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COMMISSION STAFF WORKING DOCUMENT

Employment and Social Developments in Europe 2014

Chapter 4:
Restoring convergence between Member States in the EU and EMU

Volume 1/2

Table of Contents

INTRODUCTION

Over the past two decades significant convergence has occurred between European Member States in terms of employment and social outcomes. However, since the onset of the crisis, much of this progress has been reversed, posing serious new policy challenges for the countries concerned and the EU as a whole([1]).

These recent developments suggest a need to refocus many current employment and social policy instruments at national and EU levels, and have intensified the pressures for further structural reform within the EMU. In November 2012, the Commission published the *Blueprint for a Deep and Genuine Economic and Monetary Union*([2]), with a view to complementing the already ambitious reforms underway with the creation of a banking union, deepening the fiscal and economic union and strengthening its social dimension. The Blueprint underlined that the creation of an EMU-wide fiscal capacity should be considered as a longer-term step to improve the stabilisation of EMU economies, in particular in the case of asymmetric (temporary) shocks, as well as the need to proceed in parallel with a process of political integration. The means to set up such a fiscal capacity is the subject of quite some discussions([3]), as intended by the Blueprint's subtitle 'Launching a European debate'.

This chapter reviews literature on the identification of relevant key channels and the developing theory that the current EMU-architecture can, in the face of (asymmetric) shocks, drive short-run divergence in socioeconomic performance and, in the long-run, increase the persistence of such adverse developments. In particular there is a growing awareness among policy makers that cross-border effects will increasingly affect domestic stabilisation and upward convergence, as European economies become more integrated, which calls for a markedly stronger coordination of structural reforms (see, for instance, Draghi 2014).

Stylised facts are first presented on socioeconomic convergence in Europe since the mid-1990s, including a comparison with the USA, with a focus not only on employment and productivity trends, but also on unemployment, household incomes, poverty and inequalities. Trends in nominal unit labour costs, human capital formation and indebtedness in the run-up to the crisis are also reviewed, as they are seen as potential drivers of the divergent socioeconomic performance observed since the onset of the crisis.

Two major concerns are then addressed: firstly, the extent to which cross-border effects arising from labour markets are likely to intensify in the future and how they are likely to impact upward convergence across the EU and, secondly, the potential for a fiscal capacity to not only stabilise economies hit by temporary asymmetric shocks, but also mitigate such cross-border effects. The analysis concludes by looking at the extent to

([1]) See European Commission (2012a, 2013a, 2014a).

([2]) See European Commission (2012b)

([3]) See for example Allard et al. (2013), Pisani et al. (2013) as well as CEPS (2014) and Dolls et al. (2014) both prepared for the European Parliament and Clayes et al. (2014).

which national and EU labour market and social policies can strengthen upward socioeconomic convergence and labour market resilience is examined in terms of:

- the routes available at national level to strengthen the contribution of employment and social policies, with a view to better stabilising the economy and reinforcing long-term growth;

- the European level routes that could contribute, such as strengthened labour mobility, targeted or reinforced cohesion funds, common benchmarks, and, in the longer term, the development of an EMU-level fiscal capacity.

1. PRODUCTIVITY AND EMPLOYMENT GROWTH: THE KEY TO LONG-TERM CONVERGENCE IN THE EU

How has convergence between EU Member States in key employment and social dimensions evolved over recent decades, and how does this compare with developments in the USA?

This section initially reviews trends in convergence of key socioeconomic variables, followed by a comparison with developments in the USA. Next, it reviews adverse developments in three key socioeconomic dimensions that can impact significantly on employment and productivity growth: i.e. trends in nominal unit labour costs (ULCs); human capital formation; private and public debt.

1.1. Convergence trends in the EU since the mid-1990s

How did the dispersion of labour market and social performance evolve over recent decades in Europe?

This section reviews trends in the dispersion of key employment and social variables, placing emphasis on overall economic development as reflected by: GDP per head or per capita; employment and unemployment (and activity) rates; gross household disposable income per capita; poverty and inequalities.

1.1.1. Key dimensions of convergence

Identifying key dimensions …

Five employment and social dimensions were selected for the analysis, reflecting the scoreboard for key employment and social indicators (see Joint Employment Report 2014). Emphasis is put on overall economic developments (as reflected by GDP per head), employment and unemployment rates, gross household disposable income (GHDI) per capita, poverty rates, and inequalities (S80/S20):

- GDP per head (GDPpc) provides a broad indication of economic development and relates to the various factors that contribute to economic growth or growth models, notably productivity and employment trends (see Box 1).

- Employment and unemployment developments, which are key contributors to economic growth (and indicate remaining unused potential) and a central dimension of the EU2020 strategy.

- Household income per capita (gross household disposable income GHDIpc), is a more direct indicator of the development of the populations' living standards than GDPpc trends.

- The rate of being at-risk-of-poverty-and-exclusion (AROPE), complemented by monetary poverty rates (at the 60% of the median threshold).

- Inequality (measured by the S80/S20 ratio), which indicates the extent to which overall economic and social developments are inclusive and is another key dimension of the EU2020 strategy.

… and measuring convergence

The analysis covers 28 EU Member States and focuses, as far as possible, on the 1995–2013 period. Convergence can be analysed in two basic ways: in terms of levels (Beta-convergence) and in terms of variability (Sigma-convergence) as described in Box 1. In this chapter convergence is mainly measured in terms of variability, in order to provide an assessment of the trends relating to key variables, while convergence in terms of levels is more relevant to assessing the catching up process (for a review of Beta convergence, see, for instance, trends within EA-12 in ESDE 2013).

Trends in GDPpc and GHDIpc are measured in constant prices since the focus is on convergence of real economic and living conditions([4]). The literature on growth initiated by Solow (1956) developed the concept of 'catching up' that is close to beta convergence. It should be noted that this type of 'absolute' convergence is not always easy to verify and a number of additional elements are taken into account, notably the possible endogeneity of total factor productivity (TFP) growth. Other analyses of convergence have been developed such as 'conditional growth' (Mankiw et al., 1992) and more generally the literature identifies a number of dimensions of convergence([5]).

Since convergence can result from changes in the dispersion within zones as well as between zones, this chapter considers both overall convergence or divergence development in Europe[6] (as reflected by the coefficient of variation), as well as the contribution of trends within and between European zones to these overall developments (see below section 1.2.1). For this, a standard between-within decomposition of total variance is used, as well as the decomposition of the Theil index (see box 1 and Annex).

([4]) Furthermore, while entry into the euro is conditional on fulfilling the Maastricht criteria, the euro is intended to support real convergence, defined in terms of per capita GDP, by fostering economic integration (see European Commission, 2008).

([5]) See, for instance, Islam (2003).

([6]) As far as possible in EU28 (with the only exception of section 1.2.1 with focuses on developments in nominal unit labour costs in the Euro area).

Box 1: Economic convergence, growth models and measures of convergence

Economic convergence and growth models

Economic growth is conventionally attributed to the accumulation of human and physical capital and increased productivity following technological innovation. The most basic growth model, the Solow model (also called the neoclassical growth model) considers that technological innovations are exogenous and assumes that capital and labour have diminishing returns. Notably it implies that, in general, poor countries with less capital per person grow faster (because of diminishing returns to capital), leading to convergence in GDP per head over time.

In the Solow model, GDP depends on production factors (capital and labour) augmented by technology. Total factor productivity (TFP) is, by definition, that part of the increase in output that cannot be explained by changes in the other input factors. This residual is seen as a (proxy) measure of skills, knowledge and technical progress. In empirical analysis, capital and TFP are not easy to separate. This is due to the fact that technical progress is often embodied in new capital goods. One would underestimate the effect of TFP by assuming that growth is the result of capital accumulation. Differences in TFP are seen to be important in explaining differences in income and growth between countries, particularly in the long run when countries can overcome the steady state and grow by inventing new technology.

Decomposition of growth

Trends in GDPpc and GHDIpc are measured in constant prices, since the focus is on real economic and living conditions convergence([7]). Furthermore, the use of GDP in real euros (deflated by the GDP deflator) is preferred to the PPS which are available in nominal values and are thus more appropriate for cross-section comparisons (since no specific price deflator of PPS values is available).

GDP and growth can be decomposed into several contributions. This section uses a standard simple decomposition of GDPpc trends in productivity (apparent employment productivity GDP/L), employment rate of the 15–64 population (share of employment in the active age population) and active age population rate (share of active age population in total population), as reflected below.

GDPpc = GDP /Population = (GDP / L) * (L / POP active age) * (POP active age / Population)

GDPpc = (Apparent productivity) * (Employment rate) * (Share of active age population)

Measures of convergence

Sigma-convergence refers to a reduction of disparities over time between countries, for instance, measured in terms of the standard deviation or coefficient of variation (the ratio of the standard deviation to the average). Beta-convergence refers to a situation where incomes in poorer countries grow faster than those in richer ones, usually measured in terms of change over time. The two concepts of convergence are closely related with Beta-convergence being necessary but not sufficient to achieve Sigma-convergence (see, for instance, Monfort, 2008).

Other indices exist (for instance, the Gini coefficient, the Atkinson index, the Theil index and the Mean Logarithmic Deviation). It is recommended that we 'consider a variety of measures to draw firm conclusions about changes in the extent of disparities' (see, for instance, Montfort, 2008), and the analysis in this chapter focuses on the coefficient of variation as a main measure of sigma-convergence, complemented as regards within zones and between zones dispersion by a standard between-within decomposition of total variance and a decomposition of the Theil index (see Annex 3). An emphasis is put in the main text on the decomposition of total variance which is closer to the measure of the coefficient of variation and more specifically on the share of total variance corresponding to the between zones component (as the level of variance per se can be misleading since it is affected by homothetic changes which do not affect dispersion, the annex provides additional elements on the level of the between zones contribution to total variance expressed as an index, based on the first year when data are available).

([7]) Furthermore, while entry into the euro is conditional on fulfilling the Maastricht criteria, the euro is intended to support real convergence, defined in terms of per capita GDP, by fostering economic integration (see European Commission, 2008).

1.1.2. Convergence in Europe, trends between and within zones

In order to provide an overview of employment and social convergence trends in overall Europe (EU28), it is useful to reflect not only on overall developments, but also on changes in dispersion both within and between zones. For this purpose, five groups of countries are considered, reflecting socioeconomic and geographical proximity criteria:

- EU-15 Centre (BE, LU, NL, DE, FI, FR, AT)([8]), which represented 36% of EU-28 population in 2013).
- EU-15 North (DK, SE, UK)([9]), which represented 17% of EU-28 population in 2013).
- EU-15 South and periphery (EL, IE, PT, ES, IT)([10]) which represented 26% of EU-28 population in 2013).
- EU-13 Centre and North (CZ, HU, PL, SI and SK), which represented 13% of EU-28 population in 2013).
- EU-13 South and periphery (BG, CY, EE, LV, LT, MT, HR, RO) which represented 8% of EU-28 population in 2013.

Slow GDPpc convergence reflecting adverse developments in EU15 South and periphery

The dispersion of GDP per head since 1995 in Europe has been fairly stable, with some strong convergence within EU-13 (reflecting the catching-up process) and some slightly divergent trends in EU-15. This overall stability in EU-28 reflected a pre-crisis decline in between-zones dispersion, which came to a halt when the 2008 crisis hit and reversed in relative terms (see Chart 1a).

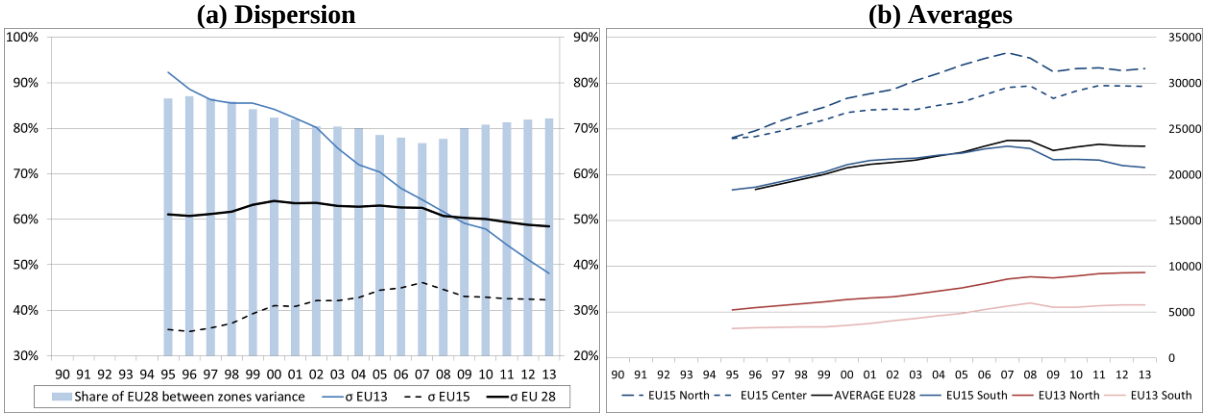
([8]) Or in other terms EA-12 Northern countries, see European Commission (2014a).

([9]) Which are actually EU non-EA countries.

([10]) Which are actually EA-12 South and periphery countries, see European Commission (2014a).

Chart 1: Convergence and divergence of GDP per capita in the EU
(1995–2013)

(a) Dispersion **(b) Averages**



Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total variance is reported on the right axis.
Source: Eurostat, calculations DG EMPL. *Note*: GDP in real terms (in euros) ; the share of inter groups variance is based on uneweithted averages by zone (see annex). *Note* — some missing values in the beginning of the period were kept constant for the calculation of dispersion and averages: BG, EE, HR, CY, MT (1995-99), LV (1995-98), EL, LT, SK (1995-97), PL, RO (1995-96), HU, SI (1995).

More specifically, in EU-13 (both Centre and North, as well as South and periphery zones) a catching up since 1995 is observed (Chart 1b). In EU-15, developments of GDPpc have been more heterogeneous, with EU-15 South losing ground mainly since around 2005 (and to a lesser extent since the early 2000s). EU-15 Centre GDPpc levels remained broadly stable in comparison to EU-28 (and actually gained some ground in recent years) and EU-15 North GDPpc remained broadly stable (also reflecting potential changes in exchange rate against the Euro).

While the gradual catching up process of EU-13 appears consistent with that of previous decades([11]), developments since the mid-2000s, particularly in EU-15 Southern and periphery zone, appear atypical.

The GDP per head developments can be split into three different effects (see Box 1), focusing on trends in: productivity (apparent employment productivity GDP); employment (share in employment of the active age population); and active age population (share of the active age population from the overall population).

