

Income inequalities and employment patterns in Europe before and after the Great Recession



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Country codes

AT	Austria	FI	Finland	NL	Netherlands
BE	Belgium	FR	France	PL	Poland
BG	Bulgaria	HR	Croatia	PT	Portugal
CY	Cyprus	HU	Hungary	RO	Romania
CZ	Czech Republic	IE	Ireland	SE	Sweden
DE	Germany	IT	Italy	SI	Slovenia
DK	Denmark	LU	Luxembourg	SK	Slovakia
EE	Estonia	LT	Lithuania	UK	United Kingdom
EL	Greece	LV	Latvia		
ES	Spain	MT	Malta		

Country categories used in report

Anglo-Saxon countries	Ireland, UK
Baltic states	Estonia, Latvia, Lithuania
Central and eastern European (CEE) countries	Czech Republic, Hungary, Poland, Slovakia, Slovenia
Continental countries	Austria, Belgium, France, Germany, Luxembourg, Netherlands
Mediterranean countries	Cyprus, Greece, Italy, Spain, Portugal
Scandinavian countries	Denmark, Finland, Sweden
EU15 (the Member States in the Union prior to the enlargement of 2004)	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK

Note: The analysis in the report is based on EU-SILC data which is available for the years covered in this report for just 24 EU countries (all EU Member States except for Bulgaria, Croatia, Malta and Romania).

Executive summary

Introduction

Across the globe, there is increasing concern about income inequality. Empirical evidence suggests that over the last three decades, income inequality has grown in many developed economies (the extent and time frame of this trend varying considerably). The Great Recession starting in 2008–2009 intensified this concern due to the impact of the ongoing economic crisis on inequality levels, and the general perception that the increase in inequality may have been one of the factors triggering and protracting the crisis.

Although there is a large body of research on trends in income inequality in EU Member States, surprisingly few studies adopt an EU-wide perspective. In this context, this report has two main goals: to provide a comparative analysis of inequality trends in Member States over the course of the Great Recession (updating the picture given by previous international studies); and to discuss relevant trends and developments in inequality for the overall EU distribution of income – including the implications of economic convergence and divergence before and after the crisis. Most of the analysis in this report is drawn from the European Union Statistics on Income and Living Conditions (EU-SILC) for the period 2005–2014, with income data relating to the period 2004–2013.

Policy context

Evidence regarding the evolution of inequality in the EU as a whole is surprisingly limited, despite the growing interest in the phenomenon and the increasing level of European economic integration. In many EU policy documents, there is an implicit assumption that economic integration should lead to some degree of convergence in terms of income and wages and hence result in a reduction in EU-wide inequality (at least between countries). But the uneven effects of the Great Recession across EU Member States show that convergence is not an automatic outcome of economic integration: there is a need to monitor inequality trends at the EU level as well. Good EU-level statistics on income inequality trends could facilitate a better understanding of the wider implications of the European integration project and improve the coordination of existing policies to fight inequality. These include EU regional policy, focused on inequalities between countries, and European and national social policies targeted at inequalities within countries.

Key findings

EU-wide income inequalities: Before 2008, EU-level income inequalities across different sources of income had declined significantly as a result of a process of income convergence between countries (with inequalities within countries remaining rather stable). After 2008, EU-level income inequality grew for two reasons: firstly, the process of income convergence stalled, with income levels being more negatively affected in some peripheral countries than in the core EU Member States generally; and secondly, there was an expansion of income inequalities within countries in most sources of income.

Convergence in household disposable income: A detailed analysis of household disposable income shows that the process of income convergence prior to 2008 was driven mainly by a catch-up process in eastern European countries and a stagnation or decline in relative income levels in several high-income countries, such as Continental countries (Austria, Belgium, France, Germany, Luxembourg and the Netherlands) and the UK. The interruption of the process of convergence after 2008 is associated with a significant decline in relative income levels in some countries in the European periphery in the initial years (mainly the Baltic states, some Mediterranean Member States, and Ireland), while core European countries were more resilient. After 2011, paths began to diverge within the peripheral group, with the Baltic states and other eastern European countries recovering rapidly, while income levels experienced downward adjustments in Mediterranean Member States.

Inequality in household disposable income across countries: Inequalities in household disposable income grew in two-thirds of Member States over the whole period, continuing the general upward trend in inequalities identified by a number of different international studies. Nevertheless, this is mainly due to increasing inequalities after 2008, largely driven by growing unemployment in many countries during the recession. The finding that unemployment has been the main driver of growing inequalities during the Great Recession complements previous studies signalling widening wage differentials as the main reason behind growing inequalities in the decades prior to the crisis.

Counter-cyclicality of household disposable income inequalities: This central role of unemployment and its effect on labour income largely explains why inequalities in household disposable income have behaved counter-cyclically in recent years. Prior to the crisis, inequalities declined in more than half the

Member States – mainly in the European periphery, which was experiencing an economic catch-up process. From the onset of the crisis, inequalities in household disposable income grew across two-thirds of the countries, mainly in some peripheral countries more severely hit by the crisis, but also in some core Member States (Germany) and some traditionally egalitarian countries (Denmark and Sweden).

Alleviating the effect: Two key mechanisms are shown to reduce levels of inequality. First, the role of welfare state redistribution in reducing inequality became even more important during this period, especially in countries hardest hit by the crisis in the European periphery, where welfare states largely cushioned growing market income inequalities. Second, the family pooling of resources reduced the inequality in labour income observed among individuals, although its effect weakened as the crisis progressed. This is due to the increase in the number of households with no labour income and, to a lesser extent, because of a long-term decline in the size of households.

Evolution of real income levels: An even more obvious impact of the Great Recession is revealed by information on real income levels; these were either pushed downwards, or their growth rate reduced. This correction was generally greater in the European periphery (in Mediterranean and some eastern European countries in a protracted way, and in Anglo-Saxon and Baltic countries during the initial stage of the financial crisis) and especially at the bottom of the income distribution, but it occurred as well, although more modestly, in Continental and Scandinavian countries. The deterioration in income levels from the onset of the crisis among some segments of the income distribution has squeezed the size of the middle class in a majority of countries. This is significant in some peripheral countries in eastern Europe and the Mediterranean, and in countries like Denmark, Germany and Sweden, where the middle class was starting to shrink even before the crisis.

Need for wider set of indicators: The impact of the crisis revealed by real income levels is not always reflected by relative inequality indices or by other indicators such as GDP per capita. This suggests that a wider set of indicators to assess well-being and economic prosperity in European societies needs to be considered in order to properly assess the fall in living standards associated with the Great Recession.

Introduction

Concerns over growing inequality across developed economies are notably present in academic research and policy debates in recent years. Even before the Great Recession, concerns emerged about income disparities between European regions and rising levels of inequality across developed economies over the past three decades (OECD, 2008). The financial crisis that emerged by the end of 2008 and the debt crisis that ensued have aggravated these concerns (OECD, 2011). Growing inequalities and declining labour shares have been highlighted as some of the reasons behind a weakening of aggregate demand in many developed countries, which may have contributed to the Great Recession. The crisis has also had an uneven impact across countries, economic sectors and demographic groups, potentially amplifying underlying inequality trends both inside and outside labour markets. Even after the resumption of economic growth, sluggish real wages across many Member States call into question the strength of the recovery of income levels among significant segments of the workforce, let alone the population at large.

EU Member States have been undergoing a process of economic integration spanning several decades, a process that was accelerated by the creation of the euro and that has been recently tested by the emergence of global financial turmoil and the ensuing sovereign debt crisis. The Great Recession has had an uneven impact across the EU. Labour market performance across Member States has diverged considerably, with employment and real wages rising in core economies and falling in peripheral economies. While most countries were affected by the global financial crisis, the employment turbulence related to the sovereign debt crisis has been much more concentrated in peripheral economies (European Central Bank, 2014). Some of the most stressed countries have adopted fiscal consolidation measures, structural reforms and internal devaluations aimed at recovering competitiveness in a monetary union, which may have weakened downward rigidities in wage levels (European Central Bank, 2015).

The diverging impacts of the crisis and the strategies put in place to fight it have certainly resulted in different wage, income and unemployment trends across countries. Against this background, it is relevant to map trends in income inequalities and income levels and to do so from an EU-wide perspective, looking at

developments both between and within EU Member States. In principle, a certain degree of convergence in income levels should be expected between Member States due to a process of economic integration in which lower income countries would progressively catch up with higher-income countries. But the recent crisis and the bleak European economic outlook may have created forces of divergence arising from the uneven impact of economic and labour market turbulence within Europe.

Oddly, studies adopting an EU-wide perspective to map trends in inequality are scarce. To the best knowledge of the authors, no exhaustive, cross-country comparative analysis on income inequality has been conducted on developments across EU Member States over the recent crisis period. This report will seek to fill these two main gaps. The report builds on previous Eurofound work (Eurofound, 2015), taking an EU-wide perspective by analysing inequality developments both between and within Member States; this time, however, the scope extends beyond wages to include overall income, which is probably subject to more substantial variations in a period characterised by notable employment turbulence. In addition, this report aims to update recent empirical analysis covering inequality developments among many Member States from recent decades up to the end of the 2000s (OECD, 2008, 2011) by providing a much-needed comprehensive picture of trends in income inequalities across different sources of income and most Member States during the years of the Great Recession, covering the period 2005–2014 (income data referring to 2004–2013).

The report is divided into seven chapters. Chapter 1 will introduce the relevant literature on income inequality. Chapter 2 presents the methodological framework followed in this report to approach the study of inequalities in Europe over the past decade. Chapter 3 maps inequalities from an EU-wide perspective and shows how developments between and within countries affect the EU-wide income distribution over time. Chapter 4 provides a picture of income differentials between countries, while Chapter 5 discusses income inequalities within countries. Chapter 6 complements the analysis by looking at the trends in income levels that are behind income inequality patterns. Chapter 7 concludes with a summary of the findings and a discussion of some policy implications.

1 Literature review

Although a relevant strand of the literature has produced empirical studies on global inequality levels (Milanovic, 2005), a comprehensive analysis of inequality in supranational entities such as the EU has rarely been attempted. Most existing studies on income inequalities focus on developments within countries, typically using the measure of household disposable income, although the impact of its different components has been often discussed as well. There are also studies on country differentials in average wage or income levels, but these studies rarely cover these differentials together with inequality developments within the country, nor do they attempt to evaluate inequality at the supranational level. This chapter summarises the main relevant findings from the literature. It will discuss what is known about recent trends in income inequality and its different components and it will briefly review the few previous studies that take an EU-wide perspective on this issue.

Income inequality by component

The measure of income typically covered in empirical studies on income inequality is household disposable income, which is the aggregation of several income components that result from labour market outcomes, capital, household composition and the progressivity of the tax and transfer systems (Bonesmo Fredriksen, 2012).

According to a recent OECD study (OECD, 2011), a general widening of wage inequalities between 1980 and 2008 occurred across most OECD countries, a trend that seemed to intensify in the late 1990s and 2000s. It was due to developments at both extremes of the distribution, but mainly at the top, since top earners registered a rapid progress of wage levels. Importantly, this report finds that wage inequalities were the main reason behind growing income inequalities in OECD countries over the period 1980 to 2008: 'Increases in household income inequality have been largely driven by changes in the distribution of wages and salaries, which account for 75% of household incomes among working-age adults' (OECD, 2011).

Some of the main reasons identified in the literature to explain the growing inequalities in wages are skills-biased technical change, by which new technologies increase the relative productivity of high-skilled workers, their demand and wages (Violante, 2008);

trade specialisation and off-shoring, which may have a dampening effect on the wages of low-skilled workers in Member States (Blau and Kahn, 2009); and developments in labour market institutions, such as the weakening of trade unions and declining coverage of collective pay agreements (European Commission, 2013) or the trend towards decentralisation in wage-setting mechanisms in several countries (Visser and Checchi, 2009).

The dispersion of working hours has been highlighted as an important reason behind growing disparities when measures of unadjusted labour earnings are used, which would result in temporary and part-time workers occupying the bottom of the wage distribution (Burniaux, 1997), the former due to unemployment spells pushing annual labour incomes downwards and the latter due to shorter working hours generally. A recent report from the European Parliament underlines the key role played by working hours in growing inequalities in labour earnings across two-thirds of EU countries between 2006 and 2011 against a background of expanding part-time employment since the onset of the crisis (European Parliament, 2014).

The inclusion of income from self-employment results in higher inequality levels, since labour income is more unevenly distributed among self-employed workers than among employees (OECD, 2011). This is also the case with the inclusion of capital income, which is more unevenly distributed than labour income. Nevertheless, the role of capital in explaining growing inequality is somewhat unclear empirically. Many studies assign a secondary role to capital income compared with labour income when driving inequality trends, perhaps due to the fact that survey data have difficulties measuring capital and the income flows derived from it.¹ Nevertheless, recent work by Piketty and other researchers based on data from tax records shows that capital income has greatly contributed to rising inequality in recent decades and it will continue to do so given declining labour shares across most developed countries (Piketty, 2014). Capital is very important in the debate on the importance of the top of the income distribution as a driver of growing inequalities. This seems especially relevant in the US and has led some researchers to criticise inequality studies using decile ratios and failing to report on the very large income growth experienced by the top 1% (Rosnick and Baker, 2012; Atkinson et al, 2011).

¹ The European Central Bank's Household Finance and Consumption Survey is a good example of a survey that gathers micro-level data on capital more adequately, but only one wave of data exists so far and it provides structural information on euro area households' assets and liabilities and not merely on capital income flows.

The pooling of different types of income at the household level affects inequality levels notably. The inclusion of dependants and households where nobody works widens the income distribution, but the pooling of income between family members at the household level has been shown empirically to have a strong role in reducing inequalities. Furthermore, the distribution of household labour income among people has been more stable than the distribution of personal labour income among workers (OECD, 2008). Nevertheless, changes in the family structure over the last decades, mainly the decline in the average household size due to more people living alone or more single-parent families, are reducing the redistributive impact of the household (Nolan et al, 2014).²

The final components of total household disposable income are public transfers and taxes. Recent research shows that the tax and benefit system reduces market income inequalities by around 25% to 33% on average across OECD countries, playing a more significant role at the bottom than at the top half of the income distribution, and with taxes and transfers in cash being more effective than in-kind benefits such as education, health, and housing. Nevertheless, as happened with the role of families, the welfare system has generally become less redistributive from the mid-1990s and has therefore contributed to growing inequality levels in household disposable income (for instance, as a result of reductions in income taxes or tightening the criteria to access unemployment and other benefits; see Nolan et al, 2014; OECD, 2008, 2011).

Recent evolution of income inequalities

Growing inequalities in household disposable income from the 1970s have taken place across many developed countries according to several recent empirical studies. For instance, a recent OECD study identifies growing income inequalities in 17 of the 22 countries covered between the mid-1980s and the late 2000s (OECD, 2011). An earlier study concluded that ‘there has been an increase in income inequality that has gone on since at least the mid-1980s and probably since the mid-1970s. The widening has affected most (but not all) countries ... But the increase in inequality – though widespread and significant – has not been as spectacular as most people probably think it has been’ (OECD, 2008).

Some researchers have identified a convergence towards higher levels of inequality across countries, but the timing and magnitude of such increases varies

(Jenkins and Micklewright, 2007). Inequalities grew first in Anglo-Saxon countries at the end of the 1970s and the beginning of the early 1980s. They generalised by the end of the 1980s and 1990s, reaching eastern European and Mediterranean countries and even affecting traditionally low-inequality countries such as the Scandinavian countries during the 2000s (OECD, 2011; Ballarino et al, 2012). The most general increases in income inequality seem to have taken place in the 1980s and 1990s, while country patterns seem to have become more diverse in the 2000s. A recent study identifies some convergence in inequality levels between 1997 and 2009 across EU15 countries, but mixed patterns across EU27 countries (European Commission, 2011).

The evolution of income inequality over the business cycle is of particular interest against the background of the recent crisis. Theoretically, income inequality should be counter-cyclical, increasing during downturns (Storesletten et al, 2004; Bonhomme and Hospido, 2012). On the other hand, wage levels are supposed to be pro-cyclical, since the movement of workers towards jobs of better overall or match-specific quality would be more difficult during recessions and vice versa (Jovanovic, 1979; Farber, 1999).

Although it is country specific and heavily dependent on institutional factors, empirical studies tend to identify counter-cyclicity in the evolution of net income and unadjusted annual labour earnings, which is largely due to the mediating role played by unemployment in depriving individuals of labour income (Maestri and Roventini, 2012). This may explain why the counter-cyclicity is much weaker or absent for inequalities in hourly wages, which only refers to people who remain in employment (which can be affected by unemployment only indirectly or compositionally, with uncertain results).

The divergence observed between the business cycle behaviour of income and wage levels can also be explained by the role of unemployment. A pro-cyclical pattern emerges for income levels due to loss of labour earnings for people exiting the workforce, while empirical studies have typically failed to identify a clear real wage pro-cyclicity, with results depending on the choice of the time period, price deflator or cyclical indicator (Abraham and Haltiwanger, 1995). This has been more recently blamed on the use of aggregate data up to the 1980s, since a pro-cyclical behaviour of real wages was often identified once micro-panel data started to be used. Compositional effects would explain the lack of wage pro-cyclicity when using aggregate instead of individual data: an upward (and counter-

² Some studies focus on income inequalities within households (Chiappori and Meghir, 2014). In this paper, such a possible source of inequality will not be taken into account since household income will be equally distributed among all members in the empirical analysis.

cyclical) bias in aggregate wage levels may be caused by declining employment shares of low-skilled, low-wage workers during recessions and vice versa (Bils, 1985; Solon et al, 1994).

What does the recent empirical literature say on the impact of the Great Recession on inequality levels? A few studies have mapped inequality trends across Member States from the onset of the crisis, but results are somewhat contradictory. Some claim that the picture is mixed across countries and that income inequality did not increase generally and significantly during the initial years of the crisis (European Commission, 2011; Jenkins et al, 2011; Foster-McGregor et al, 2014; European Parliament, 2015), while others identify growing income inequality levels across most OECD countries between 2007 and 2010, as households at the bottom decile of the income distribution benefited less from rising incomes or were more affected by income declines than those at the top income decile (OECD, 2013).

Income inequality from an EU-wide perspective

While most existing studies provide a picture of inequality developments within Member States, there are good reasons to approach inequality from an EU-wide perspective (considering the EU income distribution as a whole and looking at the contribution

of between- and within-country developments). In the words of Tony Atkinson (from more than two decades ago; Atkinson, 1995, cited in Brandolini, 2007:

'If the Community continues to assess poverty purely in national terms, taking 50 per cent of national average income, then the impact of growth on poverty in the Community will depend solely on what happens within each country. However, a central question concerns the possibility of moving to a Community-wide poverty line, with the same standard applied in all countries. In that case, the effect of growth on the extent of low income is affected by the relative growth rates of different member countries.'

Information on inequality developments for the EU as a whole remains very limited despite Atkinson's early call. One possible reason for this may be the lack of adequate statistical sources providing the necessary data until very recently. But it is also likely that an EU perspective was considered simply irrelevant or uninformative, since European labour markets remain essentially national, regulated by laws or industrial relations emanating at the country level and with limited intra-EU labour mobility. As an example of this, Eurostat's information on the EU aggregate is constructed from inequality levels across Member States and does not really provide an estimate of EU-wide inequality. However, there are some empirical studies with an EU-level approach to estimate income (and wage) inequality, summarised in Table 1.

Table 1: Summary of empirical studies estimating inequality for the EU

Reference	Coverage	Data source	Target variable	Main findings	Numerical results
Eurofound (2015)	EU24 countries, 2005–2012	EU-SILC and SES	Full-time equivalent wages	A process of convergence in pay levels between countries drives declining inequalities before the crisis, after which within-country developments drive up EU-wide inequalities.	Gini: 0.346 in 2012
Dauderstädt and Keltek (2014)	EU27	EU-SILC	Average per capita income	Income inequality declines before the crisis due to the process of convergence between countries, but it grows after the crisis.	P80/P20 (2012): 6.5 (PPS): 9.5 (exchange rates)
Bonesmo Fredriksen (2012)	22 EU countries, 2008	OECD income distribution and poverty database	Disposable income, assigned to individuals using OECD scale	Within-countries inequality accounts for 85% of total EU inequality. Inequality in the EU has increased over time, both due to enlargements and to growing inequalities in countries for which data can be compared over time.	Gini: 0.323 P90/P10: 4.86 P75/P25: 2.13
Dauderstädt and Keltek (2011)	EU27 and EU25, 2005–2008	EU-SILC	Household disposable income, assigned to individuals using OECD scale	Inequality in the EU decreased during 2005 to 2008. Inequality is lower when measured in PPS than when using exchange rates. When measured in euros, inequality in the EU27 is higher than in other large economies such as India, the US, China or Russia; with PPS, it is still higher than in India.	P80/P20 (PPS): 6.21 (2005) and 5.67 (2008) for EU25; 7.23 (2007) and 6.79 (2008) for EU27

Reference	Coverage	Data source	Target variable	Main findings	Numerical results
Brandolini (2007)	21 EU countries (EU15 + 6 new Member States), 2000	ECHP for the EU-15 and LIS for the rest	Household disposable income	Inequality is higher when income is measured in euros instead of PPS measures and when inequality is measured for the EU as a whole instead of the population-weighted average of national values. Inequality is lower in the EU than in the US. The enlargement increased inequalities within the EU: inequality is higher in the EU25 than in the EU15 or euro area.	Gini (PPP): EU25 0.33; EU15 0.29; euro area 0.29; US 0.37 P80/P20 (PPP): EU25 2.8; EU15 2.3; euro area 2.3; US 2.9
Boix (2004)	Several EU aggregates, early 2000s	World Bank Household Survey Database	Individual disposable income or expenditure, obtained at household level	Inequality in the EU27 is higher than in the US (0.394). In all other EU specifications, it is lower. Inequality increased in the EU following each of the successive enlargements, especially when the eastern European countries joined.	Gini: 0.342 (EU15), 0.38 (EU25), 0.399 (EU27)
Papathodorou and Pavlopoulos (2003)	13 EU countries, 1999	CHER	Net household income, assigned to individuals using modified OECD scale	Between-countries inequality accounts for a small part of overall EU inequality (8%), while 92% is due to within-countries inequality.	Theil: 0.176 (between-countries component: 0.015, 7.8%)
Beblo and Knaus (2000)	Euro area (11 countries), 1995	ECHP and LIS for Finland	Household disposable income, assigned to individuals using modified OECD scale	Between-countries inequality accounts for 8% of overall EU inequality. Government intervention reduces inequality and intensifies differences between countries.	Theil: 0.185
Atkinson (1996)	12 EU countries, Norway and Switzerland, 1985–1990	LIS	Household disposable income, assigned to individuals using modified OECD scale	The Europe-wide distribution is less unequal than that of the US.	Bottom decile gets 2.9% of the income (1.9% in the US); bottom 50% gets 29.5% of the income (26.2% in the US); bottom 90% gets 77.2% of the income (76.3% in the US)

Note: Databases presented as acronyms are European Community Household Panel (ECHP), Luxembourg Income Survey (LIS) and Consortium of Household Panels for European Socio-economic Research (CHER). PPP = purchasing power parities. PPS = purchasing power standards.

Some of the findings from these empirical studies are particularly relevant for the purposes of the current report. First, EU-level income inequality seems comparable to that of the US or other large economies. To avoid overestimating EU-wide inequality levels, income levels must be adjusted for price differences between countries by using purchasing power parities (PPP) instead of exchange rates. Second, although around 90% of the EU-wide income inequality is explained by within-country inequalities, income level disparities between Member States are relevant and their evolution played an important role in the run-up to the crisis.

Some of the empirical studies mentioned in Table 1 report narrowing income disparities between Member States; this is in line with classical theories of economic

growth, which would predict a process of convergence in gross domestic product (GDP) per capita and income levels due to higher investments in lower income countries (a catch-up effect), where capital is more scarce and therefore returns to capital investment are more profitable and productive. This process of convergence would be stronger among countries that share a similar economic and institutional setting, such as is the case in the EU (Sachs and Warner, 1996). Nevertheless, the economic theory of international trade expects changes in income levels across countries depending on their international specialisation (Stolper and Samuelson, 1941), which would be difficult to predict. In addition, events such as the Great Recession may interrupt the income convergence pattern trend due to an uneven impact across Member States.

There are surprisingly few empirical studies covering EU-wide inequality trends over the recent crisis. A very recent study shows EU-wide income inequality levels declining in the period 1995–2008, largely due to economic convergence of central and eastern European (CEE) countries, and remaining rather stable in the period 2009–2015 (Darvas, 2016). The same pattern of declining levels of EU-wide income inequality from 2005 (as a result of a process of convergence between Member States set in place by the enlargement towards the east) was identified in an earlier study, although in this case growing inequality levels from 2009 were reported as a result of the crisis (Dauderstädt and Keltek, 2014). The same pattern was reflected in a recent study from Eurofound (2015), which described a reduction in EU-wide wage inequality before the crisis driven by a between-country convergence; this convergence process came to a halt at the onset of the crisis, while within-country inequalities tended to increase.³

This report builds on Eurofound’s recent work on wage inequality (Eurofound, 2015) but widens the focus to include all sources of income in order to map income inequality patterns in recent years against the background of the Great Recession and the forces that have shaped them. In doing so, it provides an updated picture on income inequality and the reasons behind its evolution across Member States that can be compared to that provided up to the emergence of the crisis by the two abovementioned studies from the OECD (OECD, 2008, 2011).

³ An even more recent study identifies a negative impact of the crisis on EU wages, larger than the one typically identified when national account figures are used, which results from the highly uneven impact of the crisis in the core and the periphery (Brandolini and Rosolia, 2015).

2 Inequality framework and methodology used

This report represents an attempt to counter the lack of studies on EU-wide inequality and on the impact of the recent crisis on income inequality levels by providing an updated picture of trends from a European perspective. It not only maps inequality trends in household disposable income, but also in the different sources of income. In addition, it analyses the role played by changes in unemployment, the family pooling of resources or the redistribution carried out by the welfare state in income inequality patterns.

Defining the inequality framework

The framework used to study inequality covers different income measures, starting from monthly full-time equivalent labour earnings and adding extra sources of income gradually until the final measure of household disposable income is constructed (see Figure 1). This framework is similar but not identical to the one used by recent comparable OECD reports (OECD, 2008, 2011).⁴

The following income measures were used in this report as well as the main factors to be taken into account for each of them.

Monthly labour income among the workforce

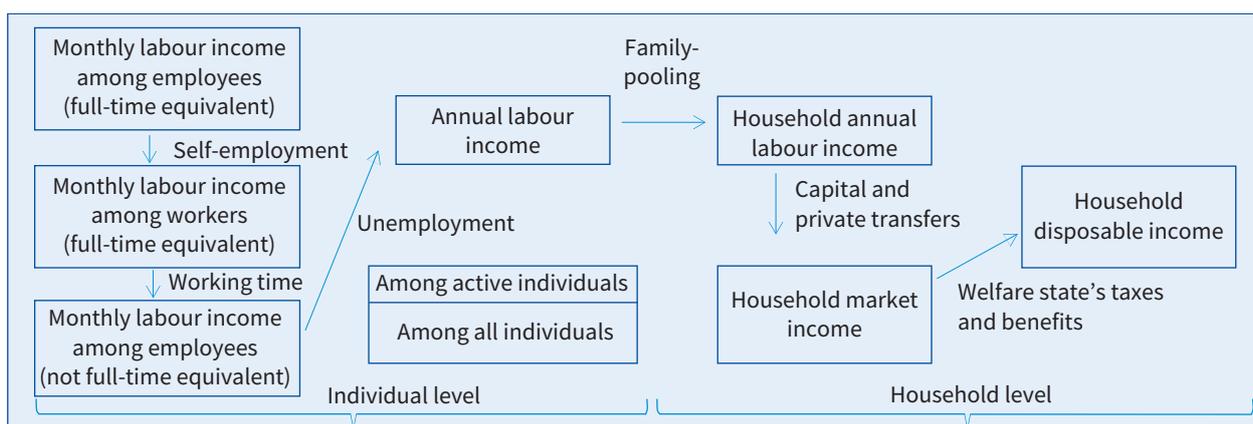
This initial measure considers cash income originated from work. As defined by the International Labour Organization (ILO), earnings are the employee's remuneration for time worked or work done, together with remuneration for time not worked, such as annual vacations and other paid leave or holidays.⁵ This report uses the term labour income because it covers labour income from salaried employment as well as from self-employment and because it is the term used in the European Survey on Income and Living Conditions (EU-SILC), the data source of this study (explained below).

