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Cinzia Alcidi

## Economic Integration and Income Convergence in the EU

Convergence has always been considered the fundamental economic mechanism and precondition for achieving socio-economic cohesion in the European Union (EU). The latter is an explicit objective of the EU, as formulated in Article 130a of the Single European Act of 1986: “[I]n order to promote its overall harmonious development, the Community shall develop and pursue its actions leading to the strengthening of its economic and social cohesion”. This passage constitutes the legal ground for the creation of the European Structural Funds as well as the backbone of EU Cohesion Policy.

Structural Funds and Cohesion Policy were intended to act against regional disparities: on the one hand, by devising redistributive measures; on the other hand, by equipping poorer regions with the tools to improve their potential growth and hence their productivity. The combination of the Cohesion Policy and the internal market with its four freedoms (freedom of movement of people, goods and capital and of establishing and providing services) was expected to drive economic convergence by allowing the poorer Member States to grow faster and catch up with the richer ones. These promises have only partially been kept.

Since their original formulation, the reception given to the concepts of convergence and cohesion has alternated between wild enthusiasm and near dismissal in the EU debate. Interest was very high at the time of the big Eastern enlargement in 2004–2007. It then declined under the broad impression that Eastern countries were converging towards EU growth rates. The effects of the debt crisis in the euro area and political changes in Central Eastern Member States have revived not only scholars’ interest in the issues of convergence and socio-economic cohesion but also attention to policy at the EU level.<sup>1</sup> As the economic recovery has not corrected existing significant differences in growth rates across Member States, there is a growing concern that gaps are not due to cyclical fac-

tors but rather signal structural differences and portend the emergence of new patterns of divergence within the Union.

In particular, within the group of the old EU Member States whose currency is the euro,<sup>2</sup> the poorer countries are still struggling with the aftermath of a long-lasting crisis. As I will demonstrate, it is a matter of fact that the distance between the richest and the poorest Member States today is greater than when the euro was introduced, despite the high growth period before the crisis.

By contrast, the new Member States (NMSs) from Central and Eastern Europe appear to have performed better. Almost all of them have moved closer to the EU average and even those hit hardest by the financial crisis have continued to catch up after very deep but relatively short recessions.

What explains these developments? And above all, did they prove that market integration’s promise to deliver full convergence is not realistic? The next section presents the main trends in income convergence, both at the level of Member States and at regional level. It also compares EU trends to the experience of the US. I then review the main findings of the literature on how economic integration affects convergence and divergence patterns. The final section draws policy conclusions.

### Evidence on income convergence in the EU<sup>3</sup>

In order to illustrate the main patterns in income convergence in the EU, we use the notion of  $\beta$ -convergence and  $\sigma$ -convergence, the formulation and first applications of which date back to Baumol.<sup>4</sup> Both concepts are a corollary of the neoclassical theory of economic growth, which assumes that capital can move freely and its allocation is driven by returns which are diminishing on the level of ac-

<sup>1</sup> See, for instance, European Commission: Commission sets out Roadmap for deepening Europe’s Economic and Monetary Union, Press release, 6 December 2017, available at [http://europa.eu/rapid/press-release\\_IP-17-5005\\_en.htm](http://europa.eu/rapid/press-release_IP-17-5005_en.htm).

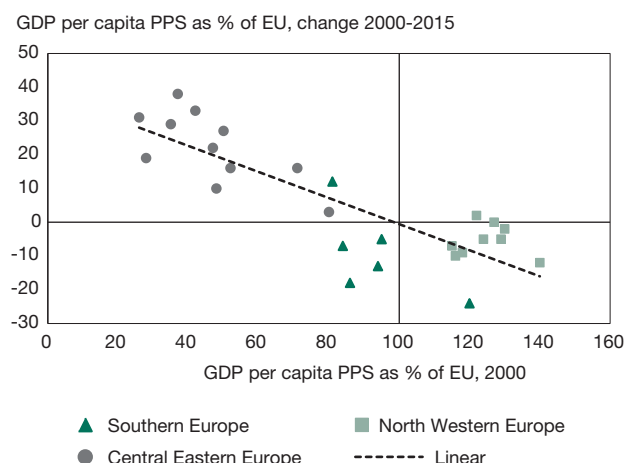
<sup>2</sup> The original EA12 excluding Ireland and Luxembourg.