Gradual catching up of GDPpc by the newer Member States, reflecting quicker productivity gains

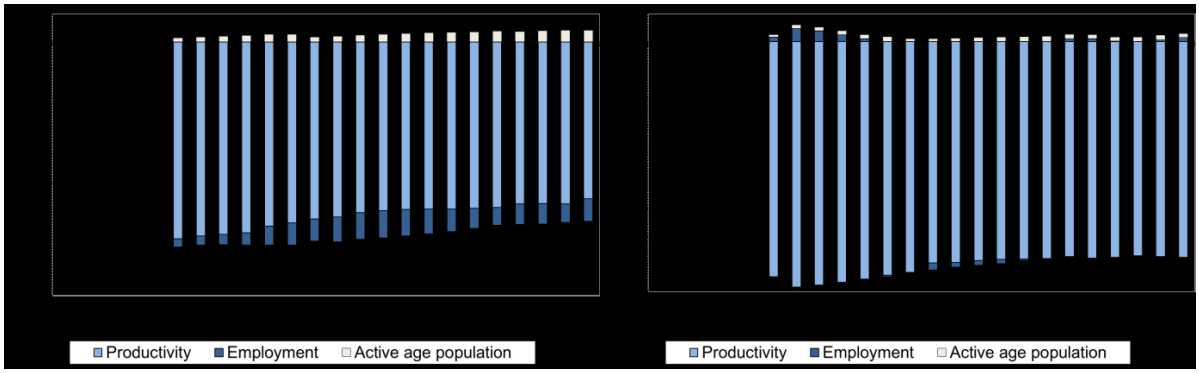
Since 1995, the gap in GDP per head between EU-13 and EU-28 narrowed, mainly reflecting productivity gains. Over the period, this progressive catching up process actually impacted more on the decline in the gap to the EU-28 average GDPpc than employment rates and active population rates. However, the contribution from the share of the active age population remained positive over the period, and even increased in EU-13 Centre and North. This partly compensated for the relatively weaker dynamics of employment rates until the mid-2000s, which have only partially reversed since then([12]).

([11]) See, for instance, Barro and Sala-i-Martin (1991) or Sala-i-Martin (1996).

([12]) See, for instance, European Commission (2009).

Chart 2: Decomposition of the GDP per capita gap to EU-28 average for two EU-13 zones (1995–2013)

EU-13 Centre and north **EU-13 South and periphery**



Source: Eurostat, calculations DG EMPL. *Note*: calculations based on GDP in real terms, in euros. *Note* — some missing values in the beginning of the period were kept constant for the calculation of averages: BG, EE, HR, CY, MT (1995-99), LV (1995-98), LT, SK (1995-97), PL, RO (1995-96), HU, SI (1995).

Overall stability of GDPpc in the core older Member States compared to the EU average, though with different employment dynamics

The relative stability in the gap in GDP per head between the EU-15 Centre and the EU North zones nevertheless masks different composition trends over the period. In both zones the relative advantage in terms of productivity levels remained broadly constant since the mid-1990s, though with some fluctuations and, notably, slight erosion in EU-15 Centre.

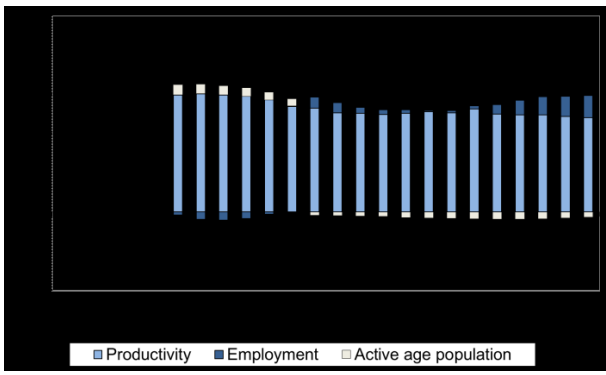
In EU-15 North, the relative advantage in terms of the contribution of employment rate levels was stable over the period, translating into an advantage of around 10 percentage points of average EU-28 GDP per head. In EU-15 Centre, employment rates used to be close to the EU-28 average but there has been a significant relative improvement over the period, notably since the beginning of the crisis.

Finally, while the contribution of the share of the working age population remained relatively small, it is noticeable that it was negative in these two zones and that the relative deterioration appears to have fallen since the beginning of the crisis in EU-15 Centre and has further developed in EU-15 North, probably reflecting trends in net migration.

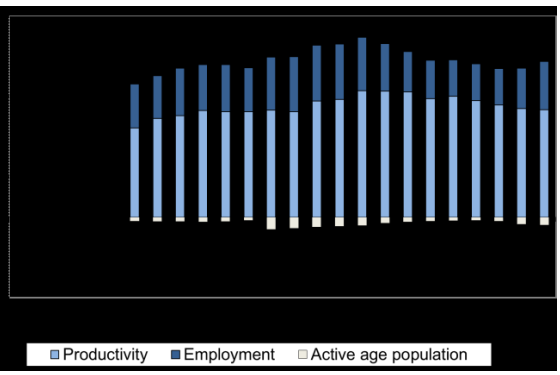
Chart 3: Decomposition of the GDP per capita gap to EU-28 average for three EU-15 zones

(1995–2013)

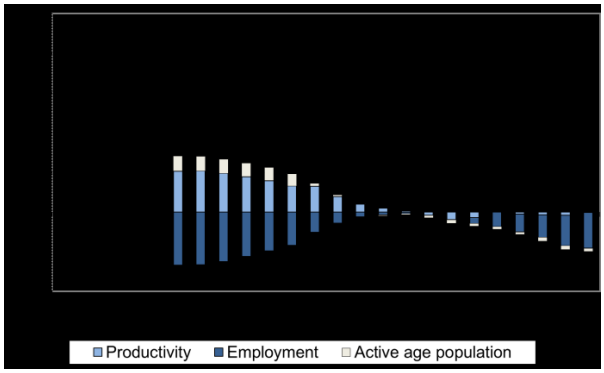
EU-15 Centre



EU-15 North



EU-15 South and periphery



Source: Eurostat, calculations DG EMPL. *Note*: calculations based on GDP in real terms, in euros. *Note* — some missing values in the beginning of the period were kept constant for the calculation of averages: EL (1995-97).

A growing gap in GDPpc in the peripheral older Member States, compared to the EU average, linked to weakening productivity and employment

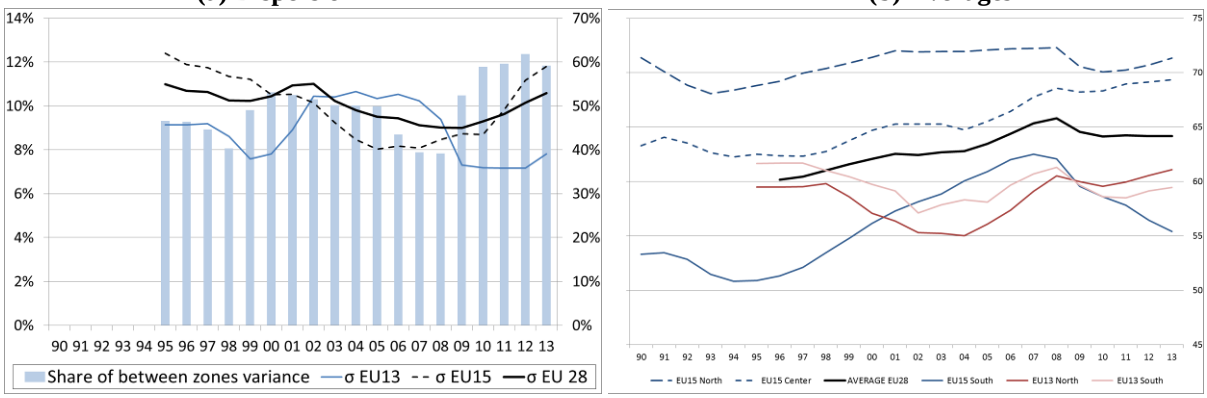
Developments in GDP per head in EU-15 South and periphery were more significant over the period. EU-15 South experienced losses in productivity over the 1995–2004 period (see, for instance, Balta and Mohl, 2014), which were initially compensated by an above average improvement in employment rates (see also European Commission, 2008). Since the crisis, however, developments in employment rates have been less favourable than in the EU overall and have also been combined with a slight reduction in the working age population. These adverse employment developments reflect a change in the composition of employment across sectors during the boom phase, which reversed with the crisis, notably in the construction sector (see ESDE 2013).

A move from convergence to divergence in employment and unemployment in the crisis, mostly driven by between-zones movements

The decade from the mid-1990s until the onset of the crisis was marked by some EU-wide convergence in terms of both employment and unemployment rates (see Charts 4 and 5). This convergence trend was particularly strong within EU-15. Since 2008, however, these converging trends reversed, mainly due to adverse developments within EU-15.

Chart 4: Convergence and divergence of Employment rates in the EU (1995–2013)

(a) Dispersion **(b) Averages**



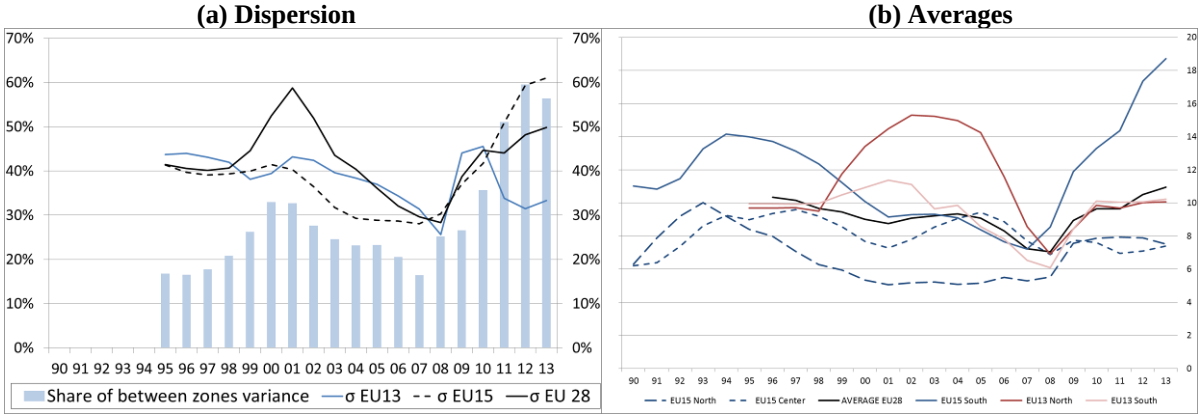
Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total is reported on the right axis.

Source: Eurostat, employment rate 15–64 age bracket, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on un-weighted averages by zone (see annex). *Note* — some missing values in the beginning of the period were kept constant for the calculation of dispersion and averages: s HR (1995-01), BG, MT (1995-99), CY (1995-98), LT, LV, SK (1995-97), CZ, EE, PL, RO (1995-96), HU, SI (1995), AT, FI, SE (1990-94).

Trends in unemployment rate dispersion very closely reflect those of employment rates, with strong convergence before the crisis and strong divergence since, with, notably increased dispersion between zones. It should be noted, however, that both these adverse developments seem to have stabilised to some extent in 2013, and that the sharp changes observed in unemployment rates resulted in a relatively small fall in activity rates.

Chart 5: Convergence and divergence of Unemployment rates in the EU(1995–2013)

(a) Dispersion **(b) Averages**



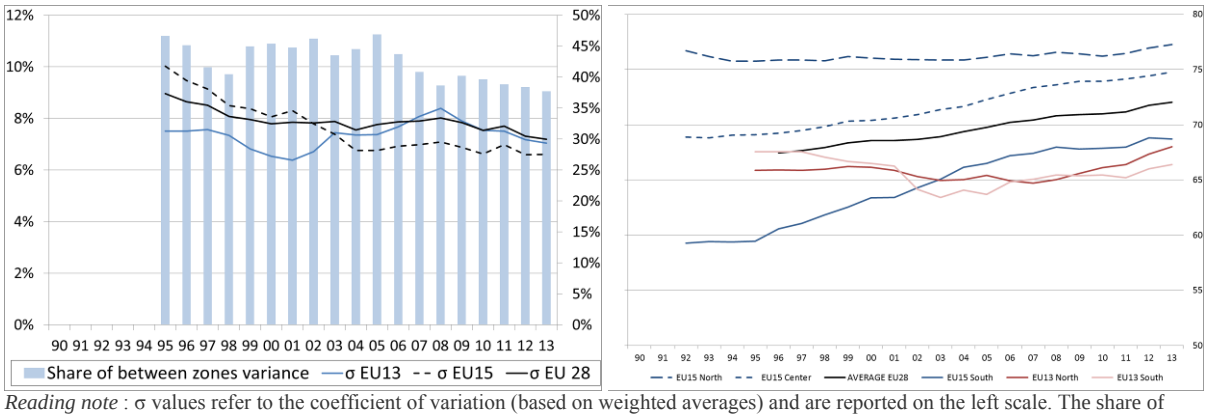
Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total is reported on the right axis.

Source: Eurostat, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on unweighted averages by zone (see annex). *Note* : some missing values in the beginning of the period were kept constant for the calculation of dispersion and averages: BG, CY, EE, HR, MT (1995-99), LV (1995-98), LT (1995-97), PL, RO (1995-96), HU, SI (1995), AT (1990-93), DE (1990), EL (1990-97).

It is worth noting that the long-term convergence of activity rates continued during the crisis and that activity rates resisted well, even in the most affected regions (Chart 6), implying that there were no significant withdrawals from the active population during this crisis (see also Chapter 1).

Chart 6: Convergence and divergence of activity rates in the EU
(1995–2013)

(a) Dispersion **(b) Averages**



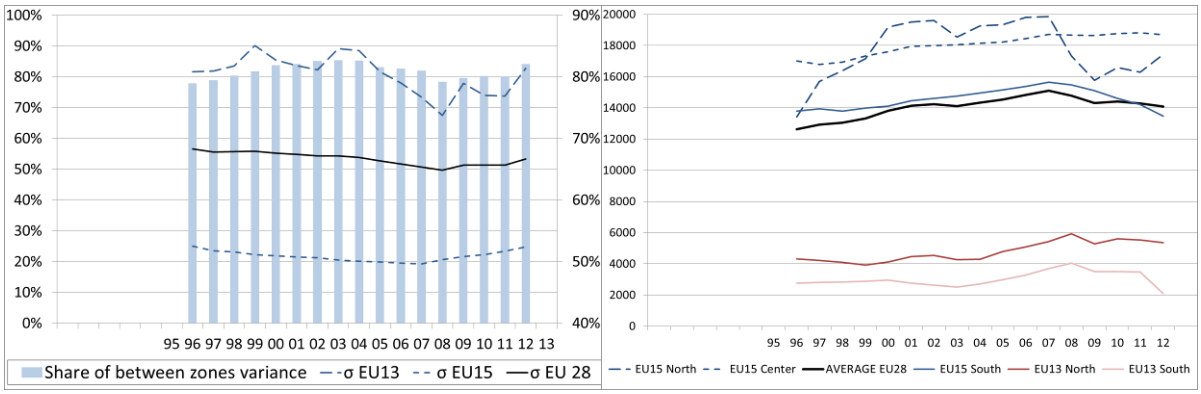
Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total variance is reported on the right axis.
Source: Eurostat, employment rate 15–64 age bracket, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on unweighted averages by zone (see annex). *Note* — some missing values in the beginning of the period were kept constant for the calculation of dispersion and averages: HR (1995-01), BG, CY, MT (1995-99), CZ, EE, LV, LT, SK (1995-97), PL, RO (1995-96), HU, SI (1995), IT (1992), AT (1992-93).

A slight reversal of converging trends in household incomes in the crisis

The degree of dispersion of EU household incomes over the last two decades appears to have been broadly stable but with some diverging trends since the crisis, linked to a slight increase in between-zone variance. This relative stability, notably during the first years of the crisis when some European countries were rather more strongly affected by the crisis, presumably reflects the strong stabilising impact of tax and benefit systems on household incomes (see Chapter 1). However, it can be noted that in 2012 there was a further increase in dispersion, both in EU-13 and EU-15, reflecting a slight additional increase in between-zone dispersion.