Three different versions of this measure are used.

Monthly full-time equivalent labour income among employees: This considers only wages among employees adjusted for part time so that inequalities can only be the result of differentials in hourly pay and not working hours.

Monthly full-time equivalent labour income among workers: This still adjusts for part time, but adds self-employed and their labour income to the picture.

Figure 1: The components of income



4 The OECD covers wage levels differently, focusing on full-time workers and using different measures across countries (hourly, weekly, monthly earnings), so that estimated inequality levels are more useful for studying trends over time than to be compared between countries. The description of wage inequality mainly relies on a ratio comparing the earnings of the top and bottom decile (OECD, 2008). As is the case in this study, income from self-employment is considered together with wages before moving to the household level in the most recent OECD report (OECD, 2011), but it was introduced when moving from household earnings to household market income (together with capital) in the first report (OECD, 2008).

5 The full ILO definition reads: 'Earnings (wages and salaries) is the concept of earnings as applied in wages statistics, relates to remuneration in cash and in kind paid employees for time worked or work done together with remuneration for time not worked, such as annual vacation and other paid leave or holidays. Earnings exclude employers' contributions in respect of their employees paid to social security and pension schemes and also the benefits received by employees under these schemes. Earnings also exclude severance and termination pay.'

Monthly labour income among workers: This refers to the monthly labour earnings of workers, without adjusting for hours worked.

Annual labour income among individuals

This is an unadjusted measure of labour income earned over the whole year, including both income from employment and from self-employment. The difference from the previous measure is that labour income is considered over the 12 months of the year, including months not worked (and therefore with zero labour income), even for those permanently not employed over the year (which will get therefore a final value of zero in this measure).

This indicator will be considered for two different populations.

Annual labour income among active individuals: This adds those currently unemployed to the picture and therefore it includes individuals with no labour income. Inequality levels will increase notably depending on unemployment rates.

Annual labour income among all working-age individuals: This adds those currently inactive to the picture and further increases the possibility of including individuals with no labour income. Inequality levels will increase even further and this will be highly influenced by the inactivity rates.

Annual labour income among households

This measure adds together the annual labour income earned by all the members in the household and then redistributes it among them according to an equivalence scale (more on this later). This will significantly reduce the observed levels of inequality in the previous step.

Market income among households

This measure adds the income from capital and also private transfers between households. Inequalities are expected to be higher since capital is generally more unevenly distributed than labour income (the effect of private transfers is less clear).

Household disposable income

This measure takes into account the effects of the welfare state through the tax and benefit system. Since the welfare state redistributes income across individuals and families in a generally progressive way, inequalities should be notably lower than in the previous measure.

Data source

The limited availability of microdata until recently may explain the scarcity of inequality studies carried out at an EU-wide level. The EU-SILC is the only large-scale European survey that presently permits a comparative analysis on income inequality across Member States to be conducted. EU-SILC is a database on income, poverty, social exclusion and living conditions in the EU, coordinated by Eurostat, with data drawn from different sources at the national level. This report uses EU-SILC data to analyse trends in income distribution over the period 2005–2014 (income referring to 2004–2013), which is available for 24 EU countries (all EU Member States except Bulgaria, Croatia, Malta and Romania).

The EU-SILC is a survey conducted yearly of all private households and their current members residing in the territory of the countries at the time of data collection. Nevertheless, the EU-SILC presents several limitations to an ambitious analysis of inequalities across Member States like the one conducted here. On the one hand, it does not allow for a medium- and long-term analysis of inequality since the data used in this report only cover the period 2005 to 2014. On the other hand, it requires several important caveats for the purposes of this analysis. As a result of these methodological problems posed by EU-SILC, the findings presented in this report must be interpreted with care. These are some of the caveats.

Gap between survey and income variables: There is a one-year gap affecting the income variables: the survey collects information about the respondents at the time of the data collection (whether they are working, for how many hours, the job characteristics and so on), but the income variables refer to the previous year and therefore may not be related to the current job.

Income rather than wages: EU-SILC measures labour income rather than wages. Labour income in the EU-SILC refers to overall income from work in the previous calendar year, measured in gross terms (some countries also provide net data). It does not necessarily refer to particular jobs, since it measures any labour-related income: an individual's labour income may in fact have originated from more than one job if the respondent had different jobs in the previous year, either successively (if they changed jobs) or simultaneously (if they had multiple jobs).

Imputation of responses: An additional problem with the EU-SILC is that a significant proportion of the responses are imputed (due to item non-response or the information being collected indirectly) and the variable flagging imputed values is not consistently coded, making it difficult to evaluate its implications (Brandolini et al, 2010).

Variable quality between Member States: Some of the income variables may be characterised by lower quality in certain Member States during specific periods of time (such as new Member States in the initial years of the period).

Operationalisation of variables and methodological approach

Several methodological decisions had to be taken in order to construct the variables capturing each of the abovementioned components of income.

1. Monthly labour income

The original EU-SILC variable used in this report refers to annual labour income, gross employee cash or near cash income (that does not include social security contributions) for employees and cash benefits or losses from self-employment. The following formula is applied to obtain the monthly full-time equivalent labour income (based on Brandolini et al, 2010):

$$\text{Monthly ft eq. labour income} = \frac{\text{annual cash earnings}}{\text{months in ft jobs} + (\text{months in pt jobs} * (\frac{\text{pt}}{\text{ft}} \text{ ratio}))}$$

The monthly full-time equivalent labour earnings equals the EU-SILC variable of annual cash earnings (in the previous year) divided by respondents' number of months in full-time jobs over the same year, plus the number of months in part-time jobs multiplied by a country–sex specific ratio of median hours of work in part-time jobs to median hours of work in full-time jobs.⁶ This results in a full-time equivalent measure of monthly labour income across all employees, including part-time and temporary ones.⁷

The monthly full-time equivalent labour income among employees only considers labour income from dependent employment, while monthly full-time equivalent labour income among workers includes labour income from self-employment as well, for which a specific ratio of median hours of work in part-time jobs to median hours of work in full-time jobs is calculated. The unadjusted measure of monthly labour income among workers applies the same formula but without adjusting for the months worked in part-time employment. When an individual reports labour income

both from employment and self-employment, only the larger amount will be considered.

2. Annual labour income among individuals

This variable measures annual labour income without adjusting for the months worked throughout the year and allows for the possibility of some people having no income for part or even the whole year. Two measures are provided for different populations: (a) among active people, which refers to all individuals who were active (either worked or were unemployed) for at least one month during the previous calendar year, even if they did not receive labour income over part or all of the year; and (b) among inactive people, which includes all the working-age population, even if they did not receive any labour income for being unemployed or inactive, during part or all of the year. For individuals reporting both employee and self-employment labour income (only one of which was considered in the previous step), both sources of income are added in this step.

3. Annual labour income among households

This variable is constructed by adding the annual labour incomes of all the working-age members of the household and then dividing it by the equivalent number of household members (which is the number of household members adjusted by the OECD equivalence scale; this takes into account all the members, not only those of working age). Then, an identical share of the pooled income is assigned to each of the household members of working age.

4. Market income among households

This variable adds capital income and private transfers to the household: income from rents; income from interest, dividends and similar; private transfers received by young people under 16 years of age living in the household; private inter-household cash transfers received; minus private inter-household cash transfers paid. EU-SILC data present important limitations for the study of capital income, as it is quite likely that it significantly underestimates the capital income earned by households and individuals. Private transfers between households play an important role and their nature is different from that of capital from investments. These private transfers between households may be seen as an extension of the role of families in pooling resources.

6 For each country and year, a ratio is calculated dividing the median hours of work of part-time employees by those of full-time employees. A separate ratio is calculated across men and women.

7 A potential bias is prevented by adjusting the values of workers who hold more than one job by multiplying the labour income for a ratio of the hours worked in the first job to the total hours of work in all jobs so that the labour income of those having more than one job is reduced (proportionally to the number of hours worked outside the first job). This is applied to the two measures on full-time equivalent monthly earnings (since the objective is comparing inequalities in wages, even if the self-employed are included in the latter measure) but not to the unadjusted measure (since the objective is comparing inequalities in labour income). Moreover, an additional adjustment is made to the measure on monthly full-time equivalent wages among employees, for which all the abnormally low values found below a threshold of half the minimum wage of the country concerned in a particular year are eliminated (for further details, see Eurofound, 2015).

5. Disposable income among households

This variable reflects the subtraction of income by taxes and the addition of benefits carried out by the welfare system. The following taxes and benefits are included in EU-SILC: taxes on income and social contributions; taxes on wealth; unemployment benefits; old-age benefits; survivor's benefits; sickness benefits; disability benefits; education-related allowances; family/children-related allowances; housing allowances; and benefits related to social exclusion not elsewhere classified.

Other important issues to be taken into account regarding the methodology used in this study are the following.

Unit of analysis: The analysis will be performed among individuals between 15 and 65 years of age. This is straightforward for variables 1 and 2, which are calculated at the individual level. Variables 3 to 5 are also calculated at the individual level by taking the income at the household level and splitting it according to the OECD equivalence scale among the members of the household. Although the inequality analysis only focuses on people of working age, the rest of the population will affect the results indirectly when household-pooled income is studied (since part of the total household income will be assigned to the younger and older members of the household, even if they are not included in the sample). For the household market and disposable income, the incomes of people not of working age will be included as well.

Income levels: For the inequality analysis conducted at the EU level in Chapter 3, income levels across countries are expressed in euro adjusted by Eurostat's purchasing power standard (PPS), which makes them comparable across countries by taking into account differences in the costs of living. For the inequality analysis at the country level in Chapter 5, Gini indices are not affected by whether or not PPS are used. The information on income levels across countries presented in Chapter 6 will use data on national currencies so that changes in the value of the currencies in those countries outside the euro area do not affect the picture. Moreover, information on income levels is always presented in real terms by adjusting for inflation.

Treatment of negative values: Although uncommon, negative values may exist across all the income variables defined in this report except that of the monthly wage among employees. But most of the cases are concentrated in three components of income: income from self-employment; private transfers paid to other households; and taxes paid. In case there are no other sources of income (probably due to under-reporting in most cases) to compensate for these negative values, they will translate into negative values in the final measures of income inequality used here. There are three ways to treat these cases: leave them untreated, convert them into zeros or drop them from the analysis. Table A1 in the annex shows that the level of inequality (for household disposable income, although it would also apply to the different measures of income) is highest when negative values are included, declining slightly if converted to zero and a bit further if dropped from the analysis. Differences are generally negligible (slightly more significant in some countries, such as Germany, Denmark, Spain or the Netherlands) and this report will follow the intermediate approach by converting negative values into zeros and keeping all the observations. The findings and interpretations in this report are not generally affected by this decision.

Graphical representation of income data: As explained earlier, all the EU-SILC's income variables refer to the previous calendar year covered by the survey, introducing a one-year gap between the income measures used in this report and the year of the survey. This one-year gap is reflected when income data are compared to other variables from different data sources, such as employment variables or GDP. While this would offer a justification to change the reference year for the income data and show it accordingly in the graphs presented in this report, it has been decided to keep the reference year to that of the survey. The main reason is because the EU-SILC's information on the labour market status on the current year is used to construct the variable on monthly wages among employees so that the compositional effects affecting the workforce are taken into account adequately. Therefore, to maintain consistency with this measure (and with any other non-income variables from the EU-SILC used in the analysis), the current year of the survey is the one shown when representing the data, even if they refer to income obtained during the previous year. This report will use EU-SILC data for the period 2005–2014 while referring to income data for the period 2004–2013.

3 Income inequality from an EU-wide perspective

One of the main contributions of this report is to provide an analysis of recent income inequality trends from an EU-wide perspective, considering income levels across countries as part of a single EU income distribution and differentiating developments within and between Member States. There are few analyses of income inequalities from an EU-wide perspective in the literature and even fewer that map trends from the onset of the crisis. Nevertheless, despite the fact that European labour markets and their regulating institutions remain essentially national, providing a European-wide narrative on the evolution of income inequalities in the EU and across countries and income disparities between countries is highly relevant. This is especially the case against the background set by recent years, which was initially characterised by a process of deepening European integration from the creation of the euro and the enlargement of EU membership towards the east and, more recently, by financial and sovereign debt crises that are placing the EU under considerable strain.

Figure 2 provides an introductory picture of the distribution of household disposable income for the EU as a whole, broken down by Member States, in 2014 (income referring to 2013). It shows the percentage of European people found across the different annual income categories shown in the horizontal axis, which refers to euros adjusted by PPS to take into account differences in price levels across countries. Each bar represents intervals of €1,000 of household disposable income among working-age individuals. In other words, around 4.5% of Europeans of working age have a household disposable income between €10,000 and €11,000 per year. Figure 2 shows that from this perspective, the EU-wide income distribution is similar to that of a country, with a large concentration of people around mid to low income levels (between €9,000 and €14,000) and a skew to the right, with a long tail of some very high incomes.

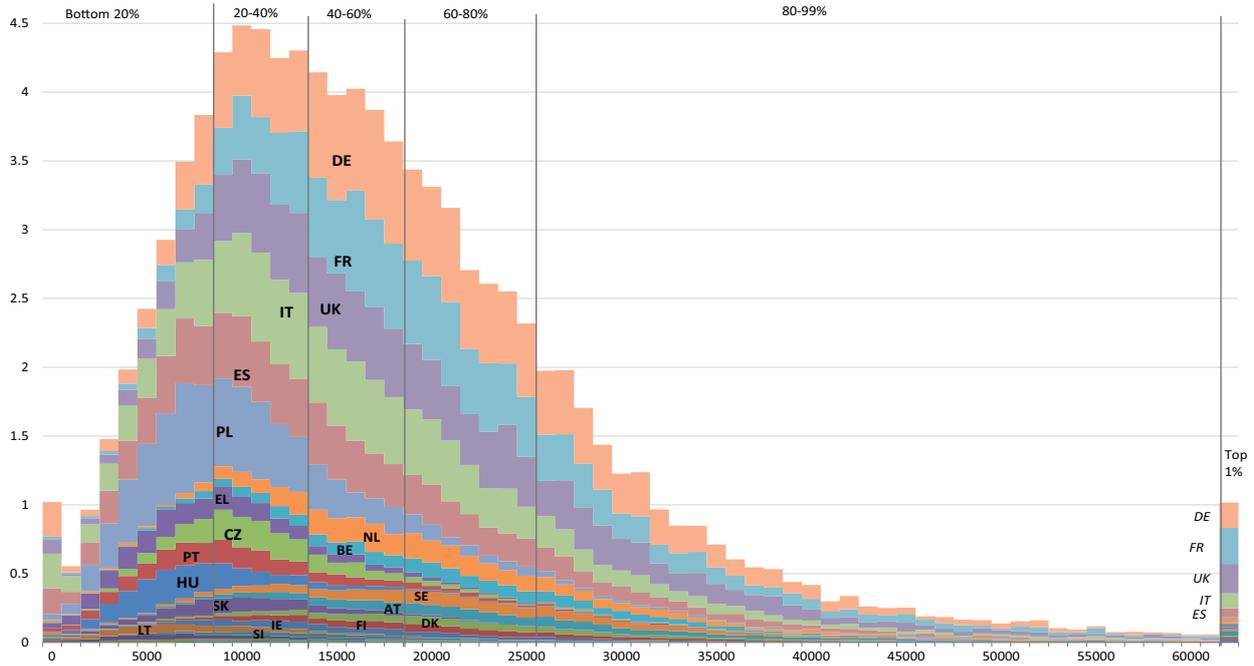
The differences in household disposable income levels between Member States are clearly reflected by the positioning of countries in the graph. Eastern European countries (and Mediterranean countries to a lesser extent) are much more present in the bottom quintile, corresponding to income levels below €9,000, while EU15 countries account for almost all the people found in the top quintile, corresponding to income levels above €25,000.⁸ The people in the top 1% of the EU income distribution earn more than €62,000. Most of them are from France, the UK, Germany and Italy, although information for top incomes drawn from the EU-SILC needs to be interpreted with care.⁹ But even if the countries occupy clearly different positions, there is a significant degree of overlap in the national distributions of income shown in Figure 2. For instance, the countries that dominate the top quintile also have a significant share of population in the lowest income quintile. This important overlap simply reflects that the dispersion of income within countries is much larger than the dispersion between their average incomes and it highlights the usefulness of an approach that integrates both aspects, as presented in Figure 2.

The notable redistribution carried out by the European welfare states and its role in compressing the income distribution is revealed when comparing the previous picture with the household market income distribution (in other words, eliminating the redistributing effect of taxes and transfers; see Figure 3). This distribution is much more scattered and polarised, with a big spike in values around zero because of the existence of many individuals and households with very little or no market income (and which depend entirely on the welfare system). According to the authors' estimate, more than 10% of Europeans have market incomes below €1,000 PPP per year. These are most likely households where all or most adult members are unemployed or inactive, a phenomenon that affects all countries, as shown in Figure 2. At the other extreme, the share of individuals with market incomes above €62,000 PPP is multiplied by 3.

8 For a listing of the EU15 Member States, please refer to the table at the start of the report.

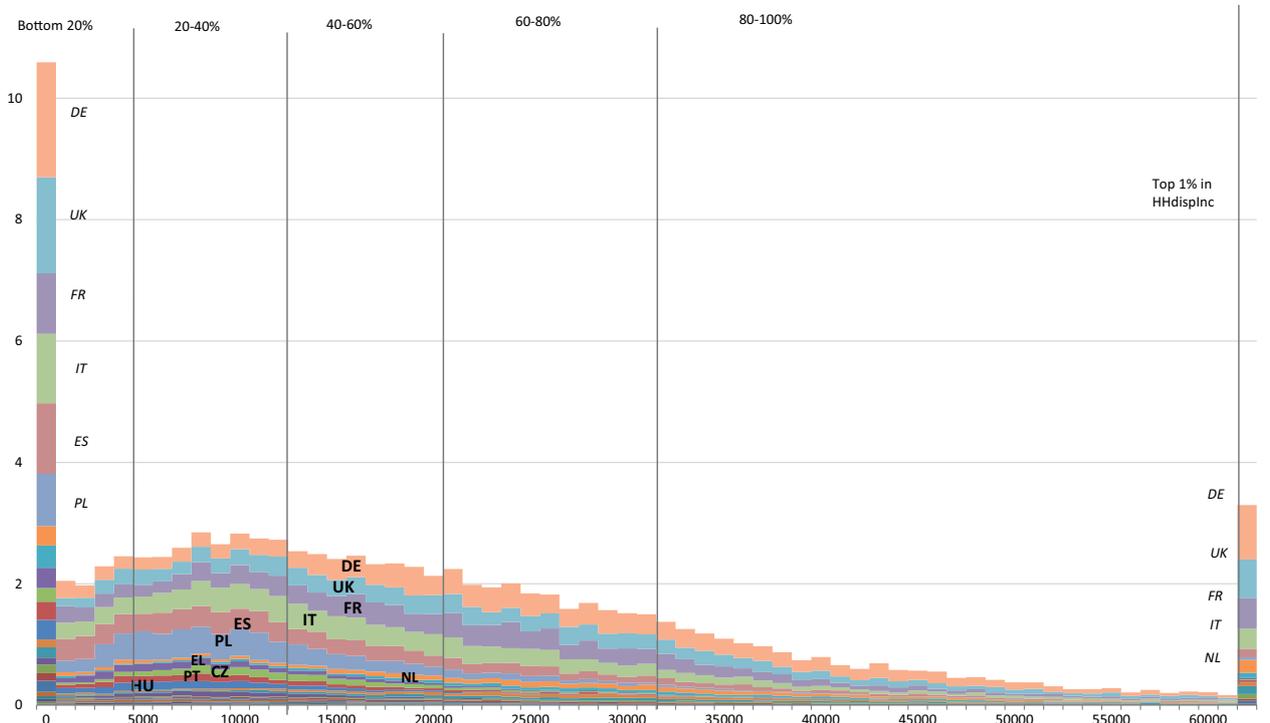
9 The EU-SILC probably underestimates the upper income levels due to a poor coverage of the population at the very top of the distribution.

Figure 2: EU-wide distribution by ranges of household disposable income in PPP euros, 2014 (%)



Source: EU-SILC.

Figure 3: EU-wide distribution by ranges of household market income in PPP euros, 2014 (%)



Source: EU-SILC.

The following section will analyse EU-wide inequality patterns over time by using relative indicators of inequality across different income sources. Gini indices will describe the evolution of EU-wide inequalities, while Theil indices will be used to analyse the extent to

which trends are driven by developments between or within Member States. Finally, a map of income-level developments will complete the picture of the impact of the Great Recession on the distribution of income at the EU level.

Income inequalities before and after the Great Recession

EU-wide inequalities – as measured by the Gini index – vary strongly across the different income variables, broadly in line with what would be expected (see Table 2). Inequality levels are more subdued for full-time equivalent wages and they progressively grow when labour income from self-employment is added, when labour earnings are not adjusted for part-time work and especially when they are computed as annual labour earnings among the active and the total population due to the inclusion of people with no labour earnings. Inequality levels are lowered by the family pooling of income and by the action of the welfare state.¹⁰

Interestingly, the levels of inequality are rather similar for the initial measure of full-time equivalent wages among employees and for the final measure of household disposable income. EU-wide inequality in final household disposable income as measured by the Gini index is 0.336 in 2014 (income referring to 2013), which is significantly lower than in the US, where it is estimated at 0.390 in the same year according to the

OECD (based on the OECD Income Distribution Database for the working age population, considered as 18–65 years).

Figure 4 shows inequality levels for those income variables, reflecting some interesting divergences over time. When the whole period 2005–2014 is considered (referring to income over the period 2004–2013), inequality levels have been reduced across all sources of income, but this is due to developments at the beginning of the period that have been reverted by the emergence of the crisis.

Two main insights emerge regarding the impact of the Great Recession on inequality levels. First, the crisis seemed to push inequalities upwards but outside the labour market via rising unemployment, not through widening pay differentials among the workforce.¹¹ Inequalities bounce upwards from 2009 (income referring to 2008) for all income measures, including the active and the whole working age population, but they remain stagnant or even continue to decline slightly for the three measures of monthly earnings among the workforce. However, the magnitude of the increases after 2009 is much less important than that of the decreases registered before the crisis. The biggest expansion of inequalities took place between 2009 and 2010, with more moderate developments since then.¹²

Table 2: Gini indicator for several income variables, for EU overall

Reference	2005	2006	2008	2008	2009	2010	2011	2012	2013	2014
Monthly wages, FTE (employees)	0.376	0.367	0.360	0.356	0.346	0.352	0.352	0.346	0.346	0.344
Monthly labour income, FTE (workers)	0.413	0.406	0.398	0.396	0.384	0.390	0.388	0.381	0.382	0.381
Monthly labour income (workers)	0.419	0.413	0.408	0.406	0.395	0.400	0.400	0.394	0.394	0.394
Annual labour income (active)	0.492	0.482	0.474	0.467	0.464	0.473	0.477	0.477	0.480	0.481
Annual labour income (all)	0.632	0.619	0.613	0.603	0.601	0.607	0.608	0.605	0.607	0.605
Household market income	0.493	0.480	0.474	0.463	0.459	0.469	0.471	0.470	0.474	0.472
Household disposable income	0.355	0.344	0.343	0.337	0.330	0.333	0.333	0.333	0.334	0.336

Note: FTE = full-time equivalent.

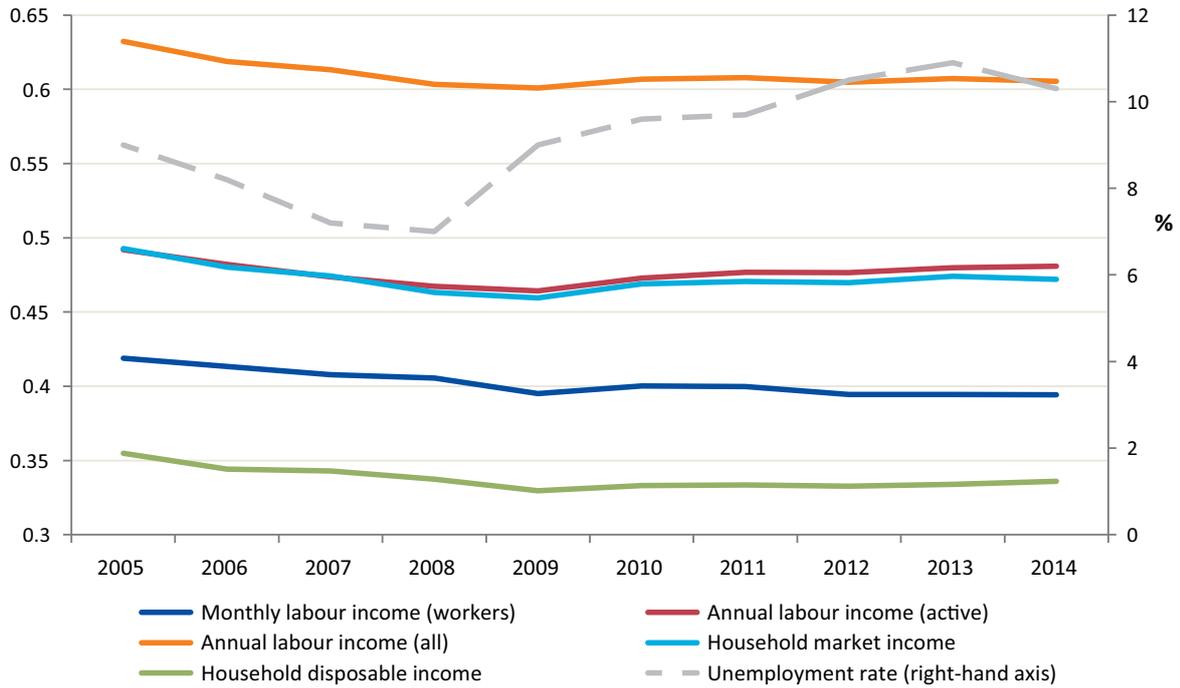
Source: EU-SILC.

10 The effect of the family pooling of labour earnings and that of capital has been considered together under the variable of household market income. The reason is that the inclusion of capital and private transfer has a rather negligible effect and moreover, contrary to what is expected, they slightly reduce income inequalities. Chapter 5 will discuss this issue in detail, which in part reflects the poor measurement of capital income in the EU-SILC but also the fact that capital income and private transfers are often received by people with no labour income.

11 The three variables on labour earnings among the workforce show the same pattern over time, which is why only the unadjusted monthly earnings variable is shown here.

12 It is important to remember that there is a one-year lag in the EU-SILC's income data, so that EU-SILC data for 2010 refer in fact to income from 2009. This explains why the notable employment corrections taking place in 2009 across most Member States mainly affect EU-SILC income data in 2010. Nevertheless, it has been decided to maintain the year of the EU-SILC data as the reference year (instead of the previous one to which its income data refer) because the employment structure and the potential impact of compositional effects refer to that year (see the methodology in Chapter 2).