<sup>3</sup> This section is based on the findings of C. Alcidi, R. Musmeci, J. Nunez-Ferrer, M. Pilati: Income Convergence in the EU: A tale of two speeds, CEPS Commentary January 2018, available at <https://www.ceps.eu/publications/income-convergence-eu-tale-two-speeds>; and C. Alcidi, R. Musmeci, J. Nunez-Ferrer, M. Pilati: Income Convergence in the EU: Within-country regional patterns, CEPS Commentary, February 2018, available at <https://www.ceps.eu/publications/income-convergence-eu-within-country-regional-patterns>.

<sup>4</sup> W.J. Baumol: Productivity Growth, Convergence, and Welfare: What the Long-run Data Show, in: American Economic Review, Vol. 76, No. 5, 1986, pp. 1072–1085.

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Figure 1  
 $\beta$ -convergence within the EU Member States (EU28)



Notes: Central and Eastern Europe (grey circles): BG, CZ, EE, HR, HU, LT, LV, PL, RO, SI and SK. North Western Europe (light green squares): AT, DK, DE, FI, FR, LU, NL, SE and UK. Southern Europe (dark green triangles): CY, EL, IT, MT, PT and ES.

$\beta = -0.31$ , R-squared = 0.41. Luxembourg excluded (GDP p.c. pps 2000, % EU = 246).

Source: Author's calculations based on Eurostat (purchasing power standard (PPS) per inhabitant).

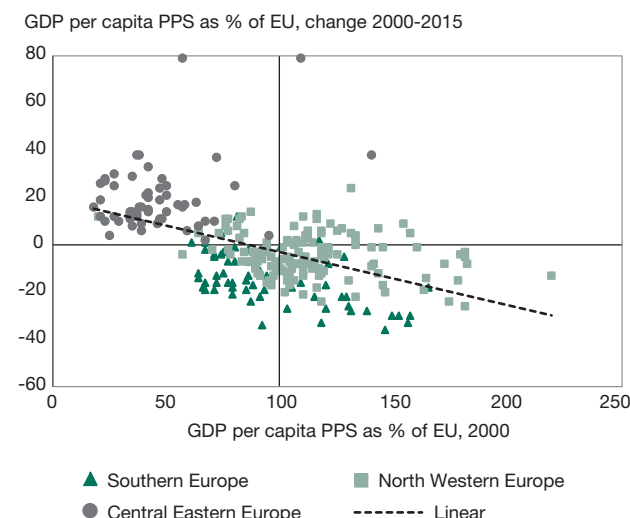
cumulation of capital.<sup>5</sup> Accordingly, countries which were initially poorer exhibit more dynamic growth and should converge to the level of richer countries, which grow at lower rates. This means that GDP growth per capita negatively depends on the initial level of income. In order to visualise this relationship, we plot the level of GDP per capita in 2000 against the growth rate over the period 2000-2015. A trend line with a negative slope would support the hypothesis of  $\beta$ -convergence.

Based on the same neoclassical assumptions, the  $\sigma$ -convergence hypothesis embeds the idea that all countries should converge to the same level of economic output (per capita). If this thesis is validated, we should observe a falling dispersion of real GDP per capita across economies over time.

I investigate  $\beta$ -convergence and  $\sigma$ -convergence at the level of the EU28 Member States and in NUTS-2 regions. The variable of interest is GDP per capita in purchasing power standards (PPS) relative to the EU average for the period 2000-2015.

<sup>5</sup> See R. M. Solow: A Contribution to the Theory of Economic Growth, in: Quarterly Journal of Economics, Vol. 70, No. 1, 1956, pp. 65-94.

Figure 2  
 $\beta$ -convergence within the EU Regions (NUTS-2)



Notes: Central and Eastern Europe (grey circles): BG, CZ, EE, HR, HU, LT, LV, PL, RO, SI and SK. North Western Europe (light green squares): AT, DK, DE, FI, FR, LU, NL, SE and UK. Southern Europe (green triangles): CY, EL, IT, MT, PT and ES.

