Social Class, Work-Related Incomes, and Socio-Economic Polarization in Europe, 2005-2014

Social Class, Work-Related Incomes, and Socio-Economic Polarization in Europe, 2005–2014

Marco Albertini[1],*, Gabriele Ballarino2 and Deborah De Luca[2]

[1]Department of Political and Social Sciences, University of Bologna, Strada Maggiore, 45- 40125 Bologna, Italy and

[2]Department of Social and Political Sciences, University of Milan, Via Conservatorio, 7- 20122 Milano, Italy

Abstract

Sociologists and economists have typically focused on different dimensions of socio-economic inequalities. Sociologists have been mainly concerned with occupational and educational indicators, whereas economists have focused on the earnings, income, and wealth distribution. The article integrates sociological and economics' approaches to the study of socio-economic inequalities, by providing an analysis of the relationship between social class and work-related income, and its distribution, in Europe in the period between 2005 and 2014. Europe as a whole and its eight major countries are studied with the European Union Statistics on Income and Living Conditions (EU-Silc) data. Changes in the income hierarchy among classes are discussed in the framework of the occupational upgrading and polarization hypotheses. The results of our analyses suggest that, first, the capacity of the concept of social class to describe and summarize the different distribution of individual market-related income is stable or increasing in Europe. Second, in the 10 years considered there has been a 'fanning out' of the class income hierarchy. With reference to upper social class, the increase in the income gap has been stronger for the self-employed and the routine workers. Finally, there is also evidence of a mix of occupational upgrading and polarization. The empirical results, in particular, are consistent with the predictions of the skill-biased technological change hypothesis.

Introduction

This article contributes to an integrated picture of socioeconomic inequality by studying earnings inequality[1] between occupational classes[2] in Europe for the period between 2005 and 2014. Using the European Union Statistics on Income and Living Conditions (EU-Silc) data, we study to what extent and in which direction the work-related income hierarchy among classes changed during the observed period, discussing the 'occupational polarization' hypothesis emerged in both economics and sociology since the early 2000s. We look at our object at two geographical levels, Europe as a whole and eight of its largest countries. For both levels, we first study which portion of earnings inequality is to be attributed to inequality between occupational classes and describes how this contribution changed over time—before, during, and after the years of the Great Recession. Second, at the individual level, we estimate the relationship between an individual's social class and his/her work-related incomes, net of compositional effects: in this way, we shed light on the earnings hierarchy of social classes, its variation across countries and its change in the decade between 2005 and 2014. The decade we focus on is admittedly a short time span to study structural

[1] The correct definition of our dependent variable is 'work-related income' but to avoid repetition we will use also 'earnings' and 'market income' as synonyms. See below, Data, Variables, and Methods section, for more detail.

[2] The article uses the terms 'social classes', 'occupational classes', and 'classes' interchangeably, meaning a limited number of groups into which the working population is subdivided on the basis of the individual occupation, taken as an indicator of the incumbent's life chances and opportunities. Less-aggregated occupational classes (as proposed by Weeden and Grusky, 2005) are called 'microclasses' or 'occupational groups', while the term 'occupations' is used for occupational groups as defined by ISCO and similar classifications.

phenomena, but it has to be remembered that our observation window includes the Great Recession of 2007–2009, the subsequent Eurozone crisis and the following recovery: a period seen by many observers, and by the public opinion, as one of tumultuous and long-lasting socio-economic changes. A small batch of papers have previously studied the relationship between social class and earnings, or income, for the United States and for a couple of European countries, but to our knowledge, this is the first study on this topic that considers both Europe as a whole and the major European countries in a comparative perspective. While the main aim of this article is thus to 'establish the phenomenon' (Merton, 1987), the evidence it provides adds up to a major debate going on among scholars interested in the relationship between economic inequality and the change of the occupational structure, where the two scenarios of occupational 'upgrading' versus 'polarization' are counterposed. Indeed, our analyses show that, at least for Europe, the main results found by this literature, which looks at income classes, substantially hold when classes are defined as occupational groups. We indeed find that while a general process of occupational upgrading is taking place, paralleled by increasing median work-related incomes, nevertheless a substantial minority of Europeans (with important national variations) is experiencing a decrease of their relative economic conditions, as highlighted by the polarization thesis.

Income Inequality, Social Class, and the Polarization Debate

Although something resembling a unified scientific approach to the study of socio-economic inequality is yet to come, dialogue between quantitative sociology and applied economics in the area of inequality research is currently stronger than it used to be a couple of decades ago. The increase in income, earnings, and wealth inequality experienced by most countries since the 1980s, as well as the Great Recession from 2008 to 2011, has indeed stimulated convergence between sociological and economic research on inequality. A number of cross-disciplinary collaborations and fertilizations are currently in progress, concerning both substantive and methodological issues. Current examples of the former are provided by research on the intergenerational transmission of incomes (Xie and Killewald, 2013; Chetty et al., 2017), as well as by new studies on wealth and the emergence of a super-elite wealthy class (Keister and Lee, 2017; Wolff, 2017).

Convergence over Disciplines?

For most part of the second half of the 20th-century inequality research had been sharply divided over disciplinary boundaries. While most economists typically focused on the distribution of individual—or household—earnings or incomes, sociologists were mainly concerned with the distribution and the intergenerational transmission of occupational status, variously measured, and of educational achievement. For economists, individual inequality was the focus, whereas for sociologists, the main interest was inequality among social groups, defined by occupation or education. From the late 1980s onwards, however, this situation changed. Currently, the overlap between the two disciplines is much larger than in the past, as economists took more frequently into account group-based inequality, relating to sociological concepts and research, while sociologists extended their interest to income and wealth inequality. Such a process of cross-fertilization had somehow paradoxical outcomes. While in the early 2000s, a number of sociologists were criticizing group-based approaches to inequality, such as the occupational class approach, suggesting that in a globalized and very competitive economy the labour market was becoming less structured by occupations and increasingly similar to the neoclassical economic models (Sørensen, 2000; see Goldthorpe, 2007 for a critique), in the very same period economists were paying increasing attention to group-based inequality, extending their own neoclassical, individual-based approach to issues which had previously been the domain of sociologists, for instance the intergenerational transmission of status, defined in terms of both income (Solon, 1999) and educational achievement (Black, Devereux and Salvanes, 2003), or the role of institutions in shaping inequality (Acemoglu and Robinson, 2012). Similar processes took place on the methodological front, as many sociologists have been using and refining econometric techniques such as income inequality

decomposition (Gangl, 2005; Karlson, Holm and Breen, 2012), while a number of economists have suggested that a measurement of inequality relying on metric coefficients may conceal major group-based patterns of changing inequality, such as the relative increase of the incomes of the very rich. A case is then made for categorical measures of income and wealth inequality, such as quantile distributions and interquartile ratios, which may provide a more detailed account of inequality patterns among social groups (Piketty, 2014: p. 266 ff.), an argument similar to the long-standing sociological position favouring categorical measures as better approximations to the complexity of the social structure than simpler metrics such as income or occupational scores (Erikson and Goldthorpe, 2002).[3]

The Polarization Debate

A major cause of cross-fertilization concerned research on the effects on inequality of the changes of the occupational structure taking place since the 80s. The discussion started among economists, when the 'skill-biased technological change' hypothesis (SBTC: Katz and Autor, 1999; Acemoglu, 2002) was developed in order to explain evidence showing a widening wage gap in the United States between individuals who hold a college degree and individuals who do not. The main argument stated that the evolution of technology, in a context of market competition, allowed employers to substitute the low- or unskilled jobs of poorly educated workers with machines, thus raising productivity, but with the consequence of reducing the market value, and the wages subsequently, of the low-educated workers. The same process gives more value to the skills of the highly educated, whose work becomes more important in order to manage the development of technology, its application to production and the process of marketing products and services in an increasingly competitive economy. A second explanatory argument was related to globalization and to the de-localization (offshoring) of economic activities it allows, which in turn makes unskilled workers in the rich countries substitutable by workers from developing, low-wage countries. While the SBTC argument would predict that most of the newly created jobs should be found in skilled occupations, the available empirical evidence showed also a substantial job growth (and, in the United States in the 90s, some wage increase too) in low-skilled occupations. Economists then refined the argument by specifying that what makes a job substitutable by machines is not its skill level per se, but the extent to which it comprises routine tasks, which might be easily automated and substituted by machines. Computers might be substitutes for routine tasks, who can be programmed, that is turned into a set of simple actions and commands, while they cannot be substitutes for nonroutine tasks, who cannot be decomposed into a set of basic actions and turned into a programme (Autor, Levy and Murnane, 2003). This means that machines (and de-localization) might substitute clerical routine jobs such as bookkeeper or cashier, often relatively well-paid and held by skilled individuals, while they can hardly substitute non-routine jobs, often held by low-skilled individuals, such as hairdresser or family assistant. As a consequence, neither will all jobs in low-skilled occupations be substituted by machines, or offshored to low-wage countries, nor are all skilled jobs sheltered from the competition of machines or low-wage foreign workers, as predicted by the SBTC argument. SBTC then becomes RBTC (routine-biased technological change). Parallel work in sociology extended the description of the changing patterns of earnings inequality beyond the simple college–no college dichotomy favoured by economists. In particular, the influential paper by Wright and Dwyer (2003) looked at the patterns of inequality over time comparing groups of occupations ranked by their median earnings. The paper analysed the pattern of (dependent) job creation in the United States in two periods of economic expansion, the 1960s and the 1990s, creating quintiles of occupations ranked by their median earnings, and then comparing the performance of each quintile in terms of creation of new jobs. The authors found that while during the expansion of the 60s job growth was concentrated in the occupations belonging to the higher earnings