Figure 4: EU-wide inequalities for different income indicators (Gini indices)

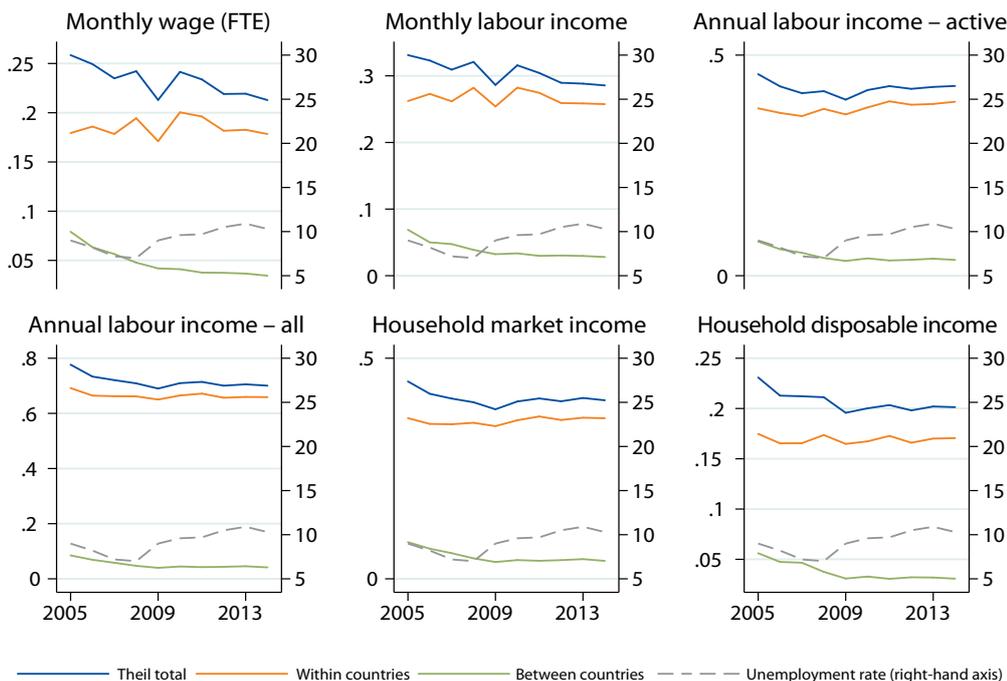


Source: EU-SILC and LFS (unemployment rate).

Second, the roles of the family and the state in cushioning income inequalities seem to influence the results in an opposite direction. On the one hand, some erosion in the inequality-reduction role of the family pooling of income could have occurred from the onset

of the crisis, as suggested by the fact that the increase in inequalities is larger for household market income than for annual labour earnings among the whole population. On the other hand, the role of the welfare state in reducing market income inequalities seems to

Figure 5: Theil indicators for several income variables (EU, 2005–2014)



Note: FTE = full-time equivalent

Source: EU-SILC and LFS (unemployment rate).

have been reinforced from the onset of the crisis (probably because of the activation of automatic stabilisers such as unemployment insurance), since it cushioned the surge in market income inequality. While inequalities in household market income grew by almost 3% between 2009 and 2014 (income referring to 2008 and 2013 respectively), inequalities household disposable income rose by less than 2%. Nevertheless, household disposable income inequalities increased in the last year for which data are available, while household market income inequalities declined, which may suggest a deterioration in the redistributive capacity of the welfare state in some countries experiencing continuing economic hardship.

Inequality developments and convergence between countries

An alternative measure of inequality is provided by the Theil index, whose decomposable nature is of great interest for this report because it can be used to describe how EU-wide inequality has been shaped by inequality developments within countries (the within component) and trends in income levels between countries (the between component).¹³

Data for the Theil index across all income variables show that although EU-wide inequality is mainly accounted for by within-country inequality, the between component has played a significant role in the recent evolution because of an important process of convergence between Member States (see Figure 5).¹⁴ The decline in EU-wide inequality before the crisis is almost entirely explained by income convergence between countries, even if within-country developments generally pushed inequalities downward as well. From 2009 (income referring to 2008), the interruption of this process of income convergence between countries is also key to understanding why within-country developments push EU-wide inequality levels up.¹⁵

Although this picture applies rather generally to all income variables, some nuances are worth noting. First, rising unemployment probably played a key role in pushing market income inequalities up and also in reversing the process of income convergence between countries. This is reflected by the fact that the process

of convergence continues (although at a slower pace) for monthly earnings among the workforce, but a divergence between countries emerges from the onset of the crisis in income levels among the population. Second, European welfare states partially offset the effects of rising unemployment in income inequalities as well as in income convergence. This explains why in the case of household disposable income, as opposed to household market income, the increase in within-country inequalities is relatively modest and the income convergence between countries gets interrupted but not reverted.

Impact of the crisis on real income levels

A comprehensive picture of the effects of the Great Recession also needs to consider the evolution of income levels, which may have suffered a downward correction that is not necessarily captured by the relative indicators of inequality presented so far. Real income levels for the EU as a whole are calculated by adjusting values by inflation and by PPS across countries.¹⁶

Figure 6 classifies the European working age population by deciles of household disposable income distribution and then shows how their income levels (by source) have evolved (income data referring to one year before to that indicated in the figure). Before the crisis, real income grew most strongly at the lower deciles, suggesting a strong reduction of overall EU inequality, particularly in the bottom half of the distribution. This occurs for all sources of income and is consistent with the previously discussed results for the Gini and Theil indices. This process, of course, has a strong between-country component. Although a significant overlap in the positioning of countries occurs in the EU-wide distribution (as was discussed in Figure 2, which shows the distribution of national populations that underlie Figure 6), lower income countries are much more present at the bottom deciles of the EU-wide distribution (these are mainly eastern European countries); the process of income catch-up in these countries explains to a large extent the observed expansion of income for the lower deciles in the EU as a whole.

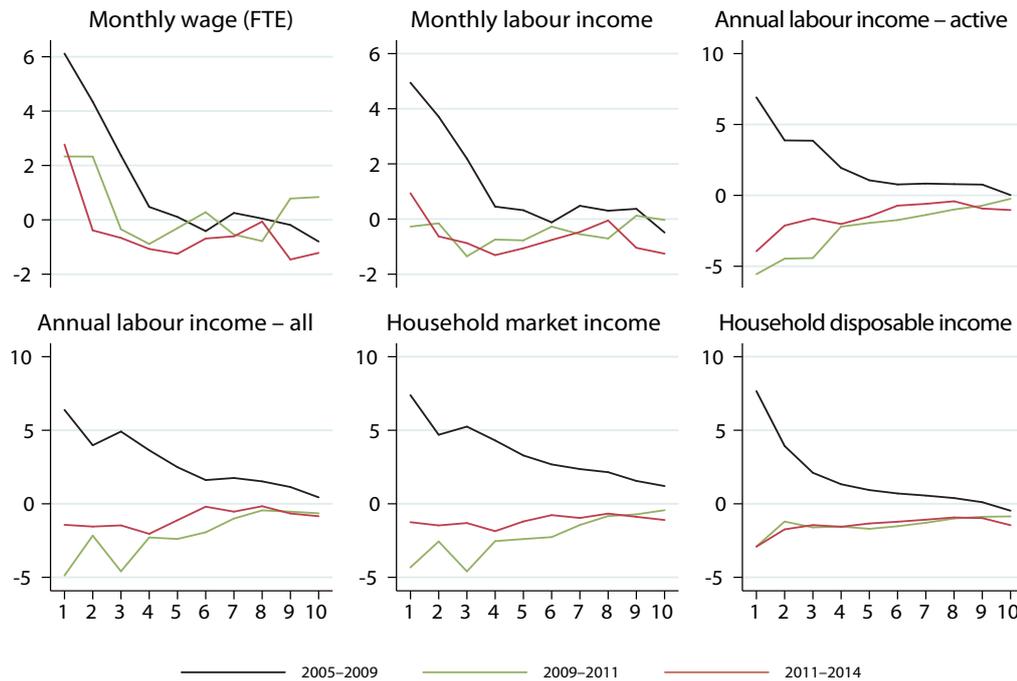
13 The Theil index is characterised by lower numerical values of inequality and more sensitivity to changes over time than the Gini index.

14 The added value of the truly EU-wide approach adopted in this report is that it takes into account between-country developments in income levels, while Eurostat's data on inequality levels for the EU-aggregate are only the result of inequality trends within countries.

15 Changes in the within-country component for the EU-wide Theil index hide significant cross-country paths in inequalities, as will be shown in Chapter 5.

16 Since inflation differentials across countries are already taken into account by PPS, all income levels across countries have been adjusted by the general inflation rate of the EU28 to obtain the incomes in real terms for the EU as a whole.

Figure 6: Average yearly growth in income levels by household disposable income deciles (%)



Note: Data refer to average yearly growth rates during each of the three subperiods (income data referring to one year earlier than the one indicated); FTE = full-time equivalent.

Source: EU-SILC.

The Great Recession had a notable impact on income levels, more obvious than was the case with income inequalities. There was a significant decline of real income across most of the distribution and across all sources of income. The decline tended to be stronger and more generalised in the first two years of the crisis but continued until 2014. The contrast with previous results (using relative inequality indices) is important: the impact of the crisis was generally stronger in terms of income levels (with a generalised decrease in real terms, which is more significant for those with low levels of income) than in terms of relative income inequality (with a moderate increase after 2009, as previously shown).

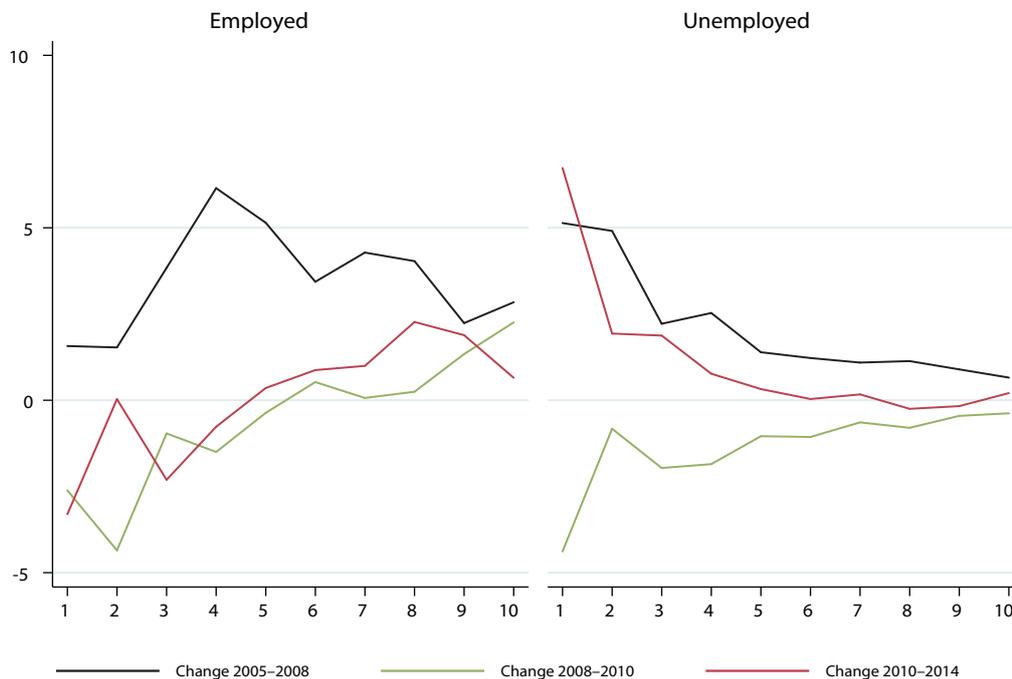
Two further details regarding the impact of the crisis on income levels are in line with what was said earlier for income inequalities. First, declining employment emerges again as a key force behind changes, since income measures extending beyond workers suffer a correction that is both larger and more unequal (being much more significant for low income levels). Second, the role of the welfare state in cushioning market forces

is again evident in the comparison between the evolution of market and household disposable income: the downwards correction in household disposable income levels is moderated significantly by the effect of taxes and transfers as well as the unevenness of the effect across deciles (the line is significantly flatter).

The key role played by employment turbulence in driving movements in income levels is further suggested by Figure 7, which shows changes (in percentage points) in the share of employed and unemployed people over the different income deciles.¹⁷ It shows that the convergence in income levels that took place in the early years of the period is linked to a process of employment creation that benefited those at the bottom of the income distribution relatively more, while the process of divergence in income levels from the onset of the crisis is associated with rapidly growing unemployment levels affecting those at the bottom much more. The lower income population is affected by higher unemployment rates, which has clearly intensified since the onset of the crisis, especially during the initial years of the financial crisis.

¹⁷ Contrary to what occurs with income, EU-SILC's data on employment refer to the actual year indicated in the figure. This is the reason why the three subperiods have been adjusted accordingly so that they are comparable with those used in Figure 6.

Figure 7: Change in the share of employed and unemployed people by household disposable income deciles, 24 EU Member States (percentage points)



Source: EU-SILC.

Summary

This chapter has discussed the impact of the Great Recession on EU-wide income inequalities and income levels, and with respect to the process of income convergence taking place between Member States. Before the crisis, EU-wide income inequalities declined, mostly as a result of a process of convergence in income levels between Member States. This convergence was due to more solid progress at the bottom of the EU income distribution, where lower income countries are more present.

The crisis pushed EU-wide inequalities upwards but outside labour markets due to declining employment levels, while labour earnings inequalities among the workforce continued to narrow very moderately. After 2009 (income referring to 2008), EU-wide income inequalities increased as a result of an expansion of inequalities within countries and to a halt in the process

of income convergence between countries. This seems linked to large drops in employment at the bottom of the income distribution after 2008, a development that affected many countries but to different extents, and therefore contributed to a between-country divergence.

European welfare states partially cushioned the effect of growing market income inequalities, since household disposable income inequalities increased more moderately than market incomes. Nevertheless, developments in the most recent period suggest a certain deterioration in the capacity of welfare states to counterbalance growing market inequalities. This seems to also be the case for families, whose role in reducing income inequalities by pooling resources at the household level seems to have eroded since the onset of the crisis. Nevertheless, these EU-wide developments may be the result of different trends across Member States, which will be explored in the next chapters.

4 Income convergence between Member States

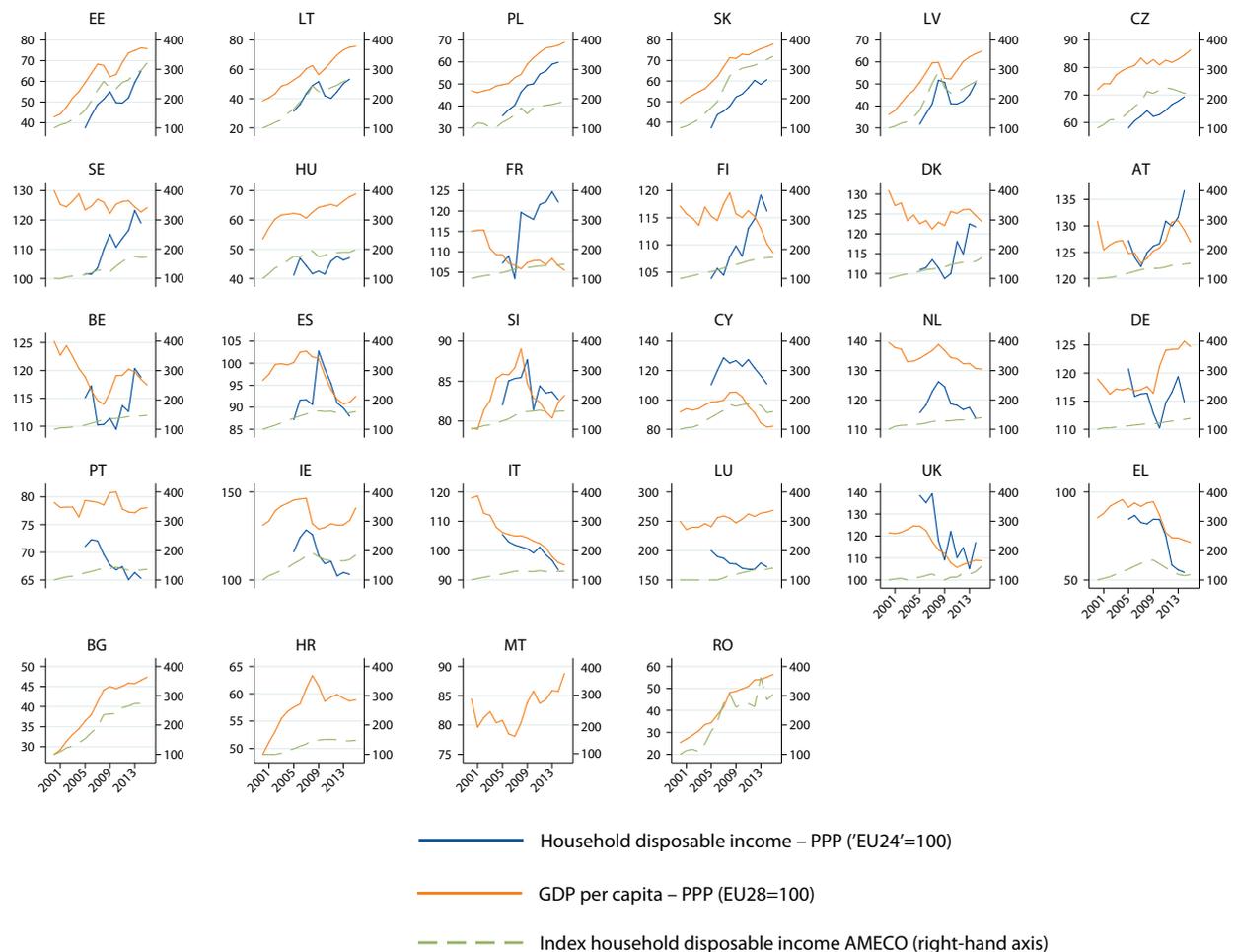
The previous chapter highlighted the key role played by between-country developments in explaining recent trends in EU-wide inequalities. Before the crisis, the reductions in EU-wide inequalities across the different sources of income were driven by a marked decline of the income differentials between countries. Nevertheless, this process of convergence has been halted since the onset of the crisis across all sources of income (although to a lower extent for earnings among the workforce, as shown in Figure 5).

This chapter provides a more detailed analysis of the process of income convergence between Member States using country-level data on average household disposable income from the EU-SILC (see Figure 8). This

is complemented with data from the annual macroeconomic database of the European Commission (AMECO), with two main objectives: first, to link developments of income levels and between-country inequalities with GDP, which is the most frequently used indicator of economic progress; and second, adding complementary data from AMECO on the gross disposable income of households, to test the robustness of the EU-SILC figures and evaluate longer time trends in household disposable income levels.

Even if the EU-SILC's average household disposable income and AMECO's GDP per capita refer to different concepts, a comparison between both variables shows similar developments, indicating that the process of

Figure 8: Average household disposable income, real GDP per capita and gross disposable income of households



Note: Countries are ranked by the magnitude of the growth rate of the average household disposable income over the whole period. There is a one year-gap in EU-SILC income data, which refers to the previous year.

Source: EU-SILC for average household disposable income and AMECO for GDP per capita and gross disposable income of households in euros.

convergence between Member States discussed in the previous chapter is mainly driven by economic growth. A strong upwards income convergence process takes place over the period, mainly driven by the catch-up of eastern European countries, although stagnating income levels in Continental and Scandinavian countries also contributed (in the UK income levels even declined, a development partially explained by currency depreciation).¹⁸ This process of convergence was notable before the Great Recession, but it has been interrupted by it due to average household disposable income and GDP levels declining more significantly in peripheral countries than in the core of Europe.

Despite this similarity in the overall picture provided by the authors' measure of household disposable income and AMECO's GDP per capita, there are some differences. The convergence in average household disposable income levels is stronger during the initial years of the period and is less abruptly interrupted from the onset of the crisis than in the case of relative levels

of GDP per capita. The strength of the process of catch-up in eastern European countries is more significant in average household disposable income than in relative levels of GDP per capita. At the same time, the deterioration of relative levels in some high-income Member States (Germany, Luxembourg and the Netherlands or Ireland) is stronger when using average household disposable income levels.

This points to the importance of monitoring well-being in European societies by using both aggregate economic indicators such as GDP, and a wider range of indicators that provide a more direct estimate of people's prosperity, such as household disposable income. Box 1 discusses the different picture obtained by using household disposable income and GDP per capita when assessing the impact of the crisis. The latter widely used measure of economic development gives a much more positive picture, which may conceal part of the drop in income levels in the periphery and stagnation in the core of Europe in recent years.

Box 1: Household disposable income and GDP per capita throughout the crisis: A comparison

Rising inequality levels and stagnating incomes among large segments of society are receiving increased attention by academics and policymakers across developed economies. Against this background, growing concerns are emerging with respect to the use of GDP per capita as the main measure used to monitor living standards and economic developments generally (Stiglitz et al, 2009). Empirical studies covering data for more than three decades have shown that the average yearly growth rate of GDP per capita has been significantly larger than that of the median equivalised household disposable income (Nolan et al, 2016).

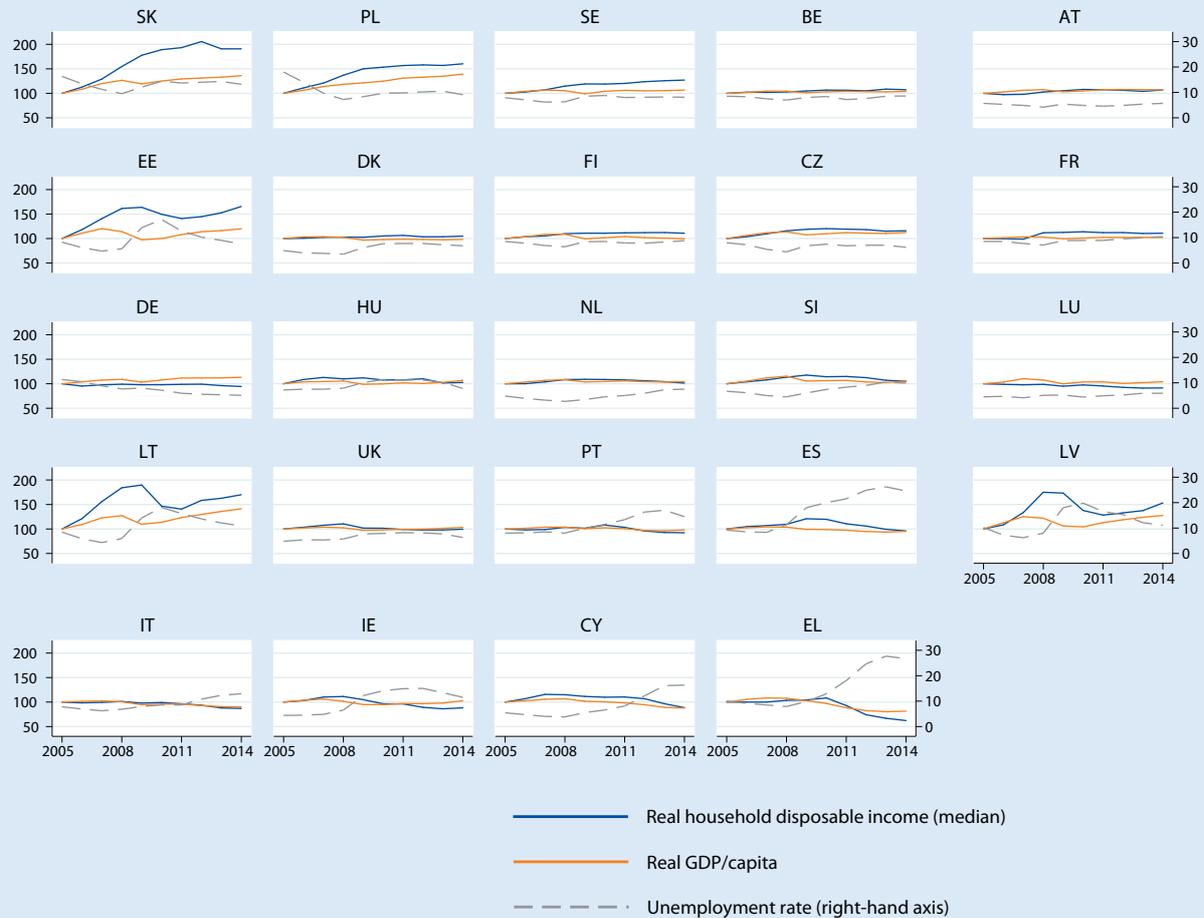
Figure 9 shows a comparison between the impact of the crisis as measured by GDP per capita and by our indicator of household disposable income (using the median instead of the average in each country).¹⁹ In this case, both measures are expressed in national currencies (instead of in PPP-adjusted euro and in reference to the EU) because the main objective here is not monitoring convergence trends, but assessing the impact of the crisis in each country.

The data reveal a downwards correction in the median household disposable income from the onset of the crisis. It declines in two-thirds of the countries between 2008 and 2014, mainly in the European periphery, Mediterranean countries and Ireland. Nevertheless, household disposable income levels also fell in the UK and some Continental countries (the Netherlands, Luxembourg, Germany and France), while they remain rather stagnant in the other core Member States from the Continental and Scandinavian regions (except Sweden).

¹⁸ For details of the country groupings used in this report, please see the table at the start of this report.

¹⁹ The mean was used in Figure 8 in order to map the process of convergence in income levels between countries explaining the results of the Theil analysis covered in the previous chapter. In order to provide a comparison with trends in GDP, Figure 9 uses the median income instead, which is more stable than the average income since the latter is more sensitive to outliers in the distribution of income (which can be problematic given the issues of precision that may arise when measuring income in surveys).

Figure 9: Median household disposable income and GDP per capita (indices)



Note: Both variables are expressed in national currencies and have been adjusted by inflation levels (constant in 2010). Countries are ranked by the growth rate of the median household disposable income between 2008 and 2014. There is a one year-gap in EU-SILC income data, which refers to the previous year.

Source: EU-SILC for median household disposable income, AMECO for GDP and LFS for unemployment rate.

The main insight from the comparison presented here is that the downwards correction in household disposable income levels caused by the crisis is not evident in some countries if GDP per capita is used instead. This is certainly the case in some important core Member States, such as Germany. It is also the case in several of the countries most severely hit by the crisis, such as Ireland, Spain and Greece, as well as the Baltic states, even if the median household disposable income ends up growing relatively more between 2011 and 2014 in the latter group of countries.