$\beta = -0.2$ , R-squared = 0.23, p-value <0.0001. Inner London West excluded (GDP p.c. pps 2000, % EU = 500). Irish regions excluded (latest data available is 2014). Belgian regions excluded (oldest data available is 2003).

Source: Author's calculations based on Eurostat (purchasing power standard (PPS) per inhabitant).

The negative slope of the trend line in Figure 1 suggests that poorer EU Member States have been converging towards a higher level of GDP per capita since 2000. As the theory predicts, and also as confirmed by other authors,<sup>6</sup> Central and Eastern European (CEE) countries, which exhibited a lower than average initial relative GDP per capita, have experienced the largest growth rates and the highest speed of convergence towards the EU average. Lithuania, Estonia, Romania, Latvia and Slovakia registered the best performance, gaining between 30% and 40% compared to their relative position (vis-à-vis the EU average) in the year 2000. By contrast, the position of most Southern EU Member States with an initially higher than average GDP per capita has deteriorated in relation to the EU average (green triangles in the bottom quadrant). Greece, Cyprus, Spain and Portugal did not manage to keep pace with the EU average.<sup>7</sup>

<sup>6</sup> European Central Bank: Real convergence in the euro area: evidence, theory and policy implications, Economic Bulletin, Issue 5, 2015.

<sup>7</sup> As argued by Gros, euro area membership did not effect the convergence process. See D. Gros: Convergence in the European Union: Inside and outside the euro, CEPS Working Document, April 2018, available at [https://www.ceps.eu/system/files/DG\\_ConvergenceEU.pdf](https://www.ceps.eu/system/files/DG_ConvergenceEU.pdf).

Figure 2, is analogous to Figure 1 but based on regional data.<sup>8</sup> The negative slope of the trend line endorses the  $\beta$ -convergence hypothesis at the regional level. However, the slope is flatter and implies a speed of convergence among regions of around 30% slower than among Member States. While the distribution of regions in the four quadrants broadly reflects the distribution of Member States, it exhibits higher dispersion. Bucharest and Bratislava are two outliers that have outperformed their own countries and other regions by far. Conversely, there are regions that underperformed their national average and other regions: a number of Italian regions experienced a decline of between -20% and -40%. Generally speaking, almost all regions located in Southern EU countries (green triangles), with very few exceptions (e.g. Pais Vasco (ES)), lie below the trend line suggesting the underperformance of Southern Europe. Poor regions remained poor or became even poorer relative to the EU. In contrast, many Northwestern regions from old EU Member States with a higher-than-average GDP per capita experienced higher growth than the rest of the Union (light green squares in the top right quadrant). Despite the prediction of the literature, some 'champion regions' managed to increase their initial advantage over the past 15 years and outperformed the national average.

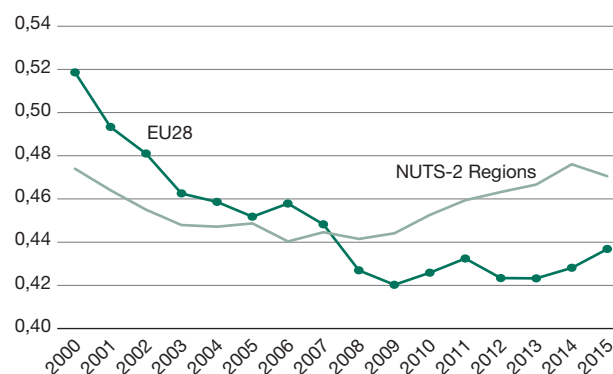
Both figures point to a clear separation between the CEE countries and the old Member States in terms of convergence dynamics, but also a division along the South-East vs. North-West dimension.

Secondly, we explore the evolution of the coefficient of variation (standard deviation divided by the mean), as a measure of dispersion of GDP per capita in PPS among countries and regions ( $\sigma$ -convergence).