Chart 7: Convergence and divergence of GHDI per capita in the EU
(1995–2013)

(a) Dispersion **(b) Averages**



Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total variance is reported on the right axis.
Source: Eurostat, calculations DG EMPL. *Note*: Note: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on unweighted averages by zone (see annex). Values in real euros deflated by HICP. Note — missing data for MT, some missing values in the beginning of the period were kept constant for the calculation of dispersion and averages: LU (1996-2005), BG, HR, IE (1996-01), EL, ES, RO (1996-99).

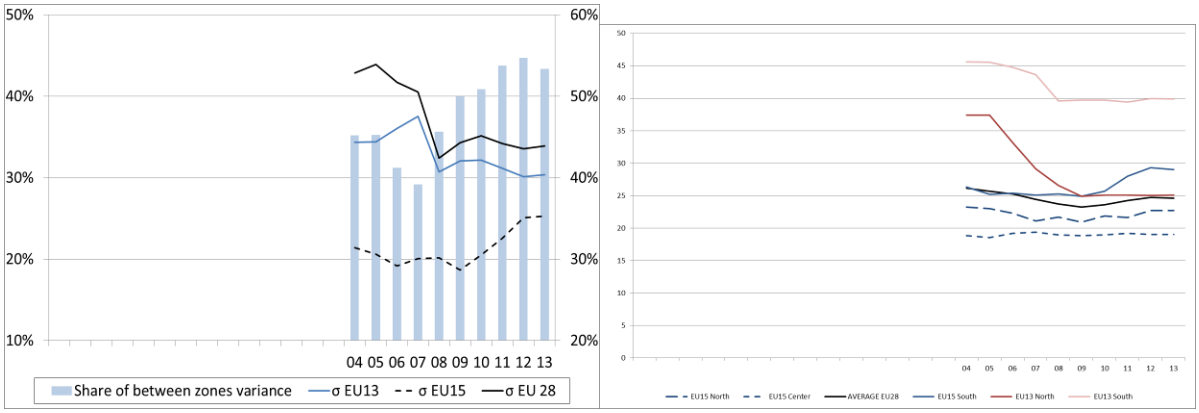
A halt in convergence of poverty rates in the crisis

Over the past decade or more, poverty and exclusion rates have tended to converge in Europe. However, this overall experience includes two different sub-periods. Before the crisis, convergence was mainly driven by developments in EU-13, accompanied by

some stability in dispersion within EU-15 and some decline in between-zones variance. Since the onset of the crisis in 2008, however, convergence came to a halt, with convergence within EU-13 paused , some increased divergence within EU-15, as well as a significant increase of between-zone dispersion in Europe (chart 8).

Chart 8: Convergence and divergence of AROPE in the EU
(2004–12)

(a) Dispersion **(b) Averages**

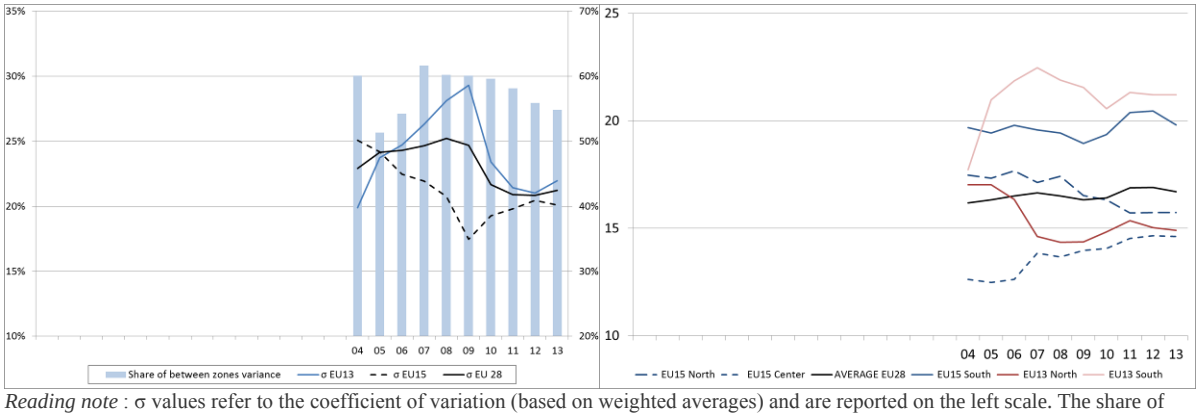


Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total is reported on the right axis.
Source: Eurostat, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on un-weighted averages by zone (see annex). *Note* — some missing values at the beginning of the period were kept constant for the calculation of dispersion and averages: HR (2004-09), RO (2004-06), BG (2004-05), CZ, DE, CY, LV, LT, HU, MT, NL, PL, SI, SK, UK (2004).

Overall developments in monetary poverty have followed a similar pattern, with a stabilisation in the degree of dispersion since the crisis that reflects a reversal of dispersion trends by zones, with some convergence in EU-13 and some divergence in EU-15. While the convergence before the crisis in EU-15 was associated with some increase in poverty rates in the EU-15 Centre zone (where poverty rates are relatively low), this increase paused during the crisis and was accompanied by a decrease in the EU-15 Northern zone and an increase in the EU-15 Southern zone.

Chart 9: Convergence and divergence of AROP in the EU
(2004–12)

(a) Dispersion **(b) Averages**



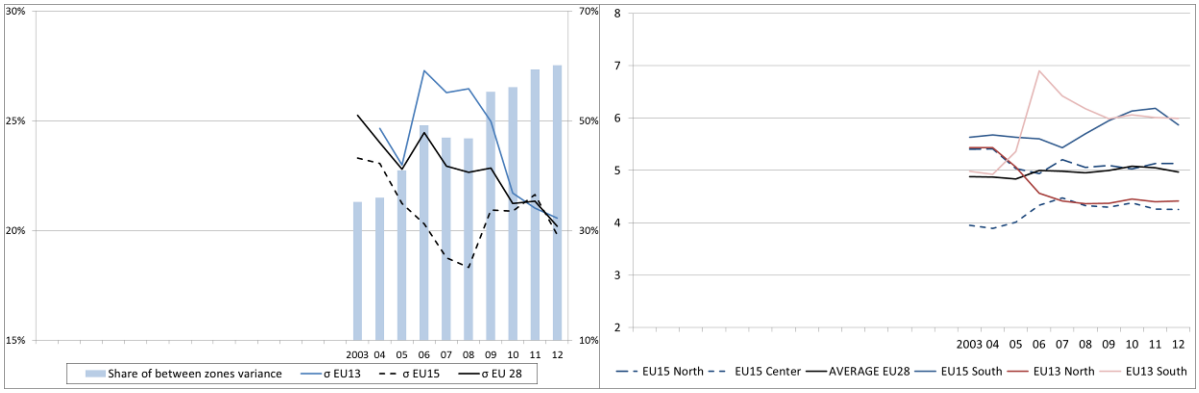
Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones in total variance is reported on the right axis. The dates correspond to the dates of the SILC waves which refer to households' incomes on the year before.
Source: Eurostat, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on un-weighted averages by zone (see annex). *Note* — some missing values at the beginning of the period were kept constant for the calculation of dispersion and averages: RO (2005-06), CZ, DE, CY, LV, LT, HU, MT, NL, PL, SI, SK, UK (2004).

Ongoing convergence in inequalities masks increasing dispersion between zones divergence

Finally, convergence in inequalities occurred over the last decade (measured as the ratio of average incomes of fifth and first quintiles S80/S20), but with different timings in their development in EU-13 and EU-15. While the onset of the crisis saw divergence being followed by some convergence within EU-13, the reverse occurred in EU-15, where there was significant convergence until the crisis which reversed and then stabilised. Overall, these trends were associated to a significant increase in the share of variance between zones, with adverse developments in the EU-15 Southern and peripheral zone.

Chart 10: Convergence and divergence of inequalities (S80/S20) in the EU
(2004–12)

(a) Dispersion **(b) Averages**



Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total is reported on the right axis. The dates correspond to the dates of the SILC waves which refer to households' incomes on the year before.
Source: Eurostat, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on un-weighted averages by zone (see annex). Note — some missing values at the beginning of the period were kept constant for the calculation of dispersion and averages: CZ, DE, CY, LV, LT, HU, MT, NL, PL, SI, SK, UK (2004).

1.1.3. EU and US experienced different trends during the crisis

It is useful to compare trends in dispersion rates of GDP per head; unemployment rates; and poverty rates within Europe with those within the US over recent decades given their similarity in terms of economic development and overall size([13]), and the availability of relevant long-term data series.

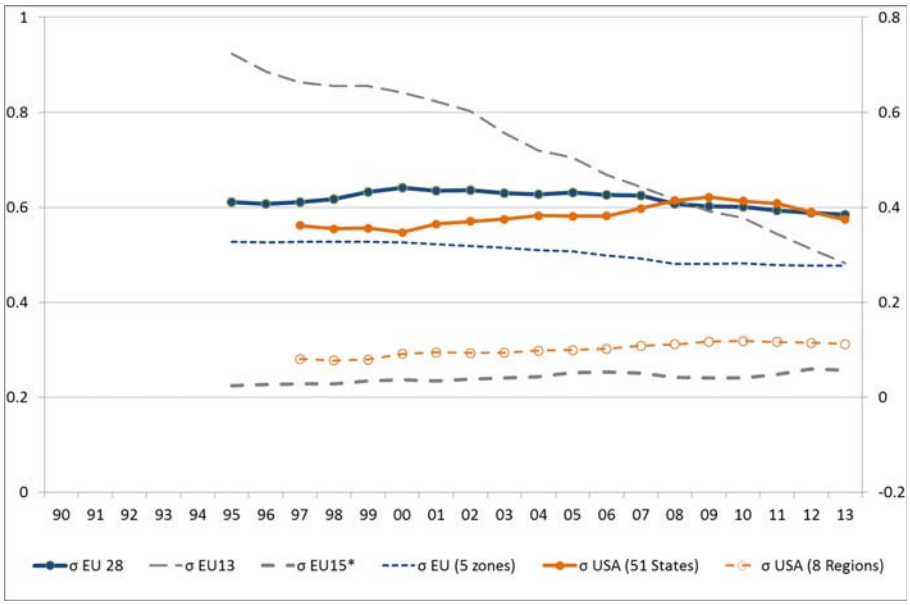
GDPpc convergence resumes slightly more quickly in the USA than in Europe

While some convergence of GDP per head continued in the EU as a whole during the crisis, this was the product of different trends (see above). On one side, strong convergence dynamics remained at play in EU-13 while there was stability in dispersion within EU-15. On the other side, the long-term trend of between-zones convergence eventually came to a halt and reversed in relative terms.

The dynamics of GDP per head convergence were slightly different in the US, with an initially divergent trend, in the early phase of the crisis, which reverted afterwards (from 2010 between States and from 2012 between regions).

([13]) In this respect the comparison with other federal countries, such as CH or CAN, may be less relevant.

Chart 11: Convergence and divergence of GDP per capita in the EU and in the USA
(1995–2013)



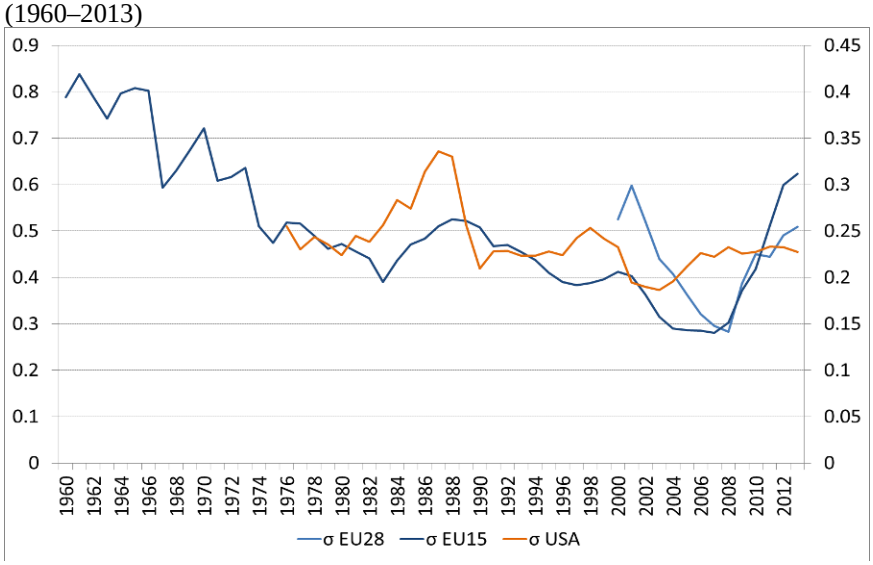
Reading note: σ values refer to the coefficient of variation (based on weighted averages). The definition of the five EU-28 zones is the same as in the former section. Values for EU are reported on the left axis, values for the USA are reported on the right axis.
Source: Eurostat and BEA, calculations DG EMPL. *Note*: real GDP per capita expressed in euro in Europe and dollar in USA. Dispersion measured as the coefficient of variation, based on the weighted average of each zone EU-15* does not include LU.

Divergence of unemployment rates in Europe, stability in the USA

Since 1995, developments were similar in the EU-28 and EU-15, with some convergence followed by significant divergence in unemployment rates since the beginning of the crisis. Within EU-15 (for which longer time series are available) convergence actually dates back to the 1960s and the reversal since the crisis has brought it back to the early 1970s dispersion levels.

In the USA, where the dispersion of unemployment rates between States is around half that in Europe, there has been some overall stability in dispersion over recent decades, with the most significant increase occurring in the second half of the 1980s. Most notably, unemployment rates have not shown a significant increase in dispersion in recent years.

Chart 12: Dispersion of unemployment rates in the EU and in the USA
(1960–2013)

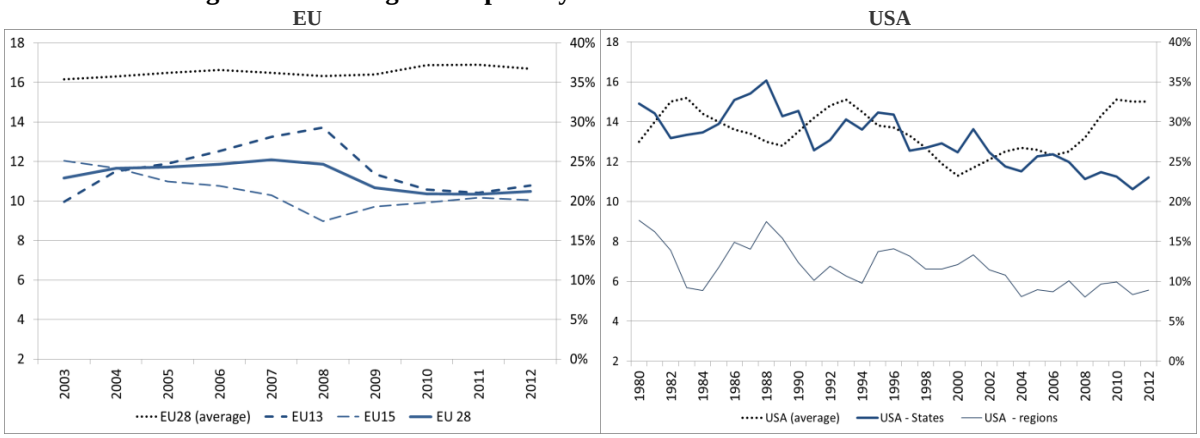


Reading note: σ values refer to the coefficient of variation (based on weighted averages) reported on the left axis for EU and right axis for the USA.
Source: Eurostat, AMECO and DoL, calculations DG EMPL. *Note*: dispersion measured as the coefficient of variation, based on the weighted average of each zone considered. For Germany, values up to 1989 refer to West Germany.