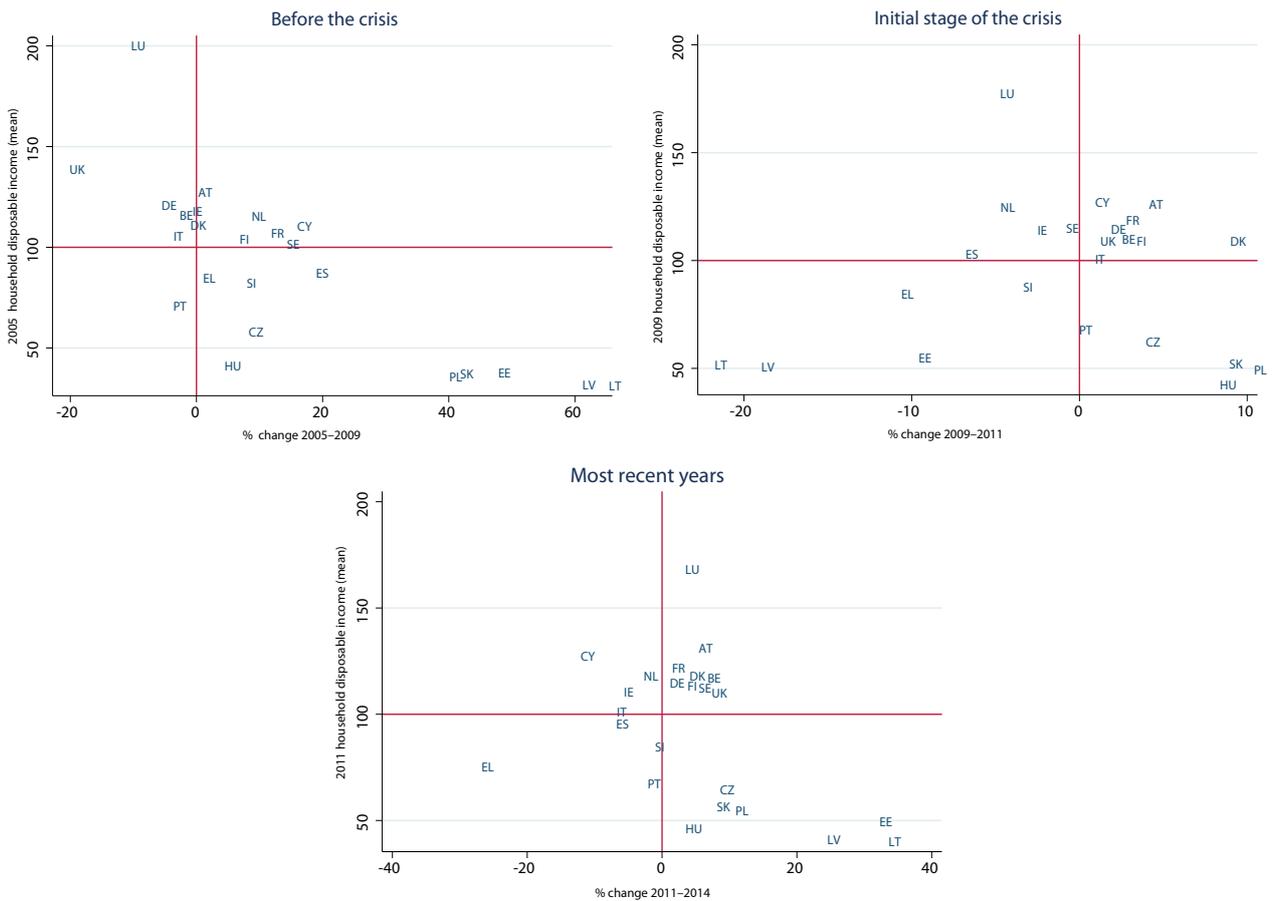
Therefore, GDP per capita may fail to capture a deterioration of living standards in some European societies that seems better reflected by the decline in median household disposable incomes. Nevertheless, this is not always the case, since the opposite development occurs in some CEE countries (and in the Baltic states, if the whole period is considered) as well as France and Sweden, where the household disposable income grew relatively more than GDP per capita.

The discrepancies between both indicators may be due to a combination of factors. Nolan et al (2016) identified some of them:

- price adjustments (since GDP is adjusted by the GDP deflator and household income by the consumer price index);
- the national income concept (since GDP refers to domestic output and household income to income inflows to resident households);

- data sources (since GDP arising from national accounts and household income typically come from surveys);
- household size (given that GDP is divided by the total population and household income is divided by – equivalised – household size);
- levels of inequality (since growth in median household disposable income will be more modest than in GDP per capita or average household income if incomes grow relatively faster at the top of the income distribution).

Figure 10: Development in average household disposable income (in PPP, 24 EU Member States (EU24) = 100)



Source: EU-SILC.

Figure 8 also provides figures on the gross disposable income of households from national accounts (AMECO), which has not been used to assess convergence between Member States because it cannot be directly compared to the EU-SILC’s average household disposable income.²⁰ Nevertheless, this variable is useful because it provides two main insights that reinforce the main narrative that has been provided by

EU-SILC data. First, it shows that the described trends across countries were ongoing from at least the early 2000s: a significant growth in household gross disposable income occurred in eastern Europe, while growth was more modest in the EU15 generally. Second, AMECO’s data on both household gross disposable income and GDP per capita suggest that the described picture would be further confirmed by the inclusion of

²⁰ AMECO’s variable refers to both households and non-profit institutions serving households. It does not provide an average per household, but rather an aggregate magnitude at the country level resulting from adding disposable income among all households. Moreover, the variable is not fit to adequately evaluate convergence because it is expressed in levels of euros (instead of in PPP-adjusted euros) and moreover not expressed in relation to the EU level (as is the case with the variable from EU-SILC).

those Member States not available in the EU-SILC: notable progress generally occurred in Bulgaria, Croatia and Romania, while GDP per capita data reflect a more moderate (only from 2007) convergence in the Mediterranean country of Malta.

A detailed analysis of EU-SILC data on average household disposable income reveals a more nuanced picture of the trends in income levels across countries behind the process of convergence described earlier. Figure 10 reflects the income catch-up process before the crisis (between 2005 and 2009, income levels referring to 2005–2008), with household disposable income levels growing much more where they were initially lowest, mainly in eastern European countries. This process could have been stronger if income levels had progressed among the lower income Mediterranean countries, but this mainly occurred in Spain.²¹ Above the EU average, incomes declined notably in the two countries where they were initially highest (Luxembourg and the UK) and they declined slightly, remained stable or progressed rather modestly across many Continental and Scandinavian countries.

A decomposition of the EU-level Theil index carried out in the previous chapter showed that the crisis interrupted this process of convergence. This is clearly reflected in the trends between 2009 and 2011 depicted in Figure 10 (income referring to 2008–2010) due to income levels being much more resilient in the European core (except in Luxembourg and the Netherlands) and declining significantly in many countries in the European periphery, mainly in some Mediterranean and Baltic countries, although household income continued to progress in some other CEE countries. Nevertheless, in a much milder and less generalised form, the process of catch-up seems to have started recovering somewhat between 2011 and 2014 (income referring to 2010–2013), with some expansion of income levels in some of the eastern European Member states (notably in the Baltic states), while they continue to remain rather stagnant in most core Member States. However, income levels continued declining in Mediterranean countries until the most recent period (very significantly in Greece).

Summary

This chapter has discussed the interrupted process of convergence in levels of household disposable income that has taken place in Member States between 2005 and 2014 (although national accounts data show it started from at least the early 2000s). This initial convergence prior to the crisis (between 2005 and 2009, income referring to 2004–2008) was due mainly to a process of relative income catch-up in CEE countries as well as income deterioration or stagnation in several high-income countries in the European core, such as the UK, Germany and other Continental countries. The Mediterranean region failed generally to converge even in the initial years.

The process of convergence was intense before the crisis and drove a significant decline in EU-wide inequalities, but was interrupted by the crisis due to a strong negative development in the European periphery in many eastern European countries (especially the Baltic states) and many Mediterranean countries, while relative income levels were much more resilient in the European core. Nevertheless, average household disposable income levels are slowly starting to grow again and catching up in the most recent years in many eastern European countries (especially the Baltic states). Mediterranean countries continue to suffer a downwards correction.

Some of these developments are not always evident when using other indicators of economic prosperity, such as GDP per capita, which provide a more benign picture of the impact of the crisis among some European societies than household disposable income levels (in Germany, for instance) and as well in some of those countries most severely hit by the crisis (such as Spain, Greece, Ireland or the Baltic states), although the opposite occurs in other cases. This underlines the importance of using a wider set of indicators than GDP when monitoring developments of economic progress and well-being in Europe.

21 Moreover, the notable expansion of income levels in Spain is largely due to considerable progress in the year 2009 due to data revision in that year. The progress was much more modest between 2005 and 2008.

5 Comparative analysis of inequality trends within Member States

This chapter complements the picture on developments between countries provided in the previous chapter by analysing inequality developments within EU Member States between 2005 and 2014 (income data referring to 2004–2013). It maps cross-country trends in income inequalities for different sources of income and analyses how they have been shaped amid the Great Recession by forces such as employment turbulence or changes in the capacity of families and welfare states to cushion income shocks.

This chapter provides an update to the picture previously provided by similar comparative studies, particularly some recent OECD studies (OECD, 2008, 2011), by mapping developments both before and after the economic crisis. The results of this analysis show that inequalities in household disposable income have increased during this period in two-thirds of the countries, confirming the upwards trend in income inequality levels affecting many Member States that was identified in the abovementioned OECD publications. Nevertheless, while those earlier studies pointed to wage inequalities as the key driver behind growing income inequalities, these findings show that in the crisis it was declining employment levels and not widening pay differentials among workers that drove inequality developments, even though the actions of welfare states have cushioned growing inequalities in market income. This pattern is especially evident in the European periphery, where both unemployment and income inequalities grew most rapidly. The results from this report and those from the OECD studies mentioned can be seen as complementary, since the latter look at long-term trends over several decades while the current report covers a short-time span crucially influenced by the Great Recession and the effects of rising unemployment levels.

The first section of this chapter provides an introductory picture of economic and labour market developments across Member States in recent years and introduces a regional map of inequality across Member States. The

rest of the chapter analyses the evolution of inequalities over time for each of the different sources of income, following the framework laid out in the methodological section.

Inequalities and the uneven impact of the crisis

The results for EU-wide inequalities presented in Chapter 3 showed that within-country inequalities tended to decline in the initial years of the period until they were pushed upwards from the onset of the crisis. The country-level inequality developments to be presented in this chapter generally confirm this picture by showing that income inequalities behaved counter-cyclically, declining before the crisis in many countries and then moving generally upwards from the onset of the crisis.

This counter-cyclicity of income inequalities needs to be put in the context of general developments in economic growth and employment. On the one hand, the downward trend in income inequalities before the crisis would be consistent with a period of economic growth and job creation. Nevertheless, it is important to stress that the evolution of income inequalities prior to the crisis covered in this report is not representative of the longer-term trends that seem to be affecting Member States in the last two or three decades and that point to growing income inequality in many cases, though to different extents and with important exceptions (see Box 2).

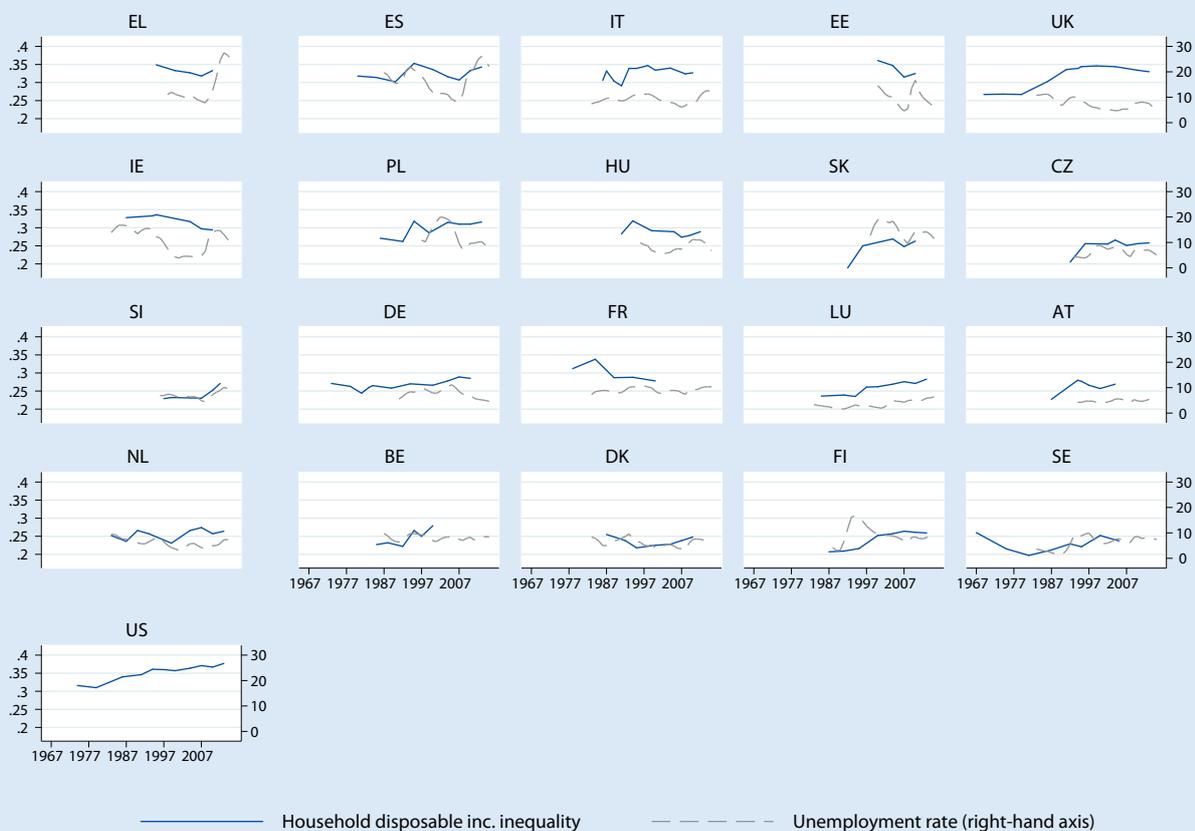
On the other hand, growing income inequalities across many Member States since the onset of the crisis would be consistent with a time of economic distress and employment corrections depriving many people of labour income, especially in those countries most severely hit by the crisis. Box 3 provides a summary of this economic and employment context.

Box 2: Growing inequalities in the long term?

The analysis in Chapter 3 of EU-wide household disposable income inequality showed that within-country inequalities were somewhat pushed upwards since the onset of the crisis, reversing a previous declining trend (although modest as well) in the period 2005–2009. These earlier trends were surely influenced by the intense economic growth characterising most of the decade of the 2000s before the emergence of the Great Recession; they may therefore paint a misleading picture of what had been the most common patterns in income inequalities across Member States in previous decades.

A look into longer-term patterns is possible, using data from the Luxembourg Income Study (LIS), which maps household disposable income inequality across many Member States using a longer time span, in some cases going back the 1960s and 1970s (see Figure 11).²² Two main insights emerge from the data that are relevant for the purposes of this report.

Figure 11: Household disposable income inequality (Gini index)



Source: Luxembourg Income Study database and LFS (unemployment rate).

LIS data do confirm a trend towards higher levels of income inequalities across many Member States in recent past decades. Scandinavian countries register rising inequalities from the 1980s (in Sweden) and 1990s (Denmark and Finland), reverting the declines in income inequality taking place up to the early 1980s in Sweden and the mid-1990s in Denmark. All Continental countries except France registered growing income inequalities over time, even though the time periods covered vary and opposite trends may coexist in different subperiods (particularly in the Netherlands). Eastern European countries (except Hungary and Estonia) reflect growing income inequalities from the 1990s. The UK registers a persistent trend towards higher income inequality levels from the early 1980s, matched only by that in the US.

²² LIS data on household disposable income inequalities are not directly comparable to the data presented in other parts of this report, not only due to the fact that they originate from different datasets and cover different concepts (for instance, LIS data refer to monetary and non-monetary income). There are also some methodological variations: LIS estimates cover the whole population and the income is made equivalent by dividing at the household level by the square root of the number of household members.

However, this trend towards higher inequality levels is not as strong as often assumed and it is certainly not universal. Significant reductions in inequalities are registered as well from the second half of the 1980s in France and from the end of the 1990s in Ireland. Declines in income inequalities occur from the end of the 1990s and early 2000s in Hungary and Estonia respectively, perhaps reversing the previous increases associated with their transition to a market economy (something that can be observed in the Hungarian case using LIS data). Finally, Mediterranean countries are characterised by rather mixed trends: a pattern of decline seems to emerge in the 1980s, which was reversed in the 1990s but re-emerged in the second half of the 1990s and the 2000s, before the crisis pushed inequalities up again.

It is important to note that with some exceptions, such as the UK, cyclical variations in income inequalities across countries broadly follow changes in the unemployment rate, reflecting a counter-cyclical pattern of income inequalities over the business cycle.²³

Box 3: European labour markets amid the Great Recession – the core–periphery divide

Economic and labour market trends during the period between 2005 and 2014 were strongly shaped by the impact of the Great Recession. Before 2009, GDP and employment levels expanded across all Member States, while the unemployment rate was reduced almost everywhere. From 2009, GDP per capita levels were pushed downwards and are still below pre-crisis levels in more than half of the EU28. This unleashed notable turbulence in labour markets, with general corrections in employment levels (which are still below pre-crisis levels in more than half the countries) and unemployment rates moving upwards in almost all countries (see Figure 12).

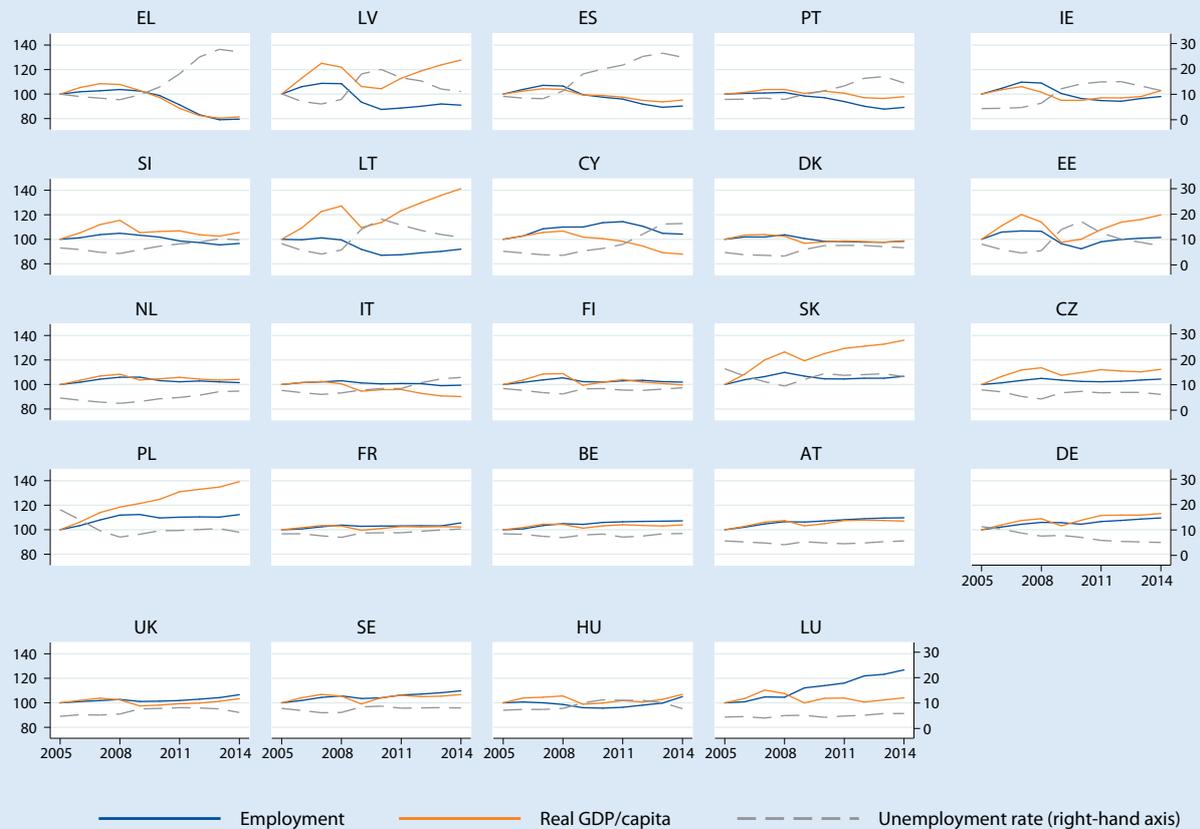
Nevertheless, there are significant differences across Member States, with a core–periphery divide both before and after the crisis. Before the crisis, eastern European Member States experienced a rapid catch-up process with fast economic growth, while growth was moderate in EU15 countries generally and even more so in some Mediterranean countries (Italy, Portugal and Spain) once the effect of inflation differentials are discounted. At the same time, employment levels rose generally more in eastern European countries (although also in Spain and Ireland), more moderately in Continental and Scandinavian countries and even more so in some Mediterranean countries (Portugal, Italy, Greece), the UK and France. Unemployment rates were notably reduced in all eastern European countries (except Hungary), while they increased in Anglo-Saxon countries and Portugal.²⁴

The Great Recession shifted the sign of the core–periphery divide. Economic activity was negatively affected across all countries but especially in the European periphery, represented in this case by eastern European and Mediterranean countries. Some countries in the eastern European group recovered rapidly and managed to continue their catch-up process, while the economies of Mediterranean countries remained under considerable strain. As a result of these trends, employment levels declined significantly in Mediterranean countries (and Ireland and Denmark) and in some eastern European countries (mainly the Baltic states), but not in those that were less affected or recovered more quickly (Poland, Hungary, the Czech Republic and Slovakia). On the other hand, the European core countries (represented in this case by Continental and Scandinavian countries and the UK) have been much more resilient in the crisis. GDP per capita levels did not register large corrections between 2008 and 2014 and employment continued to expand after 2009 in some Continental countries and the UK.

²³ Moreover, it seems there is a certain trend towards convergence in inequality levels between countries, since income inequalities increased in some of those countries where they were initially lowest and vice versa. This will be explored later for the countries covered in this report.

²⁴ For a definition of country groupings, please see the table at the start of the report, or on p. xxx in Chapter 5.

Figure 12: Employment levels, GDP per capita (indexes) and unemployment rates (%) over time



Note: Countries are ranked by the magnitude of the employment correction between 2008 and 2014.

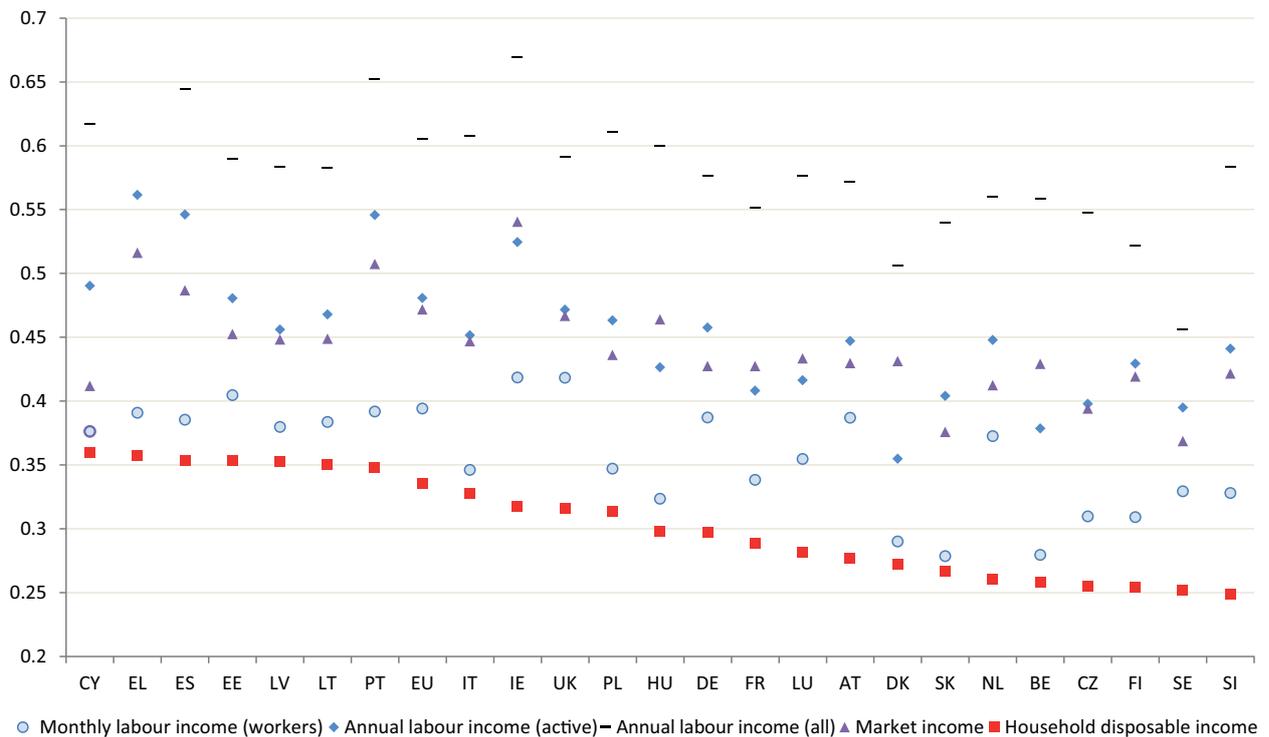
Source: Labour Force Survey (LFS) and AMECO for GDP data.

Before moving to a discussion of the evolution of inequalities across different sources of income, it is useful to provide an overall map of European income inequalities that will help to structure and interpret the results presented in the following pages. Figure 13 introduces a panoramic view of inequalities across Member States for income variables in 2014 (income data referring to 2013).

Inequality levels vary widely across countries, but the different sources of income are similarly related everywhere: inequality is lower for monthly earnings among workers and widens notably when unemployed and especially inactive people are added, to be reduced again when income is pooled at the household level and especially when it is redistributed by the state.²⁵

²⁵ Table A2 in the annex shows data on inequality levels for all sources of income in 2014. It should be noted that inequality levels in the first measure of the framework, full-time equivalent wages, and in the last one, household disposable income, are remarkably similar.

Figure 13: Gini indices for different income categories, 2014



Note: Countries are ranked by the magnitude of the household disposable income inequality.

Source: EU-SILC.

The positioning of countries in Figure 13 reflects the fact that distribution of income inequality is the result of economic and labour market dynamics, family structures, labour market institutions and other public policies that are typically associated with different groups of countries. Although it is beyond the objectives of this report to systematically discuss the political economy of income inequalities in Europe, a regional–institutional classification of countries can be useful to describe European patterns of income inequality, as indicated in the table (note that country clusters are roughly listed in decreasing extent of inequality).

Mediterranean countries	Cyprus, Greece, Italy, Portugal and Spain
Baltic states	Estonia, Latvia and Lithuania
Anglo-Saxon countries	Ireland and the UK
Central and eastern European (CEE) countries	Czech Republic, Hungary, Poland, Slovakia and Slovenia
Continental countries	Austria, Belgium, France, Germany, Luxembourg and Netherlands
Scandinavian countries	Denmark, Finland and Sweden

Mediterranean countries are generally characterised by high levels of inequality in household disposable income. Inequalities in labour earnings are also

relatively high, particularly if the analysis includes the unemployed and the inactive population. The role of family pooling in reducing inequalities is generally around or above the European average, but the welfare state plays a comparatively modest role in redistributing income.

The Baltic states also have high levels of inequality in household disposable income. They are found at the upper positions of wage inequality, but contrary to what occurs in Mediterranean countries, they are comparatively less unequal when the effect of unemployment and inactivity is taken into account. The family pooling of resources has an average effect in reducing inequality and state redistribution is particularly weak.

Anglo-Saxon countries have intermediate to high levels of income inequality. They have the highest levels of inequality for the wages of employees, but their relative position in Europe becomes less salient once unemployment and inactivity are considered as well (although in Ireland a high inactivity rate pushes up its position in terms of market income inequalities for the working age population). The effect of family pooling of resources is weak, while that of the welfare state is about average in the UK and quite strong in Ireland, which results in the latter moving down positions in the final inequality ranking.

Central and eastern European (CEE) countries are split between intermediate (Poland and Hungary) and low levels of household disposable income inequality (Slovenia, the Czech Republic and Slovakia). They have relatively low inequality levels among the workforce, but they generally move up the inequality ranking once unemployed and inactive people are included in the analysis. The family pooling of resources generally plays a strong role in reducing inequalities, while the state has a relatively important role in Slovenia, Hungary and the Czech Republic.

Continental countries are a diverse group characterised by intermediate to relatively low inequalities. They generally occupy an intermediate position in terms of wage inequality and then they generally move down in the inequality ranking when the sample is extended to unemployed people. The role of the family pooling of resources in reducing inequalities is around average when compared to the rest of the Member States, while that of the welfare state redistribution is relatively important generally.

Scandinavian countries have low levels of household disposable income inequality. They register low inequality levels among the workforce and they are the most egalitarian countries once the sample extends to all the working age population. The moderation of inequalities by the family pooling of resources is the weakest across all clusters, but their welfare states are among the most redistributive in Europe.

Labour earnings among the working, active and whole population

Figure 14 introduces data on inequality levels for unadjusted personal labour earnings considered among three different populations: workers, the active population and the whole working age population. Inequalities in monthly earnings among workers are

logically more subdued, although they still vary notably across countries, being relatively high in Anglo-Saxon and some Mediterranean and Baltic countries and lowest in Scandinavian countries, some CEE countries (except Poland) and Belgium, with cross-country variations resulting from wage differentials and the effect of self-employment and part-time work (see Box 4 for details). As expected, labour income inequalities widen notably once the analysis includes active and inactive people who do not earn labour income, with cross-country differentials mainly depending on the number of unemployed and inactive people.

