the 120 regions is available upon request; for certain regressions, the available data refer to 119 regions.

<sup>59</sup> In the initial studies: propensity to save, population growth, rate of technical progress, R&D expenditures, human capital endowments, etc.

- some alternative structural variables (either KSI, the Krugman specialisation index, or the employment shares of specific sectors: agriculture, industry, services);
- the DIS index of spatial concentration (of total value added)<sup>60</sup>.

**Table 6 – Absolute and conditional beta convergence: GDP (ppp) per capita <sup>(1)</sup>**

eq.	periods	$\beta$ , t-test	$\gamma$ , t-test <sup>(2)</sup>			adj. R <sup>2</sup>	F-test
			Instit. <sup>(3)</sup>	Struct. <sup>(4)</sup>	other <sup>(5)</sup> or dummies		
1.1	1990-2006	-0.91*** (24.1)				0.831	580.6
1.2	1990-1995	-0.94*** (29.9)				0.884	896.4
1.3	1995-2000	-0.05 (0.5)				-0.006	0.3
1.4	2000-2006	0.07 (0.7)				-0.004	0.5
1.7	1990-2006	-0.31*** (3.3)			CD: EE+, LT+, LV+, SI+	0.891	194.3
1.8	1990-1995	-0.05 (0.9)			CD: EE+, LT+, LV+, SI+, CZ-, HU-	0.979	799.5
1.9	1995-2000	0.35*** (3.4)			CD: SI-, CZ-, HU-	0.283	12.6
1.10	2000-2006	0.31*** (3.5)			CD: EE+, LT+, LV+, HU+, SK+	0.285	8.9
1.11	1990-2006	-0.89*** (23.3)	$\Delta E$ : 0.10** (2.6)			0.839	307.8
1.12	1990-2006		$\Delta E$ : 0.32*** (3.6)			0.094	13.2
1.13	1990-1995	-0.93*** (31.1)	$\Delta E$ : 0.11*** (3.6)			0.894	500.0
1.14	1995-2000	0.08 (0.8)	$\Delta E$ : 0.30*** (3.1)			0.061	4.9
1.15	2000-2006	0.19** (2.1)	$\Delta E$ : 0.42*** (4.7)			0.152	11.6
1.16	1990-2006	-0.92*** (25.4)		$I$ : 0.12*** (3.5)		0.846	325.2
1.17	1990-2006	-0.90*** (23.8)		$\Delta I$ : -0.09*** (2.4)		0.838	305.7
1.18	1990-2006	-0.97*** (26.6)		$S$ : 0.18*** (4.9)		0.859	359.8
1.19	1990-2006	-0.92*** (25.0)		$\Delta S$ : 0.11*** (3.0)		0.842	315.0
1.20	1990-2006	-0.94*** (14.1)	$\Delta E$ : 0.08* (1.7)	$\Delta S$ : 0.08*** (2.1)	$\Delta DIS$ : -0.06 (0.8)	0.843	159.7
1.21	1990-1995	-0.97*** (20.5)	$\Delta E$ : 0.13*** (3.2)	$\Delta S$ : 0.02 (0.7)	$\Delta DIS$ : -0.06 (1.1)	0.894	248.8
1.22	1995-2000	0.07 (0.6)	$\Delta E$ : 0.31*** (2.8)	$\Delta S$ : 0.03 (0.1)	$\Delta DIS$ : -0.06 (1.1)	0.045	2.4
1.23	2000-2006	0.27*** (2.9)	$\Delta E$ : 0.26*** (2.6)	$\Delta S$ : 0.06 (0.6)	$\Delta DIS$ : 0.34*** (3.2)	0.207	8.7

Notes: <sup>(1)</sup> number of obs. 119 in all equations; <sup>(2)</sup>  $\Delta$  means change of the variable in the period (otherwise initial levels); <sup>(3)</sup>  $E$  is the synthetic EBRD index; <sup>(4)</sup>  $A$ ,  $I$ ,  $S$  are the employment shares of the three sectors; <sup>(5)</sup>  $DIS$  is the spatial concentration coefficient,  $CD$  are country-dummies,  $TD$  are time-dummies (only the significant cases and their sign are reported). t-stat. in parentheses; significance levels: 1%\*\*\*, 5%\*\* , 10%\*

Source: elaborations on Cambridge Econometrics and EBRD data

<sup>60</sup> This index is equal for all regions of the same country.

The results of Table 6 show that, over the full period (1990-2006), there has been a satisfactory degree of *absolute convergence* (eq. 1.1), with high statistical significance. Considering now three distinct sub-periods (1990-1995, 1995-2000, 2000-2006), we can see (eqs. 1.2-1.4) that absolute convergence is confirmed in the first sub-period, then it becomes non significant in the second one, and in the most recent years a divergence appears (though not significant).

If we now add some *country dummies* (eqs. 1.7-1.10), convergence is again established for the full period, though the  $\beta$  coefficient is much smaller; a clear and significant divergence appears in the two last sub-periods, i.e. over the last ten years. The meaning is that if we control for the different rates of growth of various countries (in particular the Baltic states had higher growth rates), disparities across regions appear to be increasing, with poor regions worsening their position in relative terms, as already shown in Section 4.

Considering, at this stage, a more explicit  *$\beta$ -conditional approach*, we are first of all interested in the impact of the institutional variables. Thus, among the control variables ( $\gamma$ ), we initially include the synthetic EBRD index. Eq. 1.11 reveals that for the full period this *institutional* variable has a positive effect on regional growth<sup>61</sup> (and its statistical significance is satisfactory); on the other hand, the  $\beta$  coefficient is confirmed in its sign, numerical value and statistical significance.

If we change the explanatory variable, by substituting the institutional index with a *structural* variable<sup>62</sup>, eqs. 1.16-1.19 show a positive value of the initial shares (in terms of employment)<sup>63</sup> of both industry and the services. If we instead consider the change over time of such shares, while the services maintain a positive impact, industry reveals a negative effect on regional growth (the coefficients are always significant): it is possible that diversification in production, with a fall in the industrial share, had positive effects on growth, especially in heavily industrialised regions of the former planned economy; as regards the positive role of services, instead, we must recall the advantages of the leading areas of each country, in particular of capital cities (see section 4).

A more general specification includes both institutional<sup>64</sup> and structural variables, as well as the index of spatial concentration. For the full period (eq. 1.20), conditional  $\beta$ -convergence is once more established: the magnitude and significance level of the coefficient is an indication of the robustness of the results. However, the institutional variable is only partially significant, in addition to the change in the services' share. As regard the single sub-periods (eqs. 1.21-1.23), convergence is established for the first period, lack of convergence is found in the second and (significant) divergence in the last one. Structural variables are not significant in general and the spatial concentration index (DIS) only in the last period: a possible interpretation is that concentration of production in a given country has favoured the growth of all its regions (but with rising income disparities as shown by the  $\beta$ -divergence).

## 5.2 Value added and employment growth in CEEC regions: the role of institutional change

This second type of analysis consists in explaining, first of all, value added and, secondarily, employment growth of CEEC's regions, on the basis of institutional and structural variables; the latter should include also some regional features, such as the spatial concentration and sectoral specialisation of regions (as measured by our DIS and KSI indices).

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<sup>61</sup> Regarding the direct and sole effect of EBRD index on regional growth (away from the convergence analysis), eq. 1.12 reveals a positive and significant effect (of course the goodness of fit of the regression is rather low).

<sup>62</sup> On the other hand, the geographical index of spatial concentration (DIS) is not in general significant.

<sup>63</sup> No improvement is achieved by considering the shares in terms of value added.

<sup>64</sup> The synthetic index EBRD is used once more; we have tried to include, in its place, more specific indices (such as an index of enterprise restructuring, an index of competition policy, the number of years under the planned economy as initial condition), but the results are generally worse.



We have 120 regions and 17 years for the full period, but we would like to obtain some estimations also for some sub-intervals<sup>65</sup>. Only *gross value added* and *employment* (or, for a different specification, the *employment rate*)<sup>66</sup> do vary across regions, while the institutional variable (the EBRD synthetic index) as well as the DIS and KSI indices are the same for all regions of a given country.

In this case, we assumed that the best estimation strategy was to use either fixed or random effects models. The choice between the two was not easy, also because the standard Hausman test was not applicable.<sup>67</sup> As an alternative we have used an “augmented regression test”, consisting in a Wald test on the coefficients of an augmented regression that nests both the random and fixed effects models. The results of this test ( $\chi^2(2) = 304.02, p\text{-value} = 0.0000$ ) lead to the rejection of the hypothesis of equivalence between fixed effects and random effects, thus supporting the fixed effects model.

The results of the fixed effects estimations are in Tables 7 and 8. In eqs. 2.1-2.13 (Table 7) the dependent variable is *Gross Value Added* and in the first five equations the only explanatory variable is the EBRD index.

**Table 7 – Value added (dependent variable) in CCEC regions (fixed effects)**

eq.	periods	n. obs.	$\gamma$ , t-test			adj. R <sup>2</sup>
			Instit. <sup>(1)</sup>	K <sup>(2)</sup>	D <sup>(3)</sup>	
2.1	1990-2006	2040	402.9*** (18.4)			.037
2.2	1990-1995	720	87.8*** (6.9)			.032
2.3	1996-2000	600	898.1*** (9.4)			.039
2.4	2001-2006	720	1834.0*** (10.5)			.017
2.5	1996-2006	1440	1269.0*** (18.2)			.037
2.6	1990-2006	2040	453.1*** (17.8)	3472.3*** (3.8)		.035
2.7	1990-1995	720	66.9*** (4.4)	-832.4** (-2.4)		.025
2.8	1996-2000	600	896.5*** (9.4)	7012.3* (1.9)		.022
2.9	2001-2006	720	1833.8*** (10.1)	20.9 (0.0)		.017
2.10	1990-2006	2040	164.67*** (4.8)		6120.5*** (9.0)	.007
2.11	1990-1995	720	-32.4 (1.4)		9078.1*** (6.2)	.036
2.12	1996-2000	600	657.1*** (4.9)		2545.4** (2.5)	.003
2.13	2001-2006	720	870.3*** (3.2)		6942.0*** (4.5)	.029

Notes: <sup>(1)</sup> institutional variable is the synthetic EBRD index; <sup>(2)</sup> K is the Krugman specialisation coefficient; <sup>(3)</sup> DIS is the spatial concentration coefficient; t-stat. in parentheses; significance levels: 1%\*\*\*, 5%\*\*\*, 10%\*

Source: elaborations on Cambridge Econometrics and EBRD data

Although (as expected) the overall goodness of fit is rather low, the EBRD index is always positive and significant. This is true for the full period (eq. 2.1) and also for the three sub-periods

<sup>65</sup> In future research, we intend to better focus on the first years of transition, also by taking account that the starting year is not the same in the different countries.

<sup>66</sup> All this data are taken from Cambridge Econometrics; the employment rate is just computed as total employment divided by regional population.