During the years 2000-2007, cross-country and cross-regional differences in GDP per capita in PPS were falling and hence  $\sigma$ -convergence was taking place (see Figure 3). Since 2008, however, the variation at the regional level has begun to increase (light green line) as a consequence of the global financial crisis which hit the Southern countries hardest. In 2015, the coefficient was back at the 2000 level. By contrast, at Member State level (dark green line), convergence took place from 2000 to 2009, it has stagnated ever since and from 2013 onwards it is pointing to diverging patterns.

It is important to note that convergence dynamics have been rather weak within Member States. In fact, most

**Figure 3**  
 **$\sigma$ -convergence in the EU: Member States and regions**



Source: Author's calculations based on Eurostat (purchasing power standard (PPS) per inhabitant).

Central and Eastern European countries are quite extreme cases of country divergence, in spite of the fact that countries on the whole fit perfectly in the convergence process at the EU level.

Poland, Romania, Bulgaria, Slovakia (see Figure 4) but also Czech Republic and Hungary all exhibit the same pattern of strong  $\beta$ -divergence: the capital region is an outlier in the country, situated high in the top right quadrant, while regions that were below the average income in 2000 have further deteriorated their relative position. This means that the capital region has become a 'champion region', and in most cases its performance drives the national average, while other regions are 'left behind' and are unable to keep up the pace.

Overall, the different trends in convergence illustrated in those figures raise the question of how they can be explained, whether the increase in divergence, either in the EU or within countries, is a temporary phenomenon possibly due to the crisis and how further convergence can be achieved. Before addressing these questions, it is useful to look at the experience of the US.

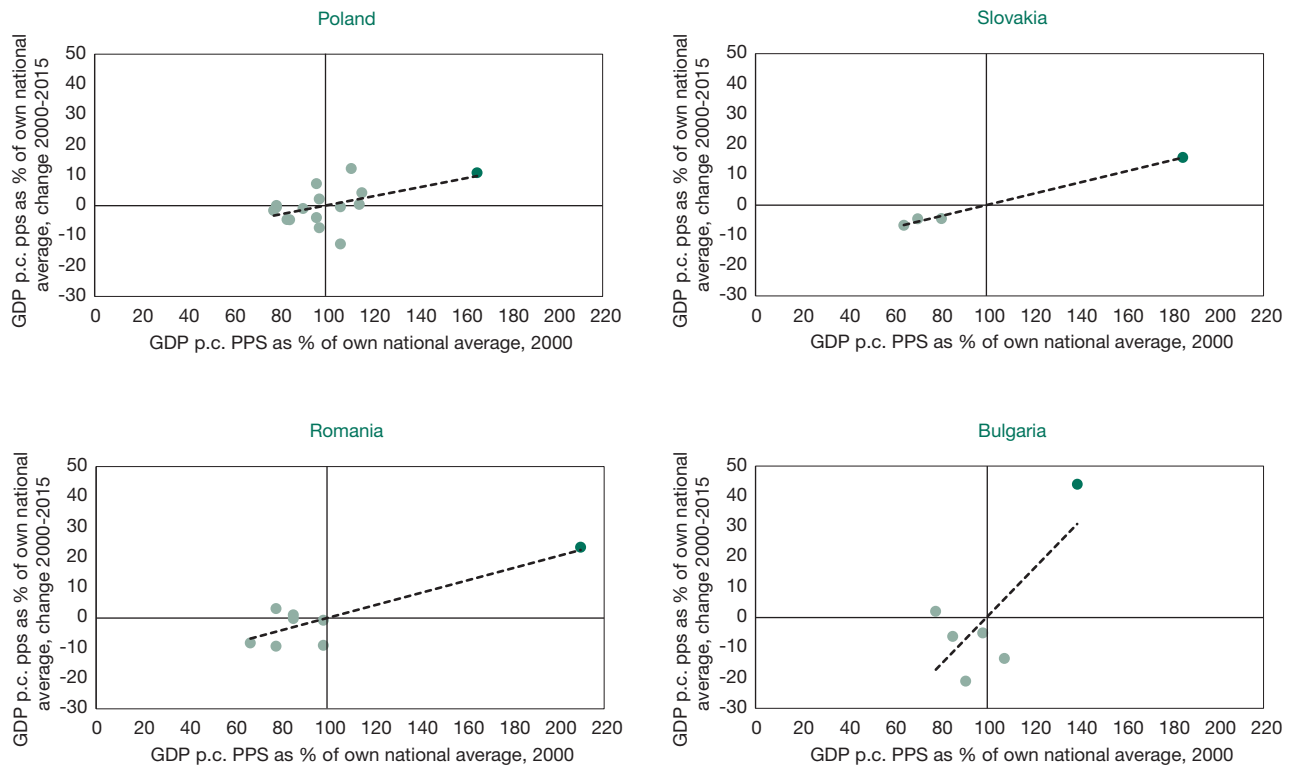
### Comparing EU convergence patterns with the US experience

