The Distribution of Well-being Among Europeans

Andrea Brandolini

(Bank of Italy)

Alfonso Rosolia

(Bank of Italy)

Paper prepared for the 35th IARIW General Conference

Copenhagen, Denmark, August 20-25, 2018

PS16: Other

WEDNESDAY, AUGUST 22, LATE AFTERNOON

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Andrea Brandolini and Alfonso Rosolia

Bank of Italy

DG Economics, Research and Statistics

Abstract

We study the distribution of equivalent household income among European residents and its evolution between 2004 and 2015 abstracting from national boundaries. We thus effectively consider the EU as a single economic unit in which the wellbeing of its residents, while certainly depending on *local* conditions¸ is assessed against a common benchmark.

Preliminary draft prepared for the 35th IARIW conference (Copenhagen, August 2018).

Introduction

How many Europeans have an income level falling below a certain threshold is not an easy question to answer. Yet, it is a relevant one. The European public, policy- and academic-oriented, debate is typically oriented towards the single countries and their relative performances against commonly agreed targets (e.g. the share of people at risk of poverty or social exclusion). This is reflected in official statistics on the distribution of income. For example, Eurostat calculates EU-wide poverty figures as "the population-weighted arithmetic average of individual national figures" (Eurostat 2017). This implies that the at-risk-of-poverty threshold is set as a proportion of the national median rather than of the overall EU-wide median. This amounts to overlooking differences in income levels among countries and, in turn, the role that, for example, *macroeconomic* convergence may play in shaping European poverty rates. Indeed, as early as 1989 Atkinson observed that "if the Community continues to assess poverty purely in national terms ..., 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" (Atkinson, 1995).

Data, adjustments and definitions

The main source of harmonized information on European households' incomes and wellbeing is the European Survey of Income and Living Conditions (EUSILC). As of the last release (EU-SILC CROSS UDB 2005-2017 – version of October 2017), EUSILC covers all 28 EU countries. However, in order to maximize the time span covered by the data, slightly abusing the term "EU" in the following we focus only on the 24 countries for whom data are available since the survey's inception, thus excluding Bulgaria, Croatia, Malta and Romania. The first year of operations was 2005, and the associated reference period for most economic variables was generally 2004; only in the UK the reference and field years coincide. We therefore construct a reference year "2004" UK survey by deflating UK 2005 nominal variables (disseminated in Euro) to 2004 using the deflator for UK Households and NPISH final consumption expenditure in Euro.

We then convert nominal values in real terms in two steps. First, we use Eurostat yearly purchasing power parities for households consumption expenditure to adjust country-specific nominal values for cross-country price level differences. Second, we deflate these adjusted nominal values with the EU28 Households and NPISH final consumption deflator to express all values at 2015 EU28 prices (Brandolini and Rosolia (2016) for details).

Finally, in describing the evolution of measures of inequality and of their determinants we will focus on the EU as a whole. Nonetheless, we will group the 24 countries into 4 classes, based on a rather accepted (though somewhat arbitrary) taxonomy. We split the 12 oldest Euro area members into CORE (Austria, Belgium, Finland, France, Germany, Luxembourg, Netherlands) and PERIPHERY (Greece, Ireland, Italy, Portugal, Spain); we define the EUNEA as the 3 EU15 non euro area countries (Denmark, Sweden, UK) and the NEU15 as the 9 (euro and non euro area) remaining non EU15 ones (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia).

We focus exclusively on equivalised total disposable income (variable HX090) and document its distribution across *individuals* (as opposed to across households).

A look inside EU inequality developments

Between 2004 and 2015, the EU-wide distribution of equivalent income became less unequal. This has reflected the much stronger growth of the bottom fourth of the distribution with respect to the upper 75 percent which, in turn, stemmed mostly from the major improvements recorded in new accession countries (NEU15) where a much stronger income growth throughout the distribution was recorded than in other EU countries (figure 1). In the other groups, developments in equivalent income have been much less striking and rather more homogeneous along the distribution, though qualitatively quite different: in peripheral and in non euro EU15 countries income fell throughout the distribution and, in the periphery, even more so at the bottom end; on the contrary, in core countries growth was positive at all income levels and stronger at higher ones.