<sup>67</sup> In fact, the difference of the variance and covariance matrices of the two models was not positive definite.

(1990-1995, 1996-2000, 2001-2006); also considering the full decade following the transitional recessions (eq. 2.5) the outcome is confirmed. Thus, institutional change has been a powerful force in sustaining value added growth also at the regional level.

**Table 8 – Employment and employment rate <sup>(1)</sup> in CCEC regions (fixed effects)**

eq.	periods	n. obs.	$\gamma$ , t-test			adj. R <sup>2</sup>
			Instit. <sup>(2)</sup>	GVA <sup>(3)</sup>	other <sup>(4)</sup>	
2.14	1990-2006	2040	-16.97*** (-19.0)	.0064*** (6.5)		.432
2.15	1990-1995	720	-16.81*** (-13.5)	.0034*** (6.1)		.711
2.16	1996-2000	600	-24.06*** (-4.8)	.0100*** (4.5)		.675
2.17	2001-2006	720	23.50*** (3.8)	.0058*** (4.4)		.702
2.18	1990-2006	2040	-11.91*** (-7.9)	.0073*** (7.3)	D: -139.4*** (-4.6)	.541
2.19	1990-1995	720	-7.40*** (-3.4)	.0285*** (7.3)	D: -744.3*** (-5.2)	.560
2.20	1996-2000	600	-8.24 (-1.2)	.0108*** (4.9)	D: -175.3*** (-3.6)	.708
2.21	2001-2006	720	50.64*** (5.7)	.0068*** (5.2)	D: -208.7*** (-4.1)	.593
2.22	1990-2006	2040	-13.60*** (-7.7)	.0074*** (7.4)	D: -124.1*** (-3.9) K: -73.9* (-1.8)	.516
2.23	1990-1995	720	-8.04*** (-3.5)	.0281*** (7.2)	D: -751.6*** (-5.3) K: -30.3 (-0.9)	.510
2.24	1996-2000	600	-12.84* (-1.9)	.0111*** (5.1)	D: -128.3** (-2.5) K: -489.7*** (-2.6)	.490
2.25	2001-2006	720	51.25*** (5.8)	.0067*** (5.1)	D: -189.9*** (-3.7) K: -278.5* (-1.8)	.509
2.26	1990-2006	2040	-2.67*** (-9.7)	.0017*** (11.2)	D: -20.07*** (-4.1) K: 14.77** (2.3)	.098
2.27	1990-1995	720	-1.30*** (-3.7)	.0037*** (6.2)	D: -172.8*** (-7.9) K: 5.34 (1.1)	.010
2.28	1996-2000	600	-0.72 (-0.7)	.0016*** (4.6)	D: -172.8*** (-7.9) K: -15.85 (-0.5)	.105
2.29	2001-2006	720	8.93*** (6.1)	.0010*** (4.7)	D: -15.41* (-1.8) K: 27.8 (1.1)	.026

Notes: <sup>(1)</sup> dependent variable: Employment in eqs. 2.14-2.25, Employment rate in eqs. 2.26-2.29; <sup>(2)</sup> institutional variable is the synthetic EBRD index; <sup>(3)</sup> GVA is explanatory variable in eqs. 2.14-2.29 only; <sup>(4)</sup> DIS is the spatial concentration coefficient and K is the Krugman specialisation coefficient; t-stat. in parentheses; significance levels: 1%\*\*\*, 5%\*\*\*, 10%\*

Source: elaborations on Cambridge Econometrics and EBRD data

In the following regressions, some other explanatory variable are added: the Krugman specialisation index (in eqs. 2.6-2.9) and spatial concentration index (in eqs. 2.10-2.13); while the institutional variable (EBRD) maintains in general its significance, the results are interesting especially in the case of the DIS variable. Its positive and significant coefficient reveals that spatial concentration of productions has been positive, on average, for the growth of all regions (although causing increasing disparities as seen in sub-section 5.1).

In eqs. 2.14-2.25 (Table 8), the dependent variable is *Employment*. Here, in addition to the institutional variable, another “obvious” explanatory variable is value added; although the links between employment and value added – with the underlying changes in productivity – are rather complex, both at the theoretical level and in the empirical investigations<sup>68</sup>, we “obviously” expect a positive effect of value added on employment. This is precisely the outcome in eqs. 2.14-2.17, where the coefficient of GVA is always positive and significant; also the overall goodness of fit is now rather high.

Some more words should be devoted to the effects of the EBRD variable. While in the first decade (1990-2000) it had a negative and significant impact on employment, in the recent years (after 2000) its impact turned out to be positive. These results are not surprising if we consider that initially privatisations and market reforms were accompanied by rationalisations and restructuring processes with remarkable *negative effects on employment* (in this period productivity gains have been the most important); in the *long run*, however, institutional change is *positive also for employment* (as confirmed by the results concerning the 2001-2006 period).

The inclusion of the spatial concentration index among the explanatory variables (eqs. 2.18-2.21) does not alter the results concerning GVA and EBRD<sup>69</sup>; on the other hand, the sign of the DIS coefficient is negative and significant (while it was positive in eqs. 2.10-2.13). Concentration of production has reduced employment in peripheral areas because of the fall in production levels in such regions; but it has diminished employment in the leading areas as well, because they have probably followed an “intensive” model of growth.

The addition of the sectoral specialisation coefficient (eqs. 2.22-2.25) does not change substantially the previous results – concerning GVA, EBRD and DIS – thus confirming their robustness and indicates a negative role for the sectoral specialisation: when the regions tend to become too specialised, their employment levels suffer.

The last four equations (2.26-2.29) are similar to the previous ones, but the dependent variable is now the *employment rate*. While the goodness of fit is much lower, the sign and significance of the previous variables – GVA, EBRD, DIS and KSI – is almost unchanged. Once more, institutional change had negative effects in the first decade (although the coefficient is not significant in 1996-2000) and a positive impact – on regional employment rates – in the recent years (after 2000).

## 6. Conclusions and policy implications

This paper has analysed the main differences/similarities and dynamics in institutional frameworks, regional/sectoral features and labour market performances in the eight transition countries that became EU members in May 2004 (8-CEECs).

As to the institutional processes, a partial review of the main theoretical and empirical literature on the “*great transformation*” (Kornai, 2006) has focused on the relationship between institutional change and economic/employment performance as well as on the studies considering the regional features of the transition processes. Some stylized facts for the eight CEECs have been presented, by highlighting the main national differences and key characters of: (i) the initial

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<sup>68</sup> As well known, the complex theoretical relationship between GDP growth and (un)employment changes has been largely debated in literature; in addition, the empirical results on the elasticity of (un)employment to GDP are generally highly unstable over time and differentiated across countries and regions (e.g. Perugini and Signorelli 2005 and 2007).

<sup>69</sup> The latter is less significant only in the second sub-period.

conditions, (ii) the institutional changes and progress in transition and (iii) the aggregate performance (GDP growth, unemployment and employment rates, etc.).

Here we just recall that the “institutional jump” in the 8-CEECs – e.g. the private sector share on GDP initially at 5-10% (Poland at 30% was the exception), increased to more than 50% in 3-5 years of transition and reached 70-80% in less than a decade – was accompanied and/or followed by: (i) huge (and different) GDP declines in the first years of transition; (ii) high (and, in some cases, persisting) unemployment rates; (iii) the prevailing, until recent years, of net job destructions; (iv) the persistence of different and significant gaps from the European employment objectives, with partial improvements in recent years; (v) a sigma convergence in national per capita GDP, especially between the four small countries; (vi) a general persistence in disparities on unemployment and employment rates, with sigma (club) convergence for the unemployment rates of the four small countries since 1994.

The empirical analysis of this paper focused also on some *regional features* of the transition process in this group of countries. Differently from previous research, in this paper we have employed, in a rather innovative way, a territorial breakdown in NUTS-3 level regions: the large number of regions (120) and the availability of spatially disaggregated variables for all the eight countries make more meaningful the statistical investigations.

A first definite result is the clear process of *concentration* of production and economic activities toward the leading regions of each country, coincident by and large with the capital cities. Not only was concentration of the services a likely phenomenon – although the extent found in this group of countries goes beyond the tendencies discovered in other areas of the world – but in the same leading regions a clustering of industrial activities was uncovered as well. The leading (and richest) regions benefit usually from large domestic markets, good market access to other countries, the existence of advanced services, and the availability of “superior” resources (human capital, know how, research centers, public services, FDI attraction pools, good infrastructure, etc.).

In this context, *regional convergence* of per-capita incomes has been detected in the sample of 120 regions and for the full period (1990-2006), but only because of convergence *between countries*. At the same time, *regional divergence* has been found – coherently with the mentioned process of concentration – *within countries*. This has been revealed both by a simple sigma-convergence’s analysis and by some regressions following the well-known beta-convergence approach (in the regression with country dummies regional convergence becomes smaller and/or less significant). In any case, the general regional convergence’s result becomes non-convergence at the end of the ‘90s and a clear divergence in the recent years (since 2000).

This growth process has been supported, also at the regional level, by the *institutional change*, as confirmed by the significance of the institutional proxy (the EBRD synthetic transition index) in the regression analysis. Also in the regressions explaining value added or employment growth of the CEEC regions – beyond the convergence investigations – the institutional variable is always highly significant. However, in the latter regressions, which have used a fixed effects methodology, the sign of the EBRD variable is at all times positive when explaining *value added*, while in the case of *employment* (and *employment rate*) the sign is negative in the first decade (1990-2000), then it turns positive (after 2000). In fact, rationalisations and restructuring processes following privatisations and market reforms had initially remarkable negative effects on employment, but in the long run institutional change is positive for employment too.

The results concerning the structural variables are more ambiguous<sup>70</sup>, probably because of the generalized convergence that has occurred in *regional specializations*. However, it seems that growth has been higher in regions initially specialized both in industrial and tertiary activities; on the other hand, just an increase in specialization in the services (not in industry) is positive for growth. On the other hand, the *spatial concentration* coefficient (DIS) reveals positive effects on value added (consistently with what said before about the concentration processes), while it had a

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<sup>70</sup> Consider in particular the sign of the KSI index in the regressions with fixed effects.

negative impact on employment: concentration has likely reduced production and employment in peripheral areas; but it has diminished employment in the leading areas as well, because they have followed an “intensive” model of growth.

Turning back to the *trade-off* between increasing disparities within countries and the catching-up of countries within Europe (i.e. between “equity” and “spatial efficiency”), this poses some important policy issues. According to some opinions<sup>71</sup>, *efficiency* considerations imply that policies should not alter the allocation of activities within countries (when the leading regions grow fast it is good for the whole country!), also because *equity* concerns may be wrongly based on the spatial distribution of activities (because of possible differences between spatial inequality and individual inequalities) and may be, in any case, tackled by appropriate policy tools (such as the fiscal transfers). Thus, European regional policies should be directed to the disparities between countries and to strengthen the catching-up process of the poorer countries (e.g. through the European Cohesion Fund).