The US has always represented an interesting benchmark to assess the developments in the EU. Convergence patterns in the US can be tracked over several decades and may indicate the kinds of patterns one can expect in the EU.

Figure 5 shows the variability of per capita income across US states since 1840 and the variability across the 'old' Member States since 1990. In the US,  $\sigma$ -convergence is a gradual process that occurred over about 130 years, until

<sup>8</sup> On this aspect of convergence see for instance H. Goecke, M. Hüther: Regional Convergence in Europe, in: *Intereconomics*, Vol. 51, No. 3, 2016, pp. 165-171.

Figure 4  
In-country income divergence: selected countries



Source: Author's calculations based on Eurostat (purchasing power standard (PPS) per inhabitant).

the mid-1970s. By contrast, the relatively flat line of the last 40 years suggests that convergence seems to have progressed little since then. Today's value of the indicator is actually higher than in the 1970s or the early 1990s. Convergence seems to have stopped, and even reversed, since the turn of this century.

When comparing this to the EU15 over the last three decades, the US exhibits a lower degree of cross-state income dispersion than the EU, but the difference is relatively small. The EU is much younger than the US, and the degree of economic integration is smaller than in the US in many respects, from labour mobility to capital markets. Nonetheless, the integration process brought the EU15 to a level of convergence very close to the one of the US.

With regard to the US experience, Gros notices that the strong push in US convergence in the 1930s coincided with the creation of federal institutions, like the Federal Deposit Insurance Corporation (FDIC), which is responsible for both bank restructuring and deposit insurance.<sup>9</sup>

9 D. Gros: Global Trends to 2035 – Economy and Society, EPRS Study, 2018, available at [http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS\\_STU\(2018\)627126](http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_STU(2018)627126).

Financial stability achieved through the completion of the US banking union might have contributed to the reduction of income dispersion per capita across US states.<sup>10</sup> If correct, this argument would support the idea that deepening the EMU is not only important to ensure financial stability, but it could contribute to the prevention of divergence induced by large (financial) crises.

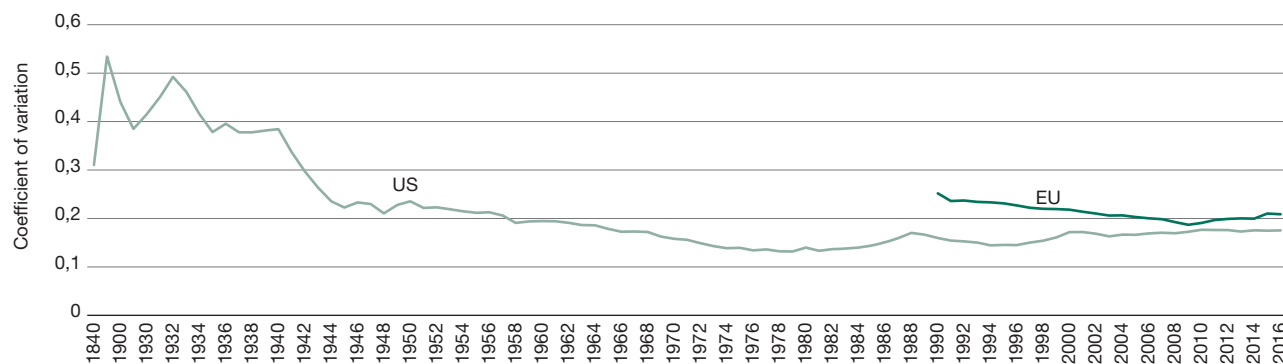
One key lesson from the long-term US experience is that the convergence process has its limitations even in a full-fledged monetary union, combined with a fiscal and political union. Some cross-state differences in income seem physiological. If one were to take the US as a benchmark for euro area future patterns, it would suggest that the further substantial narrowing of income differentials is unlikely and expectations of full convergence might be simply unrealistic.<sup>11</sup>

10 The creation of the FDIC was of course not the only factor driving the decline of the income disparities. The war effort, which led to a shift in industrial production from the coast towards the heartland also played a crucial role.