Stability in dispersion of poverty rates in Europe, signs of further convergence in the USA

In both the EU and USA the crisis led to an increase in overall levels of poverty. The increase is seen to have been more substantial in the USA, though it should be noted that their definition of poverty differs and is not linked to the median income as in Europe([14]). In the USA overall dispersion of poverty levels continued to decline during the crisis. In Europe, the slightly declining trend reflected different dynamics in EU-13 and EU-15.

Chart 13: Convergence and divergence of poverty rates in the EU and in the USA



Reading note : σ values refer to the coefficient of variation (based on weighted averages) reported on the right axis, while average values are reported on the left axis.

([14]) For instance, when the median income declines, which has been the case in some Member States during this crisis (also see Chapter 1), this can translate into declines in at-risk-of-poverty rates as measured based on poverty threshold reflecting 60% of the median income, as far as the income situation of the lower end of the income distribution remains unchanged.

Source: Eurostat and Census bureau, calculations DG EMPL. *Note*: poverty relates here to monetary poverty and poverty thresholds are not defined in the same manner in Europe (where it corresponds to 60% of the median equivalised disposable income) and in the USA.

1.2. Structural factors impacting on employment and social divergence

An important issue to address is the extent to which nominal unit labour cost growth in the euro area, weak productivity growth, limited human capital formation and increasing indebtedness (of both private and public sectors) has contributed to diverging socioeconomic performance, and how such developments may affect upward convergence in the future.

Since a currency union implies irreversible nominal exchange rates, Member States are no longer able to adjust relative prices and wages via changes in the nominal exchange rate in the face of economic shocks and competitive challenges, and have to make adjustments in terms of prices and nominal unit labour costs (reflecting changes in nominal wages and productivity). However, experience shows that these adjustments are generally slow to take place (see below) with the inevitable risk that this may trigger increases in unemployment.

The first subsection reviews trends in dispersion of nominal unit labour cost growth in the euro area, both during the run-up to the crisis and since then.

The second subsection reviews major drivers of potential divergence in human capital formation, in terms of possible impact on productivity growth, notably developments for early school leavers, thereby complementing the analyses provided in the other chapters of this review (see Chapter 2).

The third subsection reviews debt level trends, during the run-up to the crisis, with increases across the EU, notably reflecting in some euro-area Member States strong decreases in nominal interest rates, which may also hinder convergence across Member States.

1.2.1. Productivity matters for nominal unit labour cost divergence across the euro area

Developments in nominal unit labour cost, which measures nominal compensation per employee adjusted for productivity, may lead to inflationary (or deflationary) cost-push pressures in an economy. Clearly, in the long-run, strong divergence in nominal unit labour cost growth across Member States of a currency union (with irreversible nominal exchange rates) is unsustainable.

While changes in nominal compensation are often seen as one way to correct such developments, at least in the short run, the following analysis shows that strengthening labour productivity (in a sustainable way([15])) is necessary in order to both restore external balance and promote upward convergence.

([15]) Labour productivity measures output per unit of labour input. The rule that productivity is calculated as GVA divided by the number of employed persons is an accounting rule which does not constitute a behavioural relationship that indicates a direction of causality, i.e., it still allows that causality runs from (predetermined) productivity and GVA to a (endogenous) number of employed persons, from (predetermined) GVA and number of employed persons to (endogenous) productivity, or from

Divergence in unit labour costs during the run-up to the crisis …

In the run-up to the crisis (i.e. the 2001–07 period) there was a strong divergence in nominal unit labour cost (ULC) growth across the euro area (see Chart 14). More particularly, taking growth of just below 2% per year (i.e. the ECB's inflation target, since if real wage grow in line with productivity developments, nominal ULCs will grow at the same rate as nominal prices) several Member States greatly exceeded this benchmark, particularly Ireland, Spain and, to a lesser extent, Greece, Italy and Portugal([16]). In contrast, Germany and to a lesser extent Austria and Finland, undershot this benchmark. These divergent developments led to an unsustainable distortion of competitiveness within the euro area.

However, while divergent development in nominal unit labour costs may impact directly on a country's competitiveness, it is primarily driven by developments in labour productivity and nominal compensation per employee. In Italy and Spain, for example, it was largely driven by relatively weak productivity growth. In contrast, Greece and Ireland (together with Finland) showed the strongest increases in productivity and also recorded much stronger than average increases in nominal compensation per employee. At the same time Germany, and to a lesser extent Austria, showed fairly robust productivity growth in combination with relatively weak growth in nominal compensation per employee.

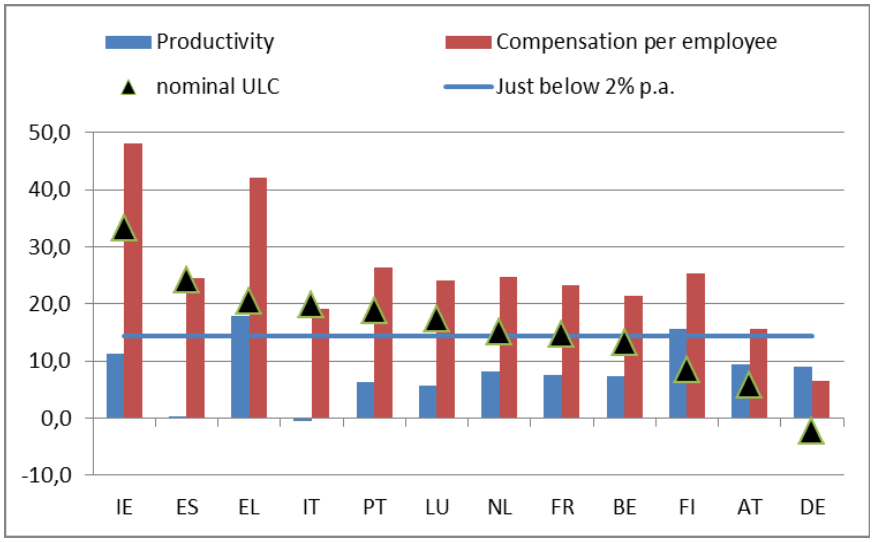
Correcting such divergent developments across Member States can be approached in different ways, with differing impacts on convergence. Nominal wages can be reduced in the Member States with excessive nominal unit labour cost growth, or increased in the States with relatively weak nominal unit labour cost growth. While this may restore international competitiveness([17]), it will not affect the Member State's overall productivity level. Another approach would be to increase productivity in Member States where unit labour cost growth was too strong, which would increase the Member State's overall productivity level — thereby potentially strengthening upward convergence.

(predetermined) productivity and number of employed persons to (endogenous) GVA. While the latter adjustment is underpinned by structural developments, the two other adjustment schemes may reflect cyclical behaviour in GDP and structural rigidities in labour markets.

([16]) Among the EA-12 Member States that were members of the euro area over the entire period.

([17]) It can notably be noted that an additional element for consideration lies in the average development in unit labour costs of the euro zone as a whole, as compared with the ones in the main trading partners.

Chart 14: Nominal unit labour cost and its components — EA-12 cumulative growth 2001–2007



Source: DG EMPL calculations based on Eurostat (nama_aux_lp and nama_aux_ulc)

Note: just below 2% per annum increase is set at 1.95%.

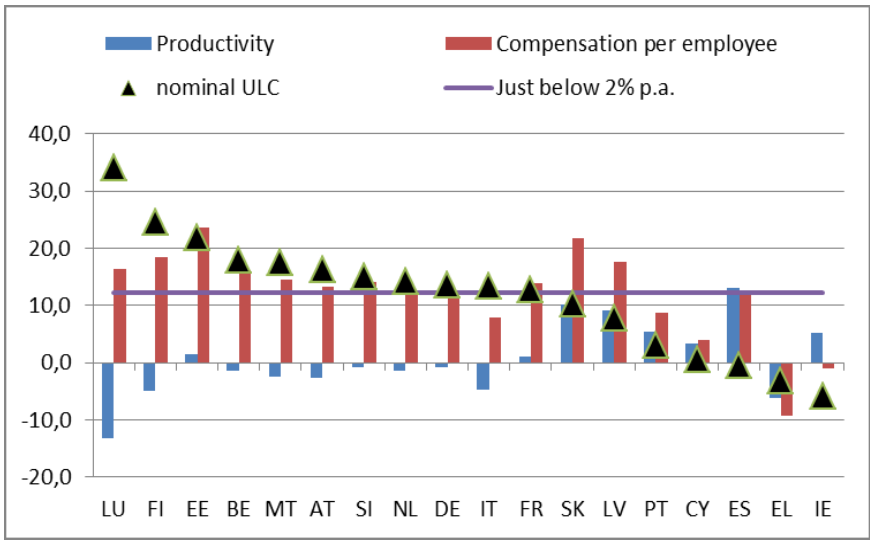
... mainly corrected by adjustments in nominal compensation per employee …

Adjustment over the period 2008–13 has primarily occurred via changes in nominal unit labour costs, with strong downwards adjustment in several euro area Member States (see Chart 15). Ireland and Greece showed negative cumulative growth in nominal unit labour cost for 2008–13, followed by very low growth in Spain and Portugal. At the same time, several core Member States remained close to the just below 2% cumulative growth.

However, the underlying downward adjustment pattern varied significantly across Member States. In Spain strong productivity growth tempered nominal unit labour cost growth, while in Greece it was primarily decreases in nominal compensation per employee that corrected past slippages in nominal unit cost growth.

In this respect, since the onset of the crisis, adjustment has primarily occurred via changes in nominal compensation per employee. This can be due to several reasons, for example the time it takes to improve productivity means that declines in wages and employment could have been necessary to restore 'confidence' under pressing circumstances. Moreover, the financial means to improve productivity growth (such as training and skill formation) are not always readily available during an economic downturn.

Chart 15: Nominal unit labour cost and its components — EA-18 cumulative growth 2008–2013



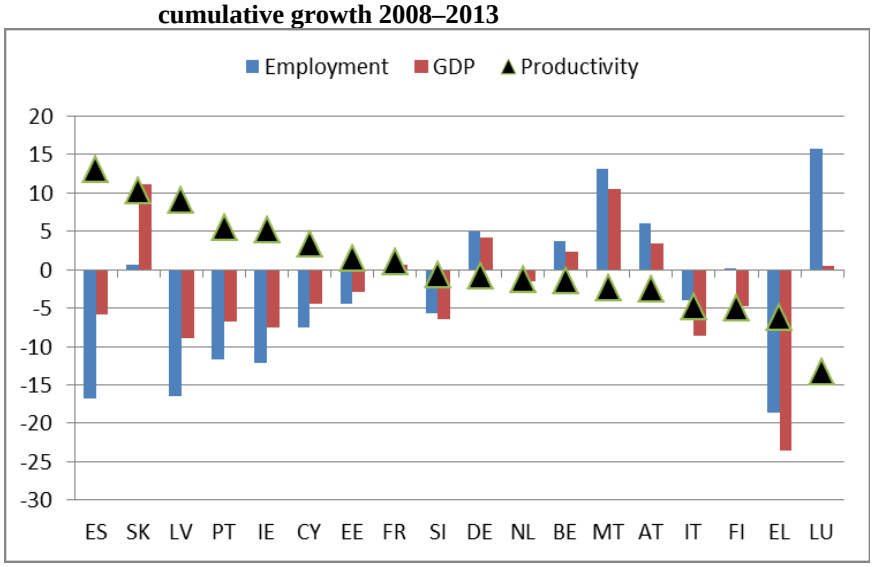
Source: DG EMPL calculations based on Eurostat (nama_aux_lp and nama_aux_ulc)

… and shedding labour, but with adverse impacts on upward socioeconomic convergence …

Divergence in cumulative nominal unit labour costs were tempered by increased productivity in some Member States. However, in several Member States (particularly Spain, Latvia, Portugal, Ireland and Cyprus) the gains in productivity were primarily realised by sharper reductions in employment than output (see Chart 16)([18]). While such productivity increases may restore convergence in nominal unit labour cost in the short run, they may also have an adverse impact on long-term upward convergence and social cohesion.

([18]) It can also be noted that changes in employment can have affected more specifically lower productivity sectors, resulting in a positive impact on average productivity (see, for instance, European Commission, 2014a, for analysis of the sectoral composition).

Chart 16: Labour productivity and its components — EA–18 cumulative growth 2008–2013

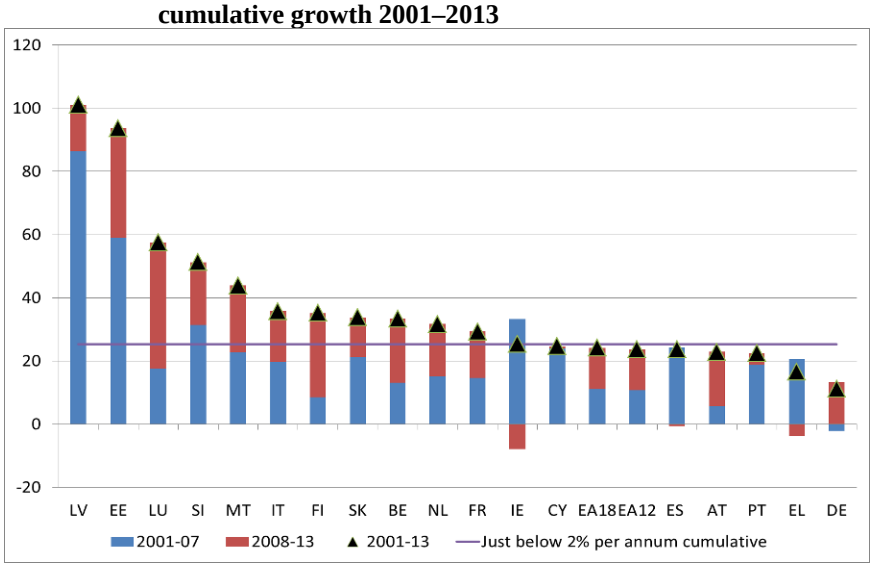


Source: DG EMPL calculations based on Eurostat (nama_aux_lp and nama_aux_ulc).

… which can be insufficient to restore competitiveness in a sustainable way

On the whole, the rebalancing over the 2008–13 period reversed some of the divergence observed in the 2001–07 period (Chart 17). While, on average, nominal ULCs were very slightly below the 2% benchmark, corresponding to the ECB inflation target, relatively lower development in some Member States reflects stronger increases in nominal ULCs elsewhere.

Chart 17: Nominal unit labour cost — EA-18 cumulative growth 2001–2013



Source: DG EMPL calculations based on Eurostat (nama_aux_ulc).

This pattern of development was achieved through significantly below average developments in some Member States who had previously experienced above average increases (particularly Ireland, Greece, Spain and Portugal, who saw declines or stagnation in nominal ULCs), but generally without above average increases in Member States who had previously experienced lower than average developments (in particular in Austria and Germany).

While it is beyond the scope of this chapter to investigate in depth the various roots of wage dynamics, developments over the period also reflect shortcomings in the

architecture of the euro area (such as developments in real interest rates). Moreover, the underlying loss of competitiveness can be related to wage setting developments ([19])and to the incomplete pass through from wages to prices (see Section 2.2).