In our view, there is still room for a genuine European *regional policy*, although different from the old one and following at least two directions.<sup>72</sup> The first one would follow the lines of the Lisbon’s strategy<sup>73</sup>, in order to support growth, innovation, R&D, etc.: this support, if not dispersed in a myriad of projects, would be in many cases really helpful in the development of some backward regions. The second one is connected to the first but focuses on *labour market problems* and the implementation of the *European Employment Strategy*<sup>74</sup> – especially its general and specific guidelines – in order to: (i) favour the restructuring processes also at the regional level, help the necessary adjustment in labour markets and alleviate the negative consequences (such as the possible rise of unemployment)<sup>75</sup>; (ii) sustain the increase of participation and employment rates, especially for women and elderly, and facilitate the access and permanence of young people in regular employment; (iii) enrich the process of exchange of information between EU member states and regions for a better assessment and transferability of “good practices”; (iii) uphold the investments in education and human capital, that according to most studies are a key factor for growth.<sup>76</sup>

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<sup>71</sup> See e.g. Martin (2006).

<sup>72</sup> The new Financial Perspectives (2007-2013) approved by the EU institutions go along the same lines, but in future a greater consideration for the efficiency concerns in the implementation of projects and more compelling efforts for a wiser allocation of funds (with reference to the still heavy burden of the Common Agricultural Policy) are crucial.

<sup>73</sup> As well known, the strategic European goal established at the Lisbon Council in 2000 for the following decade is: “*to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*”.

<sup>74</sup> As well known, the European Employment Strategy, an open-method of coordination of employment policies designed to enable the EU to achieve conditions for full employment, was launched in 1997 and became a key part of the Lisbon Strategy since 2000. The key idea of the EES is to favour an effective combination of “flexibility and security” and the financial instrument is the European Social Fund. It is useful to recall that, in the last ten years, the EU-15 countries experienced an unexpected and generalised improvement in labour market performance, notwithstanding the low economic growth (see Perugini and Signorelli 2007). For a discussion of the probable effects of the EES on European labour market performance, see also Perugini and Signorelli (2004).

<sup>75</sup> It is useful to recall that “addressing regional employment disparities” is an important guideline of the EES.

<sup>76</sup> Such investments may be more efficient than financing infrastructure projects or giving subsidies to firms to locate in backward regions.

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## Appendix

Table A1 - Population and geographical data

	Population (thousands) 1990 (2006)	Area (square km)	Distance from Brussels km.
PL	38,119 (38,224)	312,685	1,160
HU	10,365 (9,854)	93,029	1,129
CZ	10,363 (10,218)	78,860	718
SK	5,291 (5,417)	49,035	971
EE	1,569 (1,319)	45,228	1,599
LV	2,663 (2283)	64,589	1,454
LT	3,698 (3,397)	65,300	1,457
SI	1,998 (1,999)	20,273	916

Source: EBRD and The World Bank, History of Planned Economies, World Development Report (various issues).

Table A2 - FDI and Portfolio investment restrictions index

	FDI restriction index <sup>1</sup> 1993-99	Portfolio Investment restriction index <sup>2</sup> 1993-99
PL	1.6	0.5
HU	1.1	0.4
CZ	0.3	0.1
SK	0.8	0.6
EE	0.0	0.0
LV	1.4	0.0
LT	2.8	0.0
SI	1.8	0.7

Source: calculated by Garibaldi, Mora, Sahay and Zettelmeyer (2001) based on Annual Report on Exchange Arrangements and Restrictions.

Note: <sup>1</sup> The Foreign Direct Investment restriction index ranges from -0.2 to 6 where 6 reflects most restrictions.

<sup>2</sup> The Portfolio Investment restriction index ranges from 0 to 2 where 2 indicates outright prohibition of portfolio flows.

Table A3 - Poland: EBRD index correlation matrix (1989-2006)

	Large scale privatisation	Small scale privatisation	Enterprise restructuring	Price liberalisation	Trade & Forex system	Competition Policy	Banking reform & interest rate liberalisation	Securities markets & non-bank financial institutions	Overall infrastructure reform
Large scale privatisation	1.0000								
Small scale privatisation	0.8901	1.0000							
Enterprise restructuring	0.9014	0.8989	1.0000						
Price liberalisation	0.8652	0.9353	0.8794	1.0000					
Trade & Forex system	0.9201	0.9505	0.9408	0.9423	1.0000				
Competition Policy	0.9067	0.9185	0.9853	0.9210	0.9646	1.0000			
Banking reform & interest rate liberalisation	0.9282	0.9148	0.9841	0.9018	0.9548	0.9692	1.0000		
Securities markets & non-bank financial institutions	0.9171	0.8451	0.8590	0.7967	0.8275	0.8506	0.8817	1.0000	
Overall infrastructure reform	0.9106	0.8403	0.8705	0.8553	0.8413	0.8736	0.8954	0.9677	1.0000

Source: elaboration on EBRD data

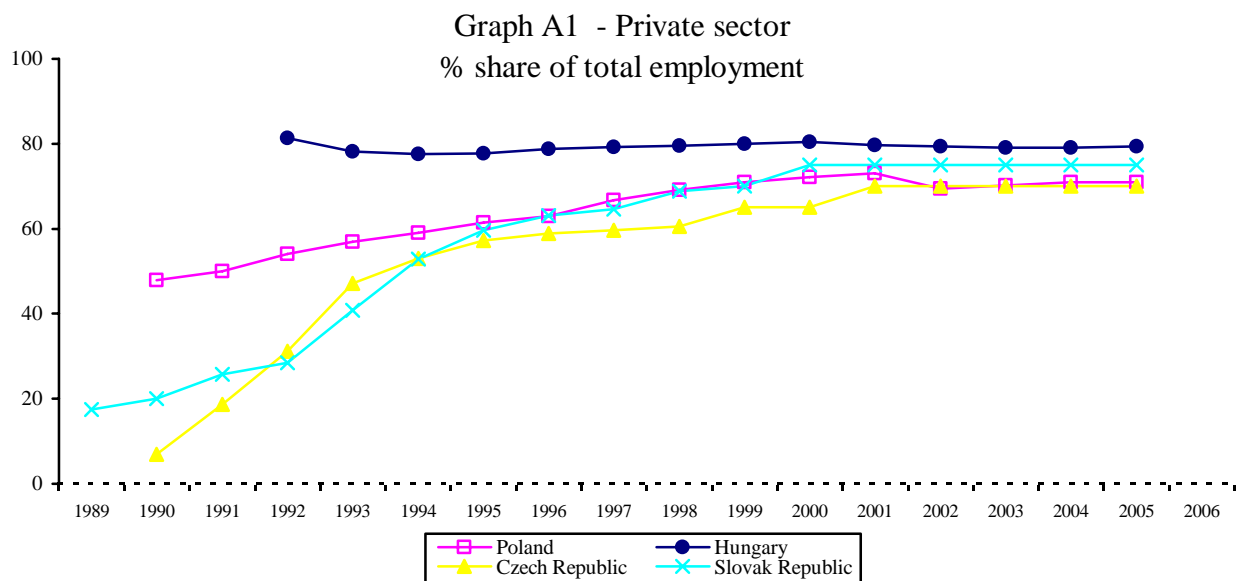
Table A4 - Concentration in capital cities (Population and Value added)

country (*)	capital city		1990	2000	2006
CZ (14)	Praha	Pop	11,7%	11,5%	11,4%
		tot GVA	16,4%	24,9%	27,6%
		Agr	0,4%	1,0%	1,3%
		Ind	8,7%	10,2%	10,8%
		Serv	27,1%	37,0%	40,5%
EE (5)	Põhja-Eesti	Pop	38,6%	38,4%	38,5%
		tot GVA	48,7%	58,0%	61,1%
		Agr	13,5%	15,2%	17,8%
		Ind	48,6%	51,1%	50,5%
		Serv	55,2%	66,3%	70,2%
HU (20)	Budapest	Pop	19,5%	17,9%	16,4%
		tot GVA	32,9%	35,2%	35,9%
		Agr	1,8%	3,7%	4,8%
		Ind	26,1%	23,3%	25,8%
		Serv	40,5%	45,3%	44,8%
LT (10)	Vilniaus	Pop	24,7%	24,4%	24,4%
		tot GVA	23,9%	32,5%	38,7%
		Agr	13,2%	13,3%	12,5%
		Ind	21,0%	28,8%	33,5%
		Serv	30,0%	37,9%	45,9%
LV (6)	Riga	Pop	34,0%	32,1%	31,1%
		tot GVA	37,2%	55,5%	63,8%
		Agr	1,3%	9,4%	16,9%
		Ind	43,5%	52,7%	54,6%
		Serv	38,3%	62,6%	73,5%
PL (45)	Miasto Warszawa	Pop	4,6%	4,4%	4,2%
		tot GVA	7,2%	12,1%	14,8%
		Agr	0,3%	0,1%	0,0%
		Ind	5,2%	8,2%	11,2%
		Serv	10,0%	15,1%	17,7%
SI (12)	Osrednjeslovenska	Pop	24,2%	24,6%	24,9%
		tot GVA	32,4%	34,4%	35,5%
		Agr	14,1%	14,1%	14,6%
		Ind	28,4%	25,5%	23,8%
		Serv	37,0%	41,6%	44,8%
SK (8)	Bratislavský	Pop	11,5%	11,4%	11,4%
		tot GVA	19,6%	25,1%	26,8%
		Agr	5,4%	7,3%	4,9%
		Ind	13,9%	18,1%	17,6%
		Serv	25,4%	30,9%	32,1%

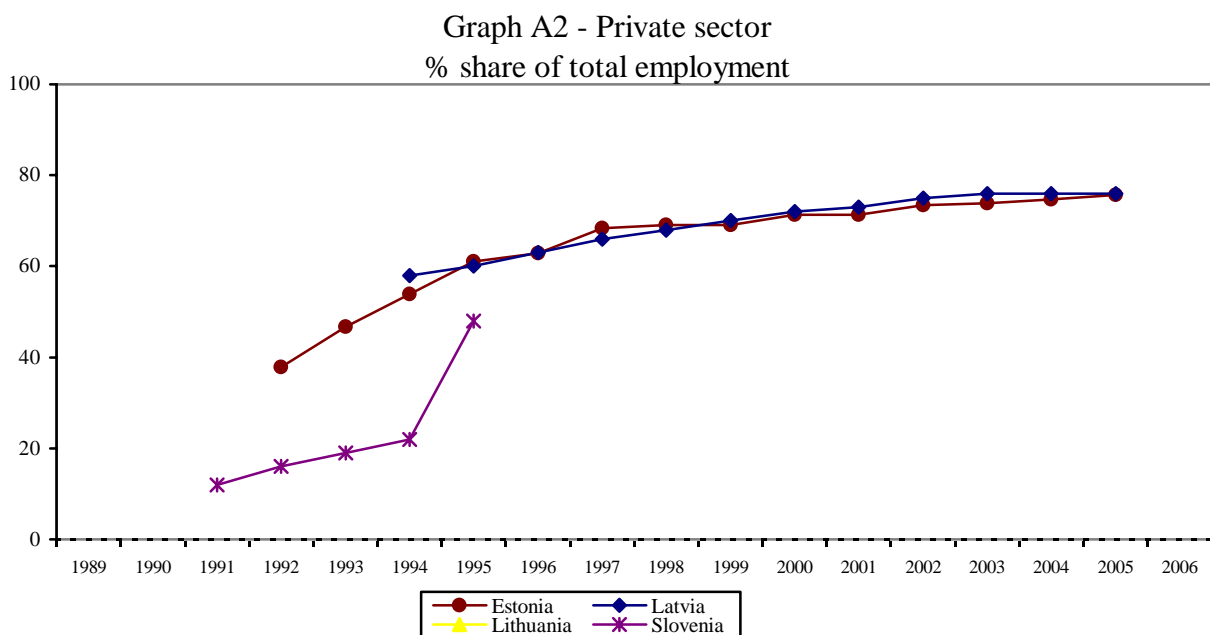
(\*) number of regions in each country in parenthesis

