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Income Inequality in the Great Recession from an EU-wide Perspective[1]

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INTRODUCTION

Inequality features as a highly discussed topic in recent years in academic and policy debates in European and developed countries. Already during the 1990s and early 2000s, even though most European countries benefitted from economic growth and employment expansion, concerns emerged about existing income disparities between European countries, especially against the background of the European Union (EU) enlargement towards the East, while empirical studies unveiled trends towards growing income inequalities among many advanced economies over the past three decades (OECD 2008).

The concerns over inequality levels were exacerbated by the Great Recession. The financial crisis emerging by the end of 2008 and the debt crisis that ensued affected European economies and labour markets negatively. The impact of the crisis was uneven across countries, economic activities and demographic groups and had the potential to cause larger income disparities, both between European countries and within European societies, which are perhaps not being corrected by a recovery that is sluggish across many European countries. Growing inequalities have been pointed as well as a potential factor in causing the crisis and at the same time delaying the recovery from it.

While trends in inequalities at the country level have been commonly covered by empirical research, very few studies have mapped income inequalities adopting a truly EU-wide perspective which takes into account not only income disparities within European countries but as well as between them. This is surprising given the process of economic integration taking place between European countries for decades and the implicit assumption found in many EU policy documents that it should result in some degree of convergence between member states. Recent developments affecting the EU make such EU-wide analysis particularly relevant: the European project, which deepened its economic integration with the adoption of the euro and underwent an enlargement towards the East, has recently been put to test by the Great Recession, whose impact was much stronger in the European periphery (European Central Bank 2014).

Against this background, this paper has two main objectives. On the one hand, to map trends in income inequality from an EU-wide perspective, looking at the evolution of income disparities both within and between European countries, identifying the existence of income convergence and divergence trends between countries. On the other hand, to provide an updated picture on the evolution of income inequalities across European countries that incorporates the effects of the Great Recession and the main forces behind such trends. Most of our analysis focuses on household disposable income data from the European Union Statistics on Income and Living Conditions (EU-SILC) for the period 2005–2016, with income data referring to the period 2004–2015.

The paper is divided into four sections. The first section will introduce the relevant literature on the evolution of EU-wide income inequality and the role played by income convergence between European countries. Section 2 presents trends in income inequalities from an EU-wide perspective over the past decade and how they were shaped by developments in income disparities between and within European countries. The third section provides a more detailed picture of changes in income differentials between countries, followed by the fourth section which looks at the evolution of income inequalities within countries and the main underlying forces. The final section concludes with a summary of the findings and a discussion of some policy implications.

THE EVOLUTION OF INCOME INEQUALITY FROM AN EU-LEVEL PERSPECTIVE: A LITERATURE REVIEW

Some authors have developed an empirical strand of the literature mapping income inequalities from a global perspective (Milanovic 2005), but similar studies aimed at comprehensively studying inequalities in the EU from a supranational perspective are scarce, despite early calls pointing to the need for such studies.[2] Adopting a truly European approach to cover income inequalities requires taking into account the evolution of income disparities both between and within European countries, which means the expected evolution of EU-wide income inequalities over the period covered in this paper will depend on the evolution of its two referred components.

On the one hand, EU-wide income inequality is affected by the evolution of inequalities across European countries. The expected evolution of

[1] The European Foundation for the Improvement of Living and Working Conditions (Eurofound), a research agency of the EU, funded the research project on which the contribution is based.

[2] More than two decades ago, Tony Atkinson (Atkinson 1995; cited in Brandolini 2007) stated: "if the Community continues to assess poverty purely in national terms, taking 50 percent 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".

income inequality over the business cycle is especially relevant given the importance of the recession that emerged during the period covered in this paper. Income inequalities are theoretically counter-cyclical, increasing during downturns (Storesletten *et al.* 2004; Bonhomme and Hospido 2012). Although results are country-specific and heavily dependent on institutional factors, empirical studies tend to confirm this counter-cyclicality 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 means income inequalities across European countries (and likely for the EU-aggregate as a result) should have generally declined prior to the crisis against a background of economic expansion and employment creation, and should have experienced an upwards trend from the onset of the Great Recession when the general economic and employment outlook turned bleak. The expected evolution of income inequalities as a result of the crisis would add to the trend towards widening income differentials within many European societies from the 1970s identified in recent major empirical studies (OECD 2011). These studies carried out before the outbreak of the crisis identified widening wage inequalities as the main driver behind such trends: "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).