1.2.2. Trends in human capital investment

In the years preceding the crisis, some countries experienced weak productivity gains, (notably the Southern or periphery EU-15 as indicated above), with future productivity growth prospects seen to rely strongly on education and skill among the active population. This section thus reviews some key dimensions of trends in education and skill structures of the active age population, as well as trends in the youngest segment of the active population, namely early school leavers and NEETs ([20]). In particular, it seeks to document whether trends observed before the crisis have been affected in recent years ([21]).

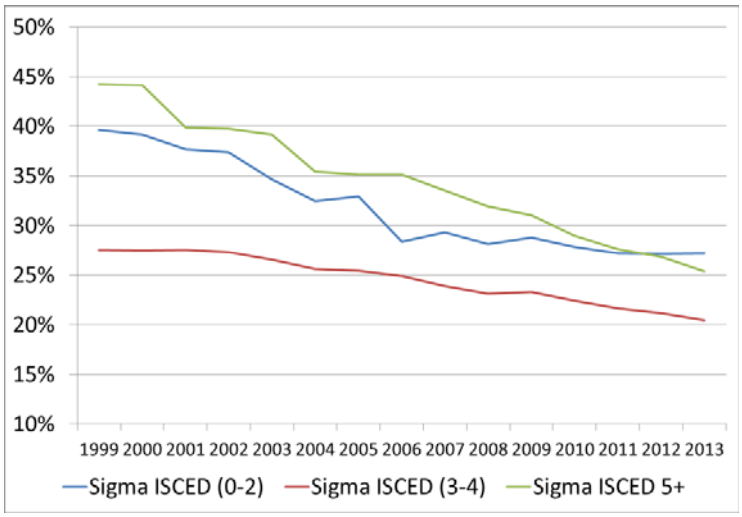
The average level of education of the working age population (as reflected by the ISCED classification) is progressively increasing with convergent trends in educational attainments by 16–39 year olds over the past 15 years. Moreover, these trends were not affected by the crisis, suggesting that there has not been any significant deterioration in the potential for long-term growth. However, the stabilisation in dispersion of the share of the active age population with education levels up to lower secondary education (ISCED 0–2 range) in recent years is worth noting.

([19]) As well as either price or non-price competiveness factors. For instance, assessing external positions on the basis of real effective exchange rates (based on wages adjusted for productivity) does not reflect all costs, such as capital costs, R&D expenditure and distribution costs.

([20]) Young people Not in Employment, Education or Training.

([21]) The analysis in this section complements analyses presented elsewhere in this report. Chapter 2 discusses in more detail the challenges to future human capital formation, while Chapter 3 provides an analysis of the increasing importance of job quality and workplace innovation to strengthen productivity growth.

Chart 18: Trends in dispersion of education performance in the EU28 (active age 16–39 population) (1999–2013)

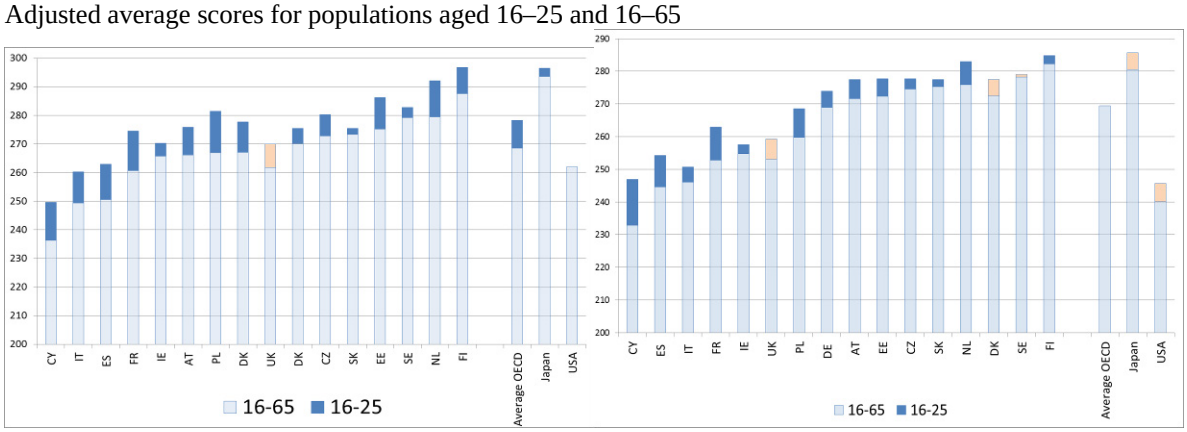


Source: Eurostat, calculations DG EMPL. *Note*: dispersion measured as the coefficient of variation, based on the unweighted average.

Nevertheless, any review of trends in the education of the working age population needs to be complemented by analysis of the trends in skills, since these are even more relevant to productivity (and education levels can reflect very different skills between countries)([22]). In this regard, there is no indication that the dispersion of skill levels in the 16–64 population improves when considering younger age brackets (16–24). Though younger cohorts generally benefit from higher average skills, the differentials between countries are lower for younger generations and are sometimes reinforced (as, for instance, in the case in England and Northern Ireland, see Chart 18).

Chart 19: Scores in literacy (left panel) and numeracy (right panel) for a selection of Member States or regions (2012)

Adjusted average scores for populations aged 16–25 and 16–65



Reading note: the bar for 16–25 is in orange and not in blue when the score for 16–25 is lower than the one for 16–65. *Source*: OECD PIAAC, calculations DG EMPL. *Note* : UK refers to England and Northern Ireland.

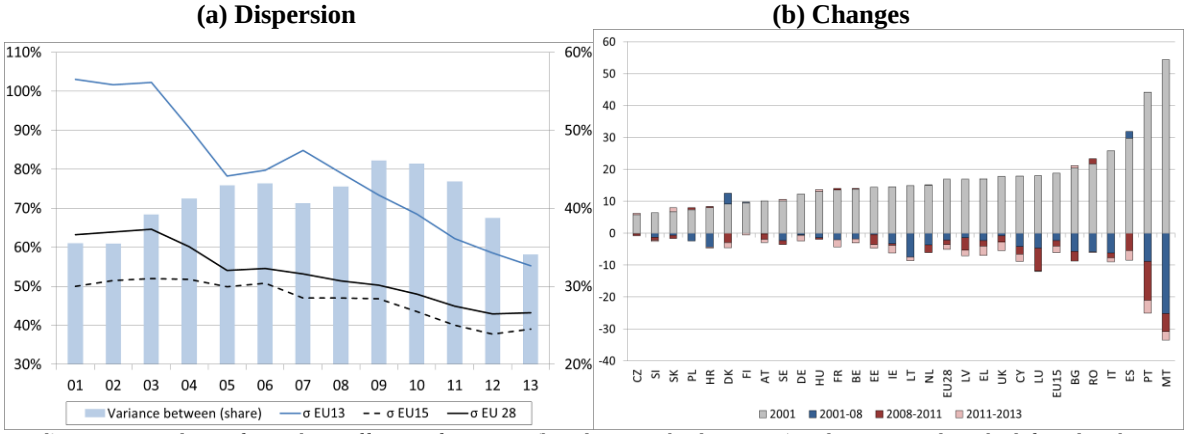
When considering the youth situation over the period, it is remarkable that there is a clear convergence pattern in the share of early school leavers (aged 18-24), with convergence continuing during the crisis — though at a reduced pace, particularly in Southern EU-15 countries. This is a positive sign that most of the gains made before the crisis will be beneficial after the crisis, providing stronger grounds for employment

([22]) See, for instance, OECD (2012).

growth. It can be noted that the slowdown of the convergence pattern in recent years could reflect longer periods at school, due to the deterioration of the labour market.

Chart 20: Trends in the rate of early school leavers in Europe (age 18-24 population)
(2001–2013)

(a) Dispersion **(b) Changes**

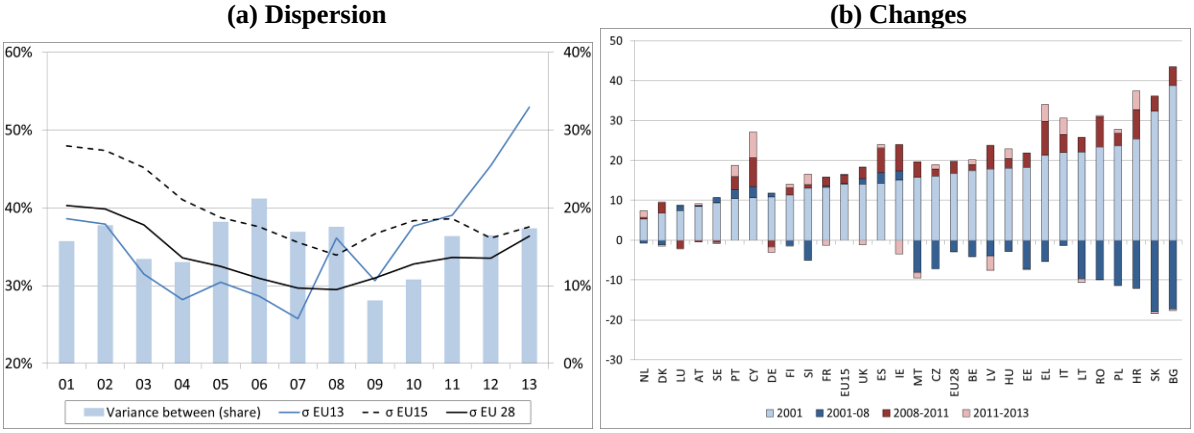


Reading note : σ values refer to the coefficient of variation (based on weighted averages) and are reported on the left scale. The share of between zones variance in total is reported on the right axis.
Source: Eurostat, calculations DG EMPL. *Note*: σ refers to the coefficient of variation (based on weighted averages); the share of inter groups variance is based on un-weighted averages by zone (see annex). *Note* — some missing data at the beginning of the period were kept constant for the calculation of dispersion : CZ , IE, HR, LV, SK(2001) and UK (2003).

The labour market attachment of younger generations, as reflected by the rate of NEETs, has seen some significant reversal of the convergence trends in recent years. However, this mainly reflects increases in unemployment rather than inactivity([23]).

Chart 21: Trends in the rate of NEETS (18–24) in Europe(2001–2013)

(a) Dispersion **(b) Changes**



Source: Eurostat, calculations DG EMPL. *Note*: dispersion measured as the coefficient of variation, based on the unweighted average. *Note* — some missing data at the beginning of the period were kept constant for the calculation of dispersion : CZ , IE, HR, LV, SK(2001).

1.2.3. Trends in public and private indebtedness

Trends in public and private indebtedness can also contribute to diverging socioeconomic performance, notably since increases in good economic times can reduce access to credit in bad economic times, while increases in private debt can fuel consumption when debt is increased, but also then reduce consumption when debt is serviced. Furthermore, during an economic downturn, servicing debt may have a strong

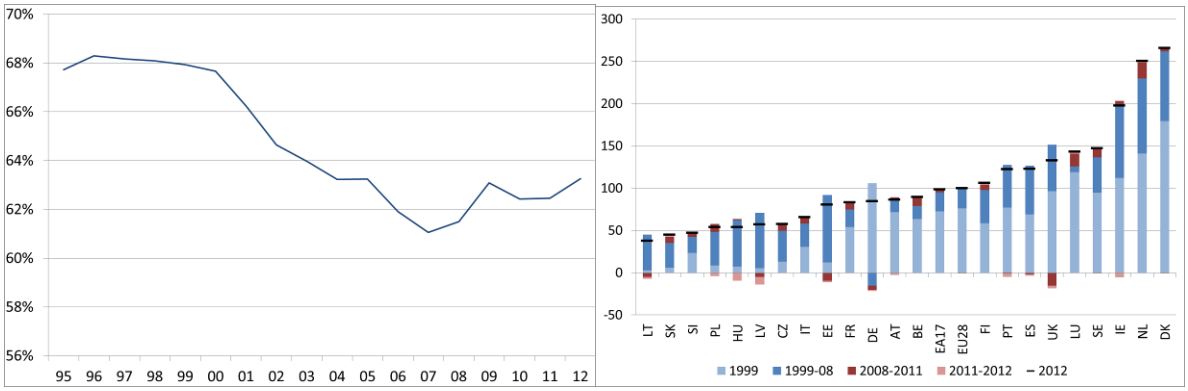
([23]) See, for instance, EU Employment and Social situation, Quarterly review, March 2014.

adverse impact on the purchasing power of households (especially when inflation is lower than expected), notably at the lower end of the income distribution. This may also hinder convergence across Member States, to the extent that it stifles aggregate demand in debtor countries.

Households' debt to income ratios had been converging overall in Europe since the mid-1990s but this convergence essentially halted during the crisis (see Chart 22) and was accompanied by a significant increase between 1999 and 2008 (over 20 percentage points for the whole EU average). This increase was not only significant in EU-13 Member States (in relative and absolute terms) where initial levels were relatively low, but also in some Member States where rates were already relatively high (such as Ireland, the Netherlands or Denmark). During the crisis household debt to income ratios were on average nearly stable, including in Member States where household incomes were more strongly affected.

Chart 22: Trends in households' gross debt to income ratio
(1995–2013)

(a) Dispersion **(b) Changes**

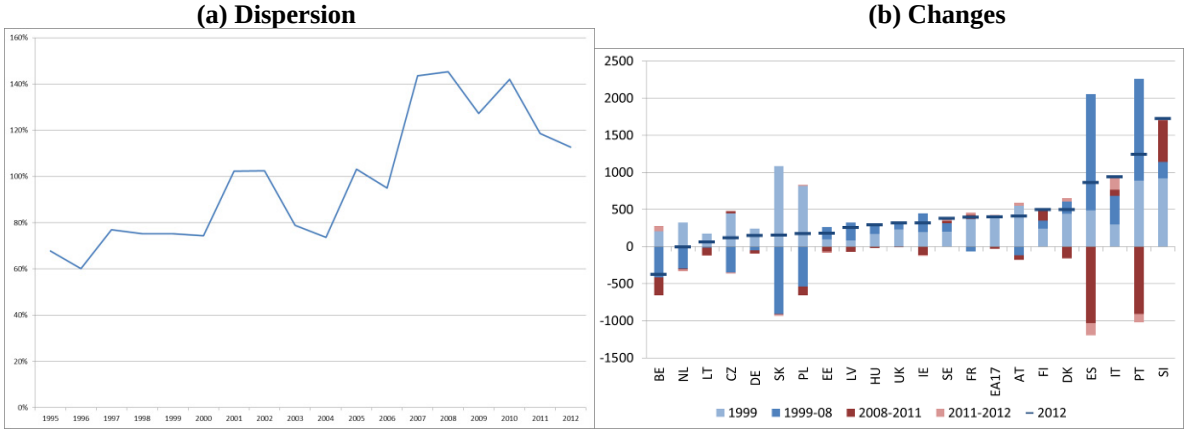


Reading note: Dispersion measured as the coefficient of variation, based on the EU-28 weighted average.
Source: Eurostat, calculations DG EMPL. *Note*: gross debt-to-income ratio of households as registered by national accounts ((AF4, liab)/(B6G+D8net)). *Note* — missing data for BG, EL, CY, HR, MT and RO, some missing data at the beginning of the period were kept constant for the calculation of dispersion : IE (1995-01), ES (1995-99), LU (1995-2005), SI (1995-01).

