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The EU Convergence Machine at Work. To the Benefit of the EU's Poorest Citizens?

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Abstract

Social cohesion in the EU (European Union) is usually assessed on the basis of GDP per capita and relative poverty rates. These indicators show that the 'European convergence machine' led to greater social cohesion between old and new Member States (EU-15 and NMS) until the onset of the crisis. In this article we offer an alternative perspective by directly comparing EU citizens' disposable household incomes. Using four waves of EU-SILC data, we explore what happened between 2005 and 2011 in the EU-15 and NMS regarding changes in the lowest household incomes in relation to the EU-wide median. Results show that, overall, the convergence machine seemed to work well for the lowest incomes in the NMS, but not so much for those living in the EU-15. At the same time, differences in living standards remain quite large. This points to important continued challenges for EU policy initiatives in the social domain.

Keywords: EU; convergence; pan-European inequality; social cohesion; poverty; social inclusion

Introduction

For centuries there has been a gap between the development of eastern and western Europe (see, e.g., Epstein, 2014). The divide seems to have been reduced during the past decades. According to World Bank economists, it is no exaggeration to state that Europe created a 'convergence machine' (Gill and Raiser, 2012). Over the past four decades, this machine made a major contribution to turning European low-income and middle-income countries into high-income economies. This has resulted in significant upward convergence of average consumption levels, unmatched by other regions in the world. Once western European countries had caught up with the United States during the post-war decades, they took first southern European and then – since the 1990s – eastern European countries on board. The Great Recession seems to have put a break on the functioning of the convergence machine. Even though the World Bank report is optimistic about the potential to jumpstart the convergence process after the onset of the latest financial and economic crisis, the European Commission (2014a) seems rather worried about recent divergence between some Member States (cf. Boisson-cohen *et al.*, 2015).

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Upward convergence in aggregate consumption levels is well documented. Yet it is not very clear to what extent it has benefited the poorest citizens in the EU (European Union), in particular those living in the new Member States (NMS). Some authors have looked at convergence in aggregate poverty rates. For instance, the European Commission (2014a) observes in a subgroup of countries of the euro area a (beta-)convergence in relative at-risk-of-poverty rates between 2004 and 2007, reverted thereafter. At-risk-of-poverty rates reflect the number of people living on a disposable household income below 60 per cent of the *national* median equivalized income. This indicator is useful for many purposes, but it compares citizens' incomes only to national median income levels, and does not provide information on how income levels change in cross-national perspective. Hence, it does not tell us much about convergence in income levels between all EU citizens and whether the EU's citizens with the lowest incomes, particularly those living in the NMS, have also seen their income levels get closer to the EU-wide median. With this article, we aim to shed more light on this.

Getting more insight into pan-European income dynamics is relevant for at least three reasons. First, directly comparing EU citizens' incomes and purchasing power would shed an alternative, and increasingly relevant, light on how social cohesion is usually assessed in the EU. It may also do a better job of telling how the purchasing power of households is spread across the EU. Second, it could provide an important input for the on-going debate about the desirability and feasibility of social policies developed at the EU level. Third, it would help to gain more insight into the benefits of economic convergence for those living at the lower end of the EU-wide income scale, which – if successful – could boost support for the European project.

Accordingly, in this article we explore how low household disposable incomes have moved in relation to the EU-wide median income, making a distinction between the pre-2004 Member States (the EU-15) and the countries that joined the EU in 2004. While doing so, we also pay attention to how trends in individual countries have contributed to changes at the aggregate level. In addition, we analyse the extent to which trends have been driven by real changes in the EU-wide median income. Due to data limitations, the period of observation is limited to 2004/2005–2010/2011, covering the first years of accession up to the first years of the financial and economic crisis. With this study we add new insights to a growing body of literature on convergence in social indicators in the EU that has so far focused on convergence of nationally aggregated social indicators (Caminada *et al.*, 2010; European Commission, 2014a, 2015; Gill and Raiser, 2012; Heidenreich and Wunder, 2008). At the same time, EU-wide relative poverty before the accession of the NMS has been studied by a number of authors (Berthoud, 2004; Förster, 2005; Kangas and Ritakallio, 2007), as has static EU-wide relative poverty after 2004 (Brandolini, 2007; Fahey, 2007; Whelan and Maître, 2010). Accordingly, with this article we contribute to the latter body of literature with a longitudinal study of changes in the EU-wide distribution of incomes, including the NMS. To the best of our knowledge, this is the first article which studies EU-wide income dynamics on the basis of longitudinal micro data. Even though a combination of trends in national income inequality and GDP per capita may provide a rough insight into EU-wide income dynamics, by making use of an EU-wide household income survey, with this article we contribute a direct and hence more exact measurement of income dynamics in the EU. EU-wide income dynamics are the combined result of both changes in average incomes

across countries and within-country inequalities. The theoretical literature on income convergence has been focused on either of both. Rather than developing a new theoretical perspective which is suited for understanding trends in EU-wide income dynamics, our article shows the complexities that such a theory should address. We come back to this in the conclusion.