On the other hand, EU-wide income inequality is also affected by the evolution of income differentials between European countries. Over the medium and long-run, mainstream theories of economic growth would predict a process of income convergence between European countries over the medium and long-term, due to catch-up growth in lower-income countries, where capital is scarcer and higher investments would take place as a result of the higher expected returns to capital investment. Nevertheless, the Great Recession emerged as a force that could have negatively affected this process of income convergence over the short-run due to its generally stronger impact among peripheral economies than among core European countries (ECB 2014).

This means EU-wide income inequalities should have been impacted downwards as a result of a process of income convergence between European countries, although this trend could have been affected by the Great Recession. The very limited number of available empirical studies tend to confirm this picture of declining EU-wide income inequality levels due to narrowing income disparities between European countries prior to the crisis, after which EU-wide income inequality remained rather stable (Darvas 2016) or increased (Dauderstädt and Keltek 2014).

This paper maps the evolution of inequalities in household disposable income from an EU-wide perspective over the past decade and, in doing so, it looks at its business-cycle evolution and how it has been impacted by the Great Recession, it identifies the role played by income convergence between European countries, and it provides an updated picture of the evolution of income inequalities across European countries and the main underlying forces.

MAPPING INCOME INEQUALITY TRENDS FROM AN EU-WIDE PERSPECTIVE OVER THE PAST DECADE

This section presents data on EU-wide inequalities by using a measure of household disposable income, which is then distributed in equal parts among all those individuals at the household by using an equivalence scale (keeping then only those aged 15–65 in the analysis) and made comparable across countries by using purchasing power parities (PPP).[3] Adopting a truly European perspective to study income inequality requires considering all income earners across European countries as part of a single EU-wide income distribution which would be affected by income disparities both between and within member states.

A picture of this single European income distribution in 2015 (income referring to 2014, given the one-year lag of EU-SILC's income data) is provided by Figure 1 below, depicting the proportion of European individuals aged 15–65 (vertical axis) reporting different levels of equivalised household disposable income (horizontal axis, each bar representing people found at a specific PPP-adjusted 1,000-euro interval). It shows that around 4.5 percent of Europeans of working age have an (equivalised) household disposable income between 10,000 and 11,000 euros per year, for instance.

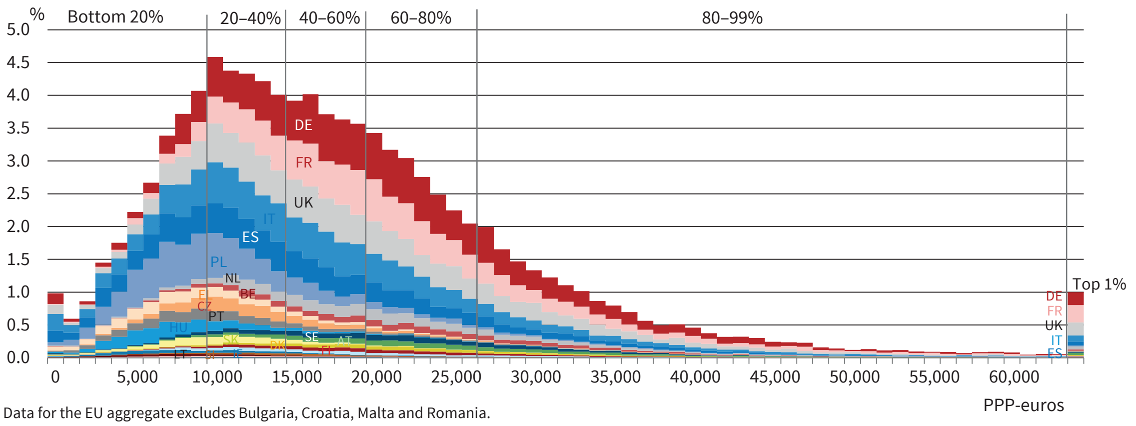
The figure reflects two important aspects of the EU income distribution. One, the different positions occupied by European countries reflects the income disparities between them, with Eastern European countries (and Mediterranean countries to a lesser extent) relatively more present at the bottom 20 percent of the EU-wide income distribution and EU15 countries at the top income quintile. Two, national income distributions overlap considerably (e.g. the countries dominating the top quintile also have a significant share of population in the lowest income quintile), which means that income disparities within countries are larger than those between countries for the EU aggregate.

A picture of EU-wide income inequality trends over time and, importantly, its decomposition into those changes due to between-country and within-country developments is provided in Table 1 below. Two main insights emerge from the data. One, EU-wide income inequality levels for the EU have been clearly influenced by the crisis. The Gini (and the Theil) index for household

[3] A detailed methodology is provided in Eurofound (2017) on which this paper is based. Data comes from EU-SILC, whose income data has a one-year lag and refers to the year previous to the one in which the survey is conducted. This lag must be taken into account in the figures and tables presented in the paper.