Table A5 - Krugman specialisation coefficient  
(country's means of regional coeff.s, based on employment, 3 sectors)

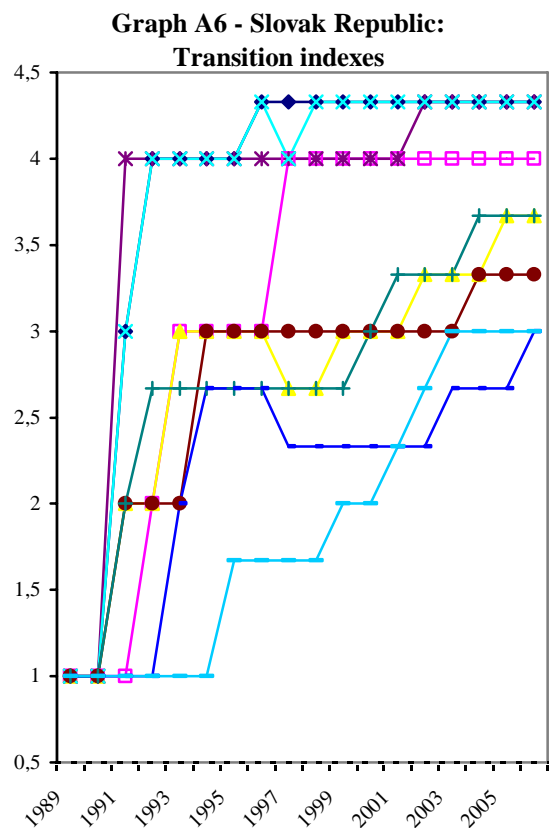
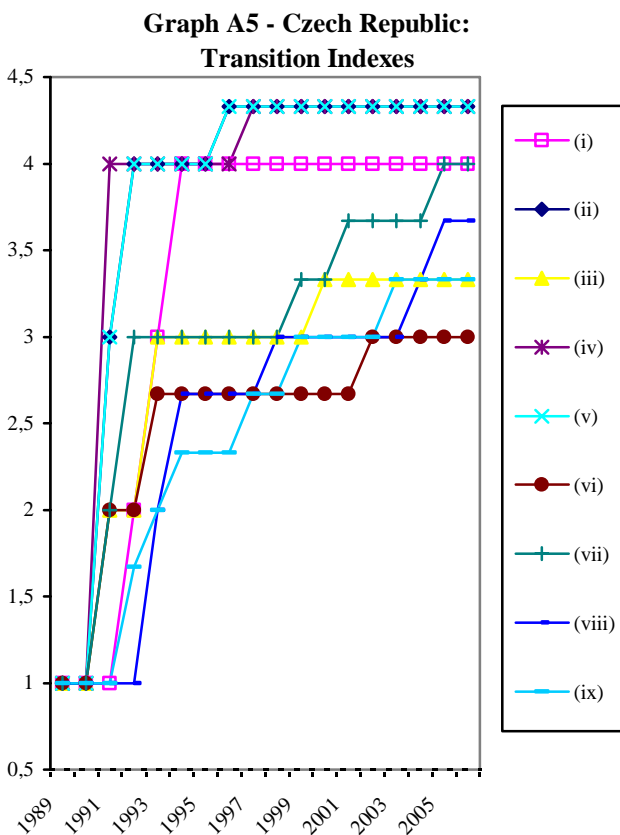
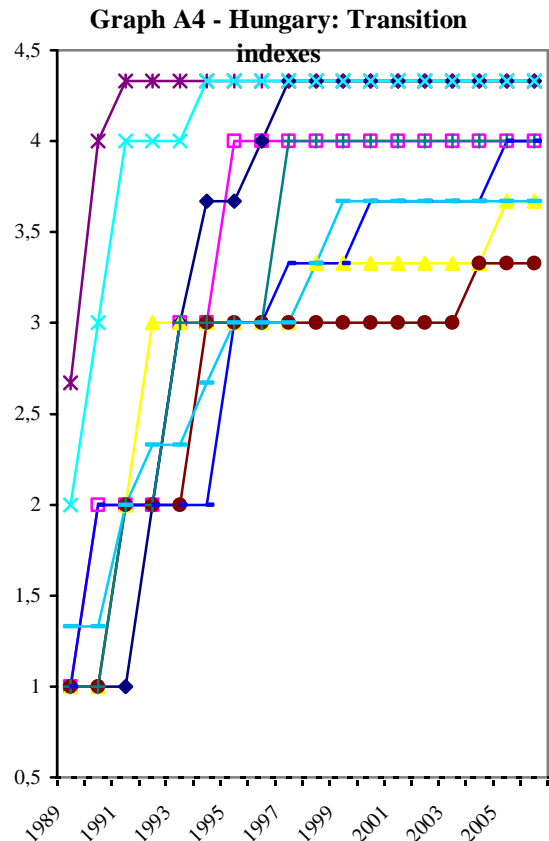
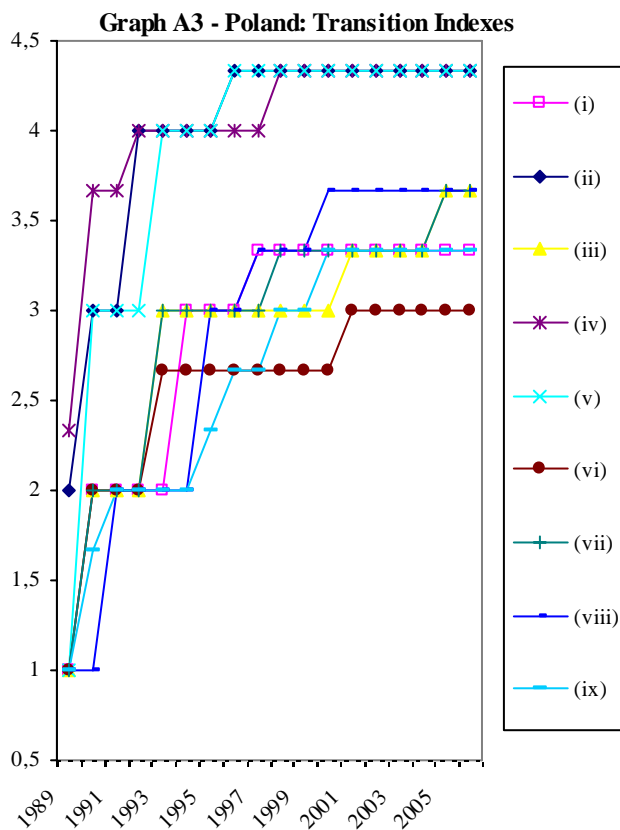
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
CZECH REP.	0,069	0,048	0,047	0,046	0,045	0,044	0,043	0,041	0,044	0,044	0,041	0,041	0,040	0,040	0,040	0,040	0,040
ESTONIA	0,161	0,117	0,115	0,109	0,103	0,087	0,087	0,086	0,081	0,074	0,075	0,071	0,071	0,067	0,065	0,063	0,061
HUNGARY	0,082	0,056	0,054	0,048	0,048	0,048	0,048	0,047	0,047	0,045	0,045	0,046	0,047	0,045	0,045	0,045	0,045
LITHUANIA	0,104	0,036	0,037	0,042	0,043	0,044	0,039	0,051	0,051	0,049	0,051	0,049	0,054	0,058	0,061	0,065	0,069
LATVIA	0,171	0,064	0,072	0,073	0,073	0,072	0,072	0,080	0,082	0,073	0,070	0,071	0,082	0,075	0,074	0,074	0,073
POLAND	0,142	0,064	0,064	0,065	0,067	0,066	0,066	0,066	0,067	0,070	0,071	0,072	0,075	0,076	0,076	0,076	0,076
SLOVENIA	0,128	0,036	0,033	0,031	0,030	0,029	0,026	0,026	0,026	0,024	0,023	0,022	0,021	0,021	0,021	0,021	0,021
SLOVAK REP.	0,089	0,023	0,021	0,019	0,018	0,016	0,015	0,012	0,012	0,012	0,011	0,010	0,009	0,008	0,008	0,009	0,009



Source: EBRD data



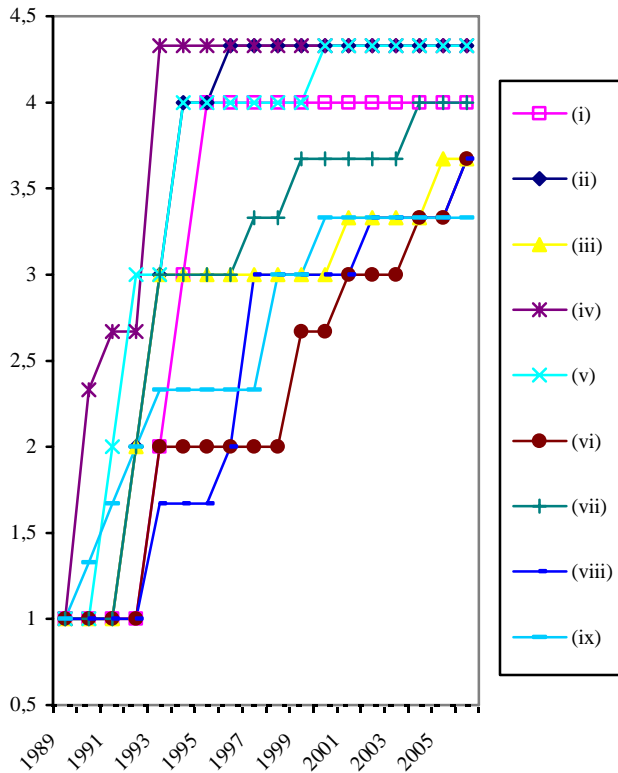
Source: EBRD data



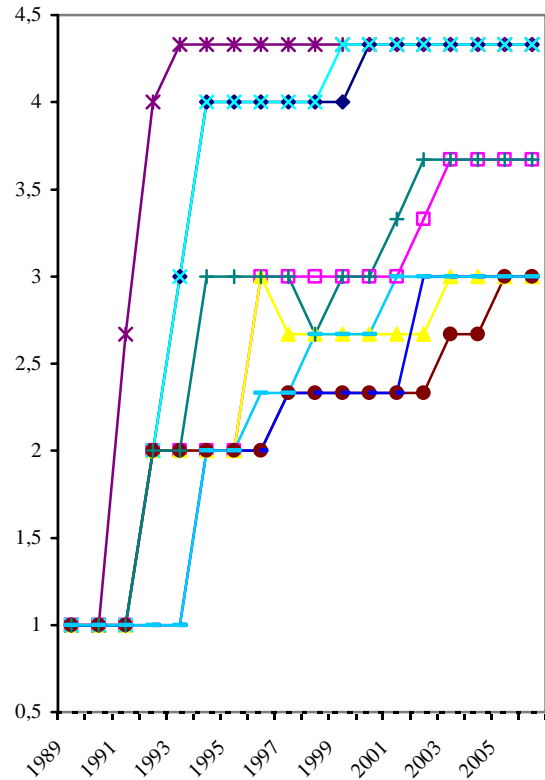
Source: EBRD data

Note: (i) large scale privatisation, (ii) small scale privatisation, (iii) enterprise restructuring, (iv) price liberalisation, (v) trade and foreign exchange system, (vi) competition policy, (vii) banking reform and interest rate liberalisation, (viii) securities markets and non-bank financial institutions, (ix) overall infrastructure reform.