The first section of this article reviews the current measures of social cohesion and convergence in income levels in the EU. The second section explains why a complementary measure of EU-wide low income dynamics is useful. The third section describes the data used and some methodological considerations. In the fourth section, the analysis and results are presented. In the final section we conclude with a discussion of the implications of our results.

I. Social Cohesion and Convergence in the EU: Current Measures

Traditionally, social cohesion and convergence in the EU have been monitored in the context of regional policy, the aim of which is to ‘strengthen economic, social and territorial cohesion by reducing disparities between the levels of development of regions and countries of the European Union’ (van den Berg *et al.*, 2007). The primary instrument for measuring levels of development and evaluating convergence was GDP per capita. Since the Europe 2020 Strategy was adopted in 2010, the EU’s ‘cohesion policy’ has covered not only regional policy, but also reducing poverty and social exclusion (cf. European Commission, 2014b). The latter is monitored on the basis of a combined indicator of household low work intensity, material deprivation and relative income poverty (European Council, 2010).

We contend that these indicators fail to grasp an important dimension of social cohesion and convergence, namely, the improvement of the standard of living of the poorest people in the EU in relation to the rest of the EU’s population. It is generally recognized that disposable household income is a better measure of the standard of living of households than GDP per capita, as it reflects more accurately the economic resources available to households and allows for better capturing heterogeneity within the population (see, e.g., Lelkes *et al.*, 2009; Stiglitz *et al.*, 2010). The combined indicator consists of the union of three indicators. The at-risk-of-poverty indicator is based on a national relative threshold. In contrast, the indicators of low work intensity and material deprivation are based on fixed thresholds that are the same for all EU citizens. In the case of the former, obviously this does not allow for comparing EU citizens directly, while material deprivation and household low work intensity do not tell much about the relative position of citizens towards the rest of society, given that the thresholds are fixed for everyone, regardless of major trends in the population.

What do income-related indicators tell us? In terms of national GDPs per capita, since 1995 the dispersion among EU-28 Member States has been rather stable. Within this stability, mainly due to changes in productivity, there has been a catching-up process by the EU Member States that have joined the EU since 2004 (EU-13) and some divergent trends within the EU-15, where southern countries and Ireland have been losing ground since the middle of the 2000s. In relation to at-risk-of-poverty, three moments can be distinguished between 2004 and 2012: some slight divergence before the crisis, strong (sigma-)convergence during the peak of these events and stability thereafter (European

Commission, 2015). If we focus on the average at-risk-of-poverty of EU-15 and EU-13 countries (excl. Croatia) between EU-SILC 2005 and 2011, we see that before the crisis poverty decreased more in EU-13 countries (excl. Croatia) than it increased in EU-15 countries, while there was more stability thereafter. Taking into account the larger weight of EU-15 countries, this resulted in general stability in the average poverty trend across all countries (Eurostat, 2015).

II. Reasons for Adding Another Measure of Social Cohesion in the EU

Several motivations have been put forward in support of complementing GDP per capita and the at-risk-of-poverty indicator with an indicator that would allow for assessing the movement of the incomes of the poorest Europeans towards the rest of Europe (cf. Goedemé and Rottiers, 2011; Nolan and Whelan, 2011).

First, poverty figures on the basis of country-specific poverty lines may be adequate for distinguishing groups at risk of poverty within single EU Member States, but they cannot be used to estimate the variation in living conditions across the EU: the purchasing power of the poor in the richer Member States is generally higher than the purchasing power of the poor in the less affluent EU Member States (Lelkes *et al.*, 2009). On this basis, some authors have argued that these poverty figures are not fully comparable cross-nationally and lead to an underestimation of poverty in the less prosperous Member States (e.g. Beblavy and Mizsei, 2006; Guio, 2005a, b; Juhász, 2006). Second, it has been contended that the group of persons with whom people compare their living standard is of crucial importance for the measurement of poverty and that these ‘reference groups’ have to a large extent Europeanized, implying that it would be more appropriate to use as a poverty standard an EU-wide benchmark (e.g. Berthoud, 2012; Delhey and Kohler, 2006; Fahey, 2007; Förster *et al.*, 2004; and for a critique Nolan and Whelan, 2011; Whelan and Maître, 2009). A third argument for a Europeanized evaluation of income levels is put forward by Brandolini (2007) and Fahey (2007), who argue that, even if reference groups were not strongly Europeanized, national at-risk-of-poverty rates would still miss an important aspect of social cohesion in the EU as well as the social dimension of European unification. This dimension could be covered by complementing the standard measurement of poverty with analyses based on an EU-wide poverty line (see also Marlier *et al.*, 2007).