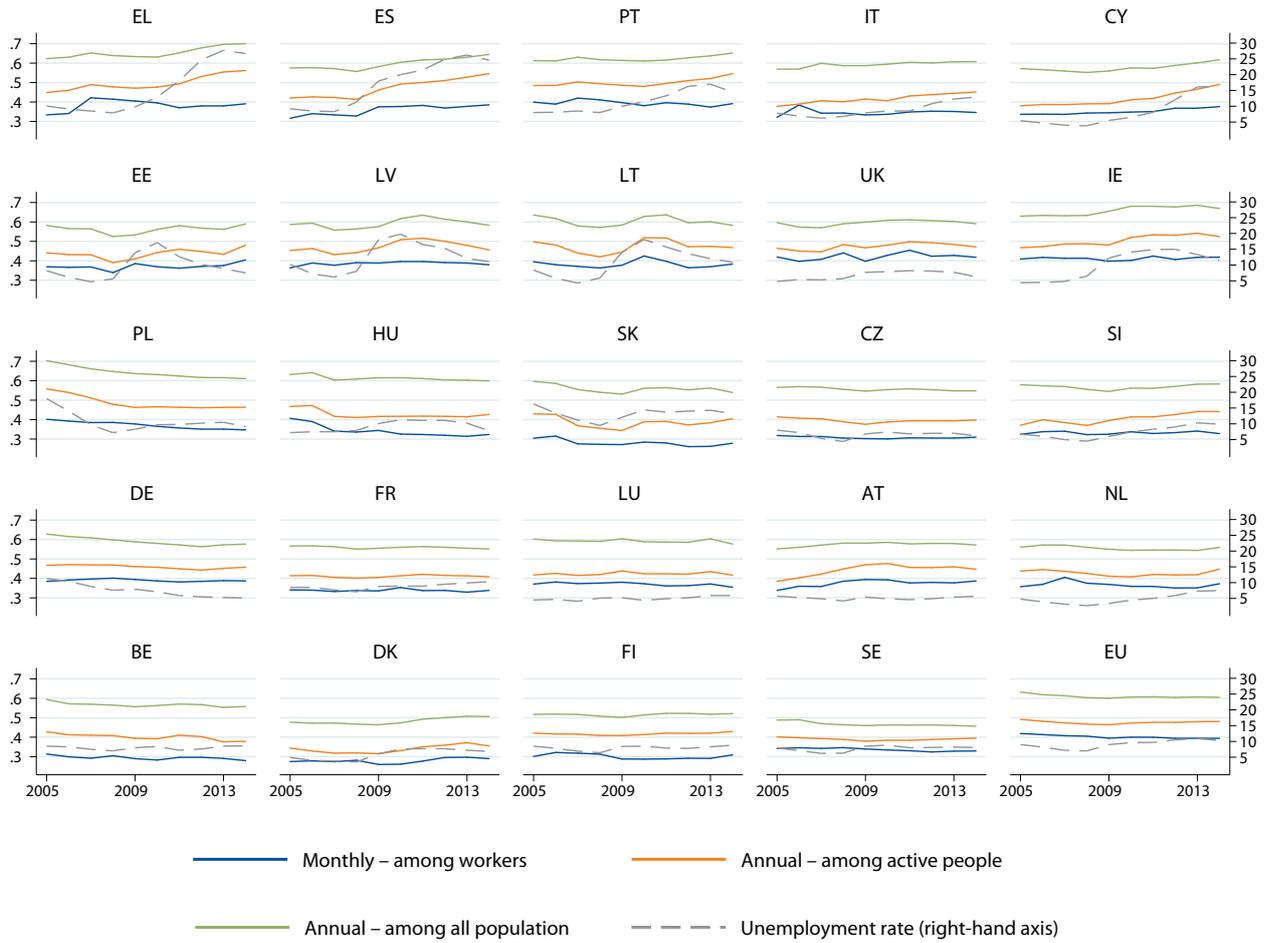
The most revealing picture emerges when comparing the trends across these different indicators, which shows that growing income inequality from the onset of the crisis is mainly due to rising unemployment levels and not widening pay differentials among workers. Income inequalities among the active population and the whole working age population increase across most countries from 2009 (income data referring to 2008).²⁶ Conversely, the evolution of earnings inequality among workers is moderate and more mixed.²⁷ In fact, Figure 14 shows how in the countries where unemployment grew more, the crisis often had a contradictory impact on the earnings of workers and the labour income of the working age population: while it made the latter significantly more unequal (by expanding the share of people earning no labour income), it often reduced the inequality of the former (probably a compositional effect, since those leaving employment in a crisis tend to have lower wages).

Figure 14 also reflects the strong divide that emerges between the European core and the periphery from the crisis. Unemployment hikes and the associated surges in income inequalities are much more significant in the Mediterranean and Baltic countries (and Ireland, Slovakia and Slovenia) than in Continental and Scandinavian countries (with perhaps the exception of Austria and Denmark, which register growing inequalities among workers and the active population).

²⁶ The effect of the crisis is stronger on labour income among the active population because unemployment grew significantly and thus so did the share of unemployed workers with no labour income. For the full working age population, this impact is partly diluted by the large and more stable share of inactive population.

²⁷ The notable surge in Spain in 2009 may at least partially be a methodological artefact because it only emerged in a recent revision of EU-SILC data in that country.

Figure 14: Gini indices for labour income across different population groups



Source: EU-SILC and LFS (unemployment rate).

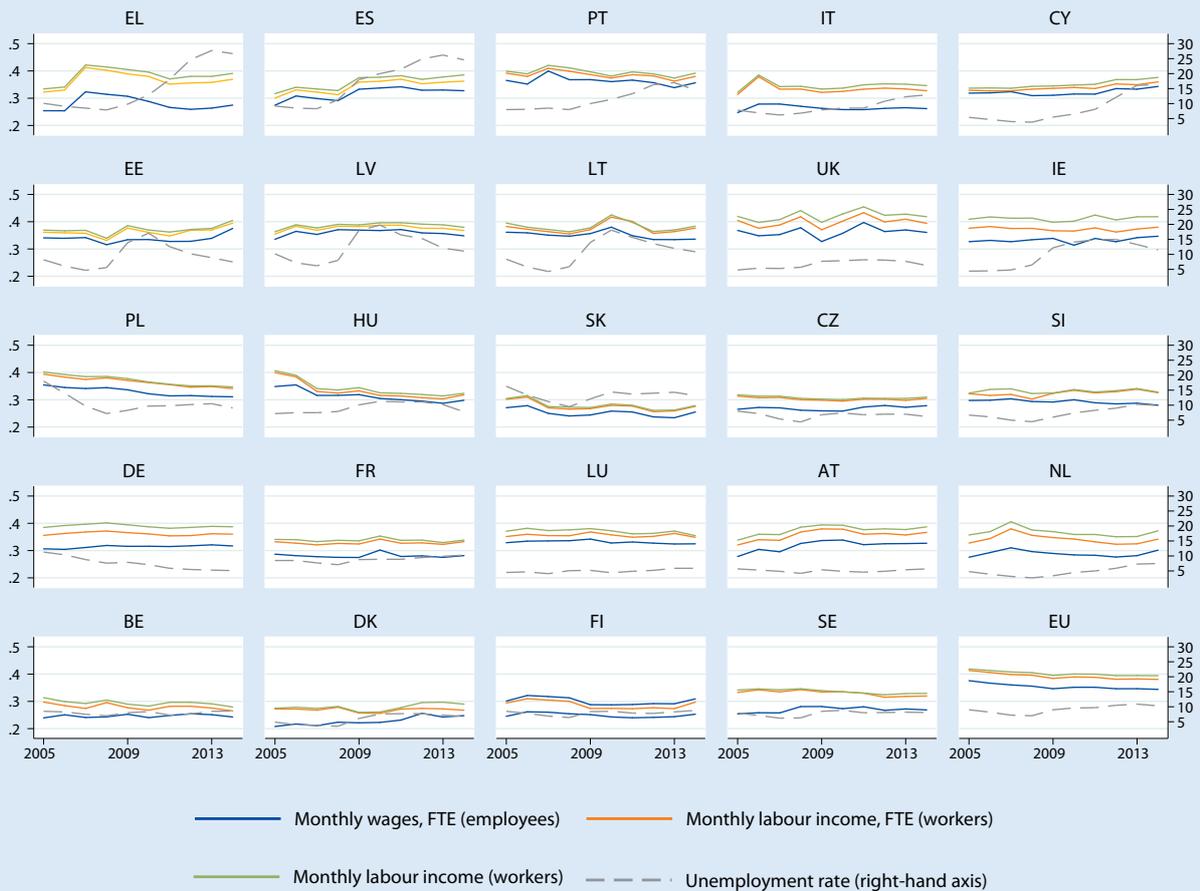
Even if the crisis hit countries to very different degrees, unemployment turbulence generally is the key channel through which income inequalities were pushed upwards and outside labour markets; this centrality of unemployment explains the business cycle behaviour of income inequalities. While wage inequality fails to show

a clear cyclical pattern, inequalities among the active population and the whole population move counter-cyclically across most countries, growing from the onset of the crisis (falling only where unemployment did not significantly grow – in Poland, the UK and the Continental countries of Germany, Belgium and Luxembourg).

Box 4: Different sources of labour earnings inequalities among workers

Inequalities in unadjusted monthly earnings are the result of differentials in wages but also part-time and self-employment rates, as illustrated by the three measures of labour earnings presented in Figure 15. Differentials in full-time equivalent wages among employees are significant and vary from the highest in Portugal, the Baltic states and Anglo-Saxon countries to the lowest in Belgium, Slovakia and the Scandinavian countries (see Eurofound, 2015 for more details), but they are lower than inequalities in labour earnings among workers.

Figure 15: Gini indices for different measures of monthly labour income



Source: EU-SILC and LFS (unemployment rate).

Inequalities grow notably once income from self-employment is considered, since it is more unevenly distributed than wages among employees. This occurs in all countries, but especially in countries with more self-employment, such as Greece and Italy. Inequalities expand further when monthly earnings are not adjusted by part-time work, although less strongly except in some countries where part-time employment is particularly high, such as the Netherlands, Germany and the UK.

Despite differences in levels, labour earnings inequalities generally show the same evolution across the three indicators. As opposed to the counter-cyclical pattern in annual labour earnings due to the effect of unemployment, none of the three indicators of labour earnings among the workforce reflect a clear business cyclicity, with country patterns being very mixed from the onset of the crisis (before the crisis, inequalities in earnings among the workforce expanded in around two-thirds of the countries between 2005 and 2008).

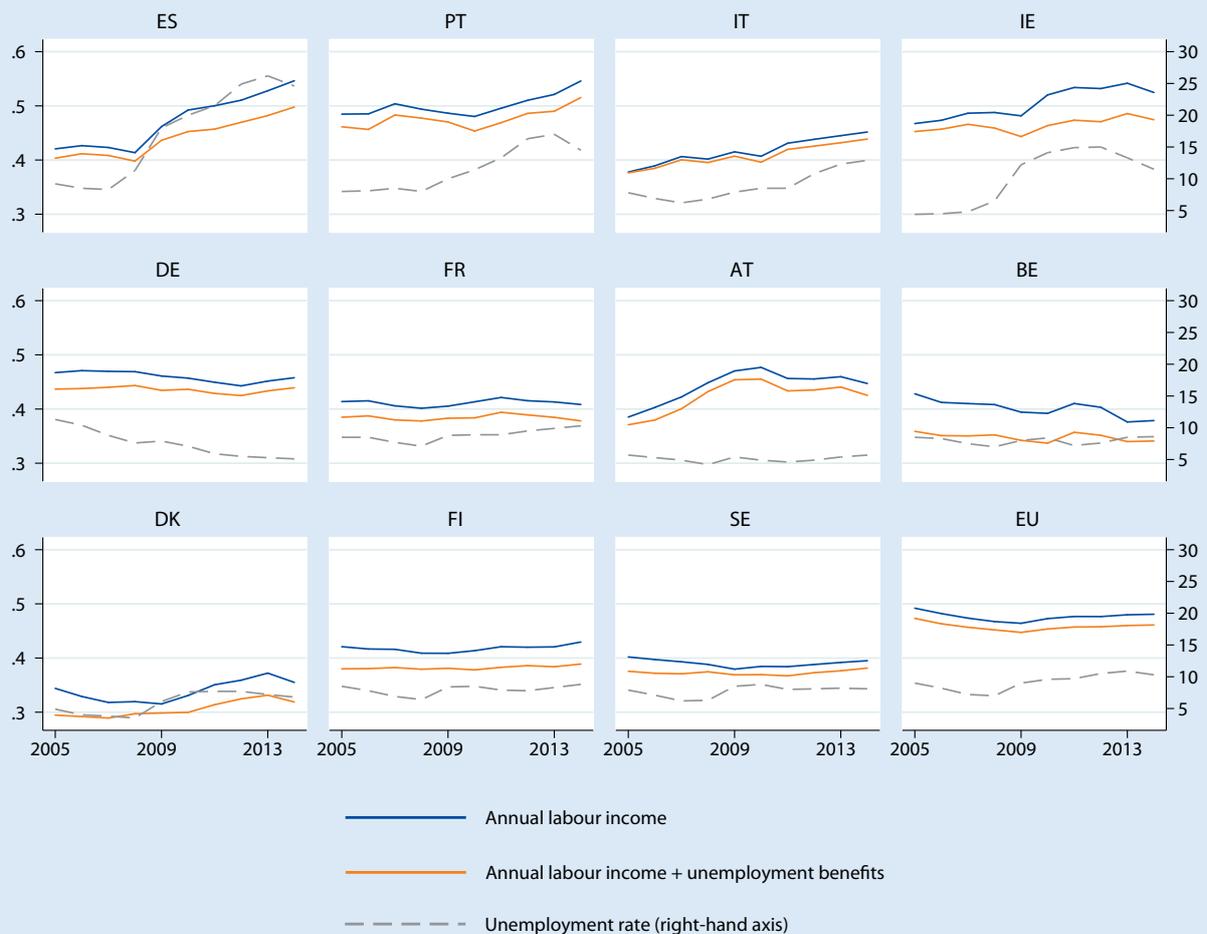
It could be argued that the effect of the crisis on labour earnings inequalities among the active population has been overestimated in this analysis because an income of zero does not correctly represent the situation of many unemployed people, who may receive unemployment benefits to compensate them for their

lost labour income. It has been argued that unemployment benefits should be taken into account for providing a lower bound estimate of labour income inequality levels (OECD, 2011). This is done in Box 5, showing that levels of inequality among the active population do decline but only slightly when considering the effect of the unemployment benefits.

Box 5: Assessing the impact of unemployment benefits on labour income inequalities

People who lose their job often receive compensatory income from the state, so not taking this into account may produce unrealistically high estimates of inequality in labour earnings among the active population. The extent to which inequality can be reduced by unemployment benefits will in principle depend on the unemployment rate and the coverage and generosity of unemployment benefits. However, the quality of the data available to estimate this effect may have a significant influence in practice.

Figure 16: Gini indices for annual labour income among active people

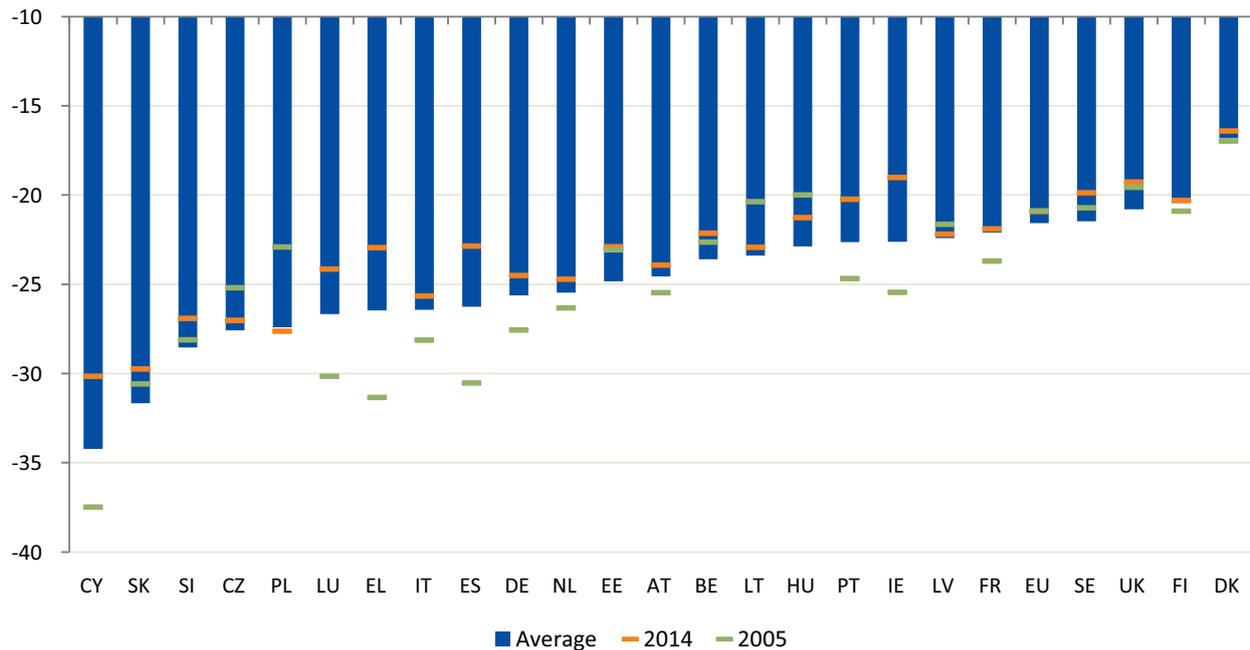


Source: EU-SILC and LFS (unemployment rate).

Figure 16 presents data for those countries where unemployment benefits are more relevant in reducing labour earnings inequalities (according to EU-SILC data). The addition of unemployment benefits to the income of the active population results in a significant drop in the estimated levels of inequality in many Scandinavian and Continental countries, probably reflecting the relative strength of this scheme in these countries. As expected, labour income inequality level estimates would be lower as well in those countries more affected by the crisis and registering growing employment levels, such as in the Mediterranean countries and Ireland.

A detailed analysis of the role of welfare state taxes and transfers in cushioning market inequalities in the crisis will be conducted later in this chapter.

Figure 17: Reduction in inequality when moving from annual labour earnings among individuals to family-pooled annual labour earnings (%)



Note: Countries have been ranked by the average reduction of inequality over the period 2005–2014

Source: EU-SILC.

Role of the family in reducing income inequalities

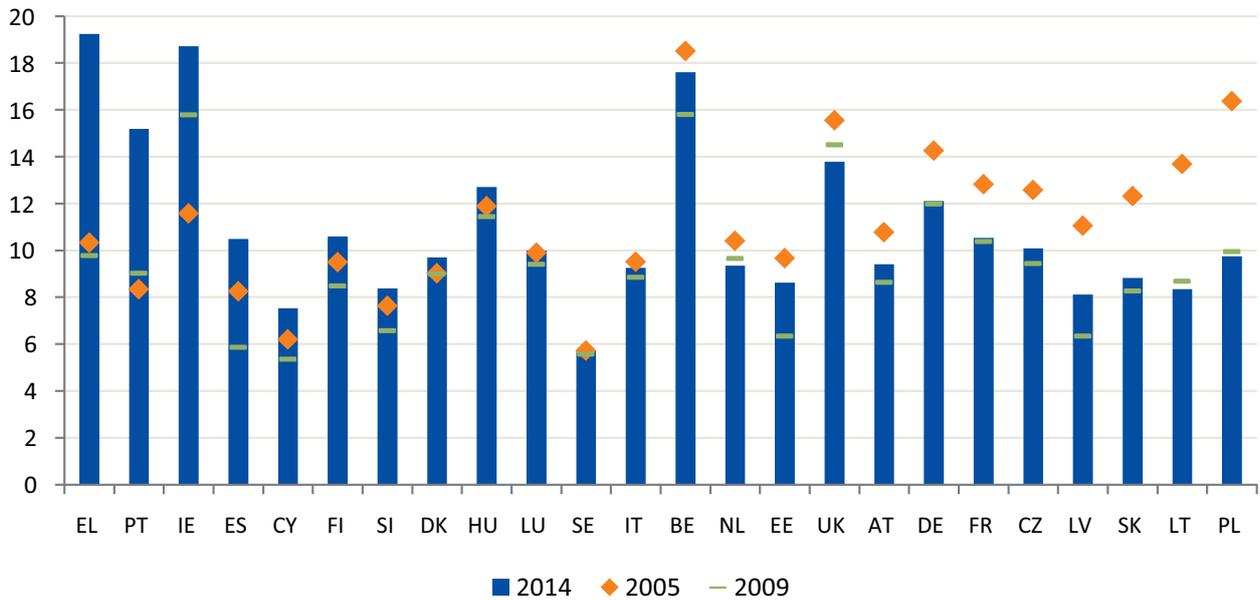
The inequalities in annual labour earnings among working age individuals presented in the previous section are to some extent an artificial indicator since most individuals pool their income at the household level. This section analyses the extent to which the family pooling of resources manages to reduce income inequalities due to economies of scale and to some members of the household compensating for the lack of labour income of others. It shows that a certain deterioration in this capacity seemed to occur across many countries, which may be related to increases in the number of households with no labour income as the crisis went on, as well as to a decrease in the size of households. Since the main objective of this section is to map the effect of the family pooling of resources, it will focus only on annual labour income. An analysis of capital income is provided separately in Box 6.

Figure 17 shows that for the EU as a whole, the pooling of personal annual labour earnings at the household level reduces inequality in that indicator by around 22% (on average during the period 2005–2014, income referring to 2004–2013). Cross-country variations are notable, with this effect being relatively larger in most CEE and Mediterranean countries and more modest in Scandinavian countries and as well in Anglo-Saxon and Baltic countries.

The yearly evolution of inequalities in household-pooled annual labour earnings is not shown here because it closely follows the evolution of inequalities in personal labour earnings among the working age population presented earlier. This would suggest that no relevant changes in the role played by families in cushioning income inequalities have occurred, which would be consistent with the fact that the demographic developments that would have an effect on such a role are not likely to change significantly in the short time span covered here. Nevertheless, Figure 17 shows that the redistributive effect of the household (measured by the reduction in the Gini of earnings when they are pooled and distributed among members of households) is slightly smaller at the end of the period than at the beginning across most countries, especially in Mediterranean countries and Ireland. Conversely, this effect strengthens in a few eastern European countries (mainly Poland, and Hungary, Lithuania and Latvia).

Two reasons seem to be behind these developments. The most relevant is probably the proportion of people living in households with no labour income, which generally fell before the crisis and then increased thereafter (see Figure 18). This increase was notable as the crisis progressed in Mediterranean countries and Ireland, which would explain the diminished average capacity of households to redistribute personal labour incomes in these countries.

Figure 18: Proportion of people living in households with no labour income (%)

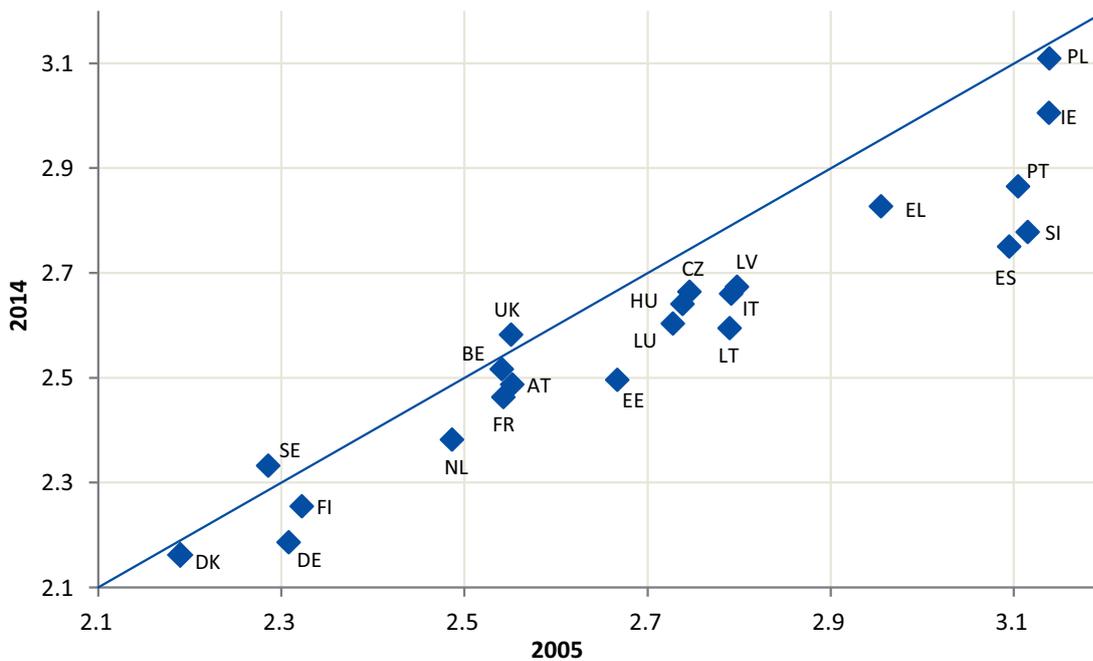


Note: Countries are ranked by the relative increase in this proportion between 2005 and 2014.
Source: EU-SILC.

Secondly, the evolution of the capacity of families to cushion income inequalities may also be influenced by changes in the average size of households across countries, since the latter captures demographic changes such as the increase in the number of

households with a single member or with a single parent, which would reduce the economies of scale at the household level (see Figure 19). Even in the short period covered, it can be seen that the average household size is declining across most Member States.

Figure 19: Average household size across countries

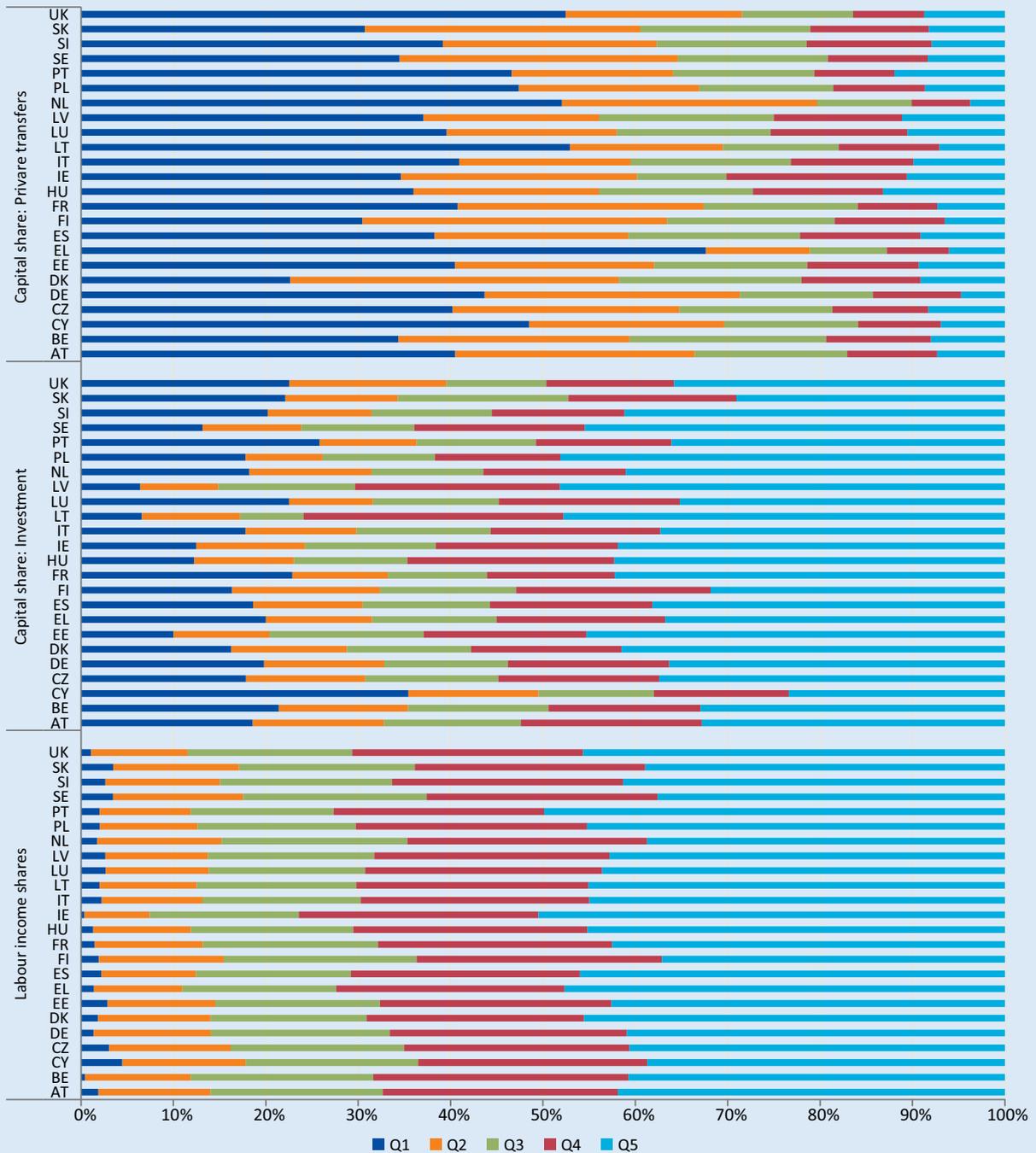


Source: EU-SILC.