As a result, there were major changes along the EU distribution. In figure 2 we exploit the fact that the EU-wide density of equivalent income can expressed as the weighted sum of group-of-countries specific densities, with weights equal to population shares: $f^{EU}(y) = \Sigma_G (S^G * f^G(y))$ and display the addends on the right hand side of this equality for 2004 and 2015. The major changes along the distribution are pretty evident, especially the massive shift of NEU15 population towards the higher end of the distribution and the increase in the relative weight of periphery and non euro EU15 countries in the lower tail.

To examine more in detail these changes on the basis of an income-based definition of social class we divide the EU population into 4 rather customary categories: low-income, that is individuals with equivalent income below 60% of the (EU) median equivalent income, lower middle class (between 60% and 120% of the median income), upper middle class (between 120% and 300% of the median and high income (above 3 times the median). In line with considering the

EU as a unique economic area, we operate this classification using for all countries the same income thresholds defined on the EU-wide distribution of equivalent income (panel A, Table 1) and briefly complement the description with a comment on the substantial different picture that would emerge using (groups of) country-specific thresholds (panel B, Table 1). Also, we describe the evolution between 2004 and 2015 keeping the thresholds at their 2004 values (expressed at 2015 prices): 8,521, 17,043 and 42,608 euros (respectively, 9,174, 18,348 and 45,871 euros in 2015).

In 2004, about 23 percent of EU population (103 million persons) was at risk of poverty (income below 60% of median income); 52 percent of them were from new accession (NEU15) countries (corresponding to about three quarters of the NEU15 population) and 26 percent from periphery countries (corresponding to about one fifth of the PERI population). In 2015, only about 17 percent of the EU population (82 million persons) was below the 2004 low income threshold; only one third were from new accession countries while the share of periphery residents had risen to about 40 percent. Over the period, the shares of low income from non euro EU15 countries had risen by 5 points to 14% while that of core countries residents had remained stable at about 12%.

At the upper end of the economic ladder, the share of core countries residents in the high income group has increased from 44 to 62 percentage points over the same period, while those of periphery and non euro EU15 countries have fallen from about 27 percent to, respectively, 21 and 14 percent. Finally, the relative weight of new accession countries in the middle class increased.

The picture would be dramatically different if the assessment were conducted on group-of-countries-specific thresholds, thus neglecting between (groups of) country differences (panel B, Table 1). In this case, in 2004 only about 17 percent of EU population would have been at risk of poverty and, by 2015, the share would have declined only slightly (at about 15 percent); core and periphery residents would have represented about one third each of EU low income individuals and new accession low income residents only about one fifth; as of 2015, low income residents in new accession countries would have been only 5 percent of EU low income, while the share of periphery residents would have climbed to 45 percent. At the other end, the share of new accession residents in the high income group (i.e. above 3 times the relevant median income) would have almost doubled, from 24 to 44 percent, and that of non euro EU15 countries fallen from 19 to 8 percent.

A EU-wide perspective to income distribution has implications not only for the "size" of the several "social classes" and for their developments over time but also, and perhaps more importantly, for the identities of poor and rich people beyond their residence country. For example, on a EU-wide basis, in 2004 about one fourth of European children (age 0-17) belonged to low income households against about one fifth based on (groups of) country-specific income thresholds. Yet, by 2015 progress in terms of reduction of child poverty turns out to be stronger on the basis of

a EU-wide threshold (down to 20 percent) than on the basis of geographic-specific ones (down to 17 percent).

Importantly, focusing on the EU as a whole helps underscore important fault-lines, namely that while similar groups of the EU population fare very differently across countries, others are more similar in terms of well-being. This consideration should then call for inclusion policies that target more closely *individuals* as opposed to *locations*.

To give substance to these consideration, we compare the relative equivalent income positions of selected socio-demographic groups and their changes relative to the overall EU between 2004 and 2015. We use a visual tool introduced in Brandolini, Gambacorta, Rosolia (2018). More specifically, let m_t be the overall median real equivalent income at time t, and q_t^{dc} the d-th decile of the distribution of real equivalent income *within* socio-demographic group c at time t. The ratios $p_t^{dc}=(q_t^{dc}/m_t)$ indicate the position of group c's distribution relative to the overall distribution, as summarised by its median value, and $\Delta^{dc}= (p_t^{dc}–p_s^{dc})$ says by how much this *relative* position changed between time s and t. In the following we consider socio-demographic groups identified from educational achievement, age, employment status, (group of) country of residence, where all characteristics refer to the household's head. For example, consider people living in households whose head has at least a high school degree (HS). In 2004, the overall EU median real equivalent income was 14,202 euros; the fifth decile of the income distribution for these educated households in CORE countries was about 17,861 euros, 25.8 per cent higher than the overall median, hence $p_{2004}^{5,HS}$=(17,861/14,202)=1.258. In 2015 the overall median rose to 15,290 euros, and the 5th decile of the high-school headed households in CORE countries rose to 20,127 euros, yielding $p_{2015}^{5,HS}$=(20,127/15,290)=1.316, yielding $\Delta^{5,CORE}$=1.316-1.257=0.059, an increase of about 6 percentage points in the ratio between the two medians.