Whereas the first two arguments are a matter of theoretical discussion and empirical analysis and are difficult to settle (cf. Goedemé and Rottiers, 2011), the latter argument is more pragmatic in nature and ties in with a policy concern, which is our primary interest here. As Fahey (2007) puts it, the measurement of poverty at the national level reflects the fact that social policy is a competence of Member States, and in this area the EU has mainly a coordinating function. Nonetheless, as the same author argues, within another policy area of the EU, an indicator assessing the EU-wide proportion of low incomes has its place: the cohesion policy. In this regard, article 174 of the Treaty on the Functioning of the EU declares: ‘the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion’ (European Union, 2010). As Fahey and Brandolini have argued, social cohesion in the EU is not only a matter of inequality between citizens of the same country or between average income levels between countries and territories, but also one of inequality and income dynamics between all citizens of the EU. A combined view of GDP per capita levels

and at-risk-of-poverty indicators may provide some sense of how social cohesion and differences in living standards between EU citizens evolve, but can only lead to speculative answers in comparison with the direct estimation of trends in pan-European inequalities between citizens (for a similar argument in relation to measuring global inequality, see for instance Milanovic (2005)).

Furthermore, as Fahey (2007) stresses, by keeping the measurement at the country level, poverty research is not able to contribute to an important debate in which, on the one hand, NMS aspire to achieve the general standard of living of their neighbours and, on the other, citizens from the EU-15 are concerned about migration that could potentially demand more welfare and jobs. As long as income levels in the EU-15 are much higher than those in the NMS, there will be pressure for migration to richer Member States. Therefore, a better comprehension of pan-European income differences could contribute to a better understanding of migration in the EU. Lastly, gaining more insight into EU-wide inequalities is also relevant from the perspective of proposals and initiatives in the area of social policy at the EU level. As several authors have stressed, when it comes to evaluating the potential of EU social policies, EU-wide income differences are at least as important as national differences in living standards (cf. Atkinson *et al.*, 2002; Levy *et al.*, 2013; Vandenbroucke *et al.*, 2013). Even though many proposals for EU social policies may appear rather utopian at this moment, they have been around for some time now, and this is also the case in EU policy circles (see, e.g., on the unemployment insurance proposal by a former Commissioner, Andor, 2014; on minimum income, European Parliament, 2010; on the minimum wage proposal by the President of the European Commission, Taylor, 2014). Obviously, setting minimum income standards (e.g. a living wage) at a fixed level in euros would necessarily lead to relatively low levels in the richer Member States, and relatively high levels in the less affluent Member States. The opposite would be the case if standards are set at a percentage of national median wages. In turn, doing it in either way would have very different effects e.g. on potential migration. As a result, in order to assess proposals for (future) EU initiatives in the social domain, a better understanding of the dynamics of EU-wide income distribution is key.

Therefore, in this article we analyse the movement of the lowest incomes in the EU in relation to the EU-wide median income. In order to assess this, we study changes in the proportion of incomes below a percentage of this median. We would not go so far as to call e.g. 60 per cent of the EU-wide median income a poverty threshold. How poverty is defined and measured is also a normative question and more refined research is necessary to empirically assess the extent to which a valid poverty threshold should vary with differences in median disposable incomes in the EU (see, for instance, Berthoud, 2012; and Goedemé *et al.*, 2015a, 2015b for two alternative approaches). Therefore, we opt for the use of the more neutral term (relative EU-wide) 'low-income proportion' to indicate the *percentage* of the population with an income below an income threshold set at a certain percentage of the EU-wide median income. That being said, we base our expectations for the EU-wide low-income proportion on the evolution of the current indicators of social cohesion. As stability has generally dominated the average at-risk-of-poverty rate, accompanied by pre-crisis reductions in the NMS, and as there has been some catch-up from poorer countries in GDP per capita, *we expect that the 'EU-wide low-income proportion' has been reduced in the EU, especially in the NMS.* The

objective of this article is to estimate in a more precise way to what extent this is indeed the case.

III. Data and Measurement

The analysis presented in this article makes use of EU-SILC¹ data, the EU reference household survey for information on income and living conditions in Europe (e.g. Marlier *et al.*, 2007). Income data refer to the year before the survey year (except for Ireland and the United Kingdom where they refer to the survey year), whereas information on the household composition refers to the survey year. In this article, we analyse waves 2005, 2007, 2009 and 2011. Given that 2011 (version 2) data were lacking for Ireland, we use 2010 data (version 2) as a substitute for 2011 data for the latter country. It is important to bear in mind that we refer in this article to the survey year, rather than the income reference year of the data. The countries considered are the EU-15, composed of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, The Netherlands, Sweden and the United Kingdom, and the NMS that joined the EU in 2004, which are Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. Malta also joined the EU in 2004; however, due to a lack of data, Malta is not included. Croatia, Romania and Bulgaria are not included as they acceded to the EU during or after the period of analysis.

In the analysis that follows, we use equivalized disposable household (cash) income, net of taxes and social contributions, utilizing the modified OECD equivalence scale. This is the standard household income concept used for measuring poverty and inequality in the EU. This definition has as a caveat that it does not include benefits and incomes in kind. Whereas benefits in kind (e.g. services) have an important impact on living standards everywhere (see in particular Verbist and Matsaganis, 2014), income in kind is particularly important among low-income people in some rural areas within the NMS, especially through own food production (Lelkes *et al.*, 2009). In this article, we use ‘income’ and ‘equivalent disposable household income’ interchangeably. Incomes are top–bottom coded following the ‘LIS procedure’ (for a discussion on extreme incomes, see Van Kerm, 2007). The (low) income threshold is equal to a percentage of the EU-wide median equivalent disposable household income. For a more detailed discussion of the limitations of the income concept, we refer to Brandolini (2007) and Decancq *et al.* (2014). The methods we use to decompose the low-income proportion are explained in the following section.