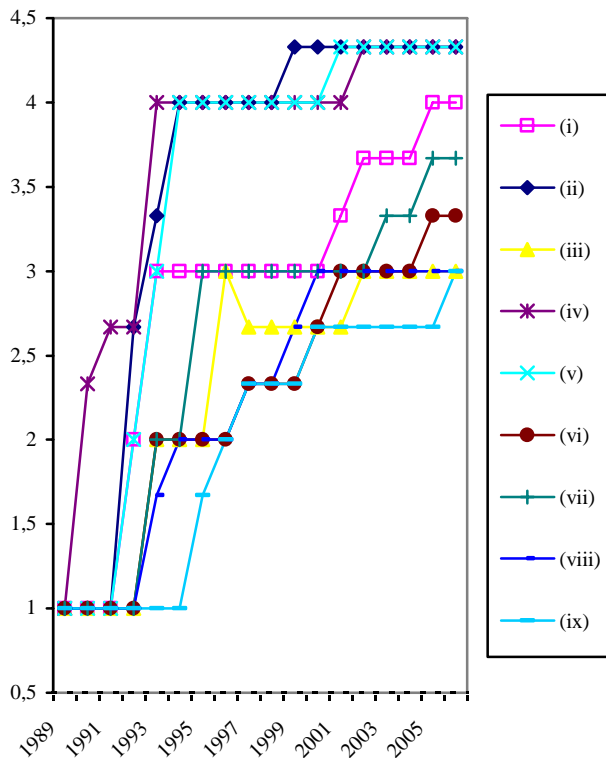
**Graph A7 - Estonia: Transition indexes**



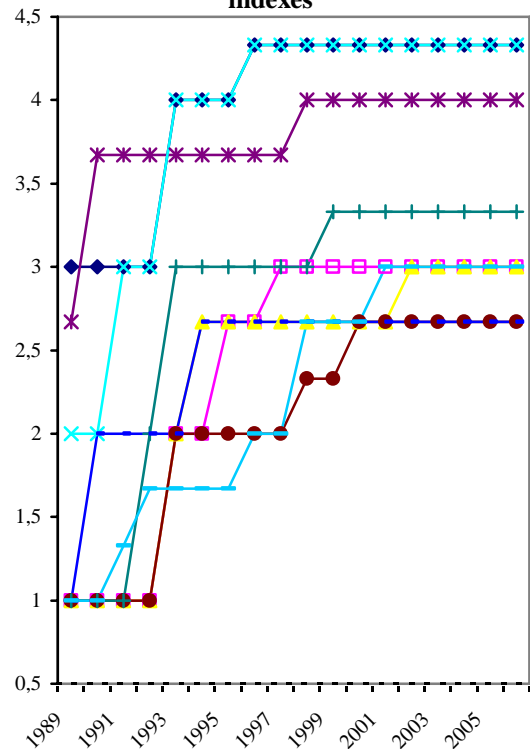
**Graph A8 - Latvia: Transition indexes**



**Graph A9 - Lithuania: Transition indexes**

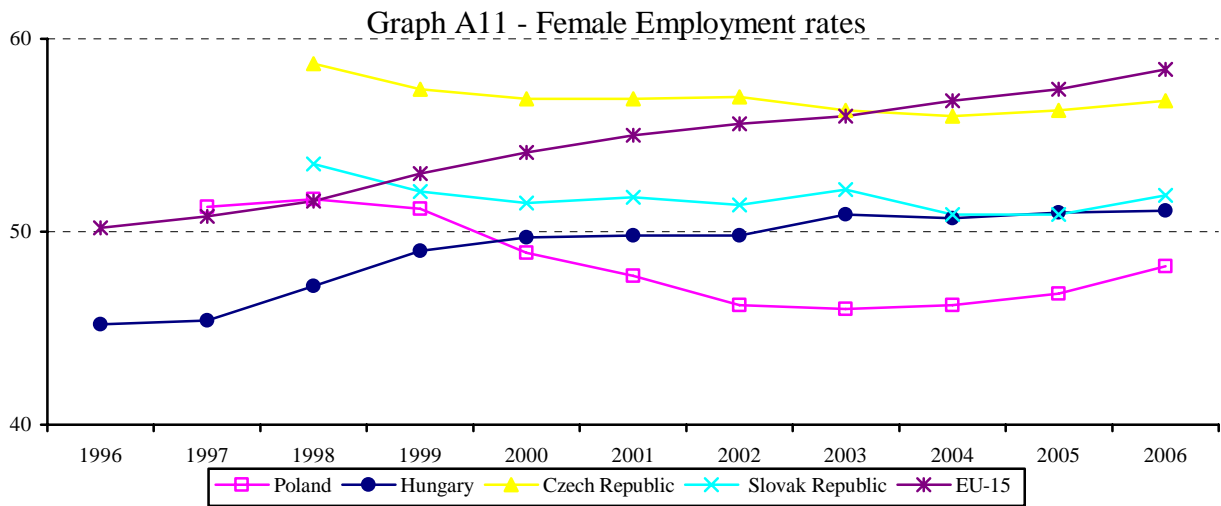


**Graph A10 - Slovenia: Transition indexes**

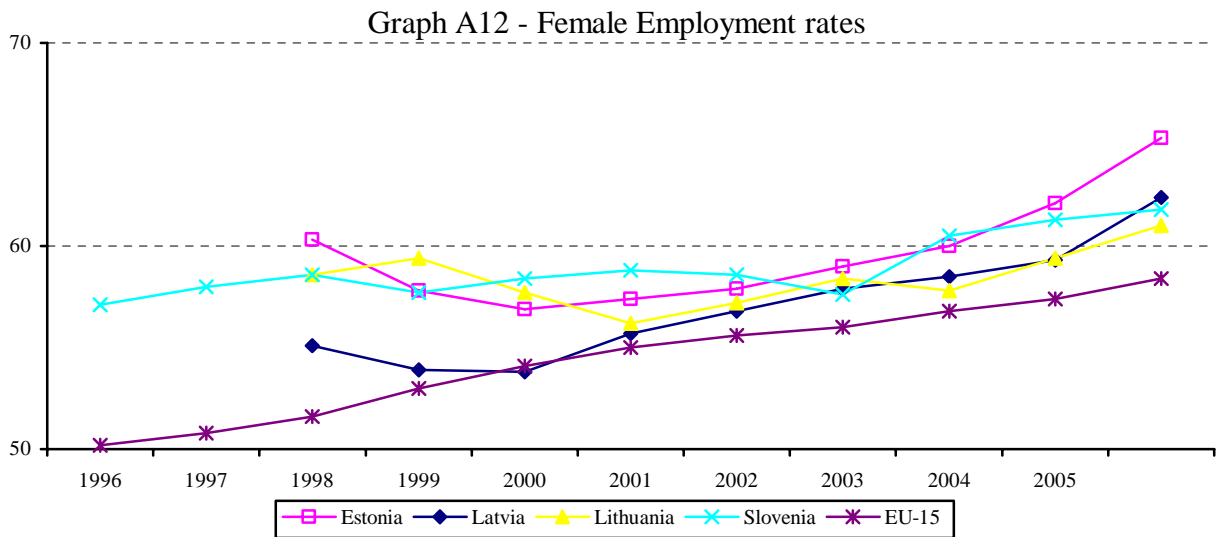


Source: EBRD data

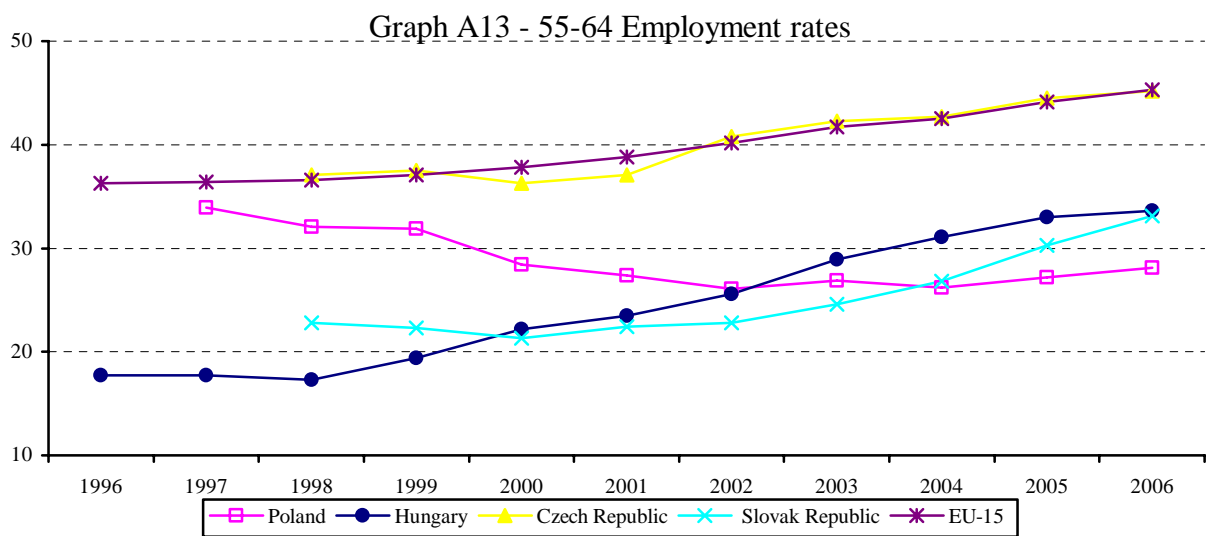
Note: (i) large scale privatisation, (ii) small scale privatisation, (iii) enterprise restructuring, (iv) price liberalisation, (v) trade and foreign exchange system, (vi) competition policy, (vii) banking reform and interest rate liberalisation, (viii) securities markets and non-bank financial institutions, (ix) overall infrastructure reform.