[3] However, other economists have criticized categorical measures on grounds of parsimony (Blanden, 2013), in a discussion which may remind sociologists of the debates between supporters of occupational classes and of occupational scales (Ganzeboom, Treiman and Ultee, 1991).

quintile, according to an occupational upgrading pattern, during the 90s the newly created jobs were concentrated in occupations belonging to both the lower and the top quintiles, in line with a polarization pattern. The polarization pattern was then confirmed by Goos and Manning (2007) for the United Kingdom for the period going from the late 70s to the late 90s and by the same authors (2009) for 16 Western European countries, from 1993 to 2006; for Germany by Dustmann, Ludsteck and Scho ¨nberg (2009); by Autor and Dorn (2013) for the United States between 1980 and 2005, and by Goos, Manning and Salomons (2014) for 15 European countries from 1993 to 2010. While all of these studies somehow replicate the Wright and Dwyer analysis, by ranking occupations according to their median wages, the more recent studies also rank occupations according to indices of their 'task-intensity' and 'offshorability'. Results using all of the rankings were consistent, showing a polarization pattern with strong job growth at the top, weaker job growth at the bottom, and job decrease in the middle of the distribution of both median wage and skill (be it measured by task-intensity or by offshorability, which are indeed highly correlated). Moreover, the dispersion of wages increased not only in general, but also within occupations, however, classified: in particular, an increase in the dispersion of wages was observed in the 'lower' occupations and was attributed to the fact that while most low-skill jobs in manufacturing can be easily substituted by machines or offshored, since they imply routine tasks, low-skill jobs in the service sector cannot be substituted by technology, since consumers prefer the direct provision of the service on the part of human agents (Weiss, 2008). While studies in economics highlighted a common, cross-national pattern of occupational polarization, sociologists took more interest in the differences among countries, as an indication of the relevance of institutional factors in the process of occupational change[4] and more generally gave more weight to factors other than mere technological change in the explanation of the occurring transformation (Morgan and Cha, 2007). Using the median wage approach to classify occupations, Hurley and Ferna´ndez-Macı´as (2008) looked at job creation over quintiles of occupations for all European countries and the 1995–2006 period. While for some countries, such as the Netherlands and France, they indeed found polarization, the pattern for the majority of countries (and for Western Europe as a whole) was either occupational upgrading, that is an increase of jobs concentrated in the upper quintiles, or a mix of upgrading and polarization with a clear prevalence of the former. The pattern of upgrading was clearer in Scandinavia and Switzerland, while a mixed pattern was found for, among others, Germany, the United Kingdom, and the Mediterranean countries. Abatch of papers followed, extending the analysis in space and time, generally confirming this picture[5]. While the median wage approach was widely used, some also added measures of job quality different from wages, providing clearer evidence of occupational upgrading (Oesch and Rodriguez, 2011; Ferna´ndezMacı´as, 2012; Hurley, Ferna´ndez-Macı´as and Storrie, 2013; Oesch, 2013, 2015; Ferna´ndez-Macı´as and Hurley, 2017; Murphy and Oesch, 2018). OECD (2017) provided a global analysis by geographical area for the 1995–2015 period, based on the median incomes of relatively big occupational groups: results showed polarization for Japan, upgrading for the former Communist countries of Eastern Europe, and a mix between the two for the remaining areas, closer to polarization in Southern Europe and to upgrading for Western and Northern Europe and Northern America.

Occupational Class and Income

While the polarization literature looks at the changing weight of occupational earnings groups, a different point of view on the current processes of occupational change is provided by the sociological literature

[4] However, see Autor, Katz and Kearney (2008) for a discussion between the 'mainstream' thesis, according to which the polarization process is driven mainly by economic factors (technological change and offshoring) and a 'revisionist' thesis, put forward by a number of distinguished economists, according to which institutional factors also have an important role in the polarization process.

[5] Sociologists typically used more detailed codings of occupations than economists do (see Hurley and Ferna´ndez-Macı´as, 2008): this might to some extent explain the different results.

looking at the changes of the distribution of income and earnings over occupational classes. This literature uses a more traditional, for sociologists, occupational class approach, by which occupations are grouped into a relatively low number of classes according to their key characteristics, in particular their incumbents' position in the organizational hierarchy and in the market, or, according to more recent accounts, to the employment relation typical of each occupation (Goldthorpe, 1980, 2007). While the very definition of class implies that earnings should not vary much within it, since they are closely associated with the key characteristics by which the theory groups occupations into classes, nevertheless since the 2000s sociologists were compelled to look at the relationship between social classes and economic resources because of the increase of inequality and the inconsistency between it and the stable or declining inequality found by much sociological research concerning the intergenerational transmission of both educational and occupational status (Myles, 2003; DiPrete, 2007)[6]. An additional stimulus came from those criticisms, already referred to above, who pointed to a decreasing analytical usefulness of group concepts, such as occupational classes, for studying current socio-economic inequality (Sørensen, 2000). By means of inequality indices decomposition, this literature checked whether the increase of inequality was concentrated between or within classes, in order to ascertain whether the analytical potential of the concept was still there. Most of the papers in this literature were concerned with the United States, and some also looked at earnings (and wealth) differences among educational groups.[7] Morgan and Cha (2007) found inequality of both earnings and wealth among EGP classes in the United States to be almost as strong as inequality among educational groups, and to have notably increased from the 1980s onwards, while Morgan and Tang (2007) add to this account that earnings inequality between industries has decreased notably. The resulting pattern is one of polarization, not incompatible with SBTC theory, but the authors preferred to explain it in an institutional framework, with particular reference to Sørensen's (1999) 'neo-ricardian' theory of rent extraction, which sees occupational groups as relatively cohesive social units conflicting over the societal distribution of resources. Weeden, Di Carlo and Grusky (2007) used different definitions of occupational groups, looking at both the 'big' occupational classes of the EGP approach and the 'micro classes', that is the aggregation of occupations into a bigger number of smaller occupational groups (Grusky and Weeden, 2001; Weeden and Grusky, 2005). They found an increase of inequality between classes and occupational groups, and a decrease within the latter, thus pointing to an increasing importance of occupational institutions. Similarly, Mouw and Kalleberg (2010) found for the same period that market income inequality among occupations has increased, while inequality within occupations showed a major increase only in a handful of them, in particular managers, secretaries, and computer analysts: not incidentally, the ones more affected by the introduction of new technologies (see also Kim and Sakamoto, 2008). The few papers studying countries other than the United States also showed signs of polarization between both occupations and occupational classes. For the United Kingdom, Williams (2013) found increasing wage inequality among occupations from 1975 to 1996, and stability thereafter. For Italy, Albertini (2013) found a decrease in between-classes inequality from the mid1980s to the mid-1990s and an increasing trend afterwards. The result is thus stability for the whole period. A further analysis from 1991 to 2016 (Albertini and Ballarino, 2019) showed—up to the Great Recession years—a gradual increase of the income gap of all classes with respect to the upper class, which reduced after the crisis, but not for the working class, which appears to have been losing substantial ground with respect to all other classes, before and after the Great Recession.

[6] In principle, however, the two phenomena can indeed coexist, and they did, at least for a while, since the income equalization of the 50–70 had lagged effects on the intergenerational transmission of education and occupation which have co-existed with the trend of increasing income inequality starting from the late 70s.

[7] We omit from this review, for lack of space, the more recent literature concerning the changes in the distribution of wealth over social groups, defined both by education and by occupation (Dagnes, Filandri and Storti, 2018; Pfeffer, 2018).

Research Questions and Design

This article studies the relationship between 'big' occupational classes and individual's work-related income in Europe, from 2005 to 2014. The empirical analyses take on two different perspectives. First, we take a European look at the issue by pooling all countries available in the EU-Silc data (see below) and weighting each national sample to be proportional to the country population. In this way, we estimate the inequality of the distribution of work-related income at the European level, treating it as a single population. This approach parallels, at the European level, the 'concept 3' of inequality proposed by Milanovic (2005) as the one most accurate to measure economic inequality at the global level. There is another rationale for this approach, as some scholars argue that we are now witnessing an 'Europeanization of inequality'. This argument not only underlines the growing economic interdependencies among the European countries, but it also suggests that individuals' subjective perception of fairness and equality is increasingly shaped at the European level, so that a person's self-evaluation of his/her position in the stratification system is increasingly dependent on a European-wide comparison (Heidenreich, 2016). Second, we conduct a country-level analysis. We include eight countries (France, Germany, Italy, the Netherlands, Poland, Spain, Sweden, and the United Kingdom) selected on the basis of the size of their population and in order to represent the major European socio-economic clusters. Taken together, the eight countries comprise about 75% of the population of the European Union and represent the Nordic, the Continental, the Anglo-Saxon, the Mediterranean, and the post-socialist cluster. Our first research question concerns the extent to which occupational classes account for inequality in the distribution of work-related income, and whether this has changed over the observed period. Given the short time span we observed, we expect no major changes to have taken place. However, on the basis of the results from research on occupational class and income reviewed above, we rule out a diminution of the capacity of social class to account for labour market dynamics and thus for earnings inequality, as proposed by Sørensen (2000) (H1). Our second research question concerns the class earnings hierarchy and its pattern over time, controlling for compositional effects. In particular, we ascertain whether this pattern has been changing, and if the direction of its change is compatible with the polarization hypothesis outlined above. We exploit the substantive meaning of occupational classes by looking at the way their hierarchy changed, or remained stable, over the period taken into exam, and whether such a pattern of change varies over countries. A polarization pattern would predict in general an increasing gap between the upper class and other classes. According to the SBTC argument, this increase should be particularly strong for the working class, where individuals are on average less skilled (H2a), while according to the RBTC argument it should be stronger for the middle classes, since at least a part of their jobs might be involved in the substitution of routine work by machines or offshoring (H2b). However, there are also some reasons to expect a pattern of stability in the between-classes earnings gap. As a matter of fact: (i) research has shown that in recent years, in Europe, the values of the Gini index for income distribution did not change much (Toth, 2014, see also our own figures below); (ii) the financial component of the crisis has affected the incomes of the upper class more and, as a consequence, the gap between the upper class and the remaining ones could have diminished, or at least remained stable (H2c). Finally, while we do not formulate country-specific comparative hypotheses, we expect to find some consistency between our own results and those of previous research. In particular, on the basis of the few comparative studies in the literature on occupational polarization vs. upgrading reviewed above, we expect a more marked increase of inequality between classes, that is a stronger pattern of polarization, in France and the Netherlands, and possibly in the United Kingdom, where occupational growth has been relatively strong in the lowest-income quintile, while we expect and a less marked increase in the Scandinavian countries, where occupational change has been closer to the upgrading pattern.