When calculating the low-income proportion on the basis of an EU-wide income threshold, it is necessary to make incomes comparable across countries. We are not interested so much in income differences per se, but rather in differences in purchasing power. We achieve this by using PPPs (purchasing power parities) for final household consumption to convert incomes into PPS (purchasing power standards), an artificial common currency which takes account of exchange rates and relative price differences across countries (European Commission and Eurostat, 2012). The use of PPPs is not a perfect solution for making incomes cross-nationally comparable. For instance, they

¹ The results and conclusions are ours and not those of Eurostat, the European Commission or any of the national statistical authorities whose data have been used.

do not easily allow for a consistent comparison over time, as PPPs are (by necessity) constructed for a certain moment in time. Hence, when comparing incomes both cross-nationally and cross-temporally, we first convert incomes to 2004 values on the basis of country-specific harmonized consumer price indices. Subsequently we convert them into purchasing power standards (PPS) using PPPs for 2004.² Three other caveats when using PPPs should be kept in mind. First, the basket of goods and services that is used for calculating the PPPs may be more representative for some countries than for others. Second, PPPs are constructed on the basis of a basket that reflects average consumption patterns, while consumption patterns are heterogeneous within countries. Third, PPPs neglect within-country differences in price levels. Nonetheless, PPPs are the best tool available for making incomes cross-nationally comparable. For a further discussion of these points, see, for instance, Milanovic (2005).

We follow the recommendations by Goedemé (2013) for making optimal use of the sample design information in the data to estimate standard errors and confidence intervals. As sample design variables cannot be reconstructed in a consistent way over various EU-SILC waves, standard errors of changes over time can be expected to be somewhat over-estimated. A remaining caveat is the fact that the income threshold is estimated as a share of median income, which itself is an estimate on the basis of the data. This can have a non-negligible effect on the sampling variance (Berger and Skinner, 2003; Preston, 1995), which we do not take into account for the decompositions explained below (by lack of available software).

IV. Results

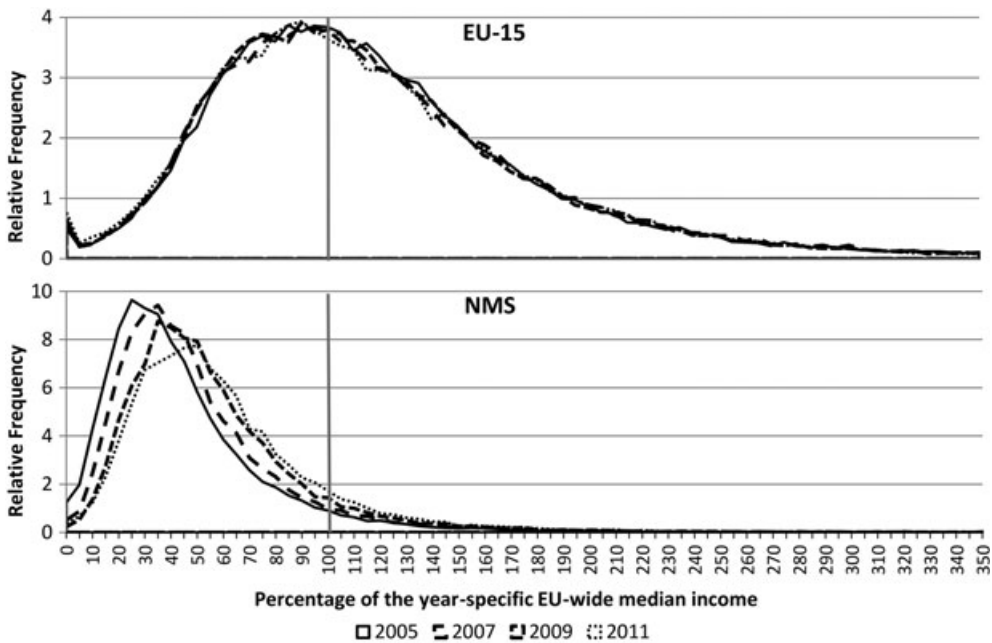
The structure of this section is as follows. First, in order to sketch a general picture, we depict the main changes in the EU-wide distribution of income, and describe trends in the EU-wide low-income proportion in the EU-15 and the NMS. As different dynamics have taken place in the two groups, in the second subsection we calculate the contribution of each group to changes in the EU-wide low-income proportion. Lastly, we explore the extent to which changes in the EU-wide low-income proportion are due to changes in the real purchasing power of citizens living on low household incomes, rather than fluctuations in the EU-wide median income.