Source: Eurostat data

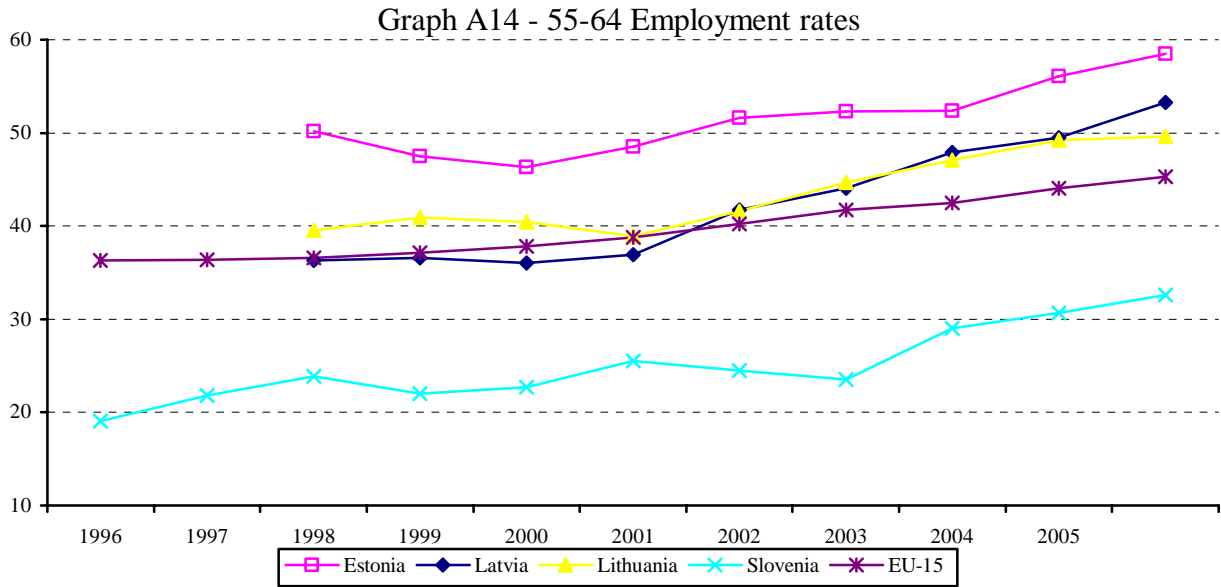


Source: Eurostat data

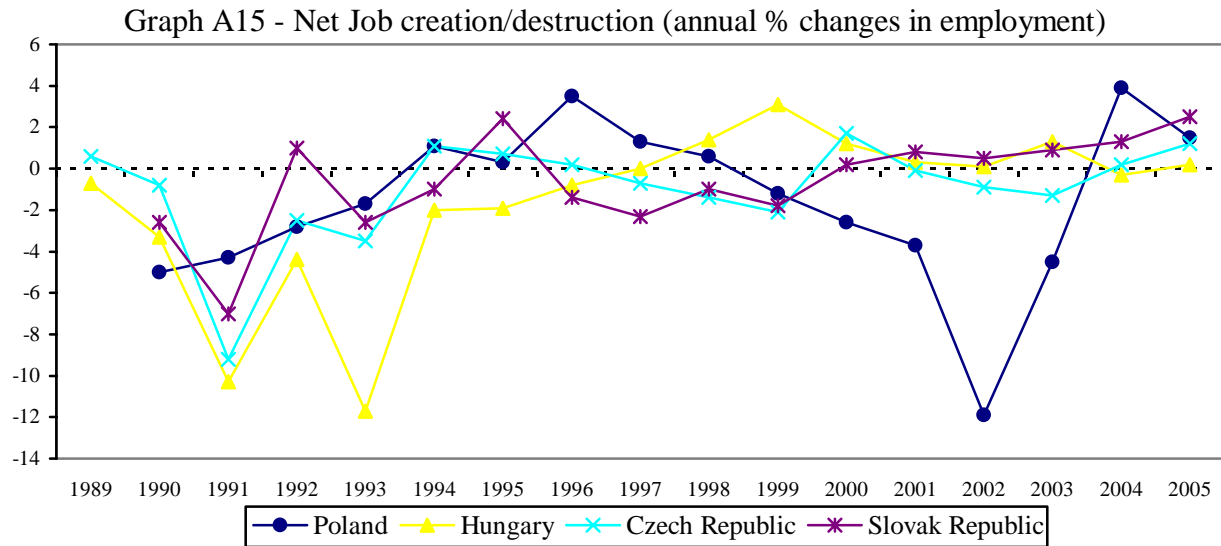


Source: Eurostat data

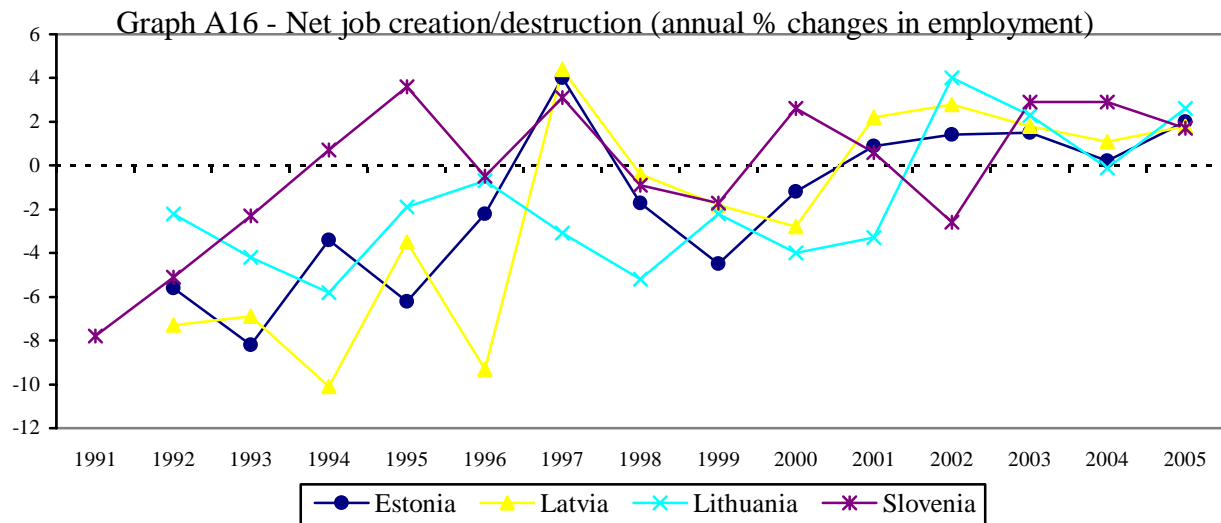




Source: Eurostat data

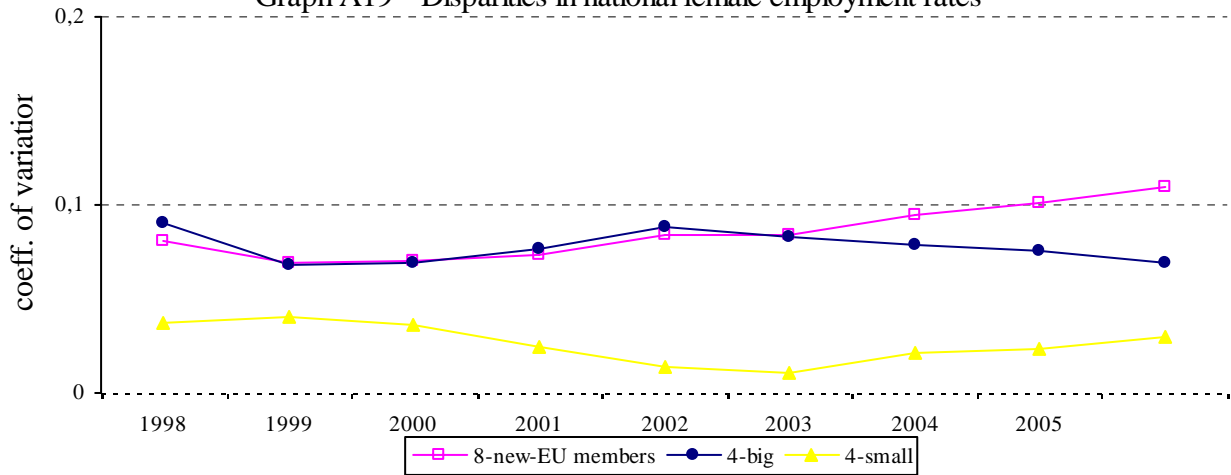


Source: EBRD data



Source: EBRD data

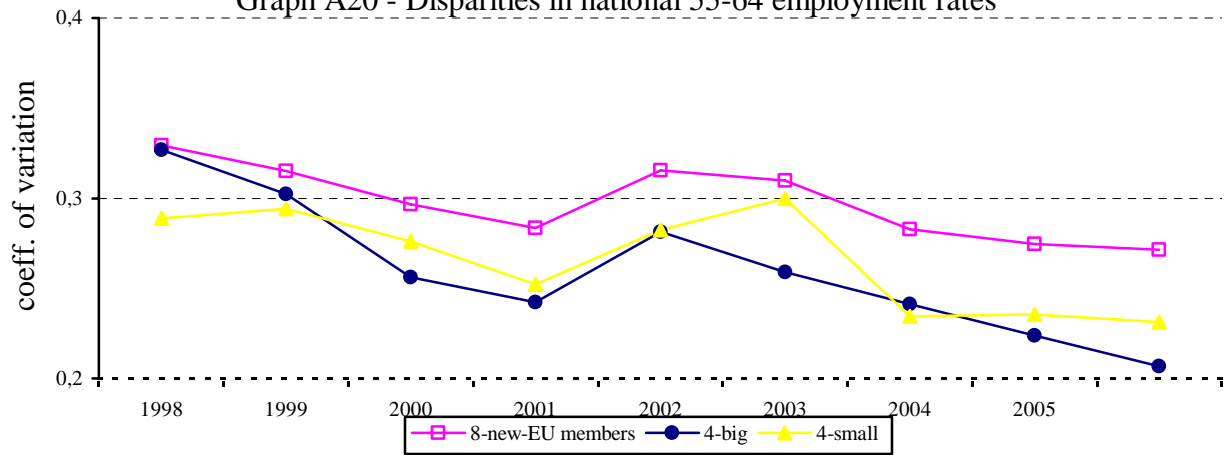
Graph A19 - Disparities in national female employment rates



Source: our elaboration on Source: Eurostat data.

Note: 4-big = Poland, Hungary, Czech Republic and Slovak Republic; 4-small = Estonia, Latvia, Lithuania and Slovenia.