Box 6: Distribution of capital flows and their effect on income inequalities

The analysis in this section has considered only the effect of the family pooling of annual labour income. Nevertheless, this report typically focuses on the measure of household market income, which considers the pooling of labour and capital income at the household level jointly. The reason for not studying capital flows separately is that in practical terms it has almost no effect on results, probably because of the very limited quality of the information provided by the EU-SILC in this respect.

Figure 20: Distribution of capital and labour income over the quintiles of family-pooled annual labour earnings (average for the period 2007–2014)



The capital and private transfer variables of the EU-SILC refer to income flows originating from investments (income from rents, interest, dividends and similar) and private transfers (income received by young people below 16 years of age living in the household and the difference between the inter-household cash transfers received and those paid). Figure 20 shows how these two sources of income are distributed across income quintiles and provides some clues to help explain the limited role played by capital in this analysis based on EU-SILC data.

First, the EU-SILC's ability to capture capital flows adequately seems questionable, which probably results in an underestimation among European households. Second, the figure shows that according to the EU-SILC, capital income is in fact more spread than labour income among the working age population, which explains why the inclusion of capital in the analysis of this report often results in (negligible) reductions in income inequality, contrary to what would be expected according to the literature. Almost half of the total labour income mass is owned by the top quintile across most countries, while the bottom quintile accounts for very little of it, due to the impact of unemployment. Conversely, capital income as measured by the EU-SILC is found across all quintiles, even if unevenly.

The figure also reveals the very different nature of capital income and private transfers. Capital income is more unevenly distributed and its largest part goes to the top quintile, while private transfers are much more evident at the bottom than at the top income quintiles, reflecting solidarity mechanisms between households, probably involving family members. In other words, private transfers may be seen as part of the family pooling of resources. In any case, the effect of capital income and private transfers on the results is negligible, so it can be simply ignored. With the EU-SILC, it is probably impossible to evaluate adequately the effect of this source of income on inequality.

Redistributive effect of the welfare state

While the previous section looked at the redistributive role of families, this one will look at the extent to which the welfare state is able to correct inequalities in market income through taxes and benefits that redistribute income across individuals and households. It shows that the capacity of the welfare state to cushion income inequalities is greater than that of families across most Member States and that public schemes have significantly offset growing market income inequalities in the European periphery during the crisis, although this capacity may be eroding in some countries in the most recent years.

Table 3 shows that European welfare states reduce market income inequality by almost 30% for the EU as a whole. Again, there are notable country differentials, with welfare states playing an even bigger role in Scandinavian and some CEE, Continental countries and Ireland, while their effect is relatively weaker in Baltic and Mediterranean countries, where in fact it is comparable to the effect of the family pooling of resources.²⁸

Importantly, the capacity to correct market income inequalities varies strongly across the different welfare policies.

- Taxes on income and social contributions are generally the most redistributive welfare policy and have a relatively larger effect in reducing income inequalities in Anglo-Saxon, Continental and Scandinavian countries (although largest in Slovenia), while the impact is by and large less relevant in several eastern European countries.²⁹
- Pensions are almost as redistributive as income taxes and are the most important of the social benefits in reducing income inequalities across all countries, especially in the CEE countries, the Baltic states, the Mediterranean countries and France.
- Unemployment benefits are most relevant in Continental and Scandinavian countries and in some of the countries hit hardest by the crisis, such as Ireland, Spain and Portugal.
- Disability benefits are significant across most countries, often having a more redistributive impact than unemployment benefits.
- Family benefits have a stronger impact in reducing inequalities in Continental, Anglo-Saxon, CEE countries but less so in Mediterranean countries generally.
- The rest of the welfare state schemes have a more modest impact generally, although housing policy is relatively more important in several Scandinavian, Anglo-Saxon, Continental countries, survivor's benefits in Mediterranean countries and sickness and education benefits in Scandinavian countries.

²⁸ In Cyprus, the family plays a larger role than the welfare state in reducing market income inequalities.

²⁹ Conversely, taxes on wealth have a negligible effect (EU-SILC data would suggest that they often add to inequality, although to an extremely low extent), which is one reason why their individual impact is not shown here.

Table 3: Relative reduction in inequality when moving from household market income to household disposable income (%)

	All	Taxes	Benefits								
	Welfare	Income tax	Pensions	Unemployment	Disability	Family	Housing	Survivor's	Sickness	Education	Other
SI	-41.7	-18.7	-14.3	-1.5	-5.9	-3.2	-0.1	-1.7	-0.8	-1.1	-1.9
HU	-41.2	-13.4	-17.2	-2.5	-6.6	-5.9	-0.4	-0.8	-0.2	-0.2	-0.6
IE	-41.0	-17.1	-4.2	-9.4	-6.7	-8.7	-1.6	-0.7	0.0	-0.7	-0.2
BE	-38.7	-14.5	-8.9	-9.2	-4.3	-3.4	0.0	-1.2	-1.3	-0.3	-1.1
FI	-38.4	-13.8	-7.2	-7.1	-7.2	-2.9	-2.4	-0.5	-0.9	-1.3	-1.4
DK	-37.4	-11.5	-3.0	-10.6	-9.1	-1.4	-1.0	-0.3	-2.0	-3.9	0.0
AT	-36.6	-14.3	-12.8	-3.8	-4.1	-4.1	-0.4	-1.0	-0.6	-0.4	-0.6
NL	-36.4	-14.7	-9.4	-2.4	-5.4	-1.4	-1.2	-0.6	-0.7	-1.6	-4.8
CZ	-36.2	-11.5	-15.7	-0.8	-6.6	-3.0	-0.5	-1.2	-0.9	-0.1	-0.8
LU	-34.4	-11.3	-11.2	-3.3	-3.8	-4.8	-0.3	-1.9	-0.3	-0.3	-2.1
SE	-34.1	-12.7	-5.3	-3.4	-6.4	-3.4	-1.1	-0.3	-2.3	-3.7	-1.2
DE	-32.7	-11.5	-9.8	-4.4	-2.8	-3.3	-1.6	-1.3	-0.4	-0.6	-1.2
FR	-32.6	-7.5	-14.8	-4.3	-1.6	-3.0	-2.8	-0.3	-0.4	-0.3	-1.5
SK	-32.5	-6.2	-16.9	-0.8	-5.2	-2.9	0.0	-2.1	-0.4	-0.2	-1.7
UK	-31.1	-14.7	-7.1	-0.9	-2.4	-4.0	-3.4	-0.3	-1.2	-0.6	-2.3
EU	-28.6	-10.1	-9.8	-3.2	-2.9	-2.2	-1.3	-0.9	-0.6	-0.5	-1.2
PL	-28.6	-4.3	-16.4	-1.3	-5.1	-2.0	-0.3	-1.4	-0.1	-0.2	-0.4
EL	-28.2	-9.7	-15.3	-1.3	-1.9	-0.7	-0.1	-1.9	-0.1	0.0	-0.5
PT	-27.6	-11.5	-9.0	-3.5	-2.6	-1.2	-0.1	-1.7	-0.6	-0.3	-0.8
IT	-26.7	-10.2	-12.8	-2.0	-2.4	-1.1	-0.1	-1.2	0.0	-0.1	-0.1
ES	-25.9	-8.3	-8.0	-5.8	-3.5	-0.3	-0.1	-2.0	-0.7	-0.3	-0.5
LT	-23.7	-5.7	-8.7	-1.0	-5.7	-1.9	-0.1	-0.9	-0.4	-0.2	-2.0
EE	-23.1	-6.3	-9.6	-1.0	-4.9	-2.6	-0.2	-0.3	-0.3	-0.2	-0.1
LV	-20.9	-6.4	-9.3	-1.1	-2.7	-1.9	-0.3	-0.6	-0.6	-0.2	-0.5
CY	-17.8	-5.6	-4.3	0.4	-3.7	-3.3	-0.2	-1.3	-0.3	-1.0	-0.4

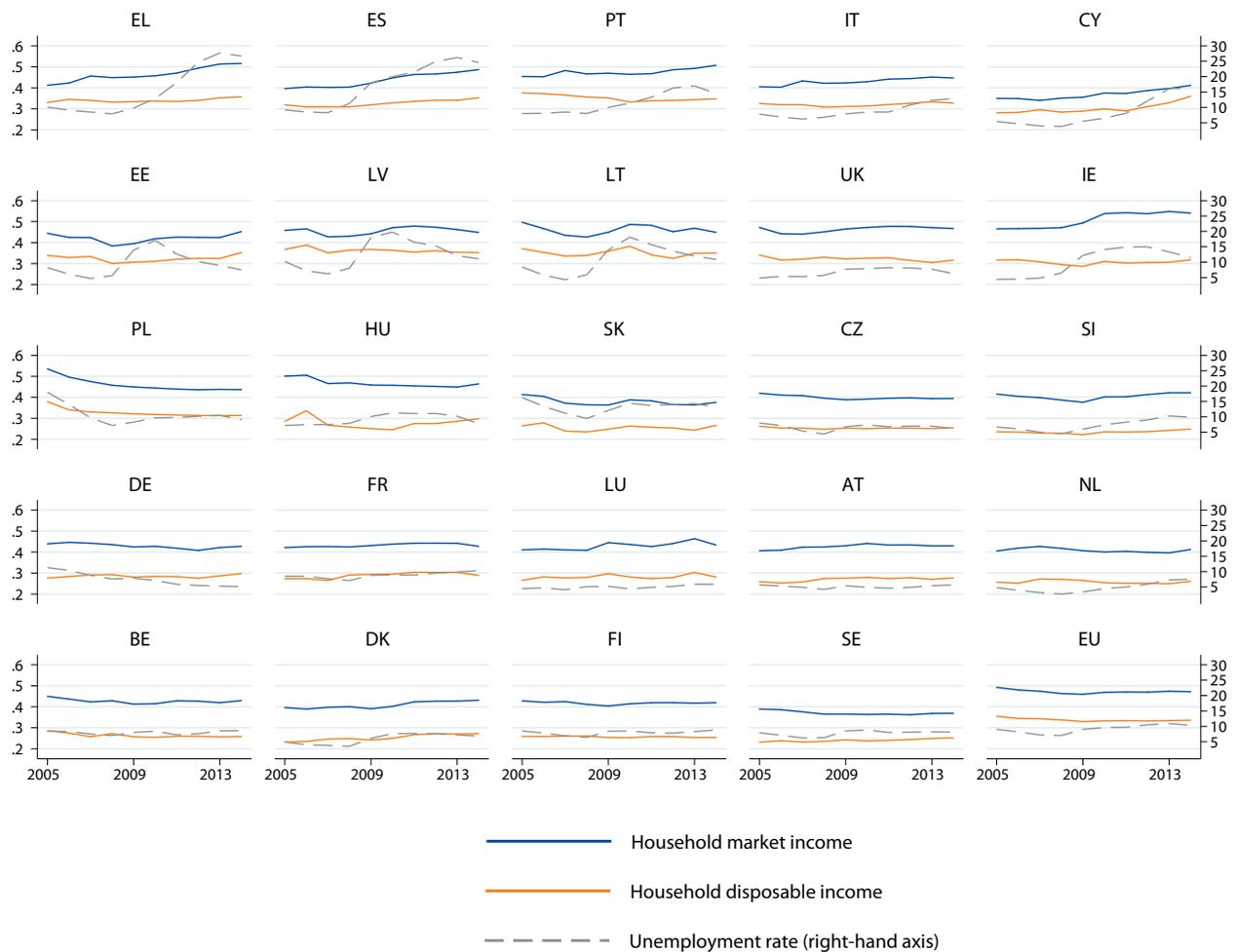
Note: The figures show the average reduction over the period 2007–2014 (income referring to 2006–2013), in total and by individual welfare state policies. Countries have been ranked by the magnitude of the total reduction. However, the sum of the individual effects of each policy does not equal the total effect of the welfare state: on the one hand, because the total effect takes into account the interplay across all welfare policies and on the other hand because the individual effect of taxes and benefits are calculated differently. The effect of benefits is calculated by comparing inequalities in market income with inequalities in the market income incorporating each specific public transfer, while the effect of taxes does not use as a reference the market income but the total household income (including income coming from public transfers). Data need to be interpreted with caution since some of these items have a significant number of missing values.

The Great Recession, the ensuing sovereign debt crisis and the resulting pressures on public finances are putting welfare states across Europe under considerable strain. Their resilience can be assessed by looking at the evolution of their effect in reducing market inequalities across countries. Figure 21 provides a mixed picture across countries, but in general it shows that European welfare states continue to perform an essential role in reducing market inequalities.

The strength of the state's redistributive role remains rather stable in around half of the countries, reflected

by a parallel evolution in market and household disposable income inequalities. In the other half, some changes in this role may have occurred during the period. The redistributive effect of the state expanded in the crisis in many of the countries registering notable surges in unemployment, thus significantly cushioning the big expansion of market income inequalities over the period. A widening gap between market and household disposable income inequalities has emerged over several years, mainly in the European periphery: in many Mediterranean (except for Cyprus) and Anglo-Saxon countries and the Baltic states to a lower

Figure 21: Gini indices for household market income and household disposable income



Source: EU-SILC and LFS (unemployment rate).

extent.³⁰ Nevertheless, the redistributive impact of the welfare state seems to have weakened in Germany, Sweden, France, Poland or Hungary, though this may simply reflect less need of state redistribution in the context of a much milder effect of the economic crisis.

Patterns of inequality in household disposable income

Household disposable income is the final measure of the income actually available to the working age population. It is the measure most commonly used by inequality studies and it merits a final, more detailed look. Table 4 shows developments in household disposable income inequalities across Member States between 2005 and 2014 (income referring to 2004–2013).

Income inequalities have expanded in two-thirds of the countries over the period: most notably in some Mediterranean countries (Cyprus, Spain and Greece, but only moderately in Italy) and some Scandinavian countries (Denmark and Sweden). Inequalities have expanded moderately in Continental countries (with the exception of Belgium), some eastern European countries (Slovenia, Hungary, Estonia, Slovakia) and Ireland. Conversely, inequalities narrowed in one-third of the countries, significantly in Belgium, Portugal, the UK and especially Poland, but also in some other countries in the eastern part of Europe (Lithuania, Latvia, the Czech Republic) and Finland.³¹ These trends across countries have resulted in a process of convergence in the levels of income inequality across Member States, discussed in detail in Box 7.

³⁰ A strengthening of the inequality-reducing impact of the welfare state seems to occur as well in other countries, where inequalities in household disposable income remained quite stagnant (Belgium, Finland, Czech Republic) or declined (Netherlands, Luxembourg, Lithuania) between 2009 and 2014 against the general background of a moderate growth in market income inequalities.

³¹ The increase in inequalities across most countries between 2005 and 2014 does not contradict the reduction registered in EU-wide inequality levels over the same period, since the former mainly resulted from developments in income levels between countries rather than inequality developments within countries (see Chapter 3).

Table 4: Household disposable income inequality across countries (Gini indices and percentages)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change 2005–2014 (%)	Change 2005–2009 (%)	Change 2009–2014(%)
CY	0.281	0.283	0.296	0.285	0.289	0.300	0.290	0.311	0.329	0.360	28.2	3.1	24.3
HU	0.286	0.336	0.267	0.258	0.251	0.246	0.275	0.275	0.286	0.298	4.2	-12.2	18.6
EE	0.339	0.329	0.334	0.301	0.307	0.311	0.321	0.325	0.324	0.353	4.1	-9.4	14.9
DK	0.232	0.235	0.246	0.249	0.242	0.250	0.267	0.271	0.270	0.272	17.2	4.0	12.7
SI	0.235	0.234	0.230	0.229	0.222	0.235	0.234	0.237	0.234	0.249	5.7	-5.7	12.1
ES	0.320	0.309	0.310	0.310	0.319	0.329	0.335	0.342	0.341	0.353	10.5	-0.1	10.6
IE	0.317	0.318	0.308	0.295	0.287	0.311	0.303	0.305	0.307	0.318	0.2	-9.4	10.6
SK	0.264	0.279	0.240	0.235	0.248	0.263	0.258	0.254	0.243	0.267	1.1	-5.9	7.4
EL	0.330	0.346	0.340	0.332	0.334	0.337	0.335	0.340	0.353	0.357	8.2	1.2	6.9
DE	0.277	0.284	0.291	0.293	0.281	0.284	0.283	0.276	0.287	0.297	7.4	1.5	5.9
IT	0.326	0.320	0.320	0.308	0.311	0.314	0.321	0.326	0.334	0.328	0.5	-4.6	5.3
SE	0.231	0.238	0.232	0.235	0.242	0.238	0.240	0.244	0.249	0.252	8.8	4.9	3.8
EU	0.355	0.344	0.343	0.337	0.330	0.333	0.333	0.333	0.334	0.336	-5.4	-7.1	1.9
CZ	0.262	0.254	0.253	0.248	0.253	0.251	0.254	0.253	0.251	0.255	-2.7	-3.4	0.7
AT	0.259	0.253	0.258	0.274	0.276	0.280	0.274	0.278	0.270	0.277	6.9	6.4	0.5
BE	0.285	0.275	0.257	0.272	0.257	0.255	0.259	0.259	0.256	0.258	-9.5	-9.8	0.4
FI	0.259	0.258	0.261	0.261	0.254	0.253	0.258	0.258	0.254	0.254	-1.8	-2.0	0.2
PT	0.376	0.372	0.366	0.356	0.352	0.333	0.339	0.340	0.344	0.348	-7.4	-6.2	-1.3
NL	0.257	0.252	0.272	0.270	0.265	0.254	0.252	0.252	0.250	0.261	1.6	3.3	-1.6
FR	0.273	0.274	0.265	0.291	0.294	0.295	0.304	0.303	0.304	0.289	5.7	7.5	-1.7
UK	0.341	0.317	0.321	0.331	0.322	0.326	0.328	0.315	0.306	0.316	-7.1	-5.4	-1.8
PL	0.379	0.340	0.330	0.326	0.322	0.318	0.316	0.314	0.313	0.314	-17.2	-15.2	-2.4
LT	0.371	0.353	0.336	0.339	0.359	0.383	0.342	0.325	0.349	0.350	-5.7	-3.3	-2.5
LV	0.367	0.388	0.352	0.364	0.368	0.363	0.355	0.362	0.354	0.353	-3.9	0.2	-4.1
LU	0.265	0.282	0.277	0.280	0.297	0.281	0.274	0.279	0.303	0.281	6.1	12.0	-5.2

Note: Countries are ranked by the magnitude of the income inequality increase between 2009 and 2014.

Source: EU-SILC.

As has been argued in previous pages, the upward trend in income inequalities across most Member States over the period is the result of the Great Recession and the resulting employment turbulence (countries have been ranked in Table 4 by the magnitude of the income inequality increase they registered between 2009 and 2014). This is reflected in a counter-cyclical development that exacerbated the core–periphery divide in Europe.

Country patterns were mixed between 2005 and 2009 (income referring to 2004–2008): While patterns are mixed, there are more cases of reductions in income inequalities and their relative magnitude is larger. Most of the reductions are concentrated in the European periphery – eastern European countries and most Mediterranean countries (except Cyprus and Greece,

where inequalities expanded only marginally), together with the Anglo-Saxon countries and Belgium. Conversely, inequalities expanded in the European core, particularly in the Continental countries (with the exception of Belgium) and the Scandinavian countries (except for Finland). EU-wide income inequality declined notably over this subperiod, but largely due to a process of convergence in income levels between Member States (see Figure 5).

Income inequalities expanded in two-thirds of the countries between 2009 and 2014 (income referring to 2009–2013): Most likely, this was as a result of growing unemployment. This is why the surges in inequality occurred among most countries in the European periphery, where most of the employment losses took place: Mediterranean countries (except for Portugal)

and several eastern European countries (not in Latvia, Lithuania and Poland). Rising unemployment also seems to drive increases in inequality in Ireland and in the Scandinavian countries (except for Finland). Conversely, inequalities remained rather contained in most of the European core, in Continental countries and in Finland, either increasing or even falling moderately. Inequalities also fell in some other countries where the impact of the crisis on unemployment levels was less marked (Luxembourg, Poland and the UK) or improved after the initial years of the crisis (Latvia and Lithuania). EU-wide income inequality increased modestly from 2009 due to these generally growing inequalities within-countries and the interruption of the process of income convergence between countries (see Figure 5).

The analysis highlights the important role played by European welfare states in cushioning growing market inequalities, an effect that has been particularly important in the European periphery (the

Mediterranean and Anglo-Saxon countries and the Baltics to a lower extent), where the crisis hit most strongly. This explains why, although important, the core-periphery divergence emerging in Europe from the onset of the crisis is less marked for household disposable income than for market income and why the increases in inequality, although affecting most Member States and significant in many cases, are probably not as large as generally thought. The relative increase in income inequalities did not exceed 10% between 2009 and 2014 across many countries. Exceptions to this were three countries in the eastern part of Europe (Hungary, Estonia, Slovenia), two Mediterranean countries (Cyprus and Spain), and Ireland, where inequalities expanded more.³² The action of the welfare states significantly alleviated the impact of rising unemployment rates in pushing income inequalities upwards (see Box 8 on next page for further details).

Box 7: Convergence towards intermediate levels of inequality?

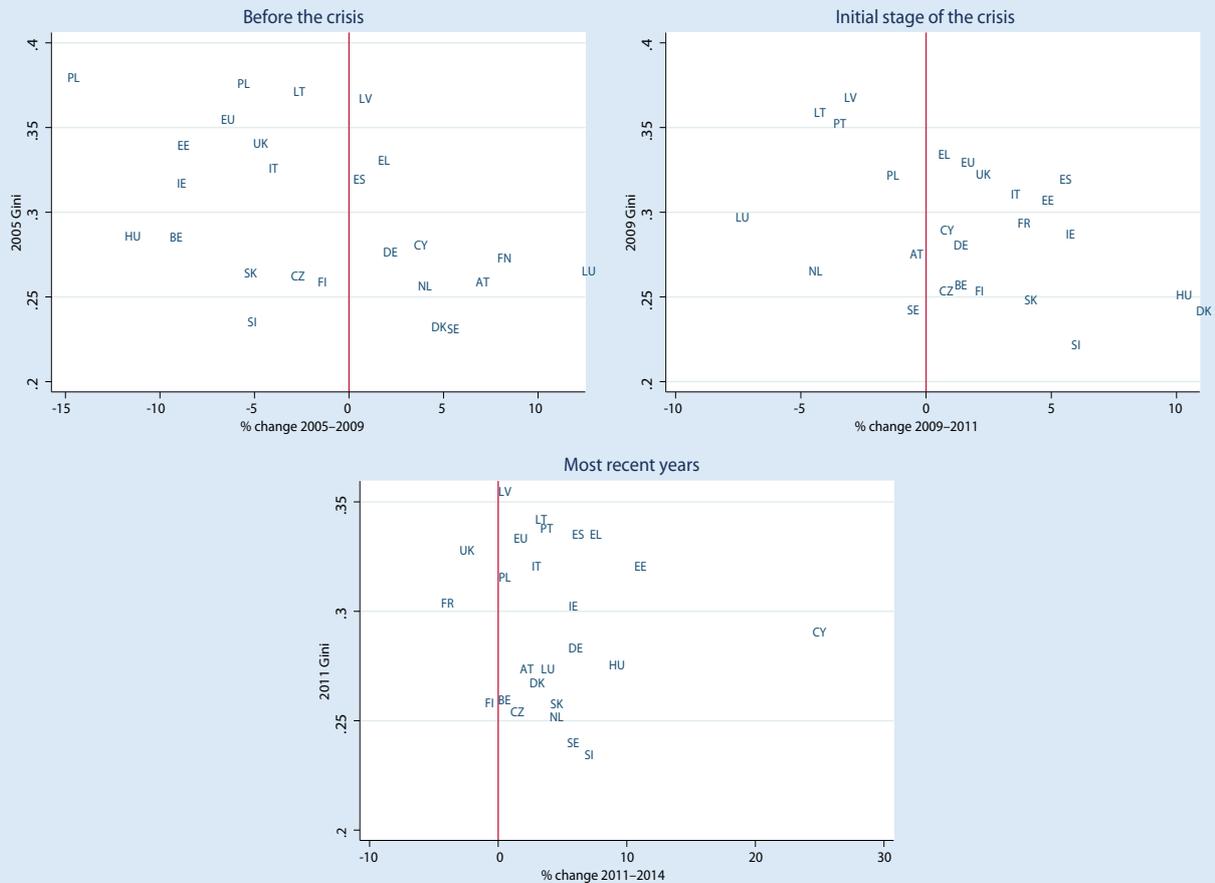
Table 4 above shows that inequalities in household disposable income expanded between 2005 and 2014 among some of the countries where they were initially lowest (the Scandinavian and Continental countries), while in the same period they decreased in some of the countries that were most unequal (the eastern European countries of Poland, Latvia, Lithuania, as well as Portugal and the UK). Although the magnitude of the rise in inequality among initially egalitarian countries were generally larger, the declines in inequality among the initially most unequal are also quite significant, which suggests a process of convergence towards intermediate income inequality levels between European countries. Signs of a process of convergence in inequality levels have already been identified in the literature (among OECD countries, OECD 2011).

Figure 22 shows that this process of convergence has varied over time. A modest convergence in inequality levels took place prior to the crisis (between 2005 and 2009, income referring to 2004–2008). Income inequalities declined among a majority of the most unequal countries, typically in the periphery (the Baltic countries as well as Poland, Portugal and the UK), while they expanded among many of the most egalitarian countries in the European core (the Scandinavian and Continental countries). This modest convergence in income inequality levels continued in the initial years of the financial crisis, since inequalities continued to increase in many of the most egalitarian countries (Denmark and Finland as well as the eastern European countries of Slovakia, Hungary, the Czech Republic and Slovenia), while they continued to decline among some of the most unequal countries (Latvia, Lithuania, Poland and Portugal).

But this process ceased from 2011 (income referring to 2010) since the rather generalised increase in income inequalities is spread among Member States, regardless of their levels of income inequality.

32 Household disposable income inequality increased by more than 10% as well in Denmark, but market inequality also increased substantially.

Figure 22: Household disposable income inequalities across countries



Source: EU-SILC.

Box 8: Impact of unemployment on income inequality levels

This report has shown that the crisis has generally pushed income inequalities up via declining labour incomes associated with growing unemployment levels, since income inequalities among workers did not increase generally.