For a given group, the changes in these decile-to-median ratios can be plotted against their initial value. Points in the north-east quadrant indicate that the group-specific deciles were above the overall median to start with and, over the period, moved farther away from the overall median. On the contrary, points in the south-west quadrant indicate that the group-deciles were below the overall median at the beginning of the period and fell further below it over time; points in the two other quadrants indicate a convergence towards the median during the period. Visually, an upward (downward) sloping curve means that the group-specific distribution became more (less) unequal over time, whereas a flat one suggests that the relative positions did not change; the position of the curve in the space informs instead on the position of the group relative to the overall median. Results are presented in Figure 3, where the points of each group-specific curve that correspond to the 2004 group-specific median are marked out.

With the exceptions of the low educated and the retired, the broad patterns are rather similar across groups. In periphery and in non-euro EU15 countries the position of these groups relative to the overall EU distribution has worsened, more so for higher initial income levels; in core and in new accession countries, instead, they have generally climbed up the distribution while, at the same time, recording an increase in within inequality. Only among the low educated, residents in core countries have just maintained their relative position. These patterns are broadly absent in the group of retired households, whose incomes are plausibly more insulated from trend and cyclical macroeconomic developments; only in new accession countries, retirees' households have, as in other groups, significantly improved their relative conditions.

The trends imply a strong divergence at the heart of the EU. The differences among income distributions of specific groups in founding countries, in particular among euro area members, that in some cases were already sizeable in the early 2000, have become more marked in the following decade.

Conclusions

In this paper we have performed a preliminary *boundary-less* exploration of the developments in the distribution of equivalent incomes among European residents in the decade between 2004 and 2015.

The analysis shows that a European perspective on income distribution provides additional insights and makes explicit the role of (macro)economic convergence (or lack thereof) for the distribution of wellbeing among European residents. For example, based on the standard practice of measuring low income individuals against national thresholds, the number of Europeans with equivalent income below 60 percent of the (national) median has fallen from about 76 to 68 million between 2004 and 2015; if assessed against a common European threshold, the drop is much more substantial (about 20 million less low income individuals) but it still leaves the 2015 figure at about 83 million people. Thus, the recognition that much stronger progress in reducing the incidence of people at risk of poverty has been achieved but also the recognition that the phenomenon – when assessed against a common benchmark - is more common than what signaled by standard measurement practices.

The change in perspective naturally leads to a reassessment of *who* belongs to certain segments of the income distribution and, in turn, to a reconsideration of the association between individual and households characteristics and the status of, for example, at-risk-of-poverty.