While household debt to income ratios converged, non-financial corporate indebtedness diverged in the decade preceding the crisis, with significant increases in the EU-15 Southern and periphery zone (see Chart 22) and declines mostly in EU-13. These diverging developments reverted somewhat during the crisis, with some significant declines in some EU-15 Southern and periphery Member States (in particular in Spain and Portugal).

Chart 23: Trends in non-financial corporations' net debt to income ratio (1995–2013)

(a) Dispersion **(b) Changes**

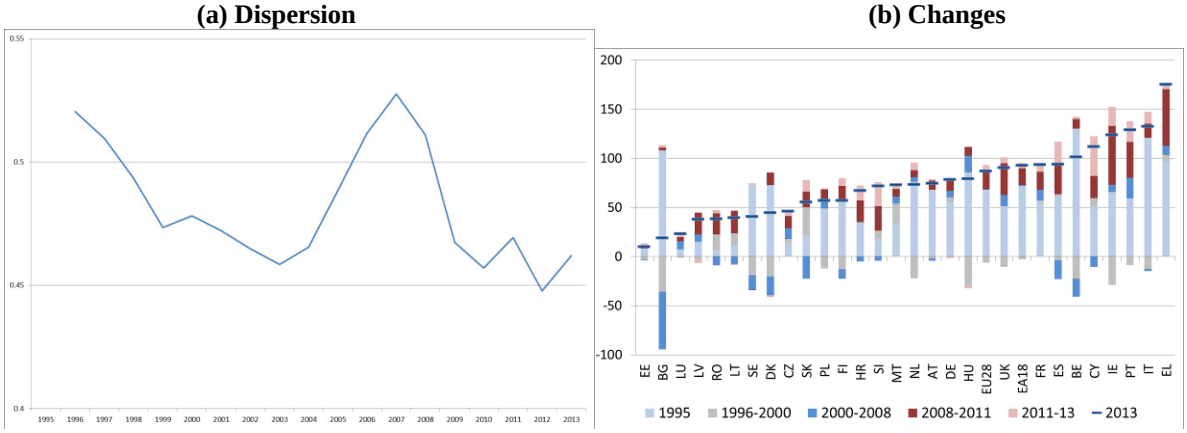


Reading note: dispersion measured as the coefficient of variation, based on the unweighted average.
Source: Eurostat, calculations DG EMPL. *Note*: net debt-to-income ratio, after taxes, of non-financial corporations: (AF2+AF33+AF4, liab - assets)/(B4N-D5PAY). *Note* : missing data for BG, CY, EL, MT and RO, some missing data at the beginning of the period were kept constant for the calculation of dispersion DK (1995-02), EE, SI (1995-01), ES (1995-99), PL (1995-96), LV (1995 and 1997).

Public debt to GDP ratios showed some divergence before the crisis, notably as a result of increases in Southern and peripheral EU-15 Member States (such as Portugal and Greece), but also due to declines in some EU-15 Northern Member States (such as Sweden and Denmark) and EU-13 Member States (such as Bulgaria and Slovakia). Overall, there was some convergence over the first years of the crisis and some stabilisation since then, but within the context of a significant average increase in public debt.

Chart 24: Trends in public debt to GDP ratio (1996–2013)

(a) Dispersion **(b) Changes**



Reading note: dispersion measured as the coefficient of variation, based on the EU-28 weighted average.
Source: Eurostat, calculations DG EMPL. *Note* — some missing data at the beginning of the period were kept constant for the calculation of dispersion BG (1995-97), HR (1995-01).

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1.3. Conclusion: promoting upward convergence by balanced adjustment efforts and strengthening human capital formation

While socioeconomic convergence had been ongoing across the EU for the last two decades, it came to a halt with the crisis in terms of GDP per head andreversed strongly for employment and unemployment rates. Activity rates, which held up during the crisisbroadly continued to converge. Convergence slightly reversed in terms of household incomes and came to a halt in terms of poverty. These trends were mainly due to adverse developments in southern and peripheral EU-15 Member States, which translated into an overall increase of the share of dispersion between zones. Conversely,

convergence (within EU-13 and with the EU-15) broadly continued for most Member States that joined the EU in 2004 or later.

In comparison, adjustments in the crisis were more balanced in the USA than in Europe, with convergence (between States or regions) in GDP per capita recovering slightly more quickly after the crisis in the USA, unemployment rates not diverging in the USA, (they diverged significantly in the EU) and poverty rates still showing signs of convergence in the USA (convergence came to a halt in EU).

These divergent socioeconomic trends after 2008 concentrated mainly within EU-15 and reflect the exceptional scale and impact of the crisis in a context where the adjustment capacity in the euro area was wanting (see Section 2.1).But they also reflect the consequences of the build-up of structural imbalances that had taken place prior to the crisis, notably divergent nominal unit labour cost growth, low productivity growth in several Member States, and the rising indebtedness of households, enterprises and the public sector in many. While this correction led to a cyclical recovery in productivity growth in Member States such as Spain, it also led to deflationary tendencies in Member States such as Greece, Cyprus and Portugal. Furthermore, the correction has not been distributed symmetrically across Member States, notably with respect to nominal unit labour cost growth. It was primarily the Member States that had experienced higher than average growth in nominal unit labour costs in the run-up to the crisis that made the strongest downwards adjustments, while adjustment in the Member States that had recorded below average growth was rather moderate.

More positively, the convergence in labour force education levels and in the share of early school leavers was not interrupted by the crisis. However, it seems that human capital formation risks remaining an important source of divergence across Member States, since strong dispersion in skill levels persist, especially among the young (also see Chapter 2 of this report).

2. Convergence within the EU, a specific challenge?

The persistent divergent socioeconomic cyclical developments across the euro area since the onset of the crisis, suggest that the current E(M)U framework, could be strengthened to foster upward convergence in times of cyclical downturn([24]).

In particular it is important to consider the extent to which cross-border effects arising from labour market and social adjustments are likely to intensify in the future, how such developments might impact on the goals of upward convergence, and whether a fiscal capacity at the EMU level could mitigate any negative effects.

There is a need to look beyond traditional macro-economic adjustment channels and also consider socioeconomic developments, such as changes in labour market polarisation and hysteresis effects, that risk deepening and extending the duration of any economic downturns.

([24]) Such ideas go back to the early discussions on optimal currency areas, with Mundell (1961) emphasising the need for price flexibility and labour mobility, and Kenen (1969) the need for fiscal integration for smoothening adjustment to asymmetric shocks.

2.1. The specificities of a monetary union

The adjustment capacity to asymmetric shocks in the EMU

In an economic and monetary union with irreversible nominal exchange rates, the available channels for adjustment to asymmetric shocks at the Member State level include, on one hand, market based channels such as wages, prices, labour mobility (geographic and occupational), and private capital flows, and on the other hand, policy based channels including fiscal policies such as automatic fiscal stabilisers, discretionary taxes and public expenditure. And by construction, they do not include monetary policy instruments (such as open market operations) or the possibility of adjusting nominal exchange rates.

The absence of national monetary policy instruments and nominal exchange rates, combined with downward rigidity in prices and wages, requires additional adjustments through quantities (including raising unemployment and decreasing real income) when a national economy is hit by an adverse asymmetric shock. This is especially the case when access to capital markets is limited, so that the adjustment burden cannot be spread over time.

In addition, such a limited adjustment capacity can generate strong adverse socioeconomic consequences (such as distributional impacts, hysteresis effects, and interactions with product markets, as discussed below), which may generate self-reinforcing adverse labour market developments that increase the duration and intensity of an economic downturn, with the risk of a permanent loss of potential output and employment.

It is worth noting that since the introduction of the euro, there appears to be at least as many asymmetric shocks as before (such as, for instance, measured by the dispersion in growth rates, see, for instance, European Commission (2008), Pisani (2012) and Allard et al. (2013)). While a number of factors affect trends in business cycle synchronisation, increased trade integration can lead to more synchronisation of the business cycle (see, for instance, Frankel and Rose, 1998), while there are other forces that reduce synchronisation, such as increasing economic specialisation linked to trade integration (see, for instance, Krugman 1993)([25]), as well as heterogeneity in the development of real interest rates (see, for instance, ESDE 2013).

In such an environment, the fiscal capacity of the currency union level is an important factor in terms of the system's ability to alleviate the economic and social impact of asymmetric shocks. Under the current architecture of the EMU, however, adjustment relies on decentralised fiscal policies under a rule-based framework and does not provide for an (automatic) fiscal stabilisation capacity([26]). Furthermore, while social protection generally played a prominent role in compensating households' income losses

([25]) See Section 2.2 below.

([26]) The EU budget contributes to stabilising national budgets only in a marginal way, namely through slightly lower national fiscal contributions due to lower imports (tariffs) and economic activity (VAT) and through reduced requirements for co-financing of European Structural and Investment Funds' support (in the case of 'programme countries'). The European Globalisation Adjustment Fund, outside the MFF, provides small-scale financial assistance in case of regional economic shocks.

in the early phase of the crisis (2008–9), and thus helped stabilise the economy, this capacity was eroded in the second phase of the crisis (particularly in 2012 and 2013). This was due to a number of factors, including high pre-existing levels of sovereign debt and protracted uncertainty about the EMU's future, leading to cuts in public spending and/or tax increases in many Member States([27]).

The importance of a common fiscal capacity at the monetary union level had already been recognised in the early stages of European monetary policy cooperation, such as in the Marjolin Report in 1975, the MacDougall Report in 1977 and the Delors report in 1989. Enderlein and Rubio (2014) underlined that the Delors report considered that 'a well-functioning economic pillar was needed to limit the scope for divergences', requiring common regional and structural policies and macroeconomic policy coordination and that a 'more effective EC structural and regional policies was seen as indispensable to mitigate the negative effects that economic and monetary integration was expected to have on poorer regions'. In particular, it was feared that agglomeration effects would 'favour a shift in economic activity away from less developed regions, especially if they were in the periphery of the Community, to the highly developed areas in the centre'. They also note that the Report 'emphasised the need to "equalise production conditions" in the Community by strengthening EC cohesion policies and developing major EC investment programmes in areas such as physical infrastructures, communications, transportation and education' and 'stressed the need to ensure the "efficient use" of EC cohesion funds, the performance of which had to be evaluated and "if necessary be adapted in the light of experience"'. The Commission's *Blueprint for a deep and genuine EMU* (2012), the Four Presidents' report (2012) and the Commission Communication on strengthening the Social Dimension of the EMU (2013) stress that the creation of an EMU-wide fiscal capacity should be considered as a longer-term step to improve the stabilisation of EMU economies, particularly in case of asymmetric shocks.

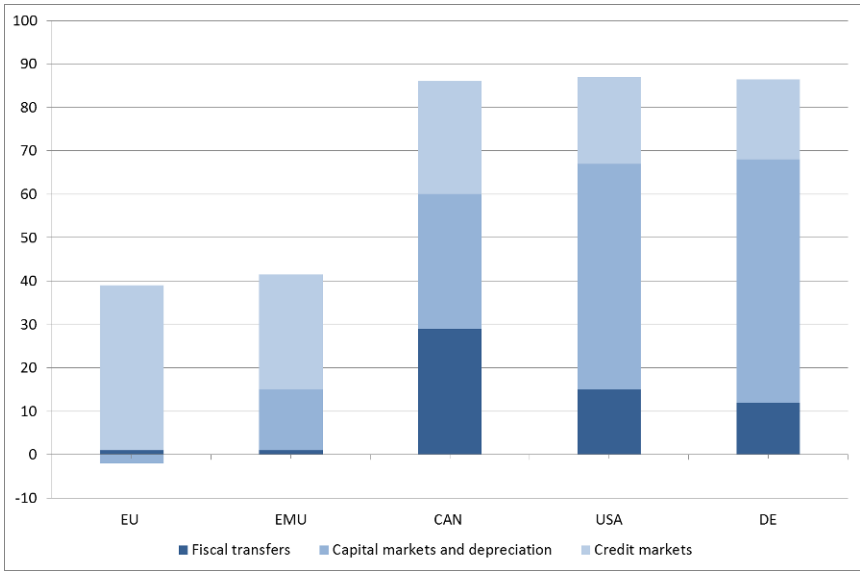
It should also be underlined that, as stated in the *Blueprint for a deep and genuine EMU* (2012), such developments relate to a medium- and long-term vision of the EMU and are thus complementary to existing measures to improve policy coordination, in particular implementation of the economic governance framework, as well as developments relating to the Banking Union, while they also imply a greater degree of sovereignty transfer and hence should be accompanied by steps towards political integration.

Available estimates of the level of risk sharing (smoothing capacity against the impact of country specific shocks) overall in Europe suggest that it remains low, compared to Canada or the US (see Allard et al. (2013) and Van Beers et al. (2014)). It appears that the relative weakness of risk sharing in Europe and EMU does not derive from the credit markets, but is mainly due to lower risk sharing in the capital market channels (which remains weak) and fiscal transfer channels (which are comparatively inexistent, see chart). In this respect, the Banking Union should strengthen the capital market and depreciation channels, while the argument that its credibility and efficiency would be strengthened by a fiscal backstop should be noted([28]).

([27]) See, for instance, EU Employment and Social situation, Quarterly review, March 2014.

([28]) See, for instance, IMF (2014), Article IV Consultation with the Euro Area — Staff report.

Chart 25: Risk sharing — insurance against income shocks remains low in Europe



Source: Allard et al. (2013).

Labour mobility

While the last decade has seen a large increase in mobility within the EU, mostly due to the 2004–07 enlargements, there is still scope to increase labour mobility. In 2013, 3.3 % of the total population ([29]) (of economically active EU-28 citizens) resided in another EU-28 country, compared with 2.1 % in 2005. This increase mainly occurred post-enlargement (2004 and 2007) with more than three quarters of this net increase corresponding to citizens from EU-12 ([30]) countries.

During the crisis, mobility flows helped Member States adjust, to some extent, to changing labour market conditions. Intra-EU mobility flows actually declined in the first phase of the crisis (2009–10), but have partly recovered subsequently ([31]), especially from Southern EU Member States (although the majority of intra-EU movers — around 60 % — still originate from Central and Eastern Member States).

There has been a notable increase in inflows in more resilient countries (such as Germany, Austria, Belgium and the Nordic countries) ([32]) and, by contrast, reduced inflows and increased outflows in the countries most affected by the crisis (such as Spain and Ireland ([33])). However, part of this adjustment reflects changes in migration to and from non-EU countries, rather than intra-EU movements ([34]). Overall, intra-EU labour mobility remains limited, in comparison to other OECD countries (such as the

([29]) Corresponding to 8 million persons; in addition, there are also around 1.1 million EU inhabitants working outside their country of residence (i.e. 'cross-border' or 'frontier' workers).

([30]) EU-12: countries that joined the EU in 2004 (EU-10) and 2007 (EU-2).

([31]) European Commission, EU ESSQR June 2014, Supplement 'Recent trends in the geographical mobility of workers'.

([32]) See European Commission, EU ESSQR June 2014, Supplement 'Recent trends in the geographical mobility of workers'.

([33]) See Deutsche Bank (2011).

([34]) European Commission (2014a), pp. 281–6.

US, Canada or Australia) ([35]). However, while the migration response to labour market shocks prior to the crisis was stronger in the United States, recent evidence suggests that migration in Europe reacted quite strongly to changes in labour market conditions — more so than in the US, where internal mobility seems to have declined (see, for instance, Jauer et al., 2014).