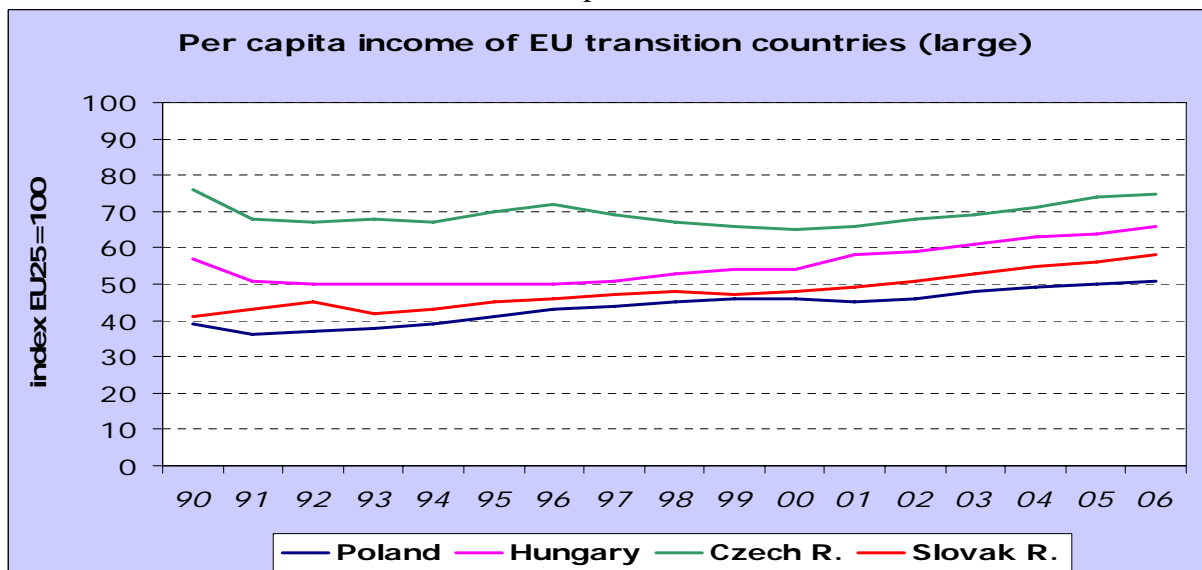
Graph A20 - Disparities in national 55-64 employment rates



Source: our elaboration on Source: Eurostat data .

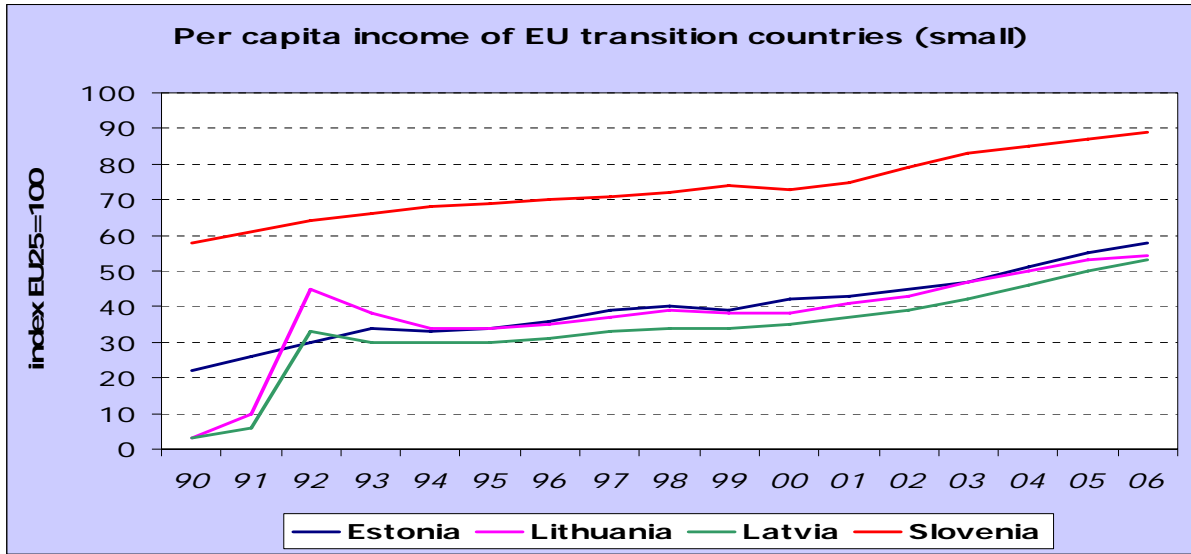
Note: 4-big = Poland, Hungary, Czech Republic and Slovak Republic; 4-small = Estonia, Latvia, Lithuania and Slovenia.

Graph A22



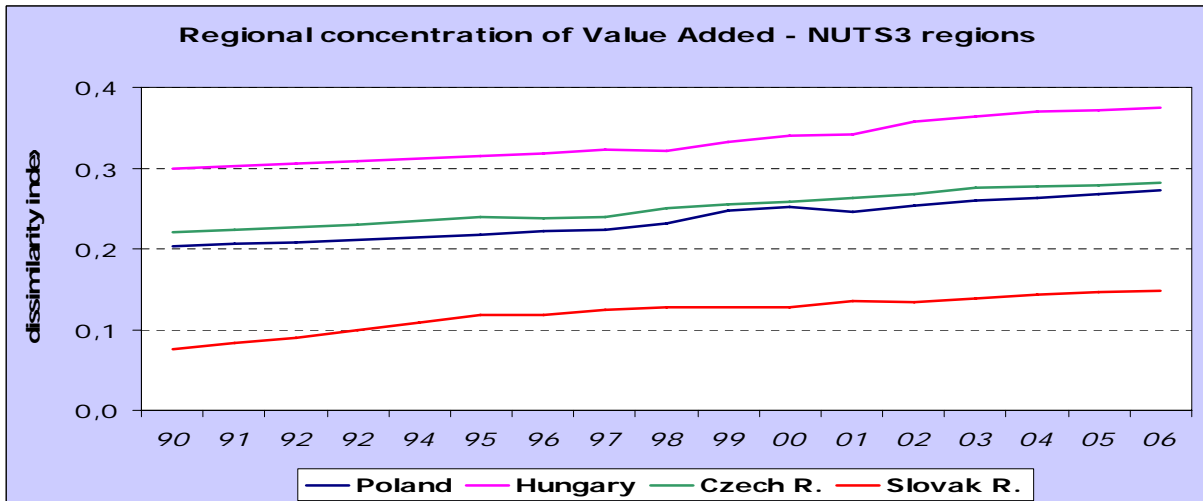
Source: our elaborations on Cambridge Econometrics data

Graph A23



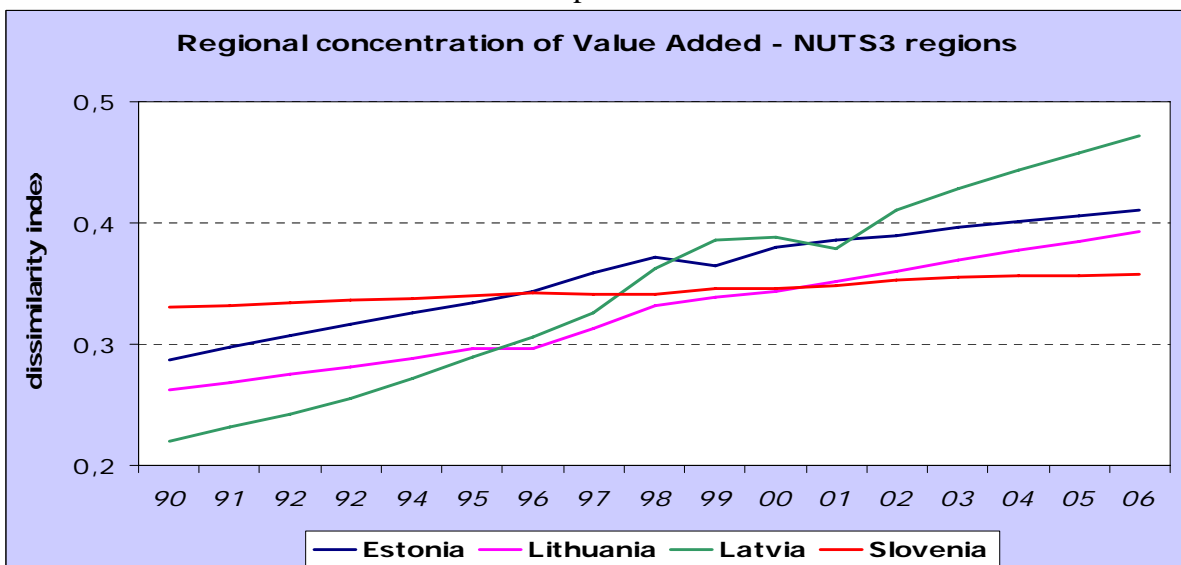
Source: our elaborations on Cambridge Econometrics data

Graph A24



Source: our elaborations on Cambridge Econometrics data

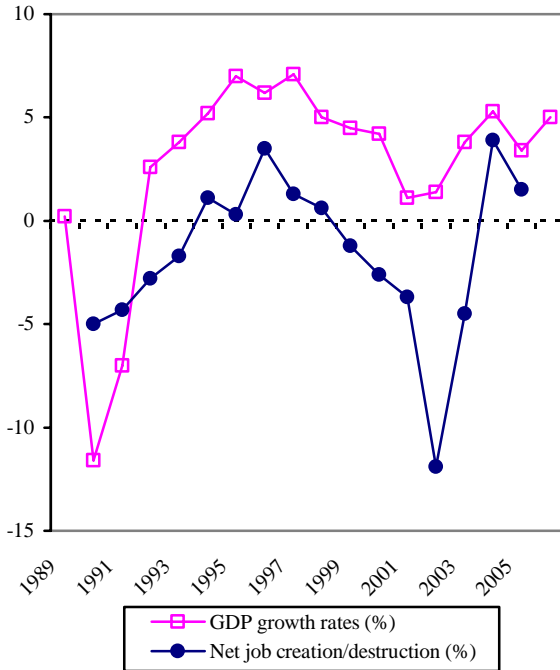
Graph A25



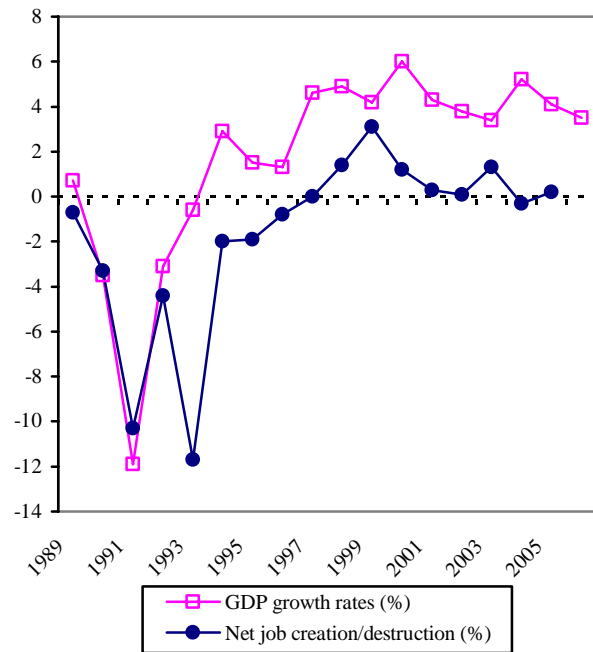
Source: our elaborations on Cambridge Econometrics data