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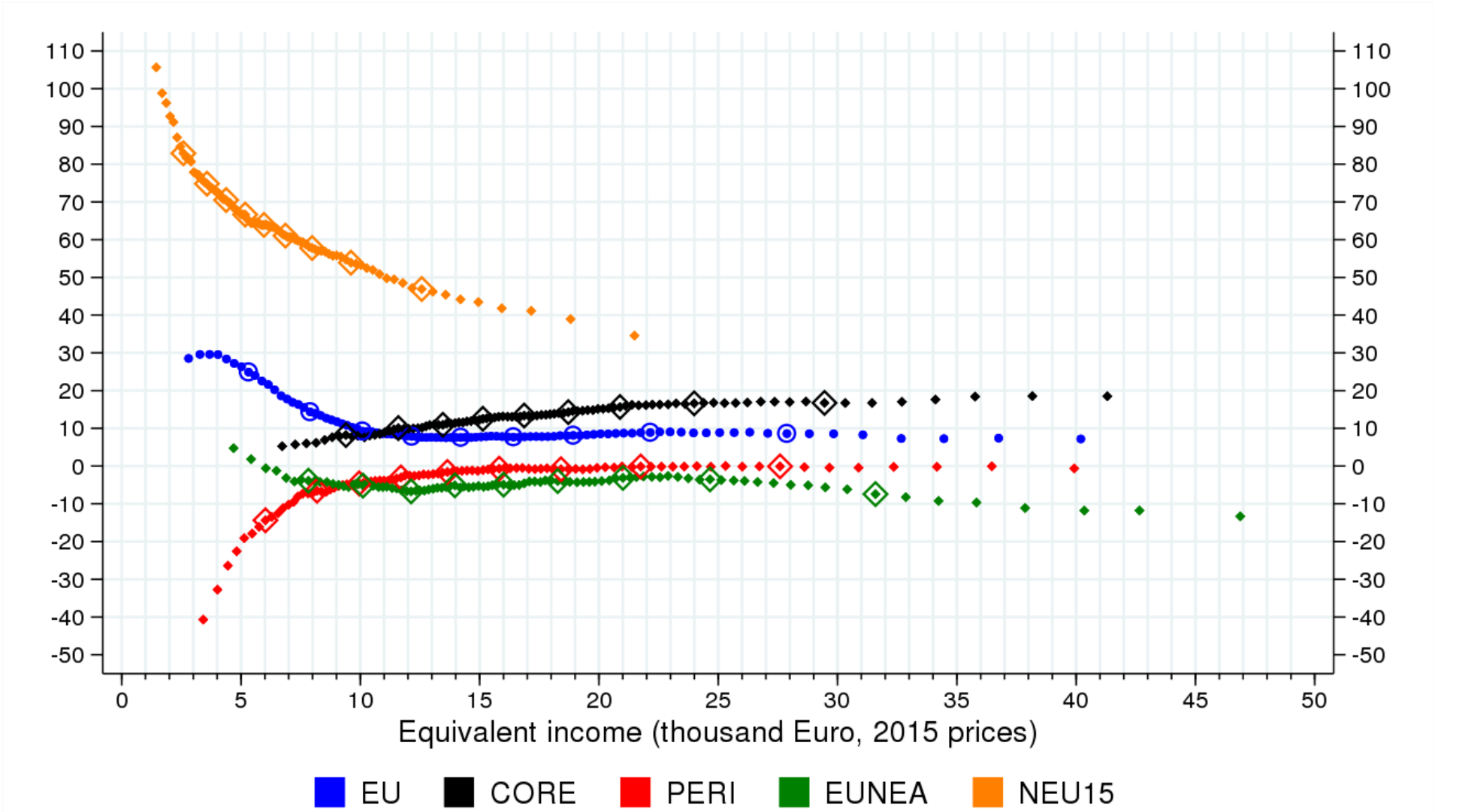
Table 1: Economic social classes in the EU

(persons)

	Low Income	Lower Middle Class	Upper Middle Class	High Income	Total
	A. Thresholds based on EU median income				
			2004		
CORE	12.767.609	79.423.717	83.949.106	4.866.211	181.006.643
PERI	27.536.409	54.570.692	41.235539	3.072.111	126.414.750
EUNEA	9.319.177	30.815.008	30.135.103	2.940.105	73.209.394
NEU15	53.872.565	16.008.111	2.801.329	166.853	72.848.859
EU Total	103.495.761	180.817.528	158.121.077	11.045.279	453.479.646
			2015		
CORE	10.673.868	63.820.215	102.512.941	9.112.914	186.119.938
PERI	32.462.504	54.024.549	42.496.381	3.146.889	132.130.323
EUNEA	11.475.866	34.459.620	31.442.515	2.023.590	79.401.590
NEU15	28.163.705	34.212.506	9.065.144	317.796	71.759.151
EU Total	82.775.943	186.516.889	185.516.980	14.601.189	469.411.001
	B. Thresholds based on group-specific median income				
			2004		
CORE	23.124.326	98.758.868	56.509.408	2.614.042	181.006.644
PERI	25.308.291	53.526.783	44.117.773	3.461.903	126.414.750
EUNEA	12.833.836	33.586.431	24.779.489	2.009.637	73.209.393
NEU15	14.599.573	31.289.580	24.383.240	2.576.466	72.848.859
EU Total	75.866.026	217.161.662	149.789.910	10.662.048	453.479.646
			2015		
CORE	18.335.907	84.428.869	78.306.807	5.048.355	186.119.938
PERI	30.317.386	52.559.456	45.682.690	3.570.791	132.130.323
EUNEA	15.897.057	37.051.505	2.5033.245	1.419.782	79.401.589
NEU15	3.381.973	16.362.398	44.106.656	7.908.124	71.7591151
EU Total	67.932.323	190.402.228	193.129.398	17.947.052	469.411.001

Figure 1: Equivalent income percentage growth along the distribution, 2004-2015.