Data, Variables, and Methods

Data and Variables

We used data from the Eu-Silc survey. We employed the cross-sectional data files for the years between 2005 and 2014, covering a period characterized by major differences in the economic cycle: economic growth (20052007), a recession (2008–2010), and the early phases of the post-recession recovery period (2010–2014). In our Europe-wide analysis, data from 25 European countries were included, i.e. Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia, Slovakia, Spain, Sweden, and United Kingdom[8]. The analysis included all working-age individuals to whom a social class could be attributed: that is, those who were either in paid employment or were registered as unemployed after losing their jobs, including individuals with zero work-related income[9]. The main reason why we kept unemployed individuals in the sample has to do with the differential selection into unemployment across social classes. This is particularly important given the period considered: during the Great Recession different social classes were differently affected by dismissals; had we not considered unemployed individuals while exploring the association between social class and work related income inequality trends and hierarchy, we would have obtained estimates that were biased due to differential selection into unemployment. In other words: this selection strategy, and the specific concept of income adopted (see below), allowed us to take account of the different extent to which—across the various social classes—the economic downturn produced by the Great Recession led to the dismissal of a significant quota of workers and of the different extent to which these individuals gained access to unemployment benefits, including the variation in the benefits themselves.

The Dependent Variable

Eu-Silc provides detailed information on income deriving from a variety of sources at both the individual and household level. Since our main interest concerned the relationship between occupational social class and economic inequality, we specifically focused on work-related income from both employment and self-employment[10]. By using individuals' instead of household's work related income as the main dependent variable, we clearly prioritized analysis of occupational social class as a proxy for the individuals' position in the labour market—and thus in the structure of power relations which are embedded in the organization of the labour market. The fact that people in the same occupational social class are similarly affected by shifts in demand, changes in skills' remuneration, labour law or labour market policies, should be better reflected by their (individuals') earnings than by household equivalent disposable income. Indeed, although the latter concept has often been utilized in inequality research, differently from work related income it is significantly affected by the sociodemographic characteristics of families and their changes (Albertini, 2008) and by a variety of public policies that are not strictly connected with individuals' occupation or position in the labour market—such as child benefits or cash-for-care transfers (United Nations, 2011). For the same reason, our dependent variable not only considered cash or near cash incomes from work, but also took unemployment benefits into consideration. These are in fact often connected with individuals' occupational position and—following a Bismarckian approach to the welfare state—their generosity (or stinginess) tends to mirror the power position of each specific social class within the labour market (Esping Andersen, 1990). In other words, we assumed that within social classes individuals are characterized not only by (relatively) similar earnings and work-related benefits, but also by similar levels of income protection if they find themselves

[8] Weincluded all countries to be found in the Eu-Silc database since 2005, minus Latvia, since in the years considered here work-related income information for that country was not always available.

[9] Only a few individuals with negative work-related income were excluded.

[10] Werefer to the specialized literature for an assessment of the reliability of the Eu-Silc income data (e.g. Iacovou, Kaminska and Levy, 2012).

unemployed. Because not all countries provide information on net work-related income, we decided to use its annual gross value. Furthermore, the amounts were transformed into their year-specific purchasing power parities (PPP) values to take account of inflation and cross-country differences[11].

The Main Independent Variable

The main independent variable of our analysis—occupational social class—was created by using the International Standard Classification of Occupation (Isco 88) codes provided in the Eu-Silc data. Unfortunately, the dataset provides only a two-digit Isco code, making it impossible to construct microclasses in the Weeden-Grusky vein. From the Isco codes, we then constructed a reduced version of the European Socioeconomic Classification (ESeC) class schema (Rose and Harrison, 2014). While the full version of ESeC includes nine classes (10 including the unemployed), the reduced version that we used comprised five classes, namely: (i) upper class (ESeC 1, including large employers and individuals in higher-grade professional, administrative, and managerial occupations); (ii) middle class, including ESeC classes 2, 3, and 6 (lower salariat and higher-grade workers, both non-manual and manual); (iii) self employed, including classes 4 (higher SE) and 5 (lower SE); (iv) lower-middle class, including classes 7 (lower grade non-manual workers) and 8 (skilled manual workers); (v) working class (routine occupations, ESeC 9). Our reduced coding, as well as our labels for the classes, slightly differ from the one proposed by Harrison and Rose (2006: p. 9), since (i) we aggregate class 2 with classes 3 and 6 in order to have a more clear-cut separation between the upper class (ESeC 1) and the middle class, of which the lower stratum of the salariat we consider a part[12]; (ii) we do not aggregate classes 8 and 9 into a single class of 'lower technical and routine occupations' because class 9 includes only routine occupations, while class 8 includes both routine and non-routine occupations (for instance, plumbers, an occupation which can hardly be substituted by machines, vs. train drivers, which are being increasingly substituted by machines, at least in urban railways). Keeping the two classes together would not allow any distinction between SBTC and RBTC, while in this case, we can make a rough distinction between the two arguments, since our lower-middle class includes both routine and nonroutine occupations, while our working class only includes semi- or un-skilled routine workers. As it is usual, individuals who at the time of the interview were unemployed after losing their job were attributed to the social class of their last job.

Methods and Analytic Strategy

The final sample used in the analyses consisted of 3,536,705 cases, for the 10years and 25 countries considered. The analyses were conducted both at the level of EU25—considered as a single population whose work-related income distribution was analysed—and at the level of single countries for eight countries that well represent the variety of socio-economic regimes characterizing Europe, i.e. France (n¼177,083), Germany (n¼223,403), Italy (n¼351,602), the Netherlands (n¼153,108), Poland (n¼268,660), Spain (n¼236,489), Sweden (n¼104,226), and the United Kingdom (n¼156,238). We used unweighted data for the single-country analyses, whereas when analysing the pooled EU25 dataset, we weighted the final sample in order to reproduce the size of the national population for each country and year observed, and utilized a random sample of the cases in our quantile regressions. Since our focus was on the trend in the relationship between social class and economic well-being, we considered each year of data separately. Our analytical

[11] In particular, we use the PPP coefficients provided by Eurostat: http://ec.europa.eu/eurostat/web/purchasing-power-parities/data/main-tables.

[12] Keeping class 2 together with class 1, as it is usual, would not qualitatively change the results of the analysis.

strategy moves through three steps. We first provide a description of how the class structure changed between 2005 and 2014, and we also report on the trend in the inequality of the distribution of individuals' work-related income, defined as above. We adopt two different decomposable indexes of inequality: the mean logarithmic deviation (MLD) and the Theil index, and present also the more popular Gini index when examining inequality trends. Both the MLD and Theil index belong to the generalized entropy class of inequality measures, whose general formula can be written as:

$$I_\alpha = \frac{1}{\alpha(\alpha-1)}\left[\frac{1}{N}\sum_{1}^{N}\left(\frac{y_i}{\bar{y}}\right)^{\alpha} - 1\right]$$

where N is the population size, $y_i is$ the income of the *i* individual, -y is the arithmetic population mean, and *x* is the parameter which defines the specific index utilized—and affects the sensitivity of the index to different parts of the distribution. The lower the value of a the more sensitive the index is to changes in the lower tail of the distribution. MLD is defined for *x* = 0 while the Theil index is defined for *x*= 1. Second, we addressed our first research question by using techniques of inequality index decomposition, by population subgroups, to gauge the extent to which the level of inequality is accounted for by between-class differences (Cowell, 2011). If individual occupations and economic situations no longer cluster into collective groups, as suggested by Sørensen (2000), then over time we will observe a decreasing proportion of the overall level of inequality to be explained by between-classes differences. On the contrary, if this percentage is stable over time, or even increases, then we have some evidence that class still matters[13].

Third, to answer our second research question we analysed the change over time of the relationship between social class and the level of work-related income by means of quantile regression models. Specifically, we used median regression models, while controlling for a number of factors whose change over time might create compositional effects i.e., age, age squared, gender, educational level (primary, lower secondary, upper secondary, post-secondary not tertiary, tertiary), and foreign birth (yes, no). We used median regression models since our interest focused on median work-related incomes, as is usual in the inequality literature because of the rights kewness of the distribution of earnings, income, and wealth. The regression coefficients for the different social classes, and their 95% confidence intervals, were then plotted to detect consistent tendencies and/or main differences in the trends recorded in the eight countries taken into consideration. These results would allow us to assess if—net of compositional effects—the relationship between social class and individuals' economic well-being changed during the observed period.