Changes in the EU-Wide Income Distribution and Low-Income Proportion: 'Old' Versus 'New' Member States

The two relative frequency curves depicted below summarize the principal changes in the EU-wide distribution of income that have taken place in the EU-15 and NMS between EU-SILC 2005 and EU-SILC 2011 (Figure 1). All incomes are expressed in PPS and as a percentage of the year-specific EU-wide median equivalent disposable household income. In other words, the EU-wide median income is equal to 100 on the horizontal axis for every year. The two graphs clearly show the opposite trends that have taken place in the EU-15 as compared to the NMS. In particular, the graph shows that to some extent, over time the relative income distribution of the EU-15 has somewhat shifted to the left. Especially between EU-SILC 2009 and 2011, this shift is more expressed at the bottom of the

² The results are not very different if we first convert incomes to 2010 prices and subsequently apply 2010 PPPs.

Figure 1: Relative frequency curve of equivalent disposable household incomes in PPS in the EU-15 and the NMS, expressed as a percentage of the year-specific EU-wide median income, EU-SILC 2005-11



Notes: See data section for information on countries included in the analysis and other details.

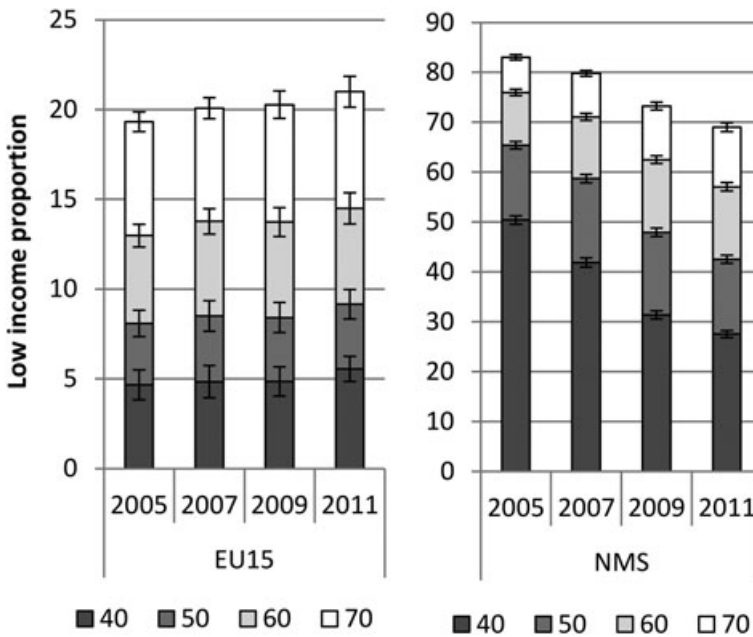
Source: EU-SILC UDB 2005, 2007, 2009, 2010 (IE), 2011, authors' calculations. Purchasing power parities for final household consumption from Eurostat's online database.

distribution than at the top. In contrast, for NMS we observe a stronger and opposite trend: equivalent disposable household incomes have clearly been converging to the middle of the EU-wide income distribution and shifted consistently to the right.

These major shifts in the EU-wide distribution of income are not observable if we calculate disposable household income as a percentage of the year-specific *national* median income, as we do when calculating the official at-risk-of-poverty indicator. At the same time, it is obvious that on average the relative purchasing power of those living in the NMS remains much lower than the purchasing power of those living in the EU-15, even for those with relatively high incomes in the NMS.

Turning now to trends in the EU-wide low-income proportion, Figure 2 shows the changes for a threshold at 40, 50, 60 and 70 per cent of the EU-wide median income. Overall, the low-income proportion with a threshold at 60 per cent of the EU-wide median income declined in the EU from 23 to 21 per cent of the population between EU-SILC 2005 and 2011. This decline was nearly entirely realized between EU-SILC 2007 and EU-SILC 2009. In contrast, in the EU-15, the low-income proportion measured with an EU-wide threshold increased

Figure 2: The low income proportion in the EU-15 and the NMS with the income threshold expressed as 40, 50, 60 or 70 per cent of the EU-wide median equivalent household income, EU-SILC 2005–11



Notes: 95% confidence intervals.

Source: EU-SILC UDB 2005, 2007, 2009, 2010 (IE), 2011, authors' calculations. Purchasing power parities for final household consumption from Eurostat's online database

significantly between 2005 and 2007 as well as between 2009 and 2011. Trends in the NMS are very different from those observed for the EU-15. It is important to bear in mind that the national median income of many EU-15 countries is relatively close to the EU-wide median income, whereas the median income in the NMS is generally substantially lower than the EU-wide median income. That being said, the low-income proportion measured with an EU-wide threshold has continuously and substantially been on the decline, even though the decline strongly slowed down between EU-SILC 2009 and EU-SILC 2011. Similar trends can be observed when evaluating the cumulative shortfall between household incomes and the low-income threshold, rather than the proportion of citizens with an income below the threshold.