Figure 1

EU-wide (Equivalised) Household Disposable Income Distribution, 2015



Data for the EU aggregate excludes Bulgaria, Croatia, Malta and Romania.
Source: EU-SILC.

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disposable income declined significantly prior to the crisis, and the Theil index shows that this was almost entirely due to a reduction in the differentials in average income between countries, while the within-country inequalities component declined only very slightly. These trends were reversed by the crisis, as EU-wide income inequalities registered a modest upwards trend from 2009 (income data referring to 2008), due to a halt in the process of income convergence between European countries and to a slight increase as well in the component capturing income inequalities within countries.

Two, the contribution of income disparities between and within European countries to explain changes in EU-wide income inequality has very different features over the last decade. On the one hand, the EU has been able to generate a considerable income convergence between its member states and, even though it has stalled from the onset of the crisis, the reduction of income disparities between European countries has played a key role in driving EU-wide income inequalities downwards over the last decade. On the other hand, the component capturing income inequalities within countries has remained much more stable over the period but within-country inequalities represent the lion's share of EU-wide income inequality, and increasingly so due to the abovementioned process of income convergence, representing from around 78 percent of EU-wide inequalities by the beginning of the period to 85 percent by the end of the period.

These results are very relevant from a European policy-making perspective. Firstly, they provide support for the implicit assumption of EU policy documents that European economic integration should lead to convergence between countries and, moreover, they would vindicate the regional development policy deployed by the European institutions from decades ago, targeted at poorer regions and member states.[4] Nevertheless, the income convergence between European countries has been halted by the impact of a Great Recession, which has put the European project to test. More detailed data at the national level and follow-up during the following years are needed for a more adequate assessment of the status of this process of income convergence.

Secondly, given that within-country inequalities currently explain an overwhelming proportion of EU-wide income inequalities, those policies aimed at reducing income inequalities at the national level would offer the greatest prospect in the future, since they would tackle inequalities both within European countries and for the EU as a whole. European-level policies aimed at enhancing the inclusiveness of the more vulnerable societies (such as the European Social Fund or the European Globalisation Fund) and national policies addressed to helping the less well-off individuals and households within European societies

[4] Some researchers conducting independent evaluations have found that the cohesions policies implemented by the EU *via* the regional developments funds have promoted catch-up in less developed member states (Rodriguez-Pose and Garcilazo 2015).

Table 1

EU-wide (Equivalised) Household Disposable Income Inequality: Theil and Gini Indexes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gini	0.349	0.340	0.338	0.337	0.329	0.331	0.333	0.332	0.334	0.336	0.335
Theil	0.224	0.207	0.206	0.210	0.195	0.198	0.204	0.198	0.202	0.201	0.202
Theil-between	0.050	0.042	0.041	0.036	0.030	0.030	0.030	0.032	0.032	0.031	0.030
Theil-within	0.174	0.165	0.165	0.174	0.165	0.168	0.174	0.166	0.170	0.170	0.172

Note: Data for the EU aggregate excludes Bulgaria, Croatia, Malta and Romania, which are not available for all years over the period covered.

Source: EU-SILC.

(such as minimum wages, unemployment and family benefits or training and other up-skilling measures) would offer a good policy-mix if reducing EU-wide income inequalities was an explicit policy objective.

A CLOSER PICTURE OF THE CONVERGENCE IN INCOME DISPARITIES BETWEEN EUROPEAN COUNTRIES

This section provides a more detailed picture of the reduction in income differentials between European countries over the past decade identified earlier by providing the country-level dynamics that characterise it. Moreover, while data for the EU aggregate included 24 European countries over the period 2005–2015, the analysis here incorporates EU-SILC data for all EU28 countries and up to 2016 whenever available. The data presented here refers to average household disposable income levels expressed in PPP-euro across European countries, which permits capturing real income convergence processes between European countries in terms of purchasing power and not merely caused by inflation differentials.

The process of income convergence between European countries suffered clear mutations over the past decade, as illustrated in Figure 2. Prior to the crisis (left panel of the figure), a notable process of income convergence took place due to developments at the top of the income scale and, mainly, among those countries at the bottom of the income scale. Among most higher-income countries, relative income levels remained stable or even declined (in Germany and notably in Britain, although in this case partially due to currency depreciation). Among lower-income countries, most Eastern European states registered a strong catch-up process (very remarkable in the Baltics, Poland and Slovakia), even though Mediterranean countries failed to do so (with the exception of Spain).