Sensitivity Analysis

The specific sample selection strategy and income concept adopted in the analyses imply that the trend in the relationship between social class and work-related incomes is affected by various factors: wage level of dependent workers; the earnings level of the self-employed; replacement rate and unemployment level. In our view, wage, earnings, work-related benefits, unemployment risks, and the class-specific replacement rate are all important elements of the definition of a social class position. However, to test the sensitivity of our results we repeated the empirical analyses: (i) on a subsample excluding those individuals who were unemployed at the time of the interview and, at the same time, not considering income from unemployment

[13] Ofcourse, the extent to which between-class differences contribute to changes in inequality levels is related to both variations in their size and their relative incomes (e.g. Albertini, 2013; Wodtke, 2016), but given our aims here it is not relevant to distinguish between the two mechanisms.

benefits; (ii) on a sub-sample which besides excluding individuals and incomes as from (i) further excluded the self-employed and incomes from self-employment. The results, available from the authors upon request, remained substantially similar in terms of the level and trend of class differentials reported in the empirical section below.

Results

Changes in the Class Structure and in Income Inequality

We start by looking at how our key variables changed over time. Besides the class structure and the inequality of the distribution of work-related income, we also look at earnings levels, since while inequality is by definition a relative measure, in order to substantively gauge its societal impact the absolute levels of work-related income should not be forgotten (Firebaugh, 2003). Figure 1 shows our sample broken down by social class in 2004 and 2015, the first and the last year of our observation window. As expected, also due to the relatively short period of time considered, the class composition of the working population of the EU25 did not undergo dramatic changes between the first and the last year considered in our analyses. However, some shifts appear: there is some decline of the working class and of

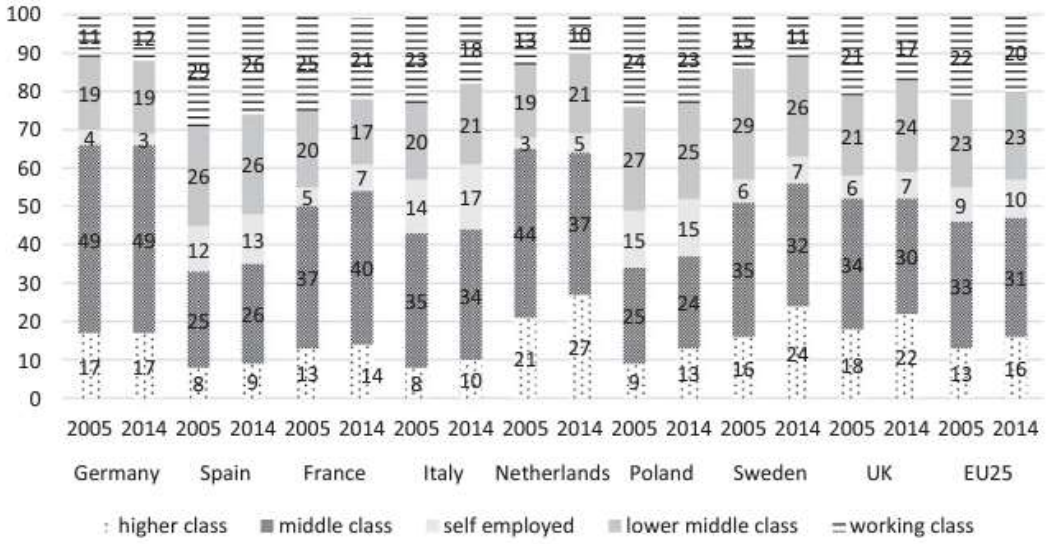

Figure 1. Occupational class structure, EU-25 and eight major European countries, 2005 and 2014

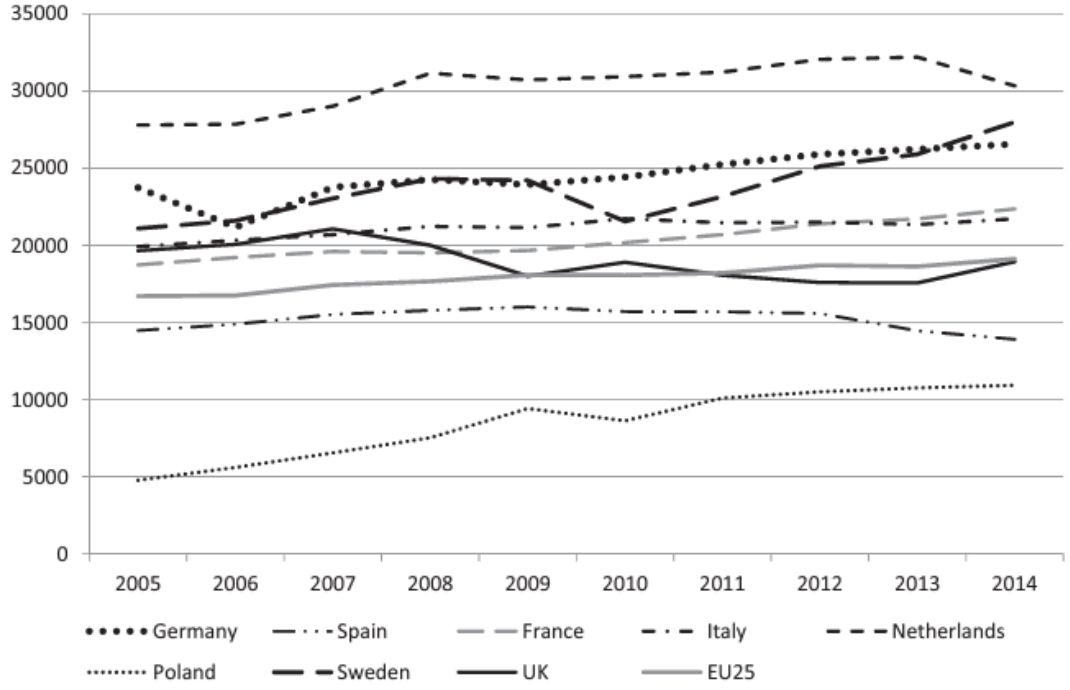

Figure 2. Median incomes, EU-25 and eight major European countries, 2005 and 2014

Note: See text for the definition of income.

the middle class, and a slight increase of the other three. In particular, the higher class is the one that expanded most, in proportional terms. The general picture points thus to some extent of occupational upgrading, consistently with the claims of the sociological literature reviewed above. Interestingly, at the bottom of the occupational stratification we observe some decrease of the working class (routine workers) and an increase of the self-employed. At the level of single countries we observe a similar general trend, although with some interesting between countries differences: (i) there is almost no change in class composition in Germany and Spain; (ii) in France, the number of respondents in the middle class and in self-employment tends to increase, while the quota of the lower-middle class and routine workers diminishes; (iii) the number of routine workers is also on the decrease in Italy at the advantage of both the self employed and the higher class; (iv) in the Netherlands, the upward shift of the employment structure is testified by the increase in the quota of workers in the higher class—although also the lower-middle class and the self-employed are on the increase—while the numbers of routine workers and the middle class are shrinking; (v) in Poland, Sweden, and the United Kingdom, the most notable change is the growth in the percentage of workers in the higher class, while routine workers, the middleclass, and the lower-middleclass are decreasing. The picture concerning the levels of work-related income shows some interesting changes, despite the short observation window (Figure 2). The median value of work-related income at the European level has moderately increased. The increase has been slightly larger in Sweden and significantly larger in Poland, whereas in the United Kingdom and Spain a decrease is observed, probably related to the strong impact of the crisis in both countries. It has to be noted that the literature reviewed above found for both countries a mix of upgrading and polarization, with the latter being more relevant here than elsewhere. In regards to the changes in the inequality of the distribution of gross earnings (Figure 3), we observe considerable fluctuations in the EU25 during the Great Recession—particularly between 2007 and 2012. In 2014, the level of inequality, however, is substantially similar to that registered in 2005. Behind the stability observed at the EU25 level lie marked differences in the trend registered in the eight countries considered (Figure 4).

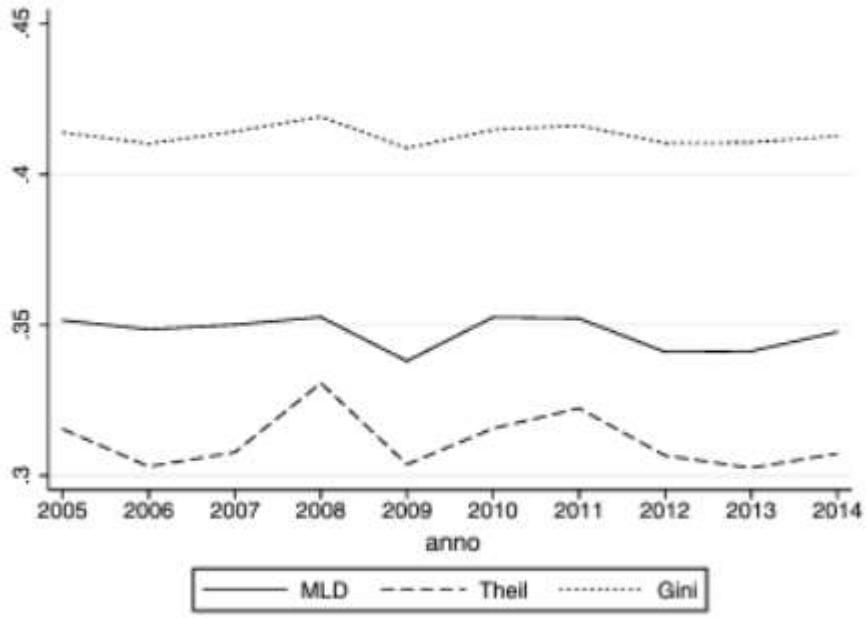

Figure 3. Income inequality EU-25, 2005–2014

Inequality in the distribution of work-related income has clearly increased in Italy and Spain and, to a lower extent, in the Netherlands as well. Conversely, in the10 years considered Poland experienced a substantial decrease in the dispersion of the earnings' distribution. In Germany, France, and Sweden, the trend is almost flat, and some minor inconsistencies emerge when comparing the trends of the three indexes utilized. Finally, in the United Kingdom, there are large fluctuations—especially when considering the values of the Theil index—which overall seem to suggest that inequality in the earnings distribution markedly increased in the period between 2006 and 2011, to then diminish considerably in the three following years.