The Contribution of the EU-15 and NMS to Changes in the Low-Income Proportion

Given the apparent changes in the EU-wide distribution of income, it would be no surprise to find that the NMS' contribution to the total low-income proportion has declined substantially over the past few years. Before presenting the evolution of this contribution, it is important to bear in mind that in the period 2005–11, the relative share of the EU-15 in

the total population was around 84 per cent. If the income threshold is set to 60 per cent of the EU-wide median income, the share of the EU-15 in the total number of persons living in a household below this threshold has increased from 47 to 58 per cent. In order to quantify the effect of changes in the EU-15 and the NMS on the total change in the low-income proportion in the EU more precisely, we follow Corluy and Vandenbroucke (2012), and decompose the total change in the low-income proportion (ΔLIP) as follows:

$$\Delta LIP = \overline{Share_{EU15}} * \Delta LIP_{EU15} + \overline{Share_{NMS}} * \Delta LIP_{NMS} + (\overline{LIP_{EU15}} - \overline{LIP_{NMS}}) * \Delta Share_{NMS} \quad (1)$$

The first component consists of the average share over two years of the EU-15 in the total population, multiplied by the difference in the low-income proportion in the EU-15 between the two years. By keeping the share in the total population constant, the component reflects the effect of a change in the low-income proportion in the EU-15. The second component does exactly the same for the change in the low-income proportion in the NMS. Finally, the third factor estimates the impact of the change in the share of the NMS (and as a complement, the EU-15) in the total population. The effect of the change in the share of the total population is of course dependent upon the degree to which the low-income proportion differs between the EU-15 and the NMS, which is also reflected in the third term of the formula: the change in the share of the NMS is multiplied by the difference in the low-income proportion in both groups averaged over the two years of comparison (Figure 3).³

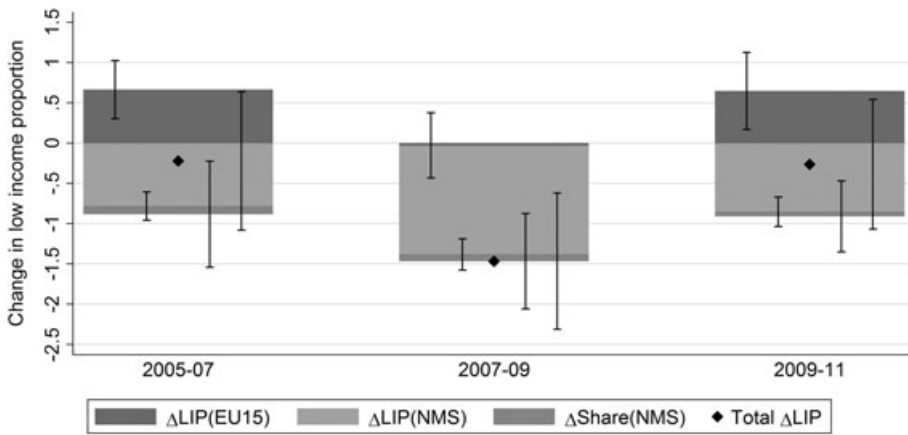
First, the contribution of shifts in relative shares of both groups in the total population is very modest, which is no surprise, as the estimated share of the NMS decreases only slightly, from 16.1 in EU-SILC 2005 to 15.6 in 2011. Second, in spite of its relatively small share in the total population, trends in the low-income proportion in the NMS have had an important impact on the total low-income proportion in the EU. In the first period (2005–7) they more than offset the increase in EU-wide low-income proportion in the EU-15. In the second period (2007–9), the decline in the EU-wide low-income proportion is entirely driven by a decline in the EU-wide low-income proportion in the NMS, while in the third period (2009–11) the further decline in the low-income proportion in the NMS was just sufficient to counteract a new increase in the EU-wide low-income proportion in the EU-15.

By focusing on two groups of countries, our analysis may conceal important dynamics that have taken place within these groups. Therefore, we have repeated the same decomposition at the group level.⁴ This analysis shows that the impact of individual countries on aggregate trends is very uneven, and varies over time. First, in the EU-15, between EU-SILC 2005 and 2007 the initial increase in the low-income proportion was

³ Although useful for our purpose, at least two caveats should be borne in mind. First, the decomposition assumes that the income threshold is given and ignores the effect of both groups on the total low income proportion via their effect on the threshold, either by differential income growth in both groups, or by increasing their share in the total population. Second, the decomposition is a mere accounting approach and is no attempt to construct a realistic counterfactual. A more detailed discussion of the limits of this decomposition can be found in Corluy, V. and Vandenbroucke, F. (2012) 'Individual Employment, Household Employment and Risk of Poverty in the EU. A Decomposition Analysis'. CSB Working Paper, No. 12/06. Antwerp: Herman Deleeck Centre for Social Policy.

⁴ The further decomposition of changes within both groups of countries is based on trends in the low income proportion with the threshold set at 60 per cent of the EU-wide median income.