There is further potential for increased intra-EU labour mobility. Given the disparities in unemployment rates ([36]) and recent increases in mobility intentions in some countries ([37]), mobility changes remain limited in absolute terms ([38]). The potential for countries with high unemployment levels to tackle that problem through migration to other countries is limited by the fact that the education profile of the average unemployed person does not match the profile needs of the potential recipient country ([39]). While there is evidence that current levels of mobility are below the measured mobility intentions ([40]) in terms of movements between euro area countries, any further intra-EU labour mobility is likely to require a reduction in the many remaining barriers to mobility, that notably include differences in administration, taxation, social security systems, transferability of professional qualifications (see Section 3.2).

Moreover, it is important to monitor the broader long-term impact of mobility on both destination and origin countries, and recognise that there are natural limits to intra-EU mobility, as well as potential negative side effects in both destination countries (impact on local services and budgets, risk of displacement effects on low-skilled natives) and origin countries (youth and brain drain, risk for cohesion and sustainability of social security systems in the long-run).

2.2. Cross-border externalities arising from employment and social developments linked to economic shocks in a monetary union

In terms of future perspectives, two particular questions can be raised:

- To what extent will cross-border effects arising from employment and social developments intensify in the future, and how will they impact on upward convergence across the EU?

([35]) See European Commission (2014a), pp. 282–3 for a recent review of the literature.

([36]) See European Commission (2014a), Boxes 2 and 3, pp. 282–6.

([37]) According to the Gallup Word Poll, the share of EU citizens planning to move permanently in another country increased from 0.5% in 2008–10 to 1.2% in 2011–12, see European Commission, EU ESSQR June 2013, pp. 38–50. Another indicator is the rising number of EU citizens registering in EURES CV online (from 761 000 in June 2012 to 1 035 000 in June 2013 and 1 160 000 in January 2014).

([38]) See European Commission, EU Employment and Social Situation Quarterly Report, June 2013, pp. 38–50 and European Commission, EU Employment and Social Situation Quarterly Report June 2014, Supplement 'Recent trends in the geographical mobility of workers'.

([39]) EU-LFS data indicate that most (around 60%) recent movers from the South are highly educated while around 80% of the unemployed in Southern countries have a low or medium level of education, see EU Employment and Social Situation Quarterly Report, June 2013, p. 45.

([40]) See European Commission, Employment and Social Situation Quarterly Report, June 2013.

- Do cross-border externalities stemming from developments in national labour markets provide a basis for more EU-level policy coordination?

When an economy is hit by a shock, it has to adjust, but the nature of the shocks and adjustment channels vary greatly (see, for instance, Box 2). In closely integrated national economies, such as the EU, the effects of domestic economic shocks and labour market adjustment can often be rapidly transmitted to other Member States, in particular through international trade, labour mobility, knowledge networks and capital flows.

Cross-border effects are determined by the nature of the domestic shock, the domestic adjustment to that shock and the strength of the channels through which shocks are transmitted across borders. All of this can reinforce upward convergence if they involve, for example, the dissemination of good business practices across borders. However, they can increase divergence if they involve, for example, the migration of highly skilled persons who want to escape adverse socioeconomic developments in their home country.

The scale and intensity of these cross-border effects is largely conditioned by the structural characteristics of the economies, such as their trade openness, their integration in cross-border supply chains, their financial integration with the rest of the world, and their access to international knowledge networks and market flexibility (see, for instance, IMF, 2013 and Weyerstrass et al., 2006). ([41])

Box 2: Types of macro-economic shocks

Different types of shocks

A shock on the supply side of the real sector affects, production technologies (e.g. a decrease in productivity growth) or production factors (e.g. increases in the price of raw materials), while a shock on the demand side of the real sector affects, the preferences of consumers (e.g. a shift in propensity to consume), the public sector (e.g. less military spending) or trading partners (e.g. a shift towards overseas imports). In the long run, permanent real shocks induce adjustments in the quantities and relative prices, to restore equilibrium — in the absence of structural reforms. These changes may generate spill-overs to the rest of the world.

A permanent shock is defined as a shock that does not disappear and has a permanent impact, while a temporary shock has no permanent effect on trend developments. Nevertheless, as discussed elsewhere in this section, this distinction does not hold once hysteresis effects in labour markets (and other markets) are taken into account.

A symmetric shock affects all economies in the same way (e.g. the rise in the price of oil affects all oil importers), while an asymmetric shock([42]) affects a specific Member State (e.g. a boom in the domestic construction sector). Nevertheless, while countries may be hit by a common shock, differences in (labour market) institutions or other country specific characteristics (such as wage setting) may generate asymmetric outcomes (at least in the short- to medium-term).

An exogenous shock (e.g. a geopolitical crisis) is beyond the control of policy makers, while policy-induced shocks (e.g. unexpected bail-outs of banks) stem from discretionary policy decisions. Finally, shocks may be anticipated (e.g. introduction of the euro) or unanticipated (i.e. 'news').

Difficulties in identifying the nature of different shocks

([41])Empirical assessments of spill-over effects within EMU in the face of budgetary consolidation and structural reforms prior to the crisis can be found in, for example, Weyerstrass et al. (2006) and Beetsma and Giuliodori (2011).

([42]) Sometimes referred to as 'country-specific shocks'.

Although knowledge of the nature of a shock that hits an economy is important, it should be recognised that the exact nature of a shock is not always unambiguously observable in real time, and estimations confront several issues.

First, it cannot be excluded that national policy makers may have an incentive to misrepresent the nature of a shock. Consequently, it may be useful to establish an institutional framework that provides an independent assessment of the nature of shocks and macro-economic outlooks.

Furthermore, literature provides several methodologies to estimate (sources of) business fluctuations (including output gaps). Seminal work include Tinbergen (1939) using a linear difference equation, Burns and Mitchel (1946) using leading indicators, Shapiro and Watson (1989) using multivariate dynamic factor models, and Hamilton (1989) using a Markov-based regime shifting models. Nevertheless, experience has shown that real time estimates can be very uncertain, inter alia, due to parameter instability, model uncertainty, and data revisions. See, for instance, Marcellinoa and Musso (2011), Cheremukhin (2013) and Orphanides and van Norden (2002).

2.1.1. Stronger cross-border transmission in the future

A key question concerns the extent to which structural developments in the economy strengthen the channels through which domestic employment and social developments are transmitted across borders, and can this affect upward convergence.

It can be expected that recent or future developments, such as the the establishment of a banking union, further strengthening of the European Single Market, and technological developments (including trans-European networks), will together reinforce the channels through which cross-border effects are transmitted within the EU, namely international trade, knowledge networks, migration and capital flows([43]).

Expanding international trade and supply chains

The continued opening of national markets to international trade) and the expansion of value chains across borders should allow countries to further exploit their comparative advantages — with potential to increase upward convergence between countries. Nevertheless, such developments will also make national labour markets more sensitive to labour market conditions in their trading partners and to generate spill-over effects stemming from developments inside and outside the EU, thus calling for changes such as a stronger coordination of working conditions across the EU.

First, when markets are opened further, economic developments in the (main) trading partners impact more strongly domestically. Second, the further expansion of supply chains across borders facilitates the spread of technologies thereby strengthening upward convergence of productivity. Nevertheless, such supply chains also increase countries' exposure to developments in the rest of the world and their sensitivity (both positively and negatively) to EU labour market conditions (see Elekdag and Muir (2013) for elements on Germany, the Czech Republic, Hungary, Poland and the Slovak Republic).

Stronger knowledge diffusion across borders

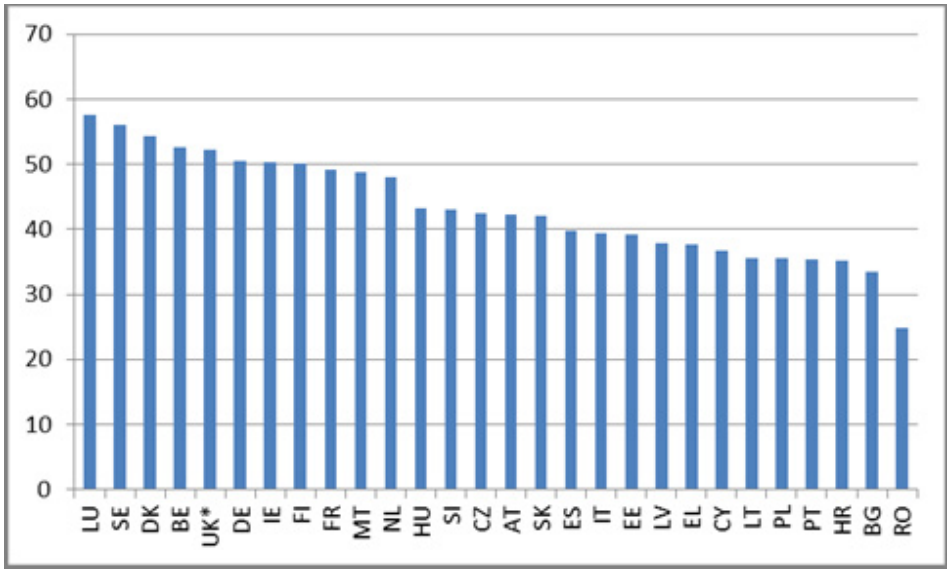
Knowledge is expected to become an increasingly important driver of productivity growth and job creation in the future (see, European Commission, 2014a). Hence,

([43]) Although an analytical distinction will be made between four channels, due recognition will be given to possible interactions.

fostering the diffusion of knowledge across borders may become a strong force in support of sustainable upward convergence through catching-up (see, for instance, Guerrieri et al., 2005).

Indeed, there are still major cross-country differences in the share of employment between knowledge intensive services and manufacturing, indicating a strong catch-up potential for the Member States that joined the EU in 2004 or later, as well as Portugal, Greece, Italy and Spain (see Chart 26).

Chart 26: Employment share of employment in knowledge intensive services and manufacturing — 2012



Source: DG EMPL calculations based on Eurostat (htec_emp_nat2)
Note: employment in knowledge-intensive services and high- and medium-high-technology manufacturing
Note: UK is 2011 observation

Due care will have to be given to cross-border effects that may have an adverse impact on convergence. First, employees and employers do not always have the skills to use and apply (new) knowledge in an optimal way (See, for instance, Audretsch and Keilbach (2010)) ([44]). Second, depending on the nature of the activity, increasing returns in the accumulation of knowledge may lead to a stronger geographical pooling of highly skilled workers. Such agglomeration effects may however carry negative externalities for the countries/regions from which the high-skilled workers move ([45]). On balance, there is a risk that such outcomes may weaken convergence across regions and countries.

Nevertheless, not all knowledge-intensive activities are subject to agglomeration effects, and further decreases in trade and transaction costs that strengthen the connectivity of agents with the outside world (such as the expansion of Trans-European networks) may put downward pressure on agglomeration effects (see, for instance, Baldwin et al.,

([44]) In this context it is important to note that the private sector may underinvest in private research and innovation, as well as skill formation, while such outcomes may intensify if labour becomes more mobile.

([45]) See, for instance, European Commission (2012), Chapter 6, and European Commission (2014) EU Employment and Social Situation Quarterly Review, June 2014, supplement on mobility.

2001). More importantly, efficient and effective use of public funds to boost local innovation capacity has the potential to remedy such adverse developments. See, for instance, European Commission (2010).

Labour mobility can strengthen upward convergence

Increased labour mobility means that, in principle, workers can move more easily from areas with a surplus of workers (and lower real wages) to areas with a shortage (and higher real wages). Significant immigration flows put downward pressure on real wages in host countries, while emigration flows put upward pressure on real wages in sending countries([46]) — thereby strengthening convergence in earnings.

In addition, increased mobility of skilled workers can strengthen the diffusion of knowledge and has strong potential to promote upward convergence in productivity growth. Nevertheless, increased labour mobility runs the risk of agglomeration of knowledge-intensive industries and brain drain that may strengthen divergence (as discussed above). Hence, the coordination of synergies between policies that promote labour mobility and knowledge networks will continue to be an important policy challenge (at the European level) in the future (see also Section 3.2 below).

International capital flows: direct foreignand portfolio investment

Domestic labour market conditions can also trigger cross-border effects via their impact on international capital flows. Foreign direct investment (FDI) from countries at the cutting edge of technology to lagging countries are expected to have a positive impact on employment and growth as well as on human capital formation in the destination country ([47]). Increased dependency on FDI can however make the host country more vulnerable to sudden reductions in FDI flows, such as labour market shocks, with consequential risks of slowdown or halt of the convergence process. Furthermore, there is a risk that the diffusion of technology weakens firms' competitiveness in international markets, so that firms may decide to export rather than invest in production capacity in the other countries — with a potentially adverse impact on convergence (see, for instance, Fosfuri et al. (2001) and Kudo (1993)).

Finally, cross-border portfolio investment can be affected by the development of socioeconomic conditions, in particular by adverse developments in unemployment and income distribution. Firstly, low income earners are generally more affected, since their capacity to service debt may deteriorate more quickly than for other categories of the population. Secondly, as rising income inequality and unemployment affects domestic economic, social and political stability, the ‘confidence’ of portfolio investors may decrease and a higher risk premium demanded.

2.1.2. Cross border transmission of domestic socioeconomic developments in the economic cycle

This section examines the cross-border effects stemming from domestic labour market adjustment in the face of a temporary shock. More specifically, the analysis in this

([46]) See, for instance, European Commission (2012), Chapter 6, and European Commission (2014) EU Employment and Social Situation Quarterly Review, June 2014, supplement on mobility.

([47]) See, for instance, http://ec.europa.eu/research/social-sciences/pdf/labfdi-final-report_en.pdf

section will look beyond the traditional macro-economic adjustment channels[48], and identify socio-economic adjustment channels that may also affect the depth and persistence of the downturn. Such socio-economic channels include distributional effects, labour market hysteresis and interactions between labour and product markets (as discussed in the first part of this section). In turn, these socio-economic developments may generate cross-border effects via international trade and capital flows (as discussed in the second part of this section).

Domestic socioeconomic developments include

When a Member State of a currency union is hit by a temporary asymmetric negative demand shock, its economy will temporarily (but not necessarily only for a short period) deviate from its growth path, before it eventually returns to its original growth path ([49]), at least in the absence of hysteresis effects, such as the erosion of employability of unemployed workers — as discussed below.

The cross-border effects will primarily be transmitted via the trade channel as the country's real effective exchange rate depreciates and its domestic absorption decreases ([50]). While cross-border effects are transmitted through changes in average prices, wages and domestic income ([51]), a full assessment of the adjustment process needs to also take account of the socioeconomic adjustment channels (in particular, distributional and labour market hysteresis effects) as well as other socioeconomic feedbacks.

…cyclical distributional effects…

An adverse temporary asymmetric shock will not only affect total output and income, but can also intensify inequality resulting in important feedbacks to aggregate demand, employment and social cohesion along the following channels.

Firstly, job losses are likely to be disproportionally carried by the low-skilled since the hiring and firing costs of low-skilled workers are lower than those of the highly skilled (notably since that the latter carry more valuable firm-specific human capital). ([52]) Consequently, as the low-paid generally have an above average propensity to consume out of their incomes, aggregate demand will experience an additional downward push ([53]). Furthermore, if the downturn persists and entitlement to unemployment

([48]) I.e. changes in average prices, wages, income etc. (in a currency union with irreversible nominal exchange in the absence of a fiscal capacity). See, for example, De Grauwe (2014) for an analysis of traditional macro-economic adjustment channels.