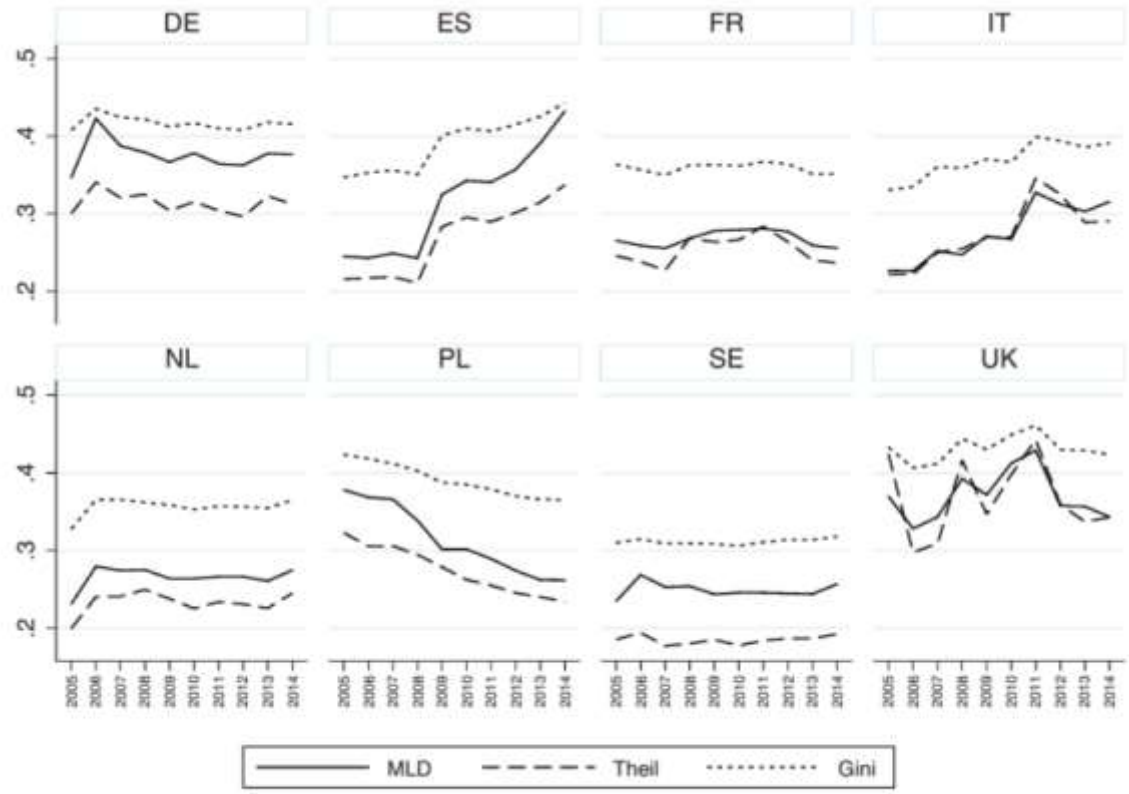

Figure 4. Income inequality in eight major European countries, 2005–2014

The Contribution of Between-Class Differences to Work-Related Income Inequality

But what about the contribution of between-class differences to the overall level of inequality? Did it decrease or was it stable over time, as suggested by most of the previous literature reviewed above? In EU25thetrend, bot has registered by the MLD and the Theil index, is vaguely U-shaped, with a decrease between 2005 and 2008 and some growth after wards. Overall, a slight growth of about one percentage point is registered between the first and last year of our series (Figure5). It is clear that the largest part of the inequality in the distribution of work-related income—i.e. around 80%—is accounted for by factors different from social class, but it is also clear that the years of the Great Recession have not brought about a decrease in the importance of occupational social class in structuring economic inequalities. The general trend observed at the levelofEU25is only partially mirror ed by what happens at the country level in the eight countries that we examine in detail in Figure 6. In France, the country with the largest between-class component of inequality, we see a U-shaped pattern, resulting in a slight decrease over the period considered. A similar, but some what flatter trend is found for the United Kingdom and for Sweden, where the values are much lower, particularly after the drop registered between 2005 and 2006. In Poland, we found only minor fluctuations. In the remaining four countries, an increase in the between class component of earnings inequality is observed. This trend is stronger in the Netherlands and Spain (especially for the Theil index), but it can be seen in Italy and in Germany as well. Interestingly, all of these countries also showed an increase of inequality (Figure4). On the basis of these data, therefore, it would be difficult to argue that during the 10 years between 2005 and 2014, including the Great Recession years, occupational class became a less relevant factor in the structure of economic inequalities. As a matter of fact, the role of class in the processes of economic stratification has remained stable or even increased. The empirical results, there fore, provides up port to our first hypothesis.

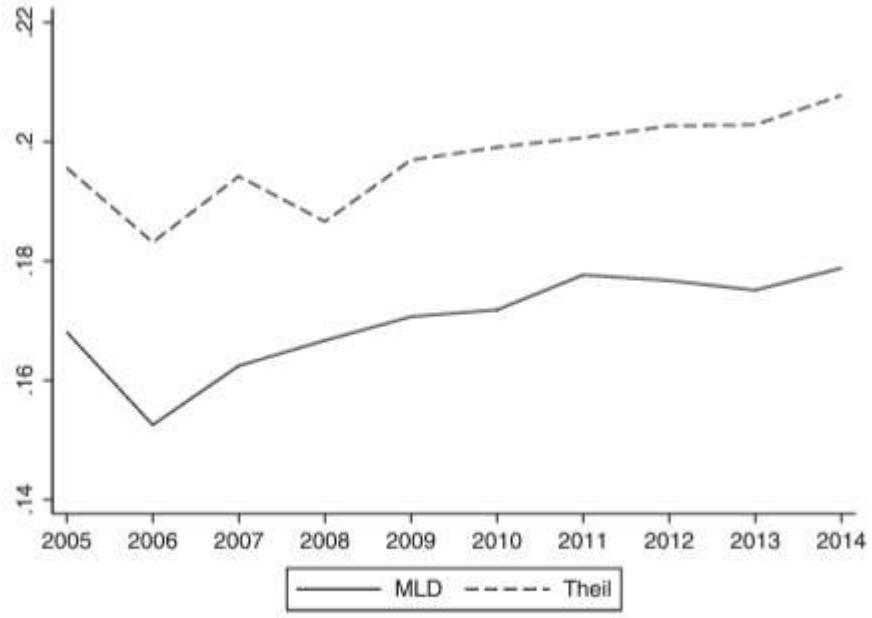

Figure 5. Percentage of income inequality accounted by between-class variation, EU-25, 2005–2014

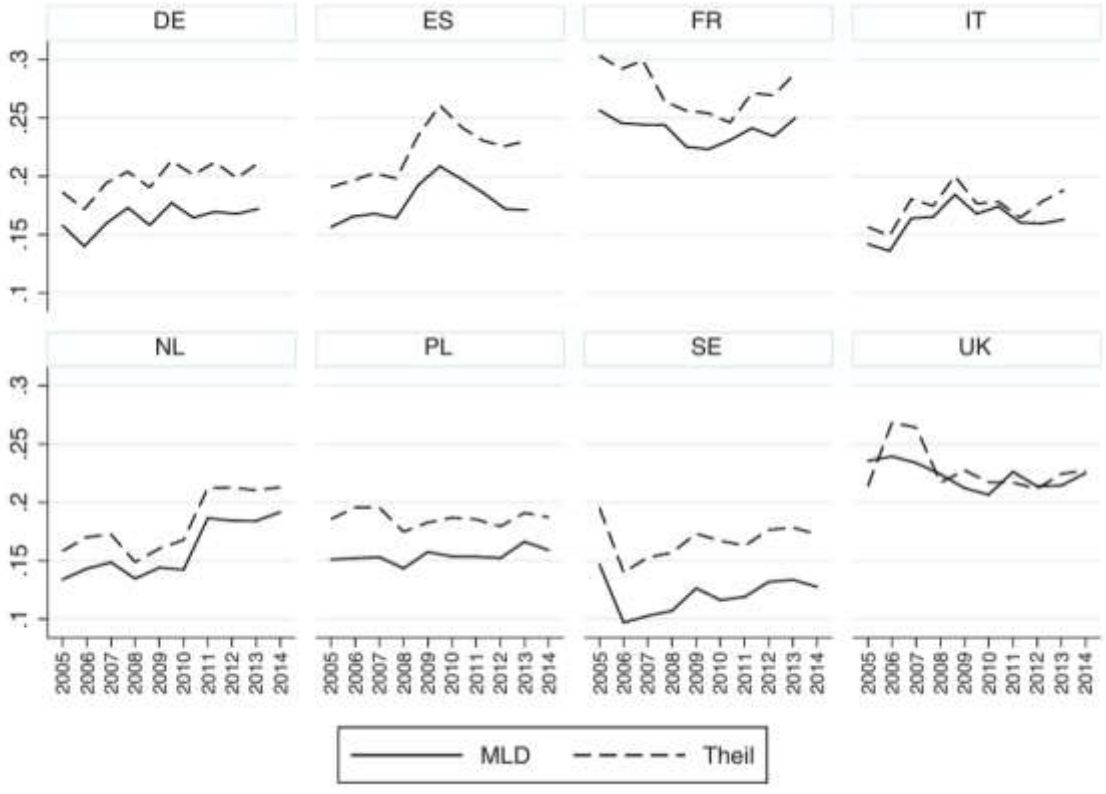

Figure 6. Percentage of income inequality accounted by between-class variation, eight major European countries, 2005–2014