The role of unemployment changes in driving income inequalities over time is assessed here by means of a regression analysis that compares the strength of this association across the different sources of income covered in this report. Unemployment rates are regressed on income inequality levels across countries and over time (between 2005 and 2014, income referring to 2004–2013) using four different regression analyses: pooled ordinary least squares (OLS), random effects, fixed effects and fixed effects with robust estimates (Table 5).

Focusing on the results using fixed effects with robust estimates, two main insights emerge. First, growing unemployment pushed inequalities significantly upwards among the working age population but not among workers, which is reflected by the significant coefficients for the variables of annual labour earnings and market income, while those of the variables covering monthly earnings among workers are not statistically significant. Second, the effect of unemployment in driving inequalities in household disposable income is weaker than in the other income variables and becomes statistically insignificant for the fixed-effect model with robust estimates, which reflects the role of the welfare state in cushioning growing market income inequalities, as has been extensively underlined in this chapter.

Table 5: Results of the regression analysis

Variable	Pooled OLS		Random effects		Fixed effects		Fixed effects – robust estimates	
	Coefficient	P>t	Coefficient	P>t	Coefficient	P>t	Coefficient	P>t
Monthly wage (full-time equivalent)	0.001173	0.049	0.000268	0.343	0.000246	0.389	0.000246	0.722
Monthly earnings (full-time equivalent)	0.001346	0.015	0.000657	0.039	0.000630	0.052	0.000630	0.349
Monthly earnings	0.001342	0.025	0.000994	0.002	0.000983	0.002	0.000983	0.124
Annual labour earnings (active)	0.005876	0.0	0.005294	0.0	0.005267	0.0	0.005267	0.0
Annual labour earnings (all)	0.004980	0.0	0.003420	0.0	0.003385	0.0	0.003385	0.0
Market income	0.003708	0.0	0.003897	0.0	0.003905	0.0	0.003905	0.0
Household disposable income	0.004018	0.0	0.001148	0.0	0.001054	0.0	0.001054	0.055

Note: Coefficients in green reflect statistical significance at the 1% level, in blue at the 5% level and in red not statistically significant at the 5% level.

Source: EU-SILC.

Summary

This chapter has provided an updated European map of income inequalities across different regions: the Mediterranean, Baltic, Anglo-Saxon, CEE, Continental and Scandinavian countries. The results document growing income inequalities in two-thirds of Member States over the period 2005–2014 (income referring to 2004–2013), in line with previous empirical studies from the OECD reporting an upwards trend in inequalities in household disposable income. Nevertheless, the findings in this report substantially complement those from previous studies: unemployment and its effect on declining labour income emerges as the main driver pushing inequalities upwards and outside the workforce as a result of the crisis, instead of widening labour income differentials among the workforce (which did not seem to play a significant role from the onset of the crisis but were identified in the mentioned OECD studies as the main factor driving inequalities up in the decades before the crisis). The centrality of the role of unemployment explains why inequalities behave generally counter-cyclically across most countries, falling before the crisis and increasing thereafter, especially in those countries in the European periphery that were more heavily hit by the crisis and where employment losses have been larger (the Mediterranean, the Baltic states and some CEE countries and Ireland).

There are two non-market mechanisms that reduce income inequalities. First, the role of the family pooling of income reduces personal labour income inequalities by more than 20% for the EU as a whole and is especially strong in CEE and Mediterranean countries. Nevertheless, a relative deterioration in this role of the family seems to have taken place during the period, probably due to an increase in the number of households with no labour income to distribute from the onset of the crisis and perhaps also marginally to a small reduction in the average household size across most Member States.

Second, European welfare states play a more significant redistributive role than families and reduce household market inequalities by almost 30% for the EU as a whole and by much more in Scandinavian and some CEE and Continental countries (and Ireland), with income taxes and pension benefits being by far the most relevant schemes, followed by income taxes, unemployment, disability and family benefits. The role of the state remained more or less unchanged during the period in half of the countries, although it seems to have weakened in some cases (Germany, Sweden, France, Poland and Hungary), perhaps because the welfare states of these countries had not been put to a serious test since their economies generally weathered the crisis better. The most significant development took place in some of the countries in the European periphery hardest hit by the crisis, where the redistributive effect of the state on market income inequalities became more important over the period.

6 Impact of the Great Recession on income levels

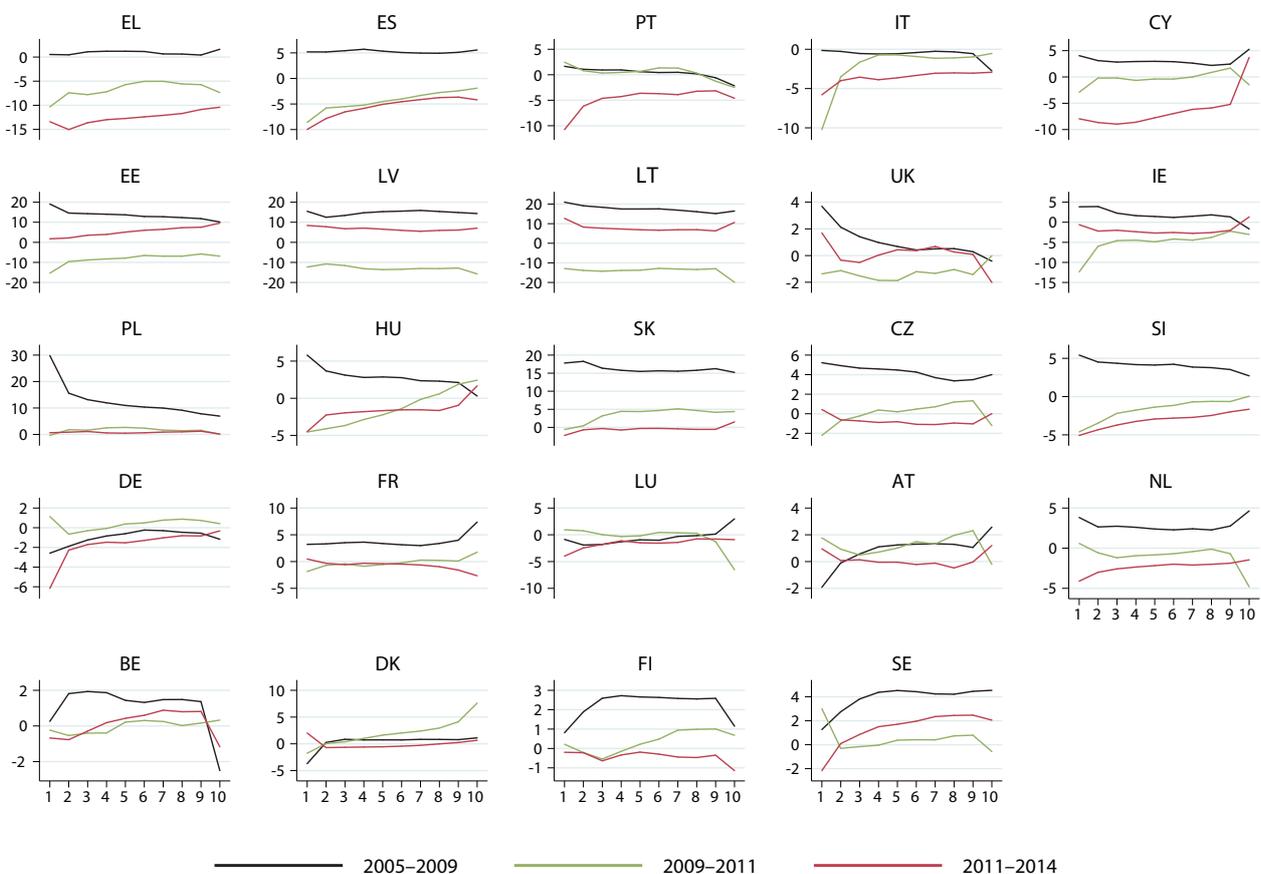
The information provided by relative measures of inequality in previous sections is complemented here by mapping developments in income levels across the distribution. All the figures of change in income levels in this section are expressed in national currencies and adjusted by inflation in order to reflect more directly the impact of the crisis across European societies.³³

Mapping income levels at different parts of the distribution provides a more direct picture of inequality trends and reveals effects on the whole distribution that can be concealed when the analysis is focused on relative inequality measures, as in the previous pages.

Figure 23 plots how real income changed over the period by income deciles (that is, each point in the horizontal axis represents 10% of the working age population, sorted from left to right from lower to higher household disposable income). Before the crisis

(between 2005 and 2009, income referring to 2004–2008), income levels progressed particularly fast in the eastern European periphery (and to a lesser extent in Anglo-Saxon countries). This progress often benefited those at the bottom of the distribution more, explaining the reductions in income inequality in these countries. Conversely, real income levels remained much more stable in many Mediterranean, Continental and Scandinavian countries. In most Continental and Scandinavian countries, real income remained stagnant or negative at the bottom of the distribution (especially in Germany and Austria), which explains the increases in income inequality in these countries. In the case of most Mediterranean countries, real income remained rather stagnant but trends over the income distribution vary across countries (with inequalities declining in Portugal and Italy).³⁴

Figure 23: Average yearly growth of household real disposable income, by income deciles (%)

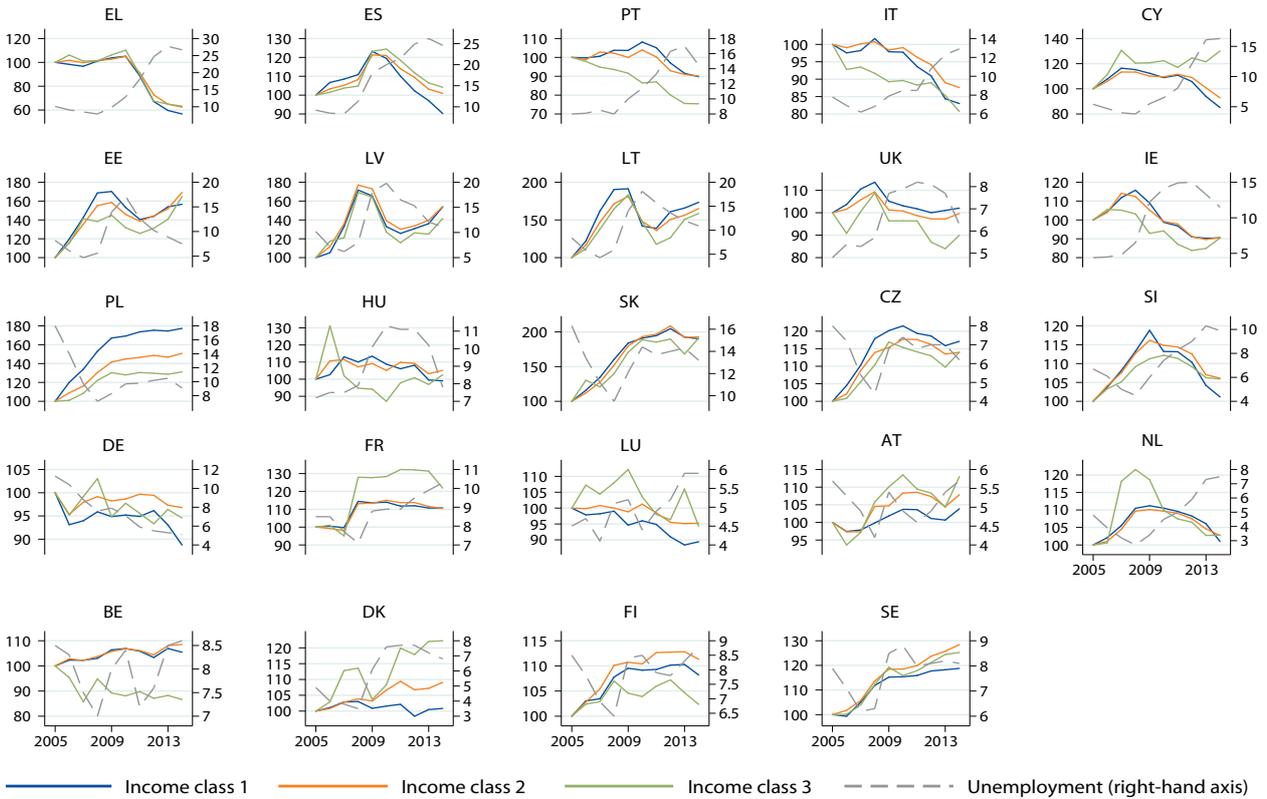


Note: Data refers to average yearly growth rates during each of the three sub-periods (income data referring to one year earlier than the one indicated)
Source: EU-SILC.

³³ Income levels are expressed in euros for members of the euro zone (including those countries that joined during the period covered here: Cyprus, Estonia, Latvia, Slovenia and Slovakia) and in national currencies for the others. All income levels are then adjusted for national inflation to obtain real income levels across countries.

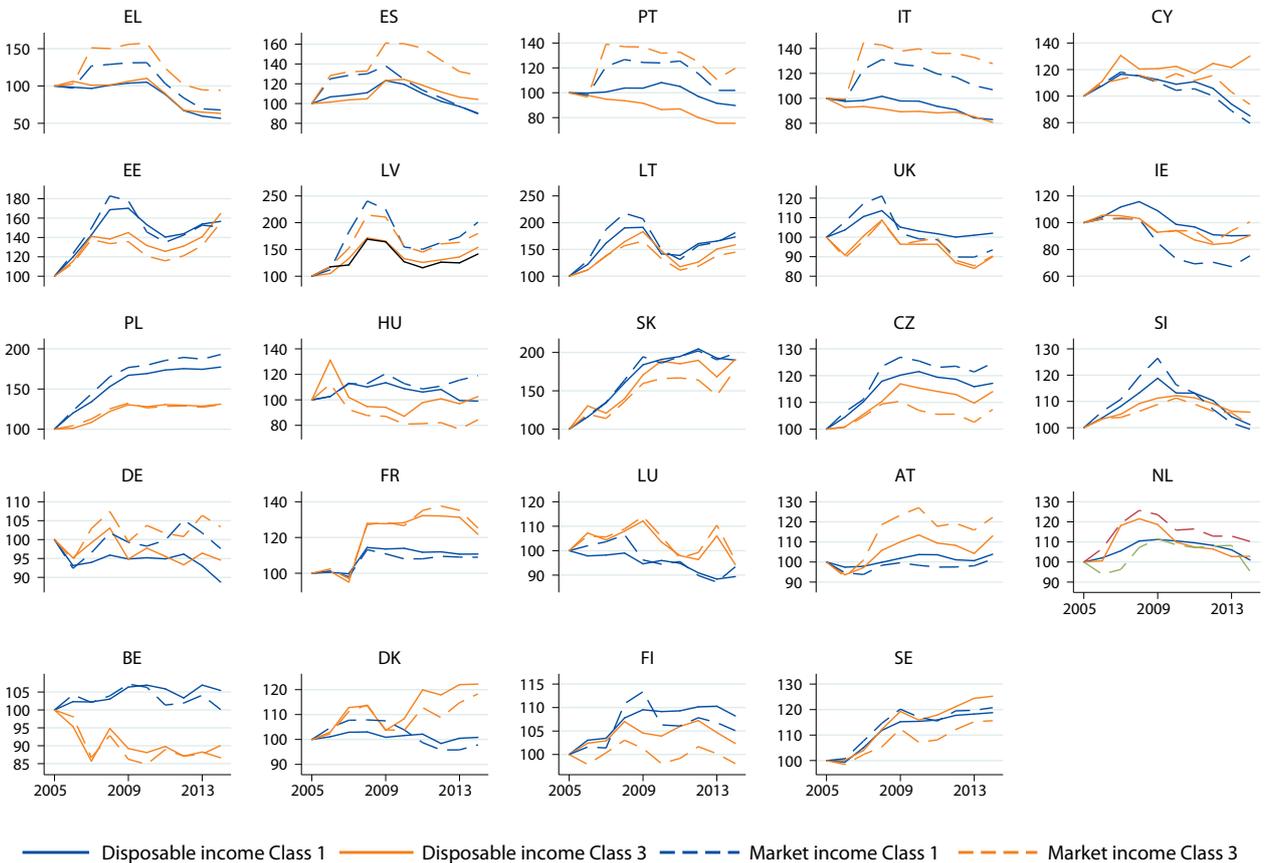
³⁴ The larger growth in real income levels in Spain is largely due to a considerable expansion in 2009, which in turn is largely due to a data revision in EU-SILC's income variables in the 2009 wave.

Figure 24: Real household disposable income levels across three income classes (indices)



Source: EU-SILC and LFS (unemployment rate).

Figure 25: Real household disposable and market income levels across two income classes (indices)



Source: EU-SILC.

Figure 23 shows that the crisis had a significant negative effect on real income levels across Member States, a finding that contrasts markedly with the relatively mild developments in inequality indices across many countries discussed in previous pages. The impact is generally stronger in the European periphery (in Mediterranean and CEE countries protractedly and in the Baltic states and Anglo-Saxon countries during the initial stage of the financial crisis) and typically stronger at the bottom of the distribution, which explains the hikes in income inequality across many of these countries from the onset of the crisis. The magnitude of the real income decline was generally more modest in Continental and Scandinavian countries, although in most cases it remained skewed towards the lower income deciles, thus contributing to growing inequalities.

A more synthetic picture of trends over the income distribution is provided by using the three income classes proposed by Piketty (2014), distinguishing between the 50% of the population with the lowest level of household disposable income, the next 40% and the top 10% of the population with the highest incomes (see Figure 24). The data broadly confirm the previous picture. Before the crisis, income levels expanded notably in eastern European countries across all income groups and typically more among the lowest income group. In the rest of Europe, income levels grew more moderately, with the following specificities: first, there was relatively more progress at the bottom half of the distribution in Anglo-Saxon countries (and in Spain and Finland to a lesser extent); and second, there was stagnation in real income levels in the rest of countries except for those at the very top, which progressed more in Continental countries (and Denmark) and were corrected downwards in Italy and Portugal or Belgium.

Again, the large negative impact of the crisis is clear, especially in the European periphery: a significant and protracted correction in real income levels occurs in most Mediterranean countries, but also to a lesser extent in Anglo-Saxon and some CEE countries (except Poland and Slovakia), while real income levels in Baltic countries were strongly affected initially but then bounced back. Nevertheless, while those at the top of the distribution tended to suffer larger corrections in Anglo-Saxon and eastern European countries, this was not generally the case in Mediterranean countries. The action of European welfare states considerably moderated the decline of real income levels resulting from the crisis, as reflected in Figure 25. A more intense correction took place in market income levels, as illustrated by countries more affected by the crisis, such as the Mediterranean countries.

Squeezing the European middle classes

An alternative way to assess the impact of the Great Recession on income levels in Europe is to define classes on the basis of common predefined income levels. By studying the changing share of the working age population that falls into each of those classes, the impact of the crisis on the social structure can be evaluated. This approach is particularly appealing because it allows us to assess the extent to which the crisis had a particularly strong impact on the middle class in Europe, a subject that has received considerable attention in the public debate. This section evaluates whether the Great Recession has shrunk the size of the European middle classes.

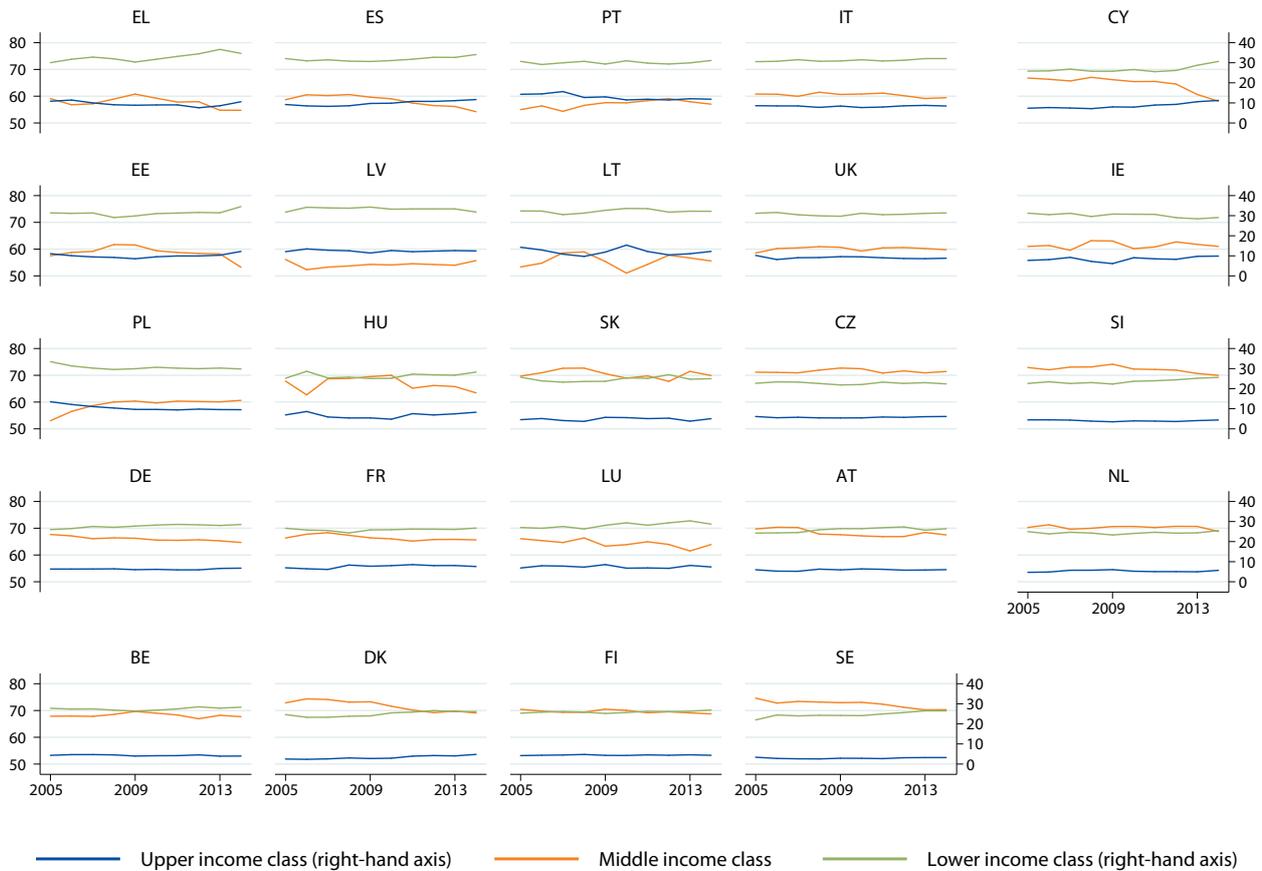
This study defines the middle class as people whose household disposable income is between 75% and 200% of the median disposable income in each country (respectively, three-quarters and twice the median disposable income). Those below 75% would belong to the lower income classes, while those above 200% of the national median income would be the upper income classes. Previous studies use similar but not always identical intervals. For instance, a recent study from the ILO defines the middle class using the range 60% to 200% of the median instead (Vaughan-Whitehead et al, 2016), but it was sought to avoid setting the lower bound of the middle class at the level of 60% (generally used as the poverty line), preferring to allow a 15% buffer between the poverty line and the lower endpoint of the middle class (Horrigan and Haugen, 1988; Ravallion, 2010; a similar approach is used, among others, by Atkinson and Brandolini, 2011).³⁵

Figure 26 presents data on the size of the three income classes over time. The size of the European middle classes ranges from around 70% to above 50% of the population across countries in 2014. It is larger in Scandinavian countries, some CEE countries (the Czech Republic, Slovenia and Slovakia) and to a lesser extent in Continental countries, while it is smaller in Mediterranean and Baltic countries.

The gaps between countries in the size of the middle class translate into significant cross-country differences as well as in the relative sizes of the lower income class and especially the upper income class. The lower income class represents around 30% of the population or more in Mediterranean, Baltic and Anglo-Saxon countries, while it represents around 25% or less in the Scandinavian countries, some CEE countries (the Czech Republic, Slovakia and Slovenia) and some Continental countries (the Netherlands and Austria). Relative cross-

35 Nevertheless, using different intervals (for instance, setting the lower bound of the middle class to 60% rather than 75% or the upper bound to 150%) does not have significant implications for the presented results in terms of trends and general interpretation.

Figure 26: Evolution in the proportion of population belonging to different income classes (%)



Source: EU-SILC.

country differences are larger in the case of the upper income class: the size of this class is only 5% or less in the Scandinavian countries, Belgium, Slovenia and Slovakia; it is between 5% and 10% in the rest of the Continental and CEE countries and in the Anglo-Saxon countries; and it reaches levels above 10% in the Mediterranean countries (apart from Italy) and the Baltic states.

But the main interest lies in the evolution of the share of population that falls into this income-based definition of the middle class. Prior to the crisis (between 2005 and 2009, income referring to 2004–2008), the middle class was expanding in around two-thirds of Member States (especially in the countries on the European periphery) and declining in some Continental and Scandinavian countries (in Germany and Sweden, linked to a significant expansion of the lower income class).

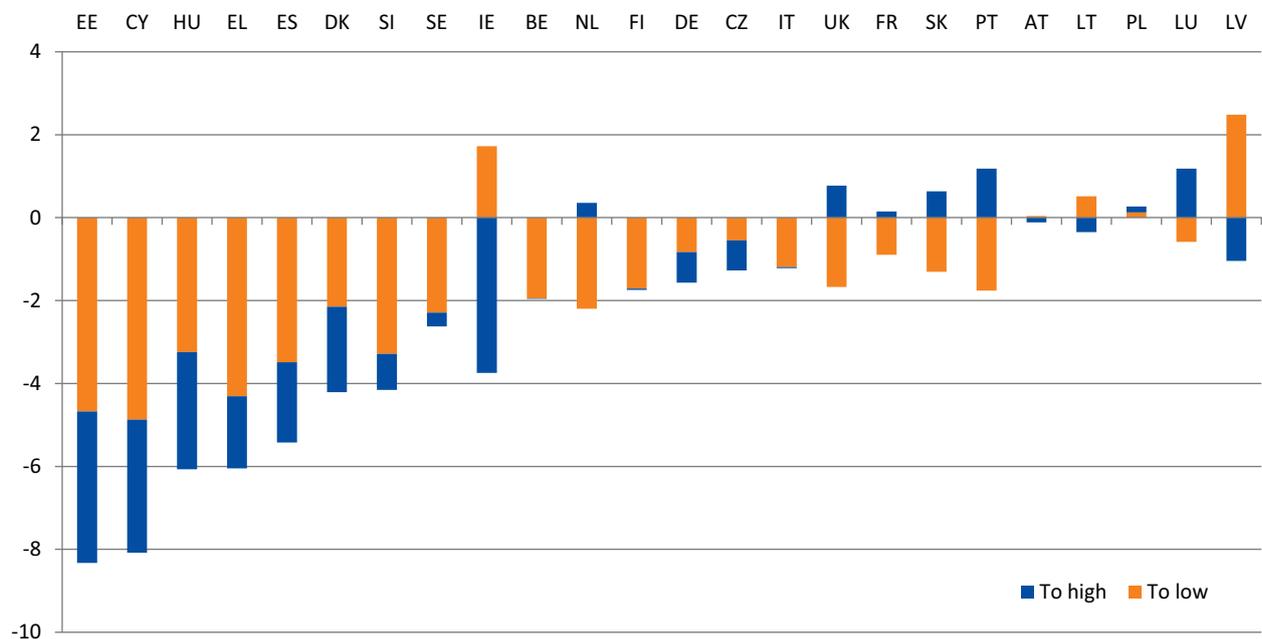
But this development was clearly reversed in the crisis. The Great Recession has resulted in the reduction in the size of the middle class between 2009 and 2014 (income referring to 2008–2013) in all Member States apart from Latvia, Luxembourg, Poland and Lithuania. This has been especially relevant in some of the peripheral Member States hardest hit by the crisis – several

Mediterranean countries (Cyprus, Greece and Spain especially) and some countries in the eastern part of the EU (Estonia, Hungary and Slovenia). Nevertheless, significant reductions in the middle class have also been registered in some countries where its size was relatively large initially, such as the Scandinavian countries.