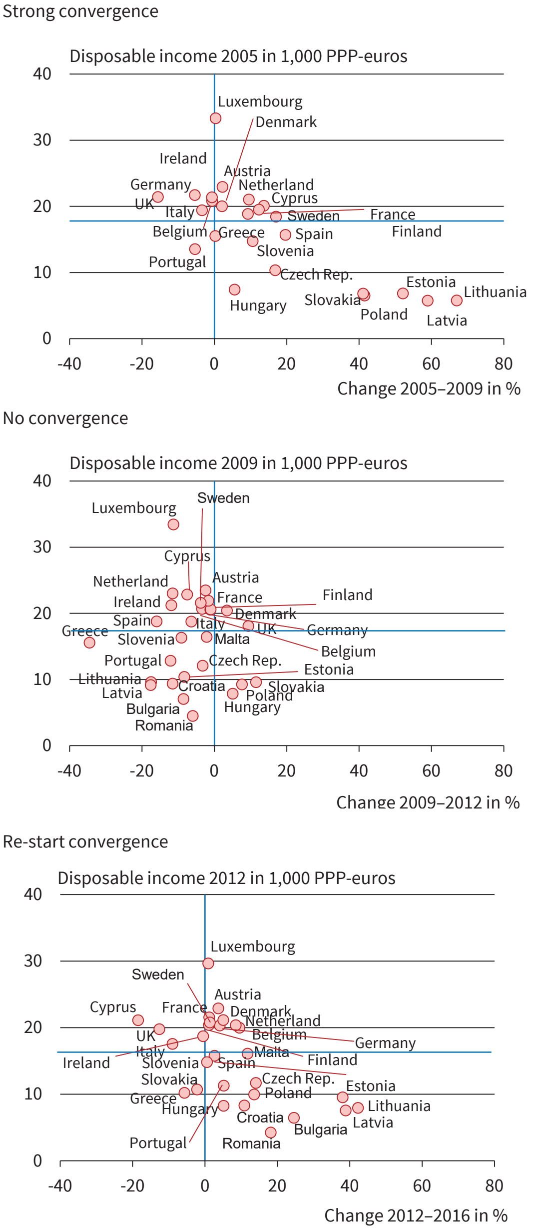
The second panel of Figure 2 clearly reflects how the emergence of the crisis halted the process of income convergence between European countries by reversing the sign of the core-periphery divide, since income levels were more negatively affected in the European periphery (mainly in several Mediterranean and Baltic countries, even though they continued to progress in Slovakia, Poland and Hungary) and they were generally more resilient in the European core (with the exceptions of Luxembourg and the Netherlands). This halt in the process of income convergence between European countries from the onset of the crisis is consistent with the picture provided earlier (see Table 1).

Nevertheless, the third panel of Figure 2 captures the recovery of this process of convergence between European countries in the most recent years (between 2012 and 2016, income data referring to 2011–2015). Again, this process is mainly due to the return of catch-up income growth among most Eastern European countries (notably in the Baltics), which did not extend to Mediterranean countries (the downwards correction continued in Greece and Italy). Among higher-income countries, income levels remained generally contained.

Although it is weaker than prior to the crisis, the re-emergence of this process of income convergence seems to indicate that the divergence forces unleashed by the Great Recession only had a short-term impact over a longer-term trend towards income convergence between European countries.

Figure 2

Average Hosehold (Equvalised) Disposable Income across Countries



Note: 2008 has been used to distinguish the pre-crisis period, instead of 2009 as before, due to the one-year lag in EU-SILC data.
The horizontal blue line refers to the average income for the EU as a whole, although it includes different countries in each sub-period due to data availability.
Bulgaria, Croatia, Malta and Romania are included from the second sub-period (2009 Croatian data refers in fact to 2010).
The most updated EU-SILC data for 2016 has been incorporated in the most recent sub-period for those countries where it is available (all EU28 countries except Cyprus, Ireland, Italy, Luxemburg and Malta, for which 2015 is used instead).

Source: EU-SILC.

Nevertheless, the contrasting example provided by Eastern European and Mediterranean countries warns that this convergence does not have to be taken for granted. While the East of Europe generally managed to attain a real income convergence with the rest of Europe, whatever convergence Mediterranean countries accomplished was the result of higher inflation levels but not of a real income convergence in purchasing terms.

GROWING INCOME INEQUALITIES WITHIN EUROPEAN COUNTRIES AND THE UNDERLYING REASONS

EU-wide income inequality over the last decade was mainly driven by the reduction of income differentials between countries, while the contribution of inequalities within European countries remained much more stable (see Table 1). Nevertheless, the country-level data introduced in this section shows that income inequalities expanded in a majority of European countries from the onset of the crisis mainly due to rising unemployment levels, while European welfare states have managed to cushion the extent of these growing inequalities.