Figure 3: Decomposition of trends in the low income proportion by groups, with an income threshold equal to 60 per cent of the EU-wide median equivalent household income, EU-SILC 2005-11



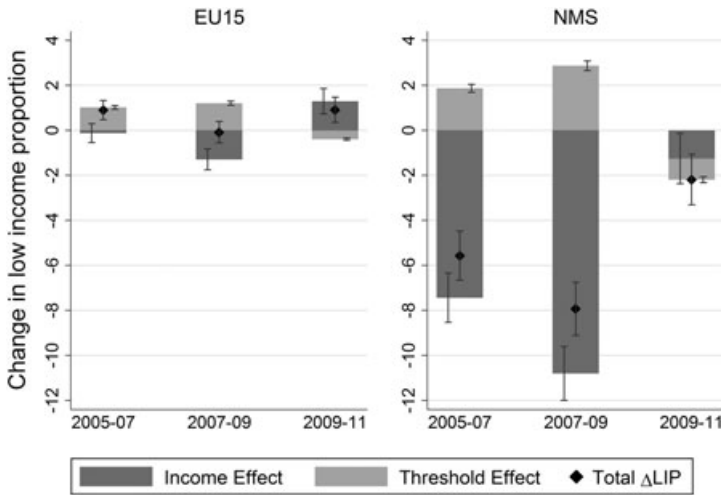
Notes: 95% confidence intervals presented in the same order as in the legend. See data section for information on countries included in the analysis and other details.

Source: EU-SILC UDB 2005, 2007, 2009, 2010 (IE), 2011, authors' calculations. Purchasing power parities for final household consumption from Eurostat's online database.

primarily driven by an increase in Germany, Italy, France and Greece, which was partially compensated by a decreasing trend in Spain. In contrast, the low-income proportion stagnated in the second period as a result of an increase in the United Kingdom, compensated by a decrease in France. Finally, in the third period, between EU-SILC 2009 and 2011, no single country had a downward impact on the low-income proportion, while trends in Spain and Greece pushed it further upward. The low-income proportion also increased in Ireland, but the country is probably too small to have had a significant impact on the overall low-income proportion of the EU-15.

Trends in the NMS are primarily driven by strong decreases in the low-income proportion in Poland. In the first period the change in Poland accounts for about 30 per cent of the decline, whereas in the second and third period over 70 per cent of the decline in the NMS is on account of Poland. However, Poland was not alone. Especially in the first period, the low-income proportion was on the decline in all NMS. In the second period, Slovakia, Lithuania and even Latvia had significant impacts, in spite of their relatively small populations. In contrast, in Hungary the low-income proportion increased. Finally, between EU-SILC 2009 and 2011, the low-income proportion increased in Latvia and Lithuania, but decreased – apart from Poland – substantially in Slovakia, the Czech Republic and Hungary. This indicates that trends have not been uniform and show a complex pattern, with larger countries generally having a more substantial impact, even though smaller countries such as the Czech Republic and

Figure 4: Contribution of real changes in the EU-wide income threshold to the EU-wide low income proportion, EU-SILC 2005-11



Notes: 95% confidence intervals.

Source: EU-SILC UDB 2005, 2007, 2009, 2010 (IE), 2011, authors' calculations. Purchasing power parities for final household consumption from Eurostat's online database.

Slovakia have also had a substantial impact on aggregate trends. Finally, it is worth reminding that these decompositions only show the direct impact, and not the additional indirect impact that trends in particular countries may have through their effect on the EU-wide median income.

Relative Versus Absolute Changes

Lastly, as the low income proportion is dependent upon 'a moving target' (the EU-wide median income), we cannot be sure of the extent to which changes in the low-income proportion are due to real income growth at the bottom of the income distribution or changes in the EU-wide median income. Over the first four years, the EU-wide median income grew by about 7 per cent in real terms, after which it declined by about 1 per cent. As during the first four years the threshold rose and the (relative) low-income proportion declined in NMS, this guarantees that in this period the low-income proportion reduction in these countries was not only an improvement in the relative position of their citizens but was also accompanied by a real improvement of their purchasing power.

However, given that in the EU-15 during the first four years there was an increase in the (relative) low-income proportion, in conjunction with an increase in the income threshold, we cannot directly establish whether this worsening relative position was

accompanied by a decrease in the purchasing power of households. In Figure 4 we summarize the impact of changes in median incomes by decomposing the total change of the low-income proportion in an income effect and a threshold effect. The income effect is calculated as the change in the low-income proportion if the income threshold had been kept constant in real terms. The threshold effect is calculated as the difference between the low-income proportion with an income threshold as a percentage of current median incomes and the low-income proportion calculated with an income threshold kept constant in real terms. The income effect is equivalent to what would have happened if we had kept constant the bundle of goods and services that could be bought with an income at the level of the income threshold.

In both the EU-15 and the NMS, in the first two periods real increases in the EU-wide median income drove more people below the low-income threshold line, while the reverse was true in the last period during which the EU-wide median income fell in real terms. In the EU-15, this was compensated by real growth in incomes at the bottom of the distribution only between EU-SILC 2007 and EU-SILC 2009. In the last period, a further decline in real incomes pushed more people below the (declining) income threshold. In other words, equivalent household incomes tended to decrease even more strongly around 60 per cent of median incomes than the median income itself. In contrast, in the NMS, the large decreases in the EU-wide low-income proportion are primarily driven by strong increases in the purchasing power at the bottom of the income distribution, which continued well into the first years of the economic crisis, even though at a much lower pace.