11 A recent IMF paper concurs with this point of view, J. Franks, B. Barkbu, R. Blavy, W. Oman, H. Schoelermann: Economic Convergence in the Euro Area: Coming Together or Drifting Apart?, IMF Working Paper No. WP/18/10, Washington D.C. 2018, International Monetary Fund.

Figure 5

## Long-term comparison of income per capita convergence/divergence in the US and in the EU



Note: EU refers to EU15 excluding Ireland and Luxembourg. The variable pictured is the standard deviation of the income per capita, across states, relative to the average of each respective region, the EU and US.

Sources: The US Series is calculated based on data from Brian Jenkins, available at <https://www.briancjenkins.com/data/usconvergence.html>.

As I will argue in the next section, lack of convergence or even divergence can be driven by geographical factors and the process of economic integration itself.

### Deeper economic integration and income divergence

In the EU, the ideas of shared prosperity and economic convergence have gone hand-in-hand with the idea of economic integration for decades. There is little doubt that economic integration benefits from available opportunities regardless of their location. But it should be acknowledged that integration does not necessarily lead to income convergence. As a matter of fact, free movement of capital, people, goods and services can result in the uneven distribution of activities and income. The economic trends illustrated in the previous sections, pointing to differences in economic developments and territorial disparities, seem to be going in this direction. The experience of the US and the persisting income differences despite the degree of integration, could also be interpreted in the light of this argument.

This evidence seems to challenge the predictions of  $\sigma$ -convergence derived from the neoclassical theory and often used to explain why economic integration within the EU should deliver convergence.

The economic geography literature, instead, with its predictions on the effects of economic integration on spatial distribution of economic activities and income, can be used to help understand the combined evidence of fast convergence in Eastern EU countries and divergence in Southern Member States. The core-periphery model is based on the assumption that two opposed forces, ag-

glomeration and dispersion forces, drive spatial distribution of economic activities within a country and across countries.<sup>12</sup>

Agglomeration forces are led by the preference of firms for a location in a large market where they can sell large quantities of their product (demand linkages) and the preference for a location with a high concentration of firms because of cheaper and easier access to intermediate goods and services required in the production (cost linkages). As these two forces are at work, economic activity tends to concentrate more and more. In contrast, rising local competition, high build-up cost and congestion, driven by concentration, can push firms to move away, leading to dispersion. Deepening economic integration, by lowering trade costs, tends to reduce the relevance of local competition and enhances the benefits accruing from economies of scale.<sup>13</sup> As a consequence, dispersion forces weaken and agglomeration forces strengthen. Ultimately, economic integration leads to more spatial concentration and agglomeration forces tend to be self-enforcing, driven by physical and human capital mobility and technology spillovers.<sup>14</sup>

In the recent history of the EU, economic concentration and divergence appear to be associated with closer economic integration in the context of the eastern enlargement. Agglomeration forces seem to have driven the

12 P. Krugman: *Geography and Trade*, Cambridge MA 1993, MIT Press.

13 P. Krugman: *Increasing Returns and Economic Geography*, in: *Journal of Political Economy*, Vol. 99, No. 3, 1991, pp. 483-499.

14 R. Baldwin, C. Wyplosz: *The Economics of European Integration*, 3rd Edn., McGraw-Hill, 2009.



localisation of European industry. Moreover, sectoral differences materialised with capital-intensive and skill-intensive activities concentrating in the core of the EU while slow growing industries characterised by unskilled labour tend to agglomerate in peripheral areas.