The role of unemployment as the main driver behind rising income inequalities across European countries from the onset of the crisis is unveiled by Figure 3, which compares inequalities in monthly labour income among workers with those in annual labour income among the whole working age population. The difference between both measures of inequality would be explained by the fact that some individuals are out of work and do not have labour income (either for some months or during the whole year, due to unemployment or inactivity).

The figure shows that the crisis pushed inequalities mainly outside employment, since labour income inequalities among the whole working age population moved upwards across most countries from 2009 (income data referring to 2008), significantly so among those countries in the European periphery most affected by growing unemployment (Mediterranean and Baltic countries generally, as well as Ireland, Slovakia or Slovenia) and much more moderately in those countries in the European core less affected by employment turbulences (continental and Scandinavian countries). These labour market turbulences explain why inequalities within employment remained more subdued and even declined in some countries affected by significant unemployment hikes (Greece or Portugal), probably due to a compositional effect caused by the typically lower wages of those leaving employment during a crisis (Bils 1985; Solon *et al.* 1994).

There are three main forces that shape income inequalities when moving from annual labour income into our final measure of household disposable income: the family pooling of income, capital income and the transfers and taxes of benefit systems – see further details in the methodology provided in Eurofound (2017). Our results show that the role of this third factor has been particularly relevant during the period observed. Figure 4 compares the evolution of inequality in household market income and in household disposable income, whose different behaviour is due to the redistributive effect of the public systems of benefits and taxes. European welfare states reduce market income inequality by almost 30 percent for the EU as a whole, although country differentials are notable, as reflected by the gap between both measures of inequality in each country.

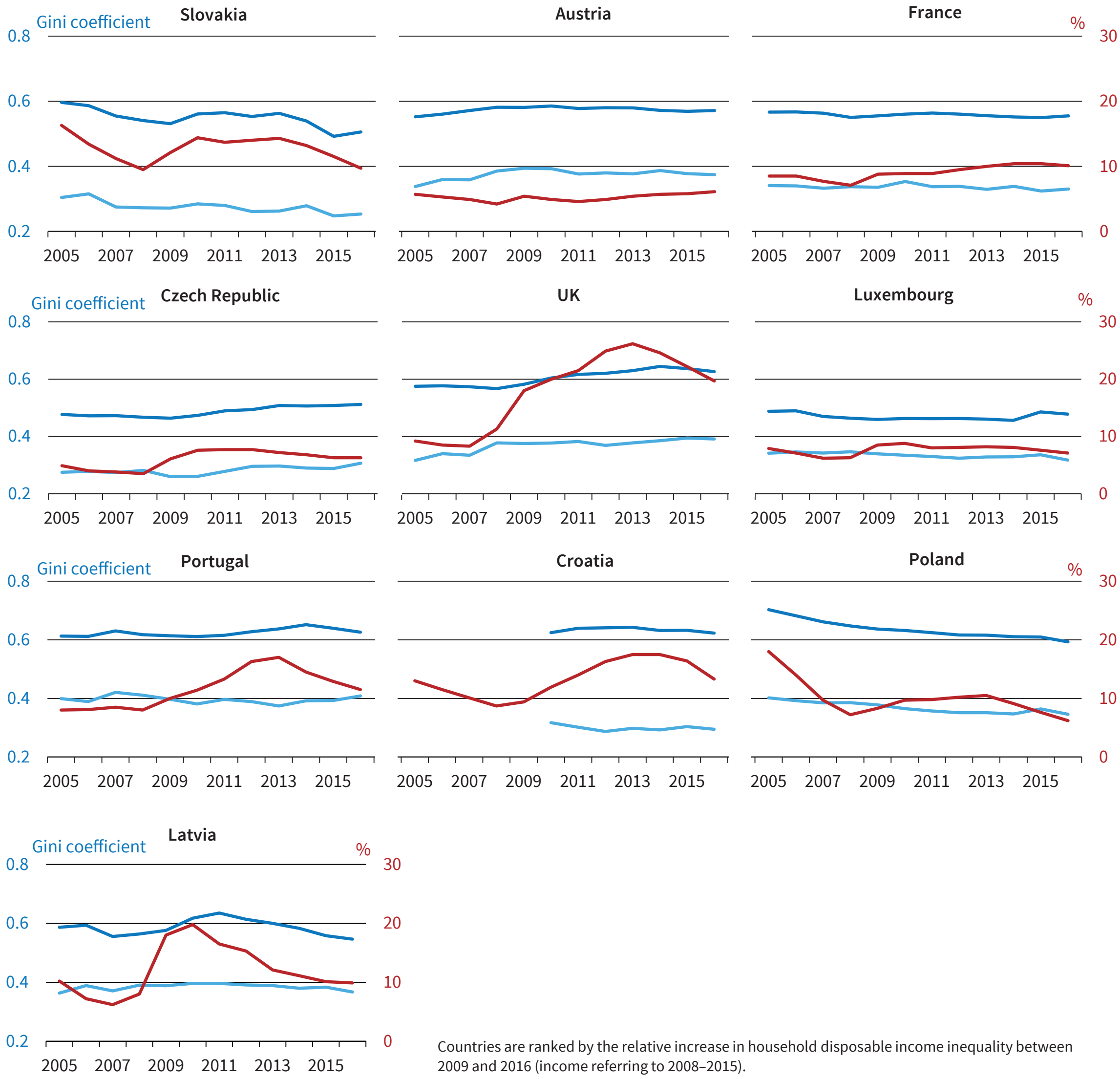
Importantly, our results over the whole period clearly reflect how European welfare states largely cushioned the increase in market inequalities as a result of the crisis, as reflected by the notably larger inequality increases in household market income than in household disposable income across many countries (more relevant in Mediterranean countries generally, Latvia, Belgium, Netherlands, Finland or Britain).