Graph A26-A33: Growth and Employment<sup>77</sup>

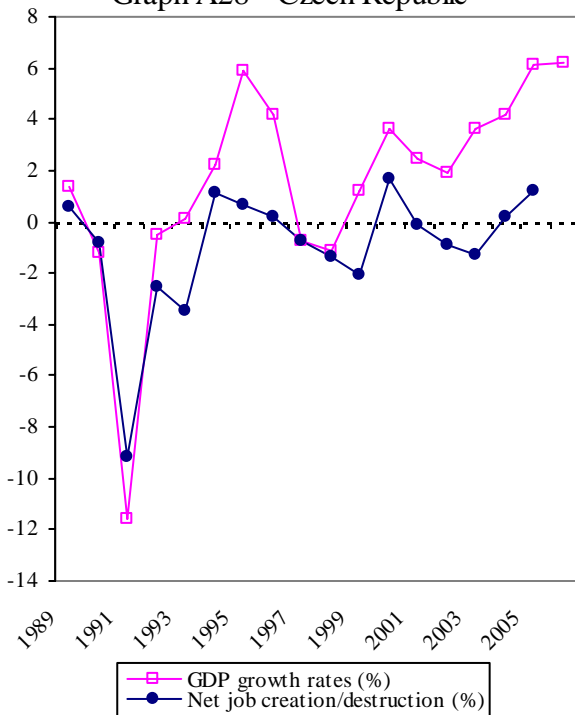
Graph A26 - Poland



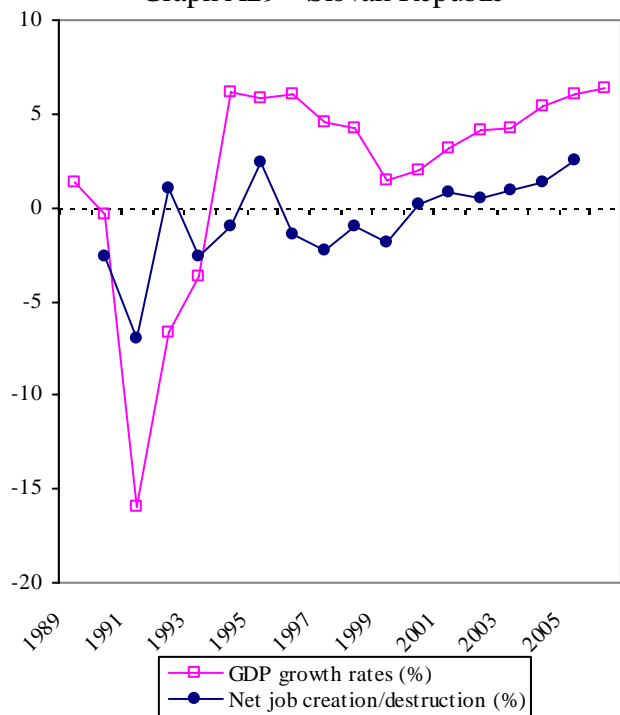
Graph A27 - Hungary



Graph A28 - Czech Republic

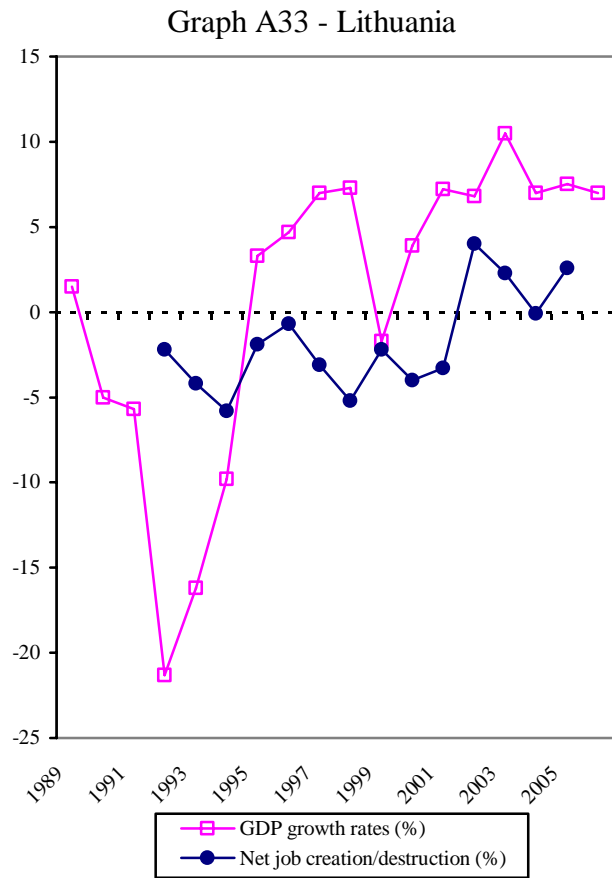
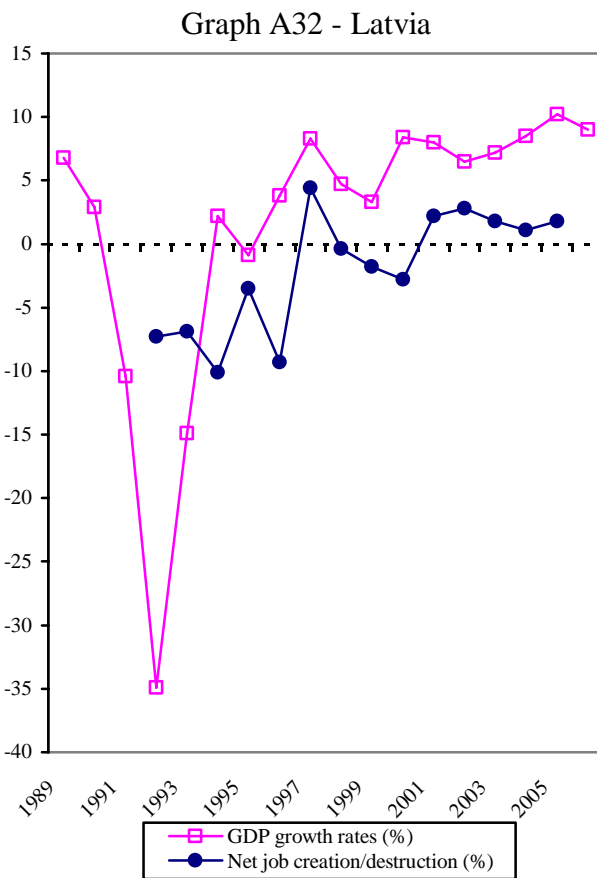
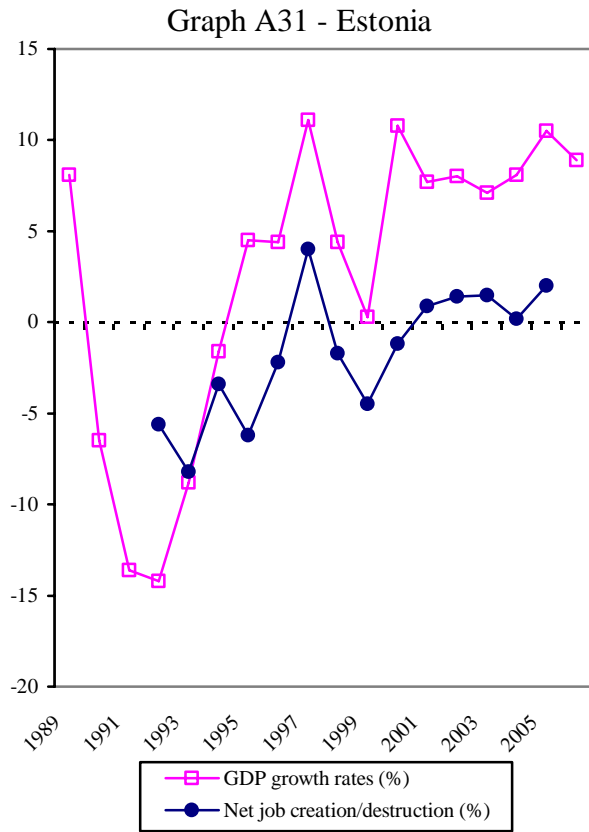
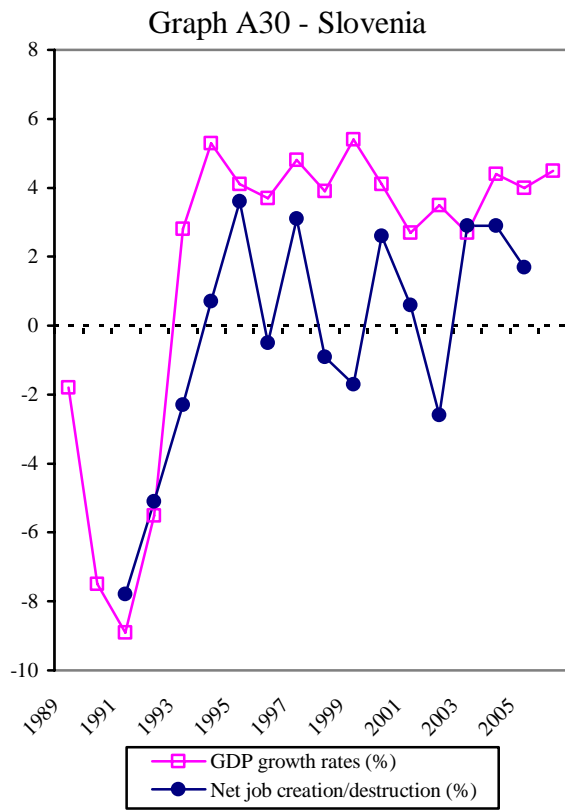


Graph A29 - Slovak Republic



Source: EBRD data

77 Data represent official estimates of out-turns as reflected in publications from the national authorities, the International Monetary Fund, the World Bank and other sources. As for GDP growth and employment changes, 2005 data are EBRD staff estimates and 2006 data are projection. GDP growth rates can lack precision in the context of transition due to large shifts in relative prices, the failure to account for quality improvements and the substantial size and change in the informal sector. Some countries have started to incorporate the informal sector into their estimates of GDP. For most countries, employment data reflect official employment records from the labour registries. In many countries, small enterprises are not recorded by official data. A number of countries have moved towards ILO-consistent labour force surveys in recording changes in labour force, employment and unemployment. Where available these data are presented.



Source: EBRD data