A number of studies argue that the rapid internationalisation of the economy of Eastern European Countries (EECs) and the following integration in the European Single Market resulted in a disproportionate agglomeration of economic activity in metropolitan regions.<sup>15</sup> This view is supported by a series of empirical studies,<sup>16</sup> which find evidence that the process of economic integration of EECs with the EU has translated into in-country relocation of industry to the benefit of capital regions where agglomeration economies dominate. This idea is consistent with evidence of strong regional income divergence within the EECs shown above.

Overall, this seems to suggest that the process of EU economic integration with the new Member States has been associated with income divergence across regions and within countries. What is more difficult is to reconcile such evidence with a strong pattern of economic convergence at the level of Member States in the case of Eastern countries and emerging divergence patterns in the case of Southern old-EU Member States.

The empirical literature on economic geography developed during the 1990s, which attempted to assess the impact of economic integration on income convergence in the EU, can be of help. In particular Puga observes that spatial agglomeration of industries, and hence spatial concentration of income, takes place as trade costs fall, if workers migrate in response to income differentials.<sup>17</sup> The idea is that agglomeration of production increases local wages. But if workers move in response to a wage differential a downward pressure of wages will start. On the contrary, if wage differentials persist because of low mobility, firms will have an incentive to relocate and disperse.

If one applies this reasoning in the context of the EU, higher mobility of workers within countries may have contributed to the agglomeration in metropolitan areas in EECs. Likewise, the relatively low mobility across countries may explain the dispersion of production across Europe and

the broad trend of convergence. In this respect, the future may be different from the past, if mobility increases and flows from Southern peripheral countries (both old and new Member States) toward the core continue.

Interestingly, in some countries wage differentiation across regions is prevented by centralised wage bargaining. Such wage setting could work as a strong obstacle to firms' relocation to peripheral regions and foster agglomeration, at least until firms experience a substantial scarcity of labour. This may explain the experience of countries like Italy and Spain, where wages are set at the central level and the high mobility within the country has never been associated with dispersion of the production.

## Conclusion

Recent trends in income convergence in the EU highlight three different patterns: first, a strong convergence since the turn of the century across Member States which is essentially driven by East-West dynamics. Second, many Southern regions, both in old and new EU Member States, struggled or failed to keep the pace with the rest of the EU. Finally, in the case of Southeastern Member States, this resulted in a very strong internal income divergence. This pattern is in fact common to all new Eastern Member States. There is strong evidence that capital regions outperformed the rest of the country in a disproportionate manner, driven by strong agglomeration forces around metropolitan areas.

Historically, the EU integration narrative has been based on the argument that deeper economic integration would lead to income convergence. But in fact, this argument seems wrong on two accounts. The first one is theoretical. The literature on economic geography that started almost 30 years ago predicts that economic integration leads to agglomeration of production and concentration of income. Both outcomes are difficult to reconcile with income convergence. Large empirical evidence, especially linked to the experience of the Eastern enlargement, supports the prediction of agglomeration and potentially divergence across regions.

The second one is based on the experience of the US, which is often taken as a benchmark for the EU integration process. The evidence suggests that even a nation strongly integrated for a very long time does not progress anymore in terms of income convergence and it currently exhibits a degree of income dispersion across states that is similar to the one of the EU.

Both considerations suggest that deeper economic integration does not necessarily deliver income conver-

15 Among others Petrakos and Economou, for the case of South-Eastern Europe. G. Petrakos, D. Economou: The spatial aspects of development in south-eastern Europe, in: *Spatium*, No. 8, 2002, pp. 1-13.

16 I. Traistaru, P. Nijkamp, L. Resmini (eds): The emerging economic geography in EU accession countries, Aldershot 2003, Ashgate Publishing Limited.

17 D. Puga: The rise and fall of regional inequalities, in: *European Economic Review*, Vol. 43, No. 2, 1999, pp. 303-334.

gence, and the full income convergence is not a realistic objective.

Such conclusions raise important questions for the EU and its territorial policies as the promise of full convergence cannot be maintained. However, cohesion should

remain a fundamental objective of the EU project and cohesion policies becomes even more important. In such a framework, policies will have to create conditions across regions to avoid polarisation in production and concentration of income leading to social divisions and fractures, either along regional or national borders.