A detailed analysis of our main measure of inequality, that in household disposable (equivalised) income, reveals the pro-cyclical behaviour of income inequalities, as predicted by the literature:

1. Before the crisis, reductions in income inequalities are more common among European countries, significantly in some Eastern European countries.
2. Income inequalities are then pushed upwards from the onset of the crisis in around two thirds of European countries, although the resilience of European welfare states prevented more significant surges. Inequalities increased more notably in several countries in the European periphery where employment turbulences were greater (Cyprus, Hungary, Estonia, Slovenia, Spain or Ireland) but also in other traditionally low-inequality countries (Denmark and Sweden or Germany). This explains the upward trend observed in the within-countries component of EU-wide income inequalities described earlier (see Table 1).
3. Nevertheless, as economic recovery sets foot in the continent in most recent years (between 2014 and 2016, income data referring to 2013–2015), the patterns in income inequality became more mixed and inequality reductions were registered again in more than half of European countries (more significant in some Eastern European countries but also in Germany and Ireland).

This section has revealed an upwards trend in income inequalities among most European countries due to rising unemployment levels from the onset of the crisis, although the increase in income inequalities was rather modest in many cases largely due to the role of European welfare states. Nevertheless, it is important

Figure 3
Inequality in Worker's Monthly Earnings and Individual's Annual Labour Income



Countries are ranked by the relative increase in household disposable income inequality between 2009 and 2016 (income referring to 2008–2015).

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

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to keep in mind that the synthetic indicators of income inequalities as the ones provided here do not capture the whole extent of the impact of the Great Recession on European societies. A more complete picture of the evolution of inequalities and income levels over the last decade is provided in Eurofound (2017).

This broader picture shows that real disposable income levels were negatively impacted by the crisis across all European countries, especially among less well-off households in the European periphery but also in countries in the European core. The decline or moderation of real disposable income levels reveals a more significant impact of the Great Recession on European societies than that offered by other indicators such as GDP per capita or inequality indexes, which highlights the importance of using a wide set of indicators when monitoring economic developments and well-being among European citizens.