Discussion and Conclusion

World Bank economists Gill and Raiser (2012) argue that during the past four decades, the 'European convergence machine' has brought national consumption levels closer at an unparalleled pace. In this article, we seek an answer to the question of whether this 'convergence machine' has also worked for household incomes, especially at the lower end of the income distribution, while distinguishing between the EU-15 and NMS. In doing so, we propose making use of a new indicator, the EU-wide low-income proportion, which assesses movements of the lowest incomes in the EU in relation to the EU-wide median income, taking account of price differences across countries. As we have tried to show in this article, this indicator offers a valuable new perspective on social cohesion trends in the EU.

Household incomes in the eastern countries that joined the EU since 2004 have strongly (mostly upwardly) moved towards the EU-wide median income between EU-SILC 2005 and EU-SILC 2011. Concomitantly, the EU-wide low-income proportion has declined strongly in the NMS: with a threshold set at 60 per cent of the EU-wide median income, it decreased from 76 per cent in EU-SILC 2005 to 57 per cent in EU-SILC 2011. In contrast, the low-income proportion increased somewhat in the EU-15. As a result, the EU-wide low-income proportion is now to an important extent also a matter of relatively low incomes in the EU-15, and no longer predominantly an issue of concern for the NMS. Over the past years, changes in the EU-wide low-income proportion have been determined to a large extent by changes in the income situation of people living in the NMS, much more than would be expected on the basis of their

relatively small share in the total EU population. Moreover, the reduction in the EU-wide low-income proportion in the NMS has not only occurred in relative terms, but has also taken place together with an improvement in the real purchasing power of many households in these countries.

Overall, we believe this is a success story. Even though an appraisal of the causal mechanism is outside the scope of this article, a preliminary conclusion could be that at least until the crisis, the 'EU convergence machine' seems to have worked not only at the level of national economies but also for the citizens in the EU living on the lowest incomes, be it through EU-specific factors or other elements at play. This optimistic picture needs to be qualified, though. First, income differences between the EU-15 and the NMS remain substantial. On average, the purchasing power of those living in the EU-15 remains twice as high as those living in the NMS. Nearly 90 per cent of those living in the NMS continue to have an income below the EU-wide median income. As a result, future EU initiatives in the social domain cannot simply ignore the vast differences in living standards that remain between EU Member States. Second, it remains to be seen to what extent this trend will continue as the crisis evolves. It is worrying that in the EU-15 the low-income proportion is on the increase, even in a period in which the EU-wide median income was decreasing in real terms. At the same time, we do not see much ground in our analysis for the existence of a trade-off between income growth in the NMS and the EU-15: the low-income proportion in the NMS decreased strongly between EU-SILC 2007 and EU-SILC 2009, while it stagnated in the EU-15, but it would be worth analysing this in further detail. Third, our analysis excludes new Member States Bulgaria, Romania and Croatia. The former two in particular are known to have household incomes that are low even in comparison with the rest of the NMS.

How can these developments be explained? Currently, the theoretical literature still focuses largely on trends in inequality within countries (for a recent survey of the literature, see Atkinson, 2015), or on inequality in GDP per capita between countries (for a review, see Bourguignon, 2015). At the global level, Bourguignon (2015) has identified several mechanisms that help to explain trends both within and between countries, while Heidenreich and Wunder (2008) summarize the sociological and economic theoretical literature in the context of the EU. However, to understand trends in the EU-wide low-income proportion, more is required. First, given that the income distributions of individual countries partially overlap, both changes in (national) average income levels and changes in within-country inequality may have an impact on the EU-wide median income, making it difficult to predict how the low-income proportion evolves. Second, for the same reason, trends in individual countries, especially populous countries, may have a disproportional effect on the low-income proportion, through their effect on the EU-wide median income. An effective theory should therefore consider both the direct and indirect impacts that changes in average income levels, and trends in inequality within countries, may have on the EU-wide low-income proportion. In addition, it should address the impact that individual countries may have on trends in other countries. Future research should tease out whether the trends we observe continue, and should focus on better understanding the driving forces of the dynamics of the EU-wide income distribution. Even though a substantial body of literature is available regarding differential growth rates within the EU, and regarding causal factors

of changes in national income distributions, the theoretical and empirical literature directed at understanding the driving forces of the EU-wide income distribution is still underdeveloped.

In this article, we have tried to show that a more nuanced analysis of EU-wide income dynamics is possible when effective use is made of cross-country comparable and longitudinal micro data, rather than combining trends in GDP per capita and national aggregate figures on income inequality. It can be expected that pan-European income differences will remain an important challenge for EU initiatives in the social domain (cf. Vandenbroucke et al., 2013). Therefore, we are strongly convinced that future studies that assess whether the 'European convergence machine' keeps fulfilling its promise should not only consider these aggregate indicators, but should also analyse EU-wide dynamics in household incomes. The EU-wide low-income proportion seems to offer a useful starting point for doing so.

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