The Association between Individual's Work Related Income and Social Class

We move now to the final step of our empirical analyses and focus on the pattern over time of the association between individuals' occupational class and their work related income. We have seen that in general the importance of social class for inequality in the distribution of work-related income did not decrease over the observed period: we now look at the class earnings hierarchy, to check the extent to which it changed from 2005 to 2014. Figures 7 and 8 show the results of our quantile regressions of work-related income on social class, by year, controlling for a number of factors including age, age squared, gender, educational level, and being born in a foreign country. Figures A1 and A2 in the Appendix, moreover, provide the predicted values from our analyses, so that it is possible to see both the average trend of increasing income (as seen in Figure 2 above) and the trend of between-classes difference, on which we now focus our discussion. At the EU25 level, the results of the quantile regression analysis (Figure 7) reveal an increase in the advantage of individuals in the upper class vis-a`-vis all other social classes. In particular, across the period considered, both the negative coefficients for the self-employed and the working class became larger, signalling a worsening of their economic situation relative to workers in the higher class. This holds also, albeit to a lesser extent, for those belonging to the middle class and the lower middle class. Per se this trend seems to indicate, first, that during the years of the Great Recession the role of social class in signalling individuals' economic wellbeing has increased, confirming our previous analysis; second, that there has been a fanning out—more than a clear-cut polarization—of the economic situation of the different social classes. Our results are then consistent with the sociological literature that found between-class income inequality to have increased over time. With reference to the polarization vs. upgrading debate reviewed above, our results (while not directly comparable) are

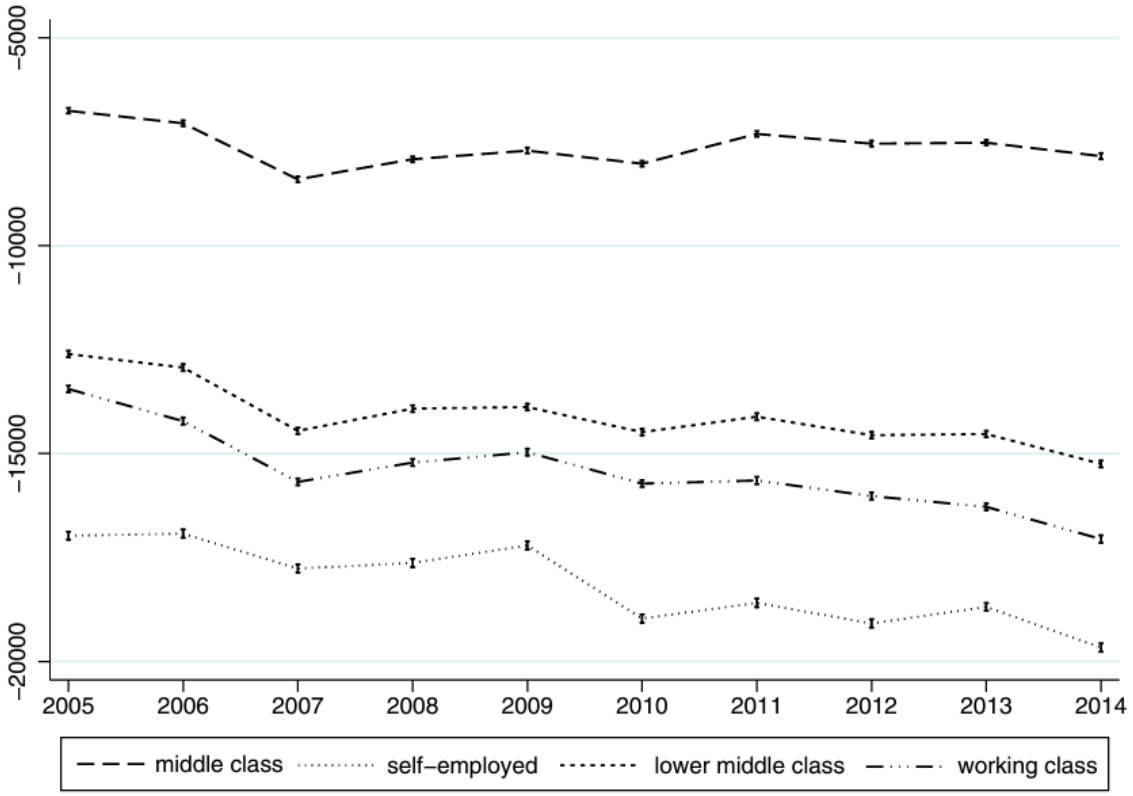

Figure 7. Median regression coefficients for social class, on work-related income. EU-25, 2005–2014

Notes: The graph displays the parameter and 95% CI estimates for social class, with higher class as the reference category, taken from a set of quantilic regressions of income controlling for age, age squared, sex, educational level, and being born in a foreign country. Full regression results are available from the authors on request.

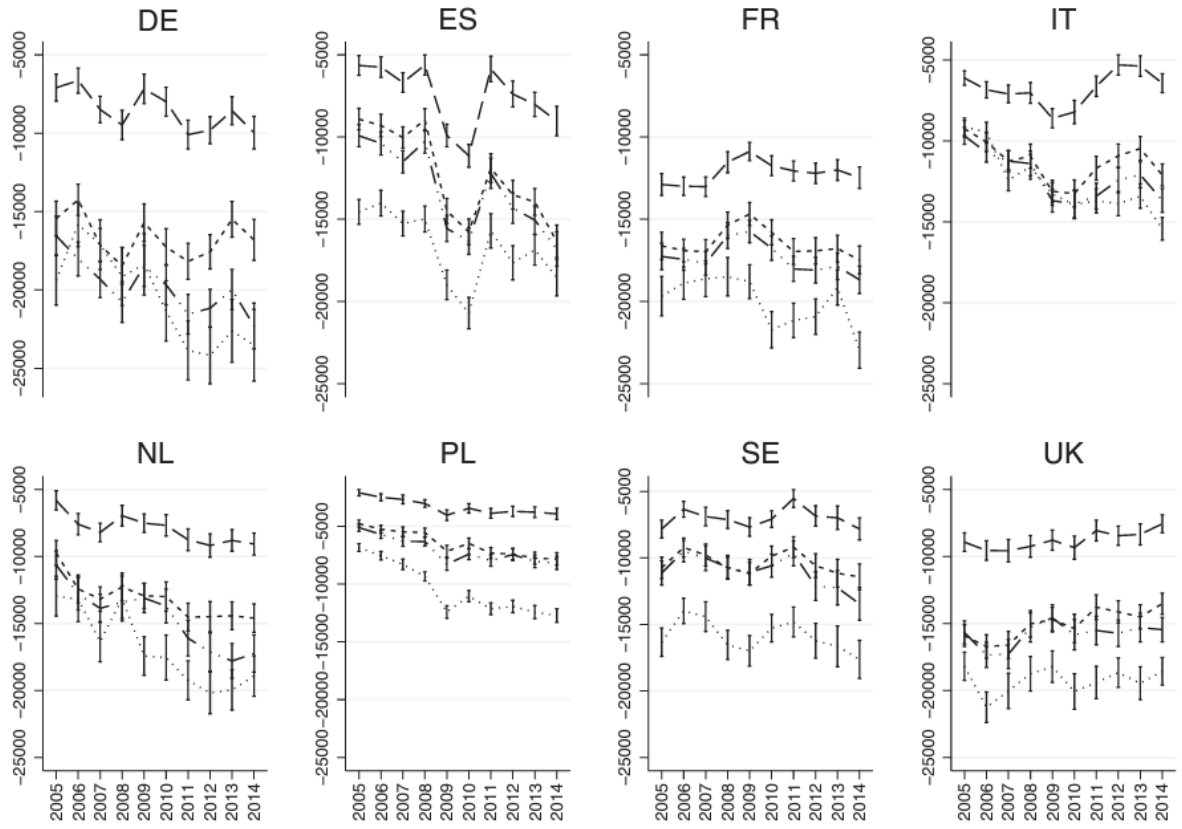

Figure 8. Median regression coefficients for social class, on work-related income. Eight major European countries, 2005–2014

Note: See legend and note to figure 7.