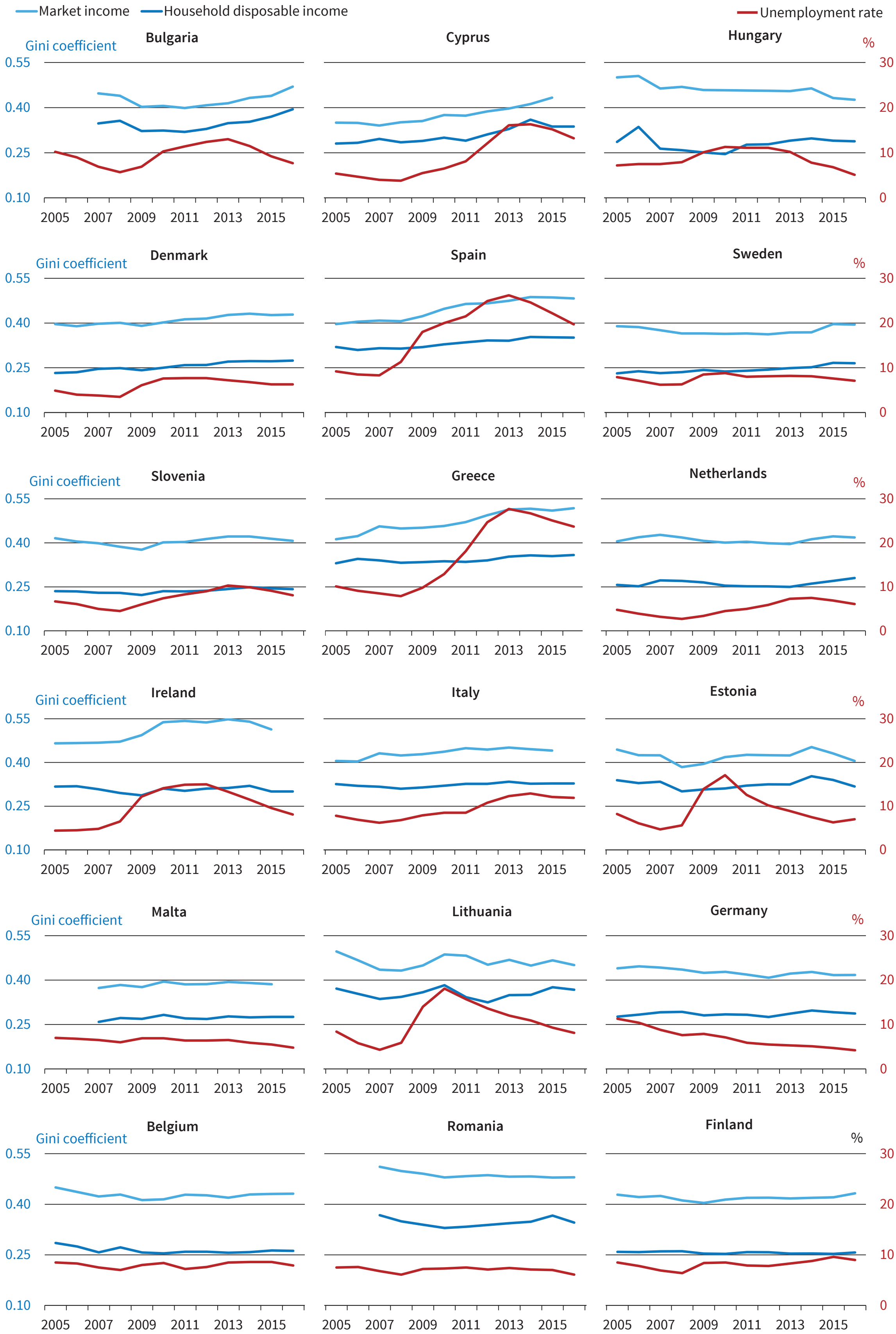
CONCLUSIONS

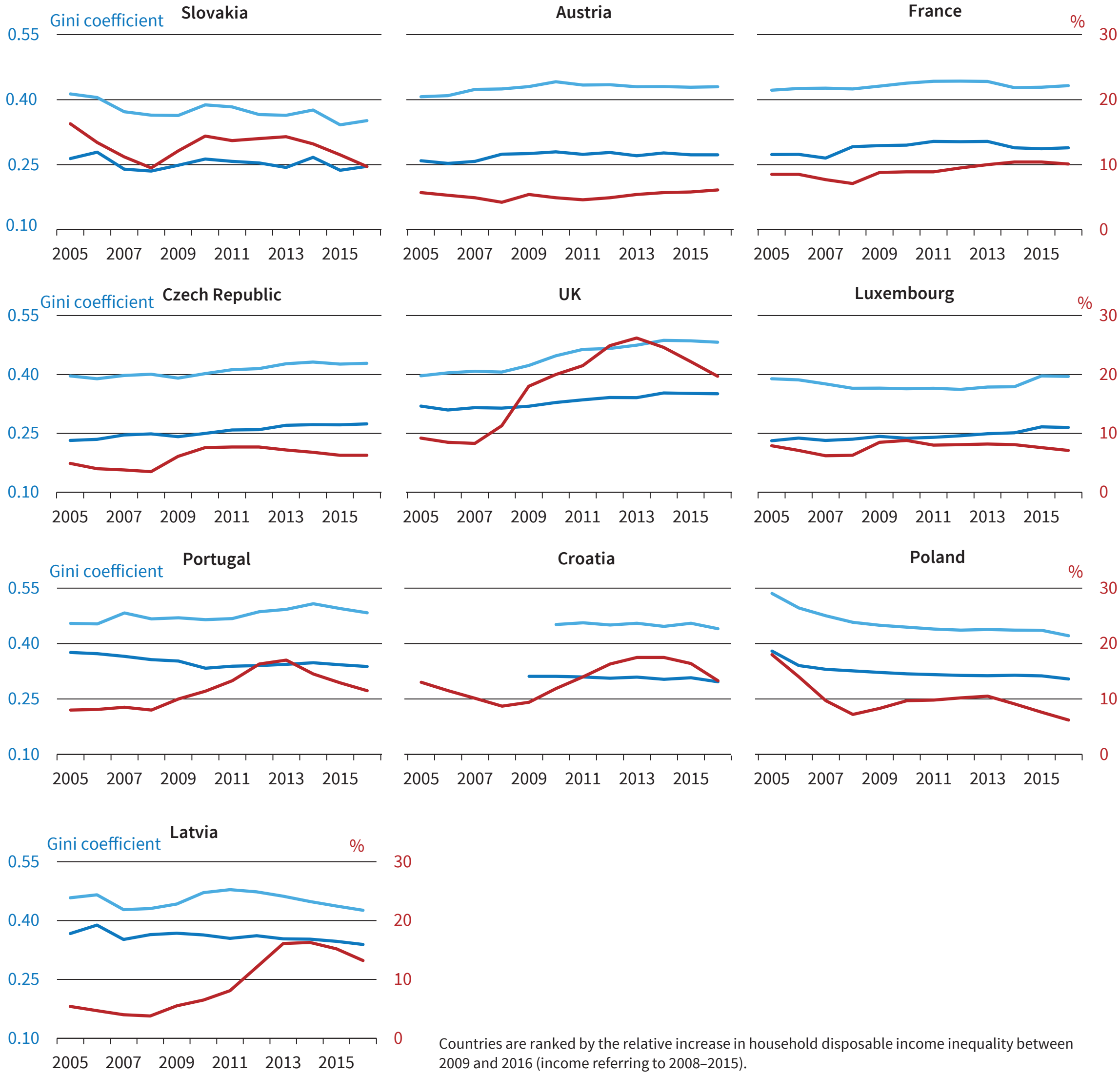
This paper has provided a picture of income inequalities from an EU-wide perspective and the extent to which they have been driven by income differentials between and within European countries over the last decade. EU-wide income inequality levels were significantly reduced up to the emergence of the crisis in 2008, which pushed them slightly upwards thereafter. Between and within-country income differentials played a different role in explaining such trends.

On the one hand, the evolution of income disparities between European countries is the main driver behind trends in EU-wide income inequalities over the past decade. The notable convergence in average income levels between European countries, mainly due to catch-up income growth in Eastern Europe and moderation in the core of Europe, almost

Figure 4

Inequality in Household Market Income and Household Disposable Income





Countries are ranked by the relative increase in household disposable income inequality between 2009 and 2016 (income referring to 2008–2015).

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

entirely explains the decline in EU-wide income inequality prior to the crisis. The interruption of this process of convergence as a result of the stronger impact of the crisis in the European periphery largely explains the ensuing stability of EU-wide income inequality. Nevertheless, this process of income convergence is re-activating in the most recent years due again to strong income growth among Eastern European countries.

On the other hand, income inequalities within European countries did not significantly drive EU-wide income inequalities during the period, but are characterised by relevant developments as well. One, within-country income inequalities have reinforced their importance as the main source of the EU-wide income inequality level over the period, explaining 85 percent of it by 2015. Two, income inequalities registered an upwards trend among most European countries and pushed EU-wide income inequality slightly upwards from the onset of the crisis.

While previous major empirical studies identified widening pay differentials as the main reason behind growing income inequalities in developed countries, our results complement those studies by showing that the growing income inequalities registered among around two-thirds of European countries from the onset of the crisis were mainly due to the role of rising unemployment and its associated loss of labour income. This explains why income inequalities started to moderate among many European countries in the most recent years following economic and employment recovery.

Moreover, our results have important policy implications. Firstly, we have emphasised the important role played by the European benefit and tax systems in cushioning the growing market income inequalities, especially in some of the countries hardest hit by the crisis. Secondly, our results provide support to the implicit assumption within European institutions that European economic integration should lead to convergence between its member states, a goal also pursued by the regional development policies deployed by the European institutions from decades ago. Our results unveil a strong convergence in income levels over the past decade, despite the divergence trends unleashed by the Great Recession and despite the fact that Eastern European but not Mediterranean countries have benefitted generally from this income convergence process. Thirdly, our data shows within-country income inequalities explain an overwhelming proportion of EU-wide income inequality, which suggests that policies targeted at reducing income inequalities at the national level as those offering the greatest potential to reduce income inequalities in Europe.

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