Source: Authors' elaborations on EU-SILC CROSS UDB 2005-2017 – version of October 2017.
Note: The figure displays the percentage growth rates between 2004 and 2015 (y-axis) of percentiles of the distribution of equivalent incomes in the specific group of countries against their value (in euro) in 2004 (x-axis); only percentiles 3 to 97 are reported; hollow markers single out deciles of the corresponding 2004 equivalent income distribution. CORE: Austria, Belgium, Finland, France, Germany, Luxembourg, Netherlands; PERI: Greece, Ireland, Italy, Portugal, Spain; EUNEA: Denmark, Sweden, UK; NEU15: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia.

Figure 2: The composition of EU equivalent income distribution, 2004-2015

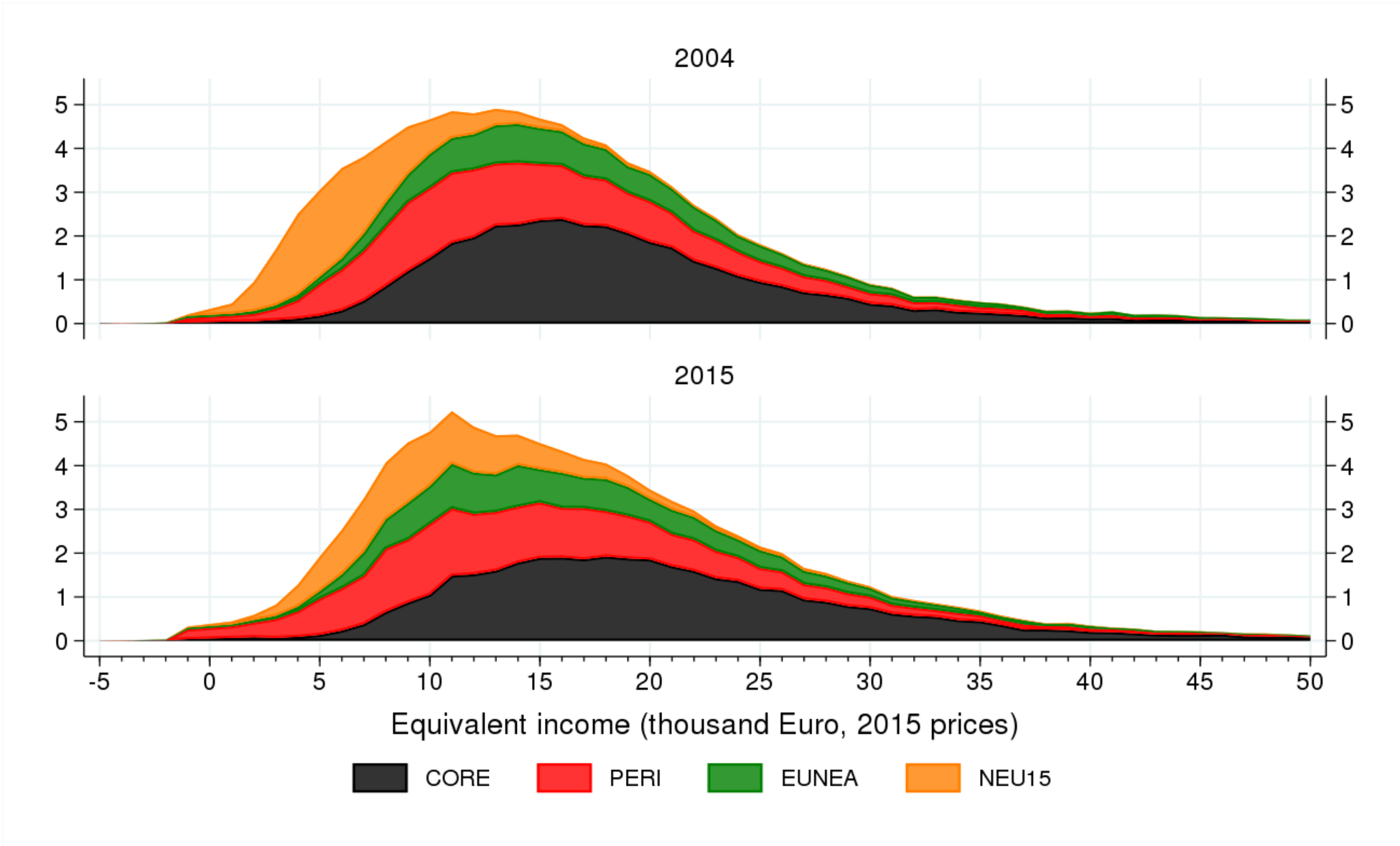
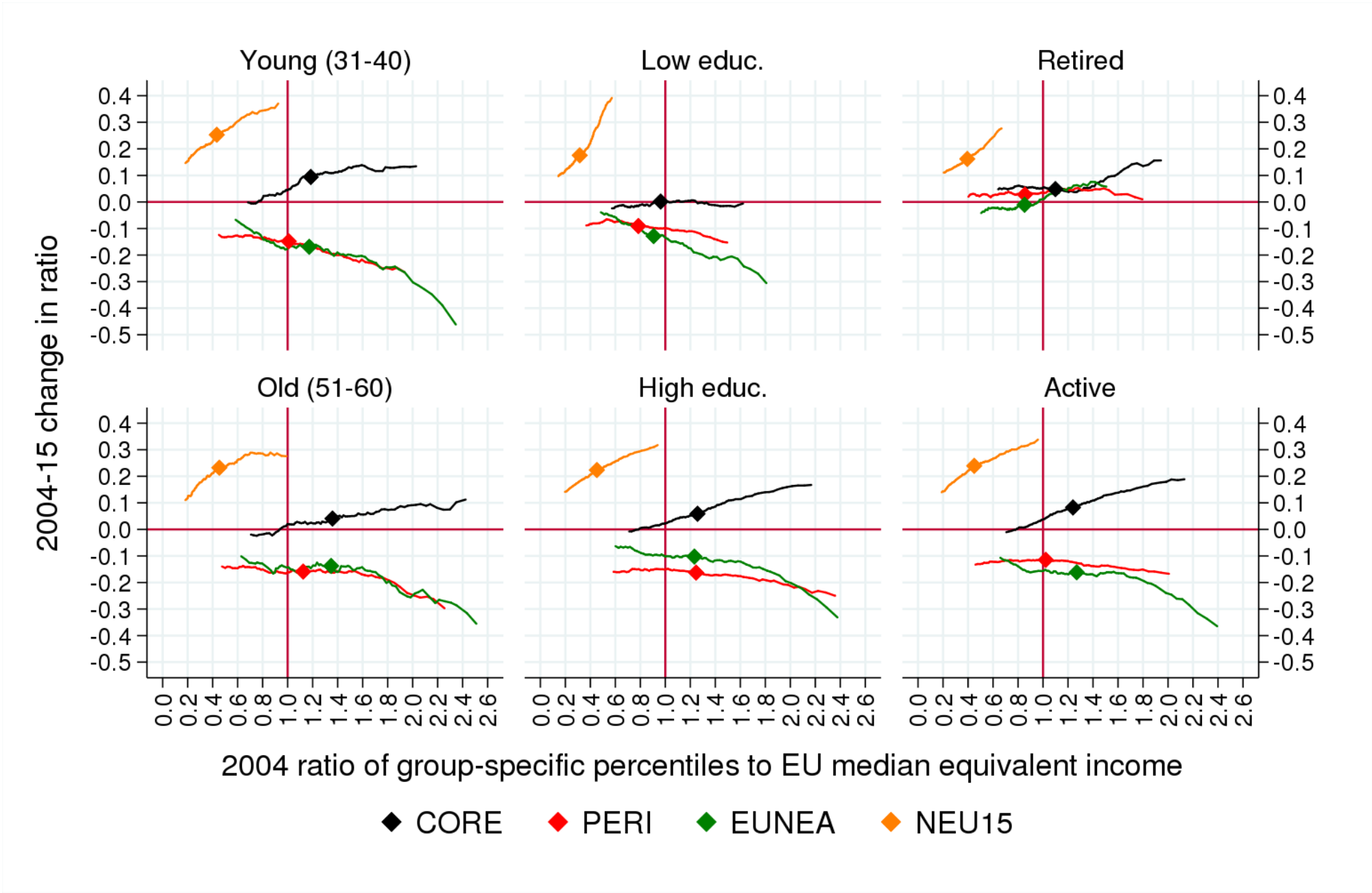


Figure 3: Relative equivalent incomes across the EU



Note: markers single out group-specific medians.