More compatible with a general process of occupational Up grading with some polarization, as proposed by sociologists (e.g. Hurley and Ferna´ndez-Macı´as, 2008; Oesch,2013),while they are less consistent with the picture of pure polarization proposed by economists (Goos and Manning, 2007; Goos, Manning and Salomons, 2014).However, in the lower part of the occupational stratification, we find the condition of the working class worsening more than the one of the lower-middleclass, which includes amixof routine and non-routine occupations, a picture more consistent with the SBTC hypothesis(H2a)than with the RBT Cone. Turning our attention to the trend in the relationship between social class and(median)work-related in come at the national level (Figure8), we see that—with the major exception of the United Kingdom—in all of the countries considered the advantage of the higher class increased throughout the10 years considered. Then it seems that in Continental Europe, there has been some improvement of the economic position of the higher social class. A further feature shared by the seven continental European countries considered is that both the self-employed and the working class have experienced a significant worsening in their economic situation, the only exception being observed for the latterin France. In the case of the self-employed, our results confirm that their economic situation is relatively bad with respect too ther classes, and that it has worsened over time, as found by previous studies on this group (Horemans and Marx, 2017). Besides the United Kingdom, the only case where the in come gap of the self-employed did not in crease is Sweden, while it did increase in all other countries, as the one of the working class, which ever the general trend of inequality. Concerning the working class, that is the semi-and unskilled workers, it is interesting to note that the increase of their disadvantage in terms of work-related income ishigher than the one registered for the lower middleclass (which, it has to be remembered, includes the skilled working class) in all cases but the ones of Spain, France, and Poland: three countries which not only showed different patterns of inequality over time (Figure 1), but also fared quite differently with the crisis, which hit quite strongly in Spain, less so in France, while it was substantially avoided by Poland. This points to the relevance of country-specific institutions, which structure the relationship between the overall income trend and the lot of the different

occupational classes. Thus, in general, the analysis at the level of single countries confirms that, if anything, the distance between classes in term of median work-related income increased during the Great Recession, but we do not see anything like the 'decline of the middle classes' suggested by some sociologists (e.g. Bagnasco, 2016; Chauvel, 2016[14]). Rather, we observe a clear deterioration of the situation of the working class, providing support for previous country-specific descriptions of the emergence of a new 'service proletariat' (Bernardi and Garrido, 2008). Further interesting indications in this direction derive from the 2005–2014 comparison of the median work related incomes predicted by our regression model for the different classes: only in very few cases we observe a decrease in the median real value of gross earnings between the first and the last year of observation (see Figures A1 and A2 in the Appendix). Sometimes the increases are rather limited—such as those for the working class in Germany (þ2%) and the self-employed in France (þ3%)—but a positive sign is found almost uniformly across classes and countries. There are, however, some exceptions to this trend. The median value of gross PPP-adjusted earnings of those in the working class diminished in four of the eight countries considered: Spain (4.5%), Italy (0.6%), the Netherlands (1.6%), and the United Kingdom (5.9%)—a finding consistent with both the SBTC and RBTC hypothesis. Other exceptions are represented by the self-employed in Italy and United Kingdom, whose median gross income decreased by more than 10%, and the lower middle class in Spain (7.9%).

Discussion and Conclusions

Our first research question concerned the capacity of occupational classes to account for inequality in the distribution of individual's work-related income: our results indicate that they account for about 20% of income differences, and that this percentage did not decrease at the European level over the years observed: if anything, it slightly increased. At the country level, the percentage of variation in earnings explained by social class is heterogeneous, ranging from about 0.13 (MLD) to 0.17 (Theil) in the case of Sweden, to about 0.25–0.29 in the case of France. The trends also differ, but not dramatically: there is a slight decrease in the United Kingdom, France, and Sweden, stability in Poland, and an increase in Germany, Spain, Italy, and the Netherlands. We take this result as evidence of the persisting capacity of the concept of occupational class to describe the differential distribution of market-related economic resources among social groups (H1 confirmed), a result consistent with the sociological literature on the relationship between social classes and income inequality that was reviewed above. Building on this finding, our second research question concerned the earnings hierarchy among classes. By means of median regression models, we observed how the median work-related income of the different occupational classes changed over the period that we observed, net of compositional effects. It should be borne in mind that in this period median incomes from work (expressed in year-specific PPP values) grew both at the European level and in most of the observed countries, the only exceptions being Spain and the United Kingdom, where a slight decrease has been observed. At the European level we found what we would call a 'fanning out' over time of the class earnings hierarchy, that is, an increase in the gap between the higher class and the remaining ones. The gap increase is modest in the case of the middle and the lower-middle classes, while it is stronger with respect to the self-employed and the working class, both manual and non-manual. The class earnings hierarchy did not change, but it was to some extent stretched out to become wider, particularly at the bottom. Given the general picture of increasing real median incomes and occupational upgrading, it would seem that we are witnessing the progressive deterioration of the economic conditions of a 'new proletariat' (Bernardi and Garrido, 2008)—although it is also worth noting that the number of routine workers is shrinking in Europe as a whole and in most of the countries we examinate (the only exception being Germany). This decrease is paralleled by a quantitative increase of the self-employed, suggesting that the new proletariat also includes a substantial component of the latter. In the terms of the 'polarization vs. occupational upgrading' debate, our results come closer to the

[14] Are view and an empirical testing of this thesis have been provided by Salvatori and Manfredi (2019).

second hypothesis for what the descriptive evidence is concerned, since our class analysis showed clear signs of occupational upgrading, providing a picture consistent with most sociological research on this topic, although with strong national variations. The process of course is not dramatic, as we are looking at a quite short time period. Our multivariate analysis, however, shows signs of a 'fanning out' pattern, as the distances between classes grew wider (consistently with the slightly increased capacity of class to account for earnings variation). This would come closer, if not to the strong polarization pattern found by economists, to the mix of upgrading and polarization found by sociologists. Indeed, the widening of the gaps was limited, particularly for the middle classes, and the general hierarchy was found to be stable. Our findings pointed to neither a quantitative decline of the middle classes nor to a strong decrease of their work-related incomes with respect to the upper class. Concerning the middle class proper, defined here (following ESeC) as higher-grade non-manual and manual dependent workers, its size indeed slightly declined in Europe as a whole, as well as in a handful of countries, notably the Netherlands, Sweden, United Kingdom, and Poland. However, this decrease is paralleled by a quantitative increase of the upper class, a pattern—again— more consistent with the upgrading scenario than with the polarization one. Moreover, the earnings gap of the middle class with respect to the higher class increased only in a few countries, and even there the increase was lower than that registered for the other classes. As regards the lower-middle class, which here includes lower grade (routine) clerical workers and skilled manual workers, some quantitative decrease was found overall and at the national level, particularly in those countries where the occupational upgrading was stronger (Sweden and Poland). But the increase in the earnings gap with respect to the higher class, albeit stronger than in the case of the middle class, is nevertheless weaker than in the case of the self-employed and the working class. The latter two classes appear to be the real losers in the (limited) reshuffling of the class earnings hierarchy taking place between 2005 and 2014. This does not come as a surprise for the unskilled working class, including routine jobs, which is decreasing quantitatively as well as in terms of their median work related income, as predicted by SBTC theory. RBTC theory, however, is less consistent with our findings, since the lower-middle class, which includes mid-skilled routine jobs, shows a lower increase of its earnings gap with the middle and upper class. In terms of the hypotheses outlined above, hypothesis H2a receives more support. Some notes are of order for the case of the self employed. It should be borne in mind, first, that in the ESeC classification used here the self-employed class does not include the higher stratum of non-dependent work (big employers and professionals), who are included in the upper class (ESeC class 1). Second, in most countries the self-employed are at a disadvantage with respect to all other classes as regards access to unemployment benefits: their work-related incomes, as defined in this article, are thus heavily pro-cyclical and disproportionately suffered during the Great Recession. Finally, it has to be noted, that for the self-employed, differently from employees, a strong inconsistency between recorded incomes and actual living conditions has been observed (Horemans and Marx, 2017). A final comment should be added to this picture. While we confirm the previous literature underscoring the heterogeneity of inequality patterns across Europe and, in particular, of the impact of the economic crisis on them (De Beer, 2012; Whelan, Nolan and Maitre, 2017), our results show strong similarities in the country-specific trends. In the inter-disciplinary discussion on current patterns of group inequality, sociologists have in general paid more attention to national variations, and to the role of country-specific institutions therein, whereas economists gave more weight to the common economic forces, particularly technological change and (to a lesser extent) offshoring, who are pushing all advanced capitalist countries in the same direction. This article suggests that it is important to look both ways, since we are in presence of what appears as a common trend, but one including major national variations, related to historical and institutional path dependencies.

Acknowledgements

Previous versions of this article were presented at the ISA-RC28 Spring Meeting 2016 in Bern and at a joint seminar at the Cornell Population Center and Center for the Study of Inequality. The authors thank all those

who commented during these presentations, the journal's editors, and referees for helpful advice, and Stefano Cantalini for helping us along with the graphs.

References

Acemoglu, D. (2002). Technical change, inequality and the labor market. Journal of Economic Literature, 40, 7–72.

Acemoglu, D. and Robinson, J. A. (2012). Why Nations Fail: The Origins of Power, Prosperity and Poverty. New York: Crown Business.

Albertini, M. (2008). Equalising or not? The effect of changing household characteristics on income inequality. European Sociological Review, 24, 285–298.

Albertini, M. (2013). The relation between social class and economic inequality: a strengthening or weakening nexus? Evidence from the last three decades of inequality in Italy. Research in Social Stratification and Mobility, 33, 27–39.

Albertini, M. and Ballarino, G. (2019). Reddito, ricchezza e disuguaglianze sociali. Venticinque anni di diseguaglianze in Italia, 1991-2016. Stato e Mercato, 115, 69–94.

Autor, D. and Dorn, D. (2013). The growth of low-skill service jobs and the polarization of the US labor market. American Economic Review, 103, 1553–1597.

Autor, D., Katz, L. and Kearney, M. (2008). Trends in U.S: wage inequality: revising the revisionists. Review of Economics andStatistics, 90, 300–323.

Autor, D., Levy, F. and Murnane, R. (2003). The skill content of recent technological change: an empirical exploration. The Quarterly Journal of Economics, 118, 1279–1333.

Autor, D., Levy, F. and Murnane, R. (2003). The skill content of recent technological change: an empirical exploration. The Quarterly Journal of Economics, 118, 1279–1333.