([49]) It should be noted that a similar argument can be made in the case of a temporary negative supply shock.

([50]) If focusing only on macro-economic adjustment in labour markets. It would be beyond the scope of this chapter to examine also cyclical cross-border effects that arise from developments that are not directly related to labour market adjustment, such as developments in bond, money and product markets.

([51]) In a currency union with irreversible nominal exchange and an absence of fiscal capacity.

([52]) See, for example, Agénor (2001).

([53]) To the extent that the related average propensity to consume will be higher than the average propensity to consume in the economy.

benefits expire after a certain period, reductions in unemployment benefit outlays will put additional downward pressure on aggregate demand as well as social cohesion.

Secondly, some additional adverse feedbacks arise from the financial markets, notably as liquidity ([54]) and credit constraints hinder households' borrowing and spending, with a view to smoothing their consumption over time, particularly at the lower end of the income distribution. ([55])

… labour market hysteresis effects …

Once a negative demand shock disappears, the economy will start to revert towards equilibrium. However, several adverse labour market feedbacks may prevent a return to pre-shock levels of employment and output ([56]).

Firstly, persistent spells of unemployment may erode the employability of unemployed persons as well as their earnings potential (for example: due to a loss of skills; decline in the motivation to look for a job; and stigmatisation in the eyes of potential employers). Cockx and Picchio (2013) — using Belgian panel data covering the labour market history of young people over the 1998–2002 period — report that, if job market entry is delayed by one year, the probability of finding a job in the following two years falls from 60 % to 16 % for men and from 47 % to 13 % for women. Arulampalam (2001) — using UK data for the 1991–97 period — reports that unemployment carries a wage penalty of about 6 % on re-entry in Britain and that, after three years, they are earning 14 % less than if they had not been unemployed. Ball (2009) provides evidence from 20 developed countries that points to a degeneration of skills, a reduction in motivation to search for a job and stigmatisation when unemployment spells persist, while Edin and Gustavsson (2008) report similar results using Swedish data from two waves (1994 and 1998) ([57]). On the other hand, when the job of the 'main breadwinner' becomes precarious, other members of the family may become more economically active — the 'added worker effect' — partly offsetting the initial hysteresis effects. See, for instance, European Commission (2013).

Secondly, apart from the direct labour market effects on the unemployed persons, such outcomes are also associated with adverse impacts on their health, as well as poorer academic performance and reduced earnings opportunities for their children — all of

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([54]) Liquid assets (including cash and checking accounts) are vital to meet uncertain consumption needs. Liquidity constraints amplify business cycle volatility and have nonlinear effects on risk premia. See, for instance, Jaccard (2013).

([55]) Furthermore, downward pressure on prices will increase both the real incomes but also the real value of debt and real interest rates affecting notably debtors, which can in turn, have a negative feedback on aggregate demand.

([56]) Also see Blanchard and Summers 1986 for an analysis of the impact of an increase in the structural unemployment on employees' reservation wage and bargaining power, and real wages dynamics. See, for instance, Ball (2014) and Hall (2014) for an analysis of hysteresis effects that look beyond labour markets, including hysteresis in capital accumulation and total factor productivity. Haltmaier (2012) reports regression results covering 40 countries that indicate that the reduction in the capital-labour ratio as a result of lower investment is the main driver of declines in potential output. See also Summers and DeLong (2013).

([57]) For more details on labour market hysteresis effects see, for example, European Commission (2013, Chapter 3).

which have an adverse impact on potential output in the long run (see, for instance, Dao and Loungani (2010) and Bell and Blanchflower (2011)). However, adverse developments in the labour market can translate into longer periods in education for cohorts who are about to enter the labour market.

Thirdly, the impact of a downturn on retirement decisions is twofold. On the one hand, when economic activity slows down and employers want to fire employees to meet the fall in activity, early retirement may be the preferred exit route. On the other hand, if the crisis has a strong adverse impact on their (financial) wealth, older workers may have a strong incentive to postpone their retirement. See, for instance, OECD (2010).

… and distorted product market feedbacks.

The employment impact of a temporary asymmetric shock depends not only on the nature of the shock but also on the cyclical behaviour of prices and wages. To the extent that prices react to changes in nominal wages with a lag (i.e. pro-cyclical real wages) the domestic purchasing power of wage earners will decrease ([58]), further deepening the downturn ([59]). Chart 27 provides some empirical evidence ([60]) on the pass-through of changes in nominal wages (adjusted for productivity, i.e. nominal unit labour cost) to output prices in the euro area (see Box 3 and annex for more technical details on the specification and estimation).

Box 3: Estimating the pass-through of changes in the nominal unit labour cost ([61])

The starting point of the empirical analysis is the assumption that in the long run output prices are in line with the nominal unit labour cost.([62]) However, in markets characterised by imperfect competition and imperfect information, the output prices are not automatically fully aligned with nominal unit labour costs due to, inter alia, menu costs ([63]), administered prices ([64]), or backward-looking 'rule of thumb' price setting ([65]). Moreover, the state of the business cycle (i.e. fluctuations in effective demand compared to potential output) may put demand-push inflationary pressures on prices.([66]) Within such an economy, prices may over- or undershoot their equilibrium values in the short- to medium-run so that output prices will only converge gradually towards the nominal unit labour cost ([67]).

([58]) i.e. in absolute (via the real wage effect) and relative terms (via the labour income share effect which is equal to the real wage effect adjusted for productivity).

([59]) Again, assuming that the marginal propensity to consume out of wage income is larger than the marginal propensity to consume out of capital income.

([60]) Based on an econometric analysis using quarterly data for the Member States of the euro area over the 1995q1–2013q2 period.

([61]) More technical details are to be found in Annex 1.

([62]) More specifically, it is assumed that unit labour cost and price levels are co-integrated.

([63]) See, for instance, Mankiw (1984).

([64]) Which are in the short run not necessarily disciplined by market forces.

([65]) See, for instance, Calvo (1983).

([66]) As well as, inflationary pressures on nominal unit labour cost via its impact on nominal wages and productivity – requiring the use of instrumental variables estimation techniques

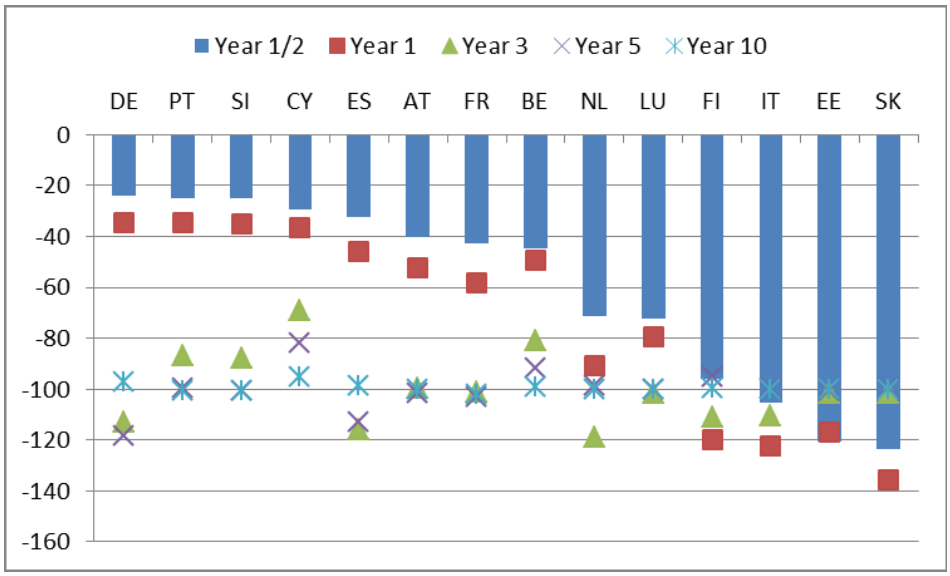
([67]) Note that the analysis in this note is limited to the Member States of the euro area (for which the data are available). This section does not analyse the price level at the level of the euro area as a whole. At that level, the price level is aligned (in the long run) to developments in the supply of money and demand for real money balances.

Specifying these adjustment channels and regressing quarterly changes in output prices on a set of explanatory variables (including changes in the nominal unit labour cost, past price changes and past divergence between output price and nominal unit labour cost) ([68]), yields estimates that are in line with the hypothesis that output prices adjust with a lag to changes in nominal unit labour costs. Subsequently, the point estimates can be used to project the path along which prices converge to the new equilibrium in response to changes in nominal unit labour cost (keeping all other factors constant) — as shown in Chart 27.

More particularly, Chart 27 shows the impact of an (exogenous shock in the) nominal unit labour cost after two quarters and then one, three, five and ten years – for the euro area Member states for which the data are available (for other Member States the dataset needed for the estimation is not available). It would be beyond the scope of this chapter to take into account feedbacks of changes in output prices and nominal unit labour cost on the rest of the economy, such as nominal interest rates, exchange rates, etc. Moreover, it should also be recognized that to the extent that the effects of cuts and increases in nominal unit labour cost are not symmetric in price adjustment, the simulated results in chart 27 may overestimate the adjustment speed of prices.

In short, the responsiveness of output prices to changes in nominal unit labour costs (at the level of the economy as a whole) appears to occur very slowly. This is seen to be especially the case in Germany, Portugal and Slovenia, and to a lesser extent in Cyprus and Spain. Such lag between price and nominal wage adjustment implies that real wages (i.e. nominal wage adjusted for prices) and hence the labour income share will decrease, which may then trigger a further contraction in aggregate demand ([69]). Nevertheless, the pro-cyclical nature of wages is not observed across all euro area Member States — in Slovakia, Estonia, Italy and Finland, price adjustment overshoots on impact, but returns to equilibrium rather quickly.

Chart 27: Adjustment path of output prices after a permanent cut in nominal unit labour cost — total economy



Source: DG EMPL estimations using Eurostat data
Note: nominal unit labour cost is compensation per employee adjusted for productivity. No data available for IE and EL.

([68]) Using harmonised, seasonally and working-time adjusted, quarterly Eurostat data of the Member States for which the data are available, covering the 1995a1–2013q2 period, and applying instrumental variables estimation techniques.

([69]) Provided the marginal propensity to consume out of labour incomes is larger than the marginal propensity to spend out of capital income.

Transmission of domestic cyclical effects across borders

The socioeconomic adjustments in the face of a temporary asymmetric shock described above (distributional effects, hysteresis and product market feedbacks) will not only affect economic activity in the domestic country, but also the economies of its trading partners through channels such as international trade, capital flows and migration.

Furthermore, as a temporary asymmetric (negative demand) shock may increase income inequality, this will in turn also affect international trade (since demand elasticities vary between types of goods (e.g. luxuries or necessities), as well as between income levels, while countries often specialise in different categories of goods and services, see Box 4). In addition, gains in national price and cost competitiveness also translate into losses in competitiveness of trading partners which can affect a significant share of employment (see chart 28), inducing a decrease in their exports and an increase in their imports.

Box 4: Income distribution and international trade

In classical economic models, such as the Heckscher-Ohlin model, causality runs from international trade to factor income distribution. In assessing the impact of income distribution on international trade, a distinction has to be made between a scale and composition effect ([70]).

The scale effect is related to differences in marginal propensity to spend income across the income quintiles ([71]). As income earners in the lower quintiles have a higher marginal propensity to spend income, a re-distribution of income from low- to high-income earners will reduce aggregate demand, including imports. Moreover, when low-income earners face liquidity (or credit) constraints, cuts in their disposable income strengthen the fall in aggregate demand, including imports. The composition effect refers to the allocation of a budget across different goods and services — whereby a distinction has to be made between necessities ([72]) and luxuries ([73]). A decrease in disposable income will decrease demand for luxuries and increase demand for necessities. Hence, when the home country and trading partners produce different types of goods, the change in income inequality will affect trade patterns.

The quantitative impact of these channels depends largely on the structural characteristics of the economies. It is beyond the scope of this chapter to investigate this in more detail, but Chart 28 provides some indicative evidence of strong differences in trade openness of the Member States of the euro area. As the chart shows, for example, Greece has the lowest number of jobs (% of total business sector employment in the business sector) sustained by foreign final demand, while Ireland has the highest.

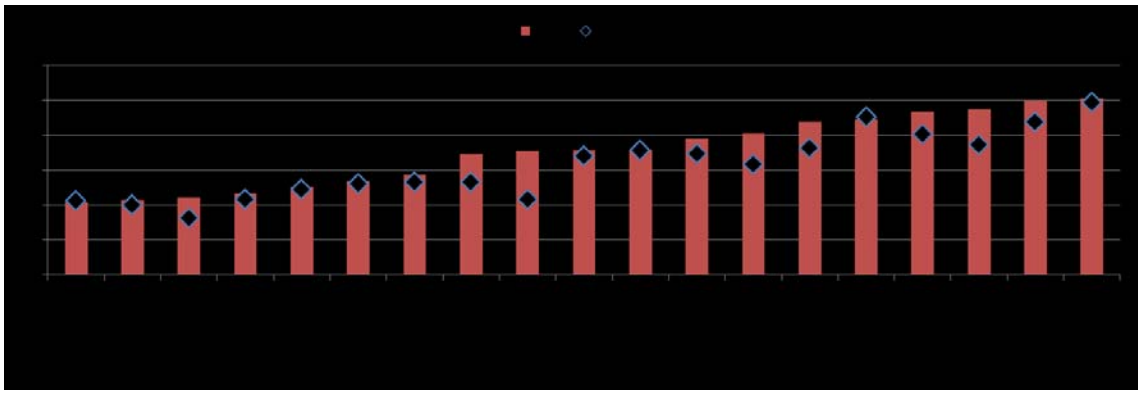
[70] Assuming separability of preferences, i.e. in a first stage it is decided how much to spend and how much to save, while in a second stage it is decided how the total spending will be allocated between the available goods and services. See, for instance, Deaton and Muellbauer (1986).

([71]) See for instance Parker et al. (2013).

([72]) Such as food and beverages which have a positive income elasticity below 1.

([73]) Such as exotic travel which has an income elasticity above 1.

Chart 28: Jobs in the business sector sustained by foreign final demand (% of total business sector employment)



Source: OECD.

Apart from these demand side effects, several adverse hysteresis feedbacks on the supply side have to be considered as well, including the possibility of a permanent productivity loss. Indeed, when the rise in income inequality persists after a temporary shock has waned, the domestic country may experience a permanent loss of productivity — which, in turn, has a permanent adverse impact on its trading partners by limiting their opportunities to exploit comparative advantages in world markets.

Furthermore, while international capital flows have the potential to stabilise an economy, these flows can be reduced if, for example, borrowers cannot provide sufficient collateral as a consequence of a shock and rising inequality.

Finally, rising labour flows in the face of an economic downturn can affect domestic wages which tend to start to rebound earlier (while domestic demand can be boosted via remittances from migrant workers), while at the same time, the increased supply of labour in the receiving country tends to put downward pressure on wages. However, hysteresis effects (such as changes in family life and commitments) make it difficult for some temporary workers to return to their home country once the shock has waned. Hence, given that it is usually younger, more dynamic workers who move and become permanent residents([74]), in the long run the productivity of the destination country would be expected to increase (relative to the home country), thereby hindering the process of convergence within the currency union.

[74] See, for instance, OECD (2014).