In contrast, the reduction in the size of the middle class has typically been more modest in Anglo-Saxon and Continental countries, which have been more protected from the effects of the crisis. Nevertheless, it is relevant to note that middle classes shrank both before the crisis (in 2005–2009) and after (2009–2014) in some of the Continental countries (Austria and Germany) as well as in Sweden.

A more nuanced picture of this squeezing of the middle class is provided by looking at the trends affecting the lower and the upper income classes as well. As shown in Figure 27, the reduction in the size of the middle classes has resulted mainly in a larger expansion of the lower income class than that of the upper income class, even though the latter has increased significantly as well in some countries (and more than the lower income class in Ireland and Czech Republic).

Figure 27: Change in size of middle-income class, 2008–2014, and decomposition of change by income class of destination (percentage points)



Note: Countries are ranked by the absolute magnitude (in percentage points) of the decline of the middle class from 2009 to 2014 (income referring to 2008–2013).

Source: EU-SILC.

Summary

This chapter has discussed the strong negative impact of the crisis on income levels across all countries, which is much more substantial than the moderate trends in income inequality discussed in previous sections. Income progressed relatively more in eastern European countries before the crisis and especially at the bottom of the distribution, while real income levels remained much more stable in most Mediterranean, Continental and Scandinavian countries (and typically with income levels at the bottom of the distribution doing worse in most Continental and Scandinavian countries). The crisis had a negative impact on real income levels everywhere (either pushing them downwards or reducing their growth rate) – most notably in the European periphery (in the Mediterranean countries and some CEE countries in a protracted way, and in

Baltic and Anglo-Saxon countries during the initial stage of the financial crisis) and especially at the bottom of the distribution, while the income correction was generally modest among Continental and Scandinavian countries.

The Great Recession squeezed European middle classes. In the final years of the previous economic expansion, this analysis suggests that the middle income class was in fact expanding in around two-thirds of the countries. But this process was completely reversed from 2009 (income referring to 2008), with significant declines in the size of the middle class in some countries in the European periphery and in the Scandinavian countries. Middle classes declined throughout the whole period from 2005 to 2014 in some core Member States (Austria, Germany and Sweden).

7 | Conclusions

This report addresses growing concerns regarding income inequality, in academic and policy debates, by providing a detailed account of developments in Europe over the period 2005–2014 (income referring to 2004–2013), with two main aims: to provide an EU perspective and to update the picture provided by previous similar international comparisons covering the effects of the Great Recession.

An EU-wide perspective on the analysis of income inequalities seems particularly important in the context of the period after the crisis. Before 2008, the EU made some big leaps forward in terms of economic integration (in particular, the adoption of the euro and the enlargement to the east) that seemed to produce good economic outcomes, with fast economic growth and catch-up in many countries on the periphery. But the financial crisis that emerged at the end of 2008 disrupted that process due to a much stronger impact on the European periphery, which calls into question the benefits of the process, and which risks undermining the legitimacy of the process of European integration itself. The analysis in the previous chapters shows that these dynamics are clearly reflected in income inequality trends. Before the crisis, a process was visible of income convergence between countries, one that pushed overall EU inequalities significantly down between 2005 and 2009 (income referring to 2004–2008). After the crisis, real income convergence between countries has essentially stalled due to the larger impact of the crisis on the European periphery (very protracted in the Mediterranean countries). Thus, overall EU income inequality interrupted its notable reduction prior to the crisis and has grown modestly between 2009 and 2014 (income referring to 2008–2013) as a result of the expansion of inequality within most countries and the disappearance of the process of economic convergence identified in the previous period.

The process of income convergence before the crisis was mainly driven by a catch-up process in eastern European countries and the stagnation of several Continental countries and the UK. The end of convergence after the emergence of the crisis is associated with a significant decline in relative income levels in the European periphery in the initial years (in several eastern European and Mediterranean Member States), while core Member States were generally more resilient. Most recently, paths begin to diverge even within the group at the periphery, with some eastern European countries and Ireland recovering very quickly, whereas Mediterranean Member States continued to suffer painful corrections in their relative income levels.

This report has also offered an updated picture of income inequality trends within Member States in the aftermath of the recession. Inequalities in household disposable income grew in two-thirds of Member States between 2005 and 2014 (income referring to 2004–2013), which can be understood as a continuation of previous trends as identified by different international studies (OECD, 2008; 2011). However, the findings of this report substantially complement those from these previous studies; they identify unemployment and its effect on declining labour income as the main factor behind growing inequalities in household disposable income in the short time span from the onset of the crisis, rather than widening wage differentials (which seem to have been the driving force over the longer time span of several decades covered in those previous studies). Whether these developments will be reversed when the recession is finally over is an empirical question that should be addressed when this analysis is updated in the future.

The importance of employment turbulence explains why inequalities in household disposable income behave counter-cyclically. There are many cases of reductions in inequality before the crisis, mainly in the European periphery (eastern European and Mediterranean countries), while inequalities grew across two-thirds of Member States from the onset of the crisis, especially in the hardest hit peripheral countries but also in some core European and traditionally egalitarian countries, such as Denmark and Sweden.

If unemployment emerges as the main channel by which the Great Recession has pushed income inequalities upwards, there are two non-market mechanisms that have also played an important role. First, the impact of the family pooling of income in reducing inequalities has been weakened during the period across most countries, probably due to an increase in the number of households with no labour income in many countries as the crisis went on and to a lesser extent because of a reduction in the size of the average household across most Member States. Second, European welfare states have prevented a greater increase in inequalities by cushioning growing market income inequalities, especially in some of the countries that were hardest hit by the crisis in the European periphery (the Mediterranean and Anglo-Saxon countries and the Baltics to a lower extent). The strong pressures and growing strain on public finances as the crisis continued (especially after 2011, and especially in the periphery) further underline the significance of European welfare states in cushioning the effect of economic turbulence on the distribution of income and the life chances of Europeans.

The Great Recession had a negative impact on real income levels across Europe, either pushing them downwards or reducing their pre-crisis growth rates. This negative impact was notable in the European periphery (in the Mediterranean and CEE countries in a protracted way and in Baltic and Anglo-Saxon countries during the initial stage of the financial crisis) and especially at the bottom of the income distributions. But, even if more moderately, income levels were also affected in Continental and Scandinavian countries, a fact that is not always reflected in relative indices on income inequalities or by other indicators. The analysis of this report suggests that the full magnitude of the fall in living standards associated with the Great Recession

is not captured by data on GDP per capita, not only in some of those countries most affected by the crisis, but also in some core Member States, such as Germany, which points to the importance of using a wider set of indicators to assess well-being and economic prosperity in European societies.

The size of the middle income classes has been squeezed from the onset of the crisis across most countries – most significantly in some peripheral countries (Mediterranean and eastern European countries) but also in the core of Europe, where the middle classes were contracting even before the crisis in Austria, Germany and Sweden.

Bibliography

All Eurofound publications are available at www.eurofound.europa.eu

- Abraham, K. and Haltiwanger, J. (1995), 'Real wages and the business cycle', *Journal of Economic Literature*, Vol. 33, pp. 1, 215–1,264.
- Atkinson, A. B. (1995), 'Poverty, statistics and progress in Europe', in Atkinson, A. B. (ed.), *Income and the welfare state – essays on Britain and Europe*, Cambridge University Press, Cambridge, pp. 64–77.
- Atkinson, A. B. (1996), 'Income distribution in Europe and the United States', *Oxford Review of Economic Policy*, Vol. 12, No. 1, pp. 15–28.
- Atkinson, A. B. and Brandolini, A. (2011), *On the identification of the 'middle class'*, ECINEQ Working Paper 2011-217, Society for the Study of Economic Inequality, Verona.
- Atkinson, A. B., Piketty, T. and Saez, E. (2011), 'Top incomes in the long run of history', *Journal of Economic Literature*, Vol. 49, No. 1, pp. 3–71.
- Ballarino, G., Bogliacino, F., Braga, M., Bratti, M., Checchi, D., Filippin, A. et al (2012), *Drivers of growing inequalities*, Gini Intermediate work package 3 report, AIAS, Amsterdam.
- Beblo, M. and Knaus, T. (2000), *Measuring income inequality in Euroland*, Luxembourg Income Study Working Paper No. 232, Luxembourg.
- Bils, M. (1985), 'Real wages over the business cycle: Evidence from panel data', *Journal of Political Economy*, Vol. 93, pp. 666–689.
- Blau, F. D. and Kahn, L. M. (2009), 'Inequality and earnings distribution', in Salverda, W., Nolan, B. and Smeeding, T. M. (eds.), *The Oxford handbook of economic inequality*, Oxford University Press, Oxford.
- Boix, C. (2004), 'The institutional accommodation of an enlarged Europe', Friedrich-Ebert-Stiftung, *Europäische Politik*, Vol. 6, pp. 1–9.
- Bonesmo Fredriksen, K. (2012), *Income inequality in the European Union*, OECD Economics Department Working Paper No. 952, OECD Publishing, Paris.
- Bonhomme, S. and Hospido, L. (2012), *The cycle of earnings inequality: Evidence from Spanish social security data*, Banco de España Working Paper No. 1225, Banco de España, Madrid.
- Brandolini, A. (2007), 'Measurement of income distribution in supranational entities: The case of the European Union', in Jenkins, S. P. and Micklewright, J. (eds.), *Inequality and poverty re-examined*, Oxford University Press, Oxford, pp. 62–83.
- Brandolini, A. and Rosolia, A. (2015), *The euro area wage distribution over the crisis*, Bank of Italy, DG Economics, Statistics and Research, August 2015.
- Brandolini, A., Rosolia, A. and Torrini, R. (2010), 'The distribution of employees' labour earnings in the European Union: Data, concepts and first results', in Atkinson, A. B. and Marlier, E. (eds.), *Income and living conditions in Europe*, Eurostat Statistical Books, Publications Office of the European Union, Luxembourg.
- Burniaux, J. M. (1997), 'Inégalités et emplois: Effet de redistribution lié à la structure familiale', *Economie Internationale*, Vol. 71, No. 3.
- Chiappori, P. A. and Meghir, C. (2014), *Intrahousehold inequality*, National Bureau of Economic Research, NBER Working Paper Series, June 2014.
- Darvas, Z. (2016), *Some are more equal than others: New estimates of global and regional inequality*, Bruegel Working Paper 8, Brussels.
- Dauderstädt, M. and Kelttek, C. (2011), 'Immeasurable inequality in the European Union', *Intereconomics*, Vol. 47, No. 1.
- Dauderstädt, M. and Kelttek, C. (2014), *Crisis, austerity and cohesion: Europe's stagnating inequality*, Friedrich-Ebert-Stiftung, Bonn.
- Eurofound (2015), *Recent developments in the distribution of wages in Europe*, Publications Office of the European Union, Luxembourg.
- European Central Bank (2014), 'The impact of the economic crisis on euro area labour markets', *ECB Monthly Bulletin*, October, pp. 49–68.
- European Central Bank (2015), *Comparisons and contrasts of the impact of the crisis on euro area labour markets*, Occasional Paper Series No. 159, February 2015.
- European Commission (2011), *Employment and social developments in Europe 2011*, Publications Office of the European Union, Luxembourg.
- European Commission (2013), *Employment and social developments in Europe 2013*, Publications Office of the European Union, Luxembourg.
- European Parliament (2014), *Income inequality: Wage dispersion in the European Union*, Directorate General for Internal Policies, Policy Department A: Economic and Scientific Policy.

- European Parliament (2015), *Wage and income inequality in the European Union*, Directorate General for Internal Policies, Policy Department A: Economic and Scientific Policy, IP/A/EMPL/2013-05, January 2015.
- Farber, H. (1999), 'Mobility and stability', in Ashenfelter, O. and Card, D. (eds.), *Handbook of labor economics*, Volume 3B, North-Holland, New York, pp. 2,441–2,483.
- Foster-McGregor, N., Leitner, S., Leitner, S. Poschl, J. and Stehrer, R. (2014), *Study on various aspects of earnings distribution using micro-data from the European Union Structure of Earnings Survey*, Vienna Institute for International Economic Studies.
- Horrigan, M. W. and Haugen, S. E. (1988), 'The declining middle-class thesis: A sensitivity analysis', *Monthly Labor Review*, Vol. 111, No. 5, pp. 3–13.
- Jenkins, S. P. and Micklewright, J. (2007), *New directions in the analysis of inequality and poverty*, IZA Discussion Papers No. 2814, Institute for the Study of Labor (IZA), Bonn.
- Jenkins, S. P., Burkhauser, R. V., Feng, S. and Larrimore, J. (2011), 'Measuring inequality using censored data: A multiple imputation approach', *Journal of the Royal Statistical Society*, Vol. 174, No. 1, pp. 63–81.
- Jovanovic, B. (1979), 'Job matching and the theory of turnover', *Journal of Political Economy*, Vol. 87, No. 5, Part 1 (October 1979), pp. 972–990.
- Maestri, V. and Roventini, A. (2012), *Stylised facts on business cycles and inequality*, GINI Discussion Paper 30, Amsterdam Institute for Advanced Labour Studies, Amsterdam.
- Milanovic, B. (2005), *Worlds apart: Measuring international and global inequality*, Princeton University Press, Princeton, NJ.
- Nolan, B., Roser, M. and Thewissen, S. (2016), *GDP per capita versus median household income: What gives rise to divergence over time?*, Oxford INET Working Paper Series, No. 2016-03.
- Nolan, B., Salverda, W., Checchi, D., Marx, I., McKnight, A., Tóth, I. G. et al (eds.) (2014), *Changing inequalities and societal impacts in rich countries: Thirty countries' experiences*, Oxford University Press, Oxford.
- OECD (2008), *Growing unequal? Income distribution and poverty in OECD countries*, OECD Publishing, Paris.
- OECD (2011), *Divided we stand: Why inequality keeps rising*, OECD Publishing, Paris.
- OECD (2013), *Crisis squeezes income and puts pressure on inequality and income: New results from the OECD Income Distribution Database*, OECD Publishing, Paris.
- Papatheodorou, C. and Pavlopoulos, D. (2003), *Accounting for inequality in the EU: Income disparities between and within Member States and overall income inequality*, CHER Working Paper 9, CEPS/INSTEAD, Differdange, Luxembourg.
- Piketty, T. (2014), *Capital in the twenty-first century*, Belknap Press, Portland, OR.
- Ravallion, M. (2010), 'The developing world's bulging (but vulnerable) middle class', *World Development*, Vol. 38, No. 4, pp. 445–454.
- Rosnick, D. and Baker, S. (2012), *Missing the story: The OECD's analysis of inequality*, Center for Economic and Policy Research, Washington, DC.
- Sachs, J. and Warner, A. M. (1996), *Economic convergence and economic policies*, NBER Working Paper No. 5039.
- Solon, G., Barsky, R. and Parker, J. (1994), 'Measuring the cyclical nature of real wages: How important is composition bias?', *Quarterly Journal of Economics*, Vol. 109, pp. 1–25.
- Stiglitz, J., Sen, A. and Fitoussi, J. P. (2009), *Report of the Commission on the Measurement of Economic Performance and Social Progress*, Technical Report, CMEPSP.
- Stolper, W. and Samuelson, P. A. (1941), 'Protection and real wages', *Review of Economic Studies*, Vol. 9, pp. 58–73.
- Storesletten, K., Telmer, C. I. and Yaron, A. (2004), 'Cyclical dynamics in idiosyncratic labor market risk', *Journal of Political Economy*, Vol. 112, No. 3, pp. 695–717.
- Vaughan-Whitehead, D., Vazquez-Alvarez, R. and Maitre, N. (2016), 'Is the world of work behind middle class reshuffling?', ILO conference, *Trends in the World of Work: What Effects on Inequalities and Middle-Income Groups*, 29 February–1 March, Brussels.
- Violante, G. L. (2008), 'Skill-biased technical change', in Blume, L. and Durlauf, S. (eds.), *The new Palgrave dictionary of economics*, Palgrave Macmillan.
- Visser, J. and Checchi, D. (2009), 'Inequality and the labor market: Unions', in Salverda, W., Nolan, B. and Smeeding, T. M. (eds.), *The Oxford handbook of economic inequality*, Oxford University Press, Oxford, pp. 230–256.

Annex

Additional data on income inequalities

Table A1: Household disposable income inequality: A comparison when treating negative values (Gini indices)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Negative values included in the analysis										
EU	0.356	0.346	0.345	0.339	0.331	0.335	0.336	0.334	0.335	0.338
AT	0.260	0.253	0.258	0.274	0.276	0.280	0.274	0.278	0.271	0.277
BE	0.286	0.278	0.258	0.274	0.262	0.255	0.260	0.261	0.257	0.259
CY	0.281	0.283	0.296	0.285	0.289	0.300	0.291	0.311	0.329	0.360
CZ	0.262	0.254	0.253	0.248	0.253	0.251	0.254	0.253	0.251	0.255
DE	0.277	0.289	0.297	0.295	0.281	0.287	0.286	0.276	0.288	0.304
DK	0.238	0.239	0.255	0.251	0.269	0.263	0.280	0.283	0.273	0.275
EE	0.342	0.330	0.334	0.301	0.307	0.311	0.321	0.325	0.325	0.355
EL	0.332	0.348	0.341	0.337	0.338	0.338	0.338	0.347	0.356	0.358
ES	0.320	0.310	0.310	0.314	0.322	0.331	0.340	0.344	0.344	0.355
FI	0.259	0.258	0.261	0.261	0.254	0.253	0.258	0.258	0.254	0.255
FR	0.274	0.274	0.266	0.293	0.294	0.296	0.304	0.303	0.304	0.289
HU	0.286	0.338	0.267	0.259	0.251	0.246	0.275	0.275	0.286	0.298
IE	0.318	0.319	0.308	0.296	0.287	0.311	0.303	0.305	0.307	0.318
IT	0.327	0.321	0.321	0.309	0.312	0.315	0.322	0.328	0.335	0.328
LT	0.371	0.353	0.336	0.339	0.359	0.383	0.343	0.325	0.349	0.350
LU	0.266	0.285	0.277	0.280	0.297	0.282	0.276	0.281	0.304	0.284
LV	0.369	0.390	0.352	0.364	0.368	0.364	0.355	0.362	0.354	0.353
NL	0.264	0.256	0.276	0.274	0.269	0.256	0.259	0.254	0.252	0.263
PL	0.382	0.341	0.331	0.327	0.322	0.318	0.316	0.314	0.313	0.314
PT	0.376	0.372	0.366	0.357	0.353	0.333	0.339	0.341	0.344	0.348
SE	0.234	0.239	0.233	0.236	0.245	0.239	0.242	0.246	0.249	0.253
SI	0.236	0.235	0.231	0.230	0.222	0.236	0.235	0.237	0.243	0.249
SK	0.266	0.279	0.240	0.236	0.249	0.263	0.258	0.254	0.243	0.267
UK	0.341	0.318	0.321	0.331	0.322	0.327	0.330	0.317	0.306	0.320
Negative values converted to zero										
EU	0.355	0.344	0.343	0.337	0.330	0.333	0.333	0.333	0.334	0.336
AT	0.259	0.253	0.258	0.274	0.276	0.280	0.274	0.278	0.270	0.277
BE	0.285	0.275	0.257	0.272	0.257	0.255	0.259	0.259	0.256	0.258
CY	0.281	0.283	0.296	0.285	0.289	0.300	0.290	0.311	0.329	0.360
CZ	0.262	0.254	0.253	0.248	0.253	0.251	0.254	0.253	0.251	0.255
DE	0.277	0.284	0.291	0.293	0.281	0.284	0.283	0.276	0.287	0.297
DK	0.232	0.235	0.246	0.249	0.242	0.250	0.267	0.271	0.270	0.272
EE	0.339	0.329	0.334	0.301	0.307	0.311	0.321	0.325	0.324	0.353
EL	0.330	0.346	0.340	0.332	0.334	0.337	0.335	0.340	0.353	0.357
ES	0.320	0.309	0.310	0.310	0.319	0.329	0.335	0.342	0.341	0.353
FI	0.259	0.258	0.261	0.261	0.254	0.253	0.258	0.258	0.254	0.254

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Negative values converted to zero										
FR	0.273	0.274	0.265	0.291	0.294	0.295	0.304	0.303	0.304	0.289
HU	0.286	0.336	0.267	0.258	0.251	0.246	0.275	0.275	0.286	0.298
IE	0.317	0.318	0.308	0.295	0.287	0.311	0.303	0.305	0.307	0.318
IT	0.326	0.320	0.320	0.308	0.311	0.314	0.321	0.326	0.334	0.328
LT	0.371	0.353	0.336	0.339	0.359	0.383	0.342	0.325	0.349	0.350
LU	0.365	0.282	0.277	0.280	0.297	0.281	0.274	0.279	0.303	0.281
LV	0.367	0.388	0.352	0.364	0.368	0.363	0.355	0.362	0.354	0.353
NL	0.257	0.252	0.272	0.270	0.265	0.254	0.252	0.252	0.250	0.261
PL	0.379	0.340	0.330	0.326	0.322	0.318	0.316	0.314	0.313	0.314
PT	0.376	0.372	0.366	0.356	0.352	0.333	0.339	0.340	0.344	0.348
SE	0.231	0.238	0.232	0.235	0.242	0.238	0.240	0.244	0.249	0.252
SI	0.235	0.234	0.230	0.229	0.222	0.235	0.234	0.237	0.243	0.249
SK	0.264	0.279	0.240	0.235	0.248	0.263	0.258	0.254	0.243	0.267
UK	0.341	0.317	0.321	0.331	0.322	0.326	0.328	0.315	0.306	0.316
Negative values dropped from the analysis										
EU	0.353	0.343	0.341	0.335	0.328	0.331	0.331	0.331	0.332	0.333
AT	0.259	0.252	0.258	0.274	0.275	0.280	0.274	0.278	0.270	0.277
BE	0.285	0.274	0.256	0.271	0.254	0.254	0.258	0.257	0.256	0.258
CY	0.281	0.283	0.296	0.285	0.289	0.300	0.290	0.311	0.329	0.360
CZ	0.262	0.254	0.253	0.248	0.253	0.251	0.254	0.253	0.251	0.255
DE	0.275	0.281	0.286	0.289	0.279	0.283	0.281	0.274	0.284	0.289
DK	0.229	0.231	0.241	0.243	0.230	0.243	0.260	0.260	0.266	0.267
EE		0.328	0.333	0.300	0.306	0.309	0.319	0.323	0.322	0.351
EL	0.328	0.343	0.338	0.327	0.330	0.334	0.331	0.332	0.347	0.356
ES	0.319	0.309	0.308	0.306	0.315	0.325	0.332	0.337	0.338	0.349
FI	0.259	0.258	0.260	0.260	0.253	0.253	0.257	0.257	0.253	0.254
FR	0.273	0.273	0.264	0.291	0.293	0.294	0.303	0.302	0.303	0.289
HU	0.285	0.333	0.267	0.258	0.251	0.246	0.275	0.275	0.286	0.298
IE	0.316	0.318	0.308	0.295	0.287	0.308	0.302	0.305	0.306	0.317
IT	0.324	0.318	0.317	0.306	0.309	0.311	0.319	0.326	0.331	0.326
LT	0.371	0.353	0.336	0.339	0.359	0.381	0.340	0.323	0.349	0.350
LU	0.264	0.280	0.277	0.279	0.297	0.280	0.272	0.277	0.300	0.278
LV	0.364	0.386	0.350	0.363	0.366	0.361	0.352	0.358	0.351	0.350
NL	0.252	0.248	0.267	0.266	0.262	0.250	0.248	0.249	0.247	0.258
PL	0.373	0.340	0.330	0.325	0.322	0.318	0.316	0.313	0.312	0.314
PT	0.376	0.372	0.365	0.256	0.352	0.333	0.338	0.340	0.344	0.348
SE	0.230	0.235	0.231	0.234	0.240	0.235	0.238	0.242	0.247	0.250
SI	0.235	0.234	0.230	0.229	0.222	0.235	0.234	0.237	0.242	0.249
SK	0.263	0.278	0.239	0.235	0.248	0.263	0.258	0.253	0.243	0.265
UK	0.337	0.314	0.318	0.328	0.319	0.321	0.322	0.310	0.303	0.313

Table A2: Inequality levels in different sources of income in 2014 (Gini indices)

	Monthly wages, FTE (employees)	Monthly labour income, FTE (workers)	Monthly labour income (workers)	Annual labour income (active)	Annual labour income (all)	Family-pooled annual labour income	Household market income	Household disposable income
EU	0.34	0.38	0.39	0.48	0.61	0.48	0.47	0.34
AT	0.33	0.37	0.39	0.45	0.57	0.43	0.43	0.28
BE	0.24	0.26	0.28	0.38	0.56	0.43	0.43	0.26
CY	0.34	0.36	0.38	0.49	0.62	0.43	0.41	0.36
CZ	0.28	0.31	0.31	0.40	0.55	0.40	0.39	0.26
DE	0.32	0.36	0.39	0.46	0.58	0.44	0.43	0.30
DK	0.25	0.27	0.29	0.36	0.51	0.42	0.43	0.27
EE	0.38	0.39	0.40	0.48	0.59	0.45	0.45	0.35
EL	0.27	0.37	0.39	0.56	0.70	0.54	0.52	0.36
ES	0.33	0.36	0.39	0.55	0.64	0.50	0.49	0.35
FI	0.25	0.30	0.31	0.43	0.52	0.42	0.42	0.25
FR	0.28	0.33	0.34	0.41	0.55	0.43	0.43	0.29
HU	0.30	0.32	0.32	0.43	0.60	0.47	0.46	0.30
IE	0.35	0.38	0.42	0.52	0.67	0.54	0.54	0.32
IT	0.26	0.33	0.35	0.45	0.61	0.45	0.45	0.33
LT	0.34	0.38	0.38	0.47	0.58	0.45	0.45	0.35
LU	0.32	0.35	0.35	0.42	0.58	0.44	0.43	0.28
LV	0.35	0.37	0.38	0.46	0.58	0.45	0.45	0.35
NL	0.30	0.34	0.37	0.45	0.56	0.42	0.41	0.26
PL	0.31	0.34	0.35	0.46	0.61	0.44	0.44	0.31
PT	0.36	0.38	0.39	0.55	0.65	0.52	0.51	0.35
SE	0.27	0.32	0.33	0.40	0.46	0.37	0.37	0.25
SI	0.28	0.33	0.33	0.44	0.58	0.43	0.42	0.25
SK	0.26	0.28	0.28	0.40	0.54	0.38	0.38	0.27
UK	0.36	0.39	0.42	0.47	0.59	0.48	0.47	0.32

Note: FTE = full-time equivalent

Source: EU-SILC.

This report addresses growing concerns about income inequalities in academic and policy debates by offering a comprehensive study of income inequalities during the years of the Great Recession starting in 2008–2009 (income data relating to 2004–2013). It has the twofold objective of adopting an EU-wide perspective and providing an updated picture of inequalities across different sources of income and in most Member States. The results show that EU-wide income inequality declined notably prior to 2008, driven by a strong process of income convergence between European countries – but the Great Recession broke this trend and pushed inequalities upwards both for the EU as a whole and across most countries. While previous studies have pointed to widening wage differentials as the main driver behind the long-term trend towards growing household disposable income inequalities across many European countries, this report identifies unemployment and its associated decline in labour income as the main reason behind the inequality surges occurring in recent years. Real income levels have declined and the middle classes have been squeezed from the onset of the crisis across most European countries. The role played by the family pooling of income in reducing inequalities and the impact of European welfare policies in cushioning the effect of economic turbulences on the distribution of income are also explored.

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency, whose role is to provide knowledge in the area of social, employment and work-related policies. Eurofound was established in 1975 by Council Regulation (EEC) No. 1365/75, to contribute to the planning and design of better living and working conditions in Europe.