Bagnasco, A. (2016). La questione del ceto medio. Un racconto del cambiamento sociale. Bologna: Il Mulino.

Bernardi, F. and Garrido, L. (2008). Is there a new service proletariat? Post-industrial employment growth and social inequality in Spain. European Sociological Review, 24, 299–313.

Black, S. E., Devereux, P. J. and Salvanes, K. G. (2003). Why the Apple Doesn't Fall Far: Understanding Intergenerational Transmission of Human Capital. IZA Discussion Paper Series, 926. Bonn: Institute for the Study of Labor (IZA).

Blanden, J. (2013). Cross-country rankings in intergenerational mobility: a comparison of approaches from economics and sociology. Journal of Economic Surveys, 27, 38–73.

Chauvel, L. (2016). La Spirale du de´classement. Essai sur la socie´te´ des illusions. Paris: Seuil.

Chetty, R. et al. (2017). The fading American dream: trends in absolute income mobility since 1940. Science, 356, 398–406.

Cowell, F. A. (2011). Measuring Inequality, 3rd edn. Oxford: Oxford University Press.

Dagnes, J., Filandri, M. and Storti, L. (2018). Social class and wealth inequality in Italy over 20 years, 1993–2014. Journal of ModernItalian Studies, 23, 176–198.

De Beer, P. (2012). Earnings and income inequality in the EU during the crisis. International Labour Review, 151, 313–331.

DiPrete, T. A. (2007). What has sociology to contribute to the study of inequality trends? A historical and comparative perspective. American Behavioral Scientist, 50, 603–618.

Dustmann, C., Ludsteck, J. and Scho¨nberg, U. (2009). Revisiting the German wage structure. Quarterly Journal of Economics, 124, 843–881.

Erikson, R. and Goldthorpe, J. (2002). Intergenerational inequality: a sociological perspective. The Journal of Economic Perspectives, 16, 31–44.

Esping-Andersen, G. (1990). The Three Worlds of Welfare Capitalism. Princeton: Princeton University Press.

Ferna´ndez-Macı´as, E. (2012). Job polarization in Europe? Changes in the employment structure and job quality, 1995–2007. WorkandOccupations, 39, 157–182.

Ferna´ndez-Macı´as, E. and Hurley, J. (2017). Routine-biased technical change and job polarization in. Europe. Socio-Economic Review, 15, 563–585.

Firebaugh, G. (2003). The New Geography of Income Inequality. Cambridge: Cambridge University Press.

Gangl, M. (2005). Income inequality, permanent incomes, and income dynamics. Comparing Europe to the United States. WorkandOccupations, 32, 140–162.

Ganzeboom, H.B.G.,Treiman,D. J.andUltee,W.C. (1991). Comparative intergenerational stratification research: three generations and beyond. Annual Review of Sociology,17, 277–302.

Goldthorpe, J. H. (1980). Social Mobility and Class Structure in Modern Britain. Oxford: Clarendon.

Goldthorpe, J. H. (2007). On Sociology, 2nd edn. Stanford: Stanford University Press.

Goos, M. and Manning, A. (2007). Lousy and lovely jobs: the rising polarization of work in Britain. Review of Economics and Statistics, 89, 118–133.

Goos, M., Manning, A. and Salomons, A. (2014). Explaining job polarization: routine-biased technological change and offshoring. American Economic Review, 104, 2509–2526.

Grusky, D. B. and Weeden, K. A. (2001). Decomposition without death: a research agenda for a new class analysis. Acta Sociologica, 44, 203–218.

Harrison, E. and Rose, D. (2006). The European Socio-Economic Classification (ESeC) User Guide. Colchester: University of Essex

Heidenreich, M. (Ed.) (2016). Exploring Inequality in Europe. Diverging Income and Employment Opportunities in the Crisis. Cheltenham: Edward Elgar.

Horemans, J. and Marx, I. (2017) Poverty and Material Deprivation among the Self-Employed in Europe: An Exploration of a Relatively Uncharted Landscape. IZA Discussion Paper No. 11007. Bonn: IZA- Institute of Labor Economics.

Hurley, J., Ferna´ndez-Macı´as, E. and Storrie, D. (2013). Employment Polarisation and Job Quality in the Crisis: European Jobs Monitor 2013. Dublin: Eurofound.

Iacovou, M., Kaminska, O. and Levy, H. (2012). Using EU-SILC Data for Cross-national Analysis: Strengths, Problems and Recommendations. ISER Working Paper Series No. 2012-03. Colchester: University of Essex, Institute for Social and Economic Research (ISER).

Karlson, K. B., Holm, A. and Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: a new method. Sociological Methodology, 42, 286–313.

Katz, L. F. and Autor, D. H. (1999). Changes in the wage structure and earnings inequality. In Ashenfelter, O. and Card, D. (Eds.), Handbook of Labor Economics, Vol. 3A. Amsterdam: North-Holland, pp. 1463–1555.

Keister, L. A. and Lee, H. Y. (2017). The double one percent: identifying an elite and a super-elite using the joint distribution of income and net worth. Research in Social Stratification and Mobility, 50, 1–12.

Kim, H. and Sakamoto, A. (2008). The rise of intra-occupational wage inequality in the United States, 1983 to 2002. American Sociological Review, 73, 129–157.

Merton, R. K.(1987). Three fragments from a sociologist's notebooks: establishing the phenomenon, specified ignorance, and strategic research materials. Annual Review of Sociology, 13, 1–29.

Milanovic, B. (2005). Worlds Apart: Measuring International and Global Inequality. Princeton: Princeton University Press. Morgan, S. L. and Cha, Y. (2007). Rent and the evolution of inequality in late industrial United States. American Behavioral Scientist, 50, 677–701.

Morgan, S. L. and Tang, Z. (2007). Social class and workers' rent, 1983–2001. Research in Social Stratification and Mobility, 25, 273–293.

Mouw, T. and Kalleberg, A. L. (2010). Occupations and the structure of wage inequality in the United States, 1980s to 2000s. American Sociological Review, 75, 402–431.

Murphy, E. C. and Oesch, D. (2018). Is employment polarisation inevitable? Occupational change in Ireland and Switzerland, 1970–2010. Work, Employment and Society, 32, 1099–1117.

Myles, J. (2003). Where have all the sociologists gone? Explaining economic inequality. The Canadian Journal of Sociology, 28, 551–559.

OECD(2017).EmploymentOutlook2017.Paris: OECD.

Oesch, D. (2013). Occupational Change in Europe. How Technology and Education Transform the Job Structure. Oxford: Oxford University Press. Oesch, D. (2015).

Occupational structure and labor market change in Western Europe since 1990. In Beramendi, P. et al. (Eds.), The Politics of Advanced Capitalism. Cambridge: Cambridge University Press, 112–132.

Oesch, D. and Rodriguez, J. (2011). Upgrading or polarization? Occupational change in Britain, Germany, Spain and Switzerland, 1990–2008. Socio-Economic Review, 9, 503–531.

Pfeffer, F. (2018). Growing wealth gaps in education. Demography, 55, 1033–1068.

Piketty, T. (2014). Capital in the 21st Century. Cambridge: Harvard University Press.

Rose, D. and Harrison, E. (Eds.) (2014). Social Class in Europe: An Introduction to the European Socio-Economic Classification. London: Routledge.

Salvatori, A. and Manfredi, T. (2019). Job Polarization and the Middle Class: New Evidence on the Changing Relationship between Skill Levels and Household Income Levels from 18 OECD Countries. OECD Social, Employment and Migration Working Paper No. 232. Paris: OECD.

Solon, G. (1999). Chapter 29—intergenerational mobility in the labor market. In Orley, C. et al. (Eds.),Handbook of Labor Economics, vol. 3, pp. 1761–1800.

Sørensen, A. B. (1999). Employment relations and class structure. The Sociological Review, 47, 16–42.

Sørensen, A. B. (2000). Toward a sounder basis for class analysis. American Journal of Sociology, 105, 1523–1558. Toth, I. G. (2014).

Revising great narratives of growing inequalities: lessons from 30 country studies. In Salverda, W. et al. (Eds.), Changing Inequalities in Rich Countries: Analytical and Comparative Perspectives. Oxford: Oxford University Press, 11–47.

United Nations (2011). Canberra Group Handbook on Household Income Statistics, 2nd edn. Geneva: United Nations Economic Commission for Europe.

Weeden, K. A., Di Carlo, M. and Grusky, D. B. (2007). Social class and earnings inequality. American Behavioral Scientist, 50, 702–736.

Weeden, K. A. and Grusky, D. B. (2005). The case for a new class map. American Journal of Sociology, 111, 141–212.

Weiss, M. (2008). Skill-biased technological change: is there hope for the unskilled? Economics Letters, 3, 439–441. Whelan, C. T., Nolan, B. and Maitre, B. (2017).

Polarization or “squeezed middle” in the Great Recession? A comparative European analysis of the distribution of economic stress. Social Indicators Research, 133, 163–184.

Williams, M. (2013). Occupations and British wage inequality, 1970s–2000s. European Sociological Review, 29, 841–857.

Wodtke, G. T. (2016). Social class and income inequality in the United States: ownership, authority and personal income distribution from 1980 to 2010. American Journal of Sociology, 121, 1375–1415.

Wolff, E. D. (2017). A Century of Wealth in America. Harvard: Harvard University Press.

Wright, E. O. and Dwyer, R. E. (2003). The patterns of job expansion in the USA: a comparison of the 1960s and 1990s. Socio-Economic Review, 3, 289–325.

Xie, Y. and Killewald, A. (2013). Intergenerational occupational mobility in Great Britain and the United States since 1850: comment. American Economic Review, 103,2003–2020.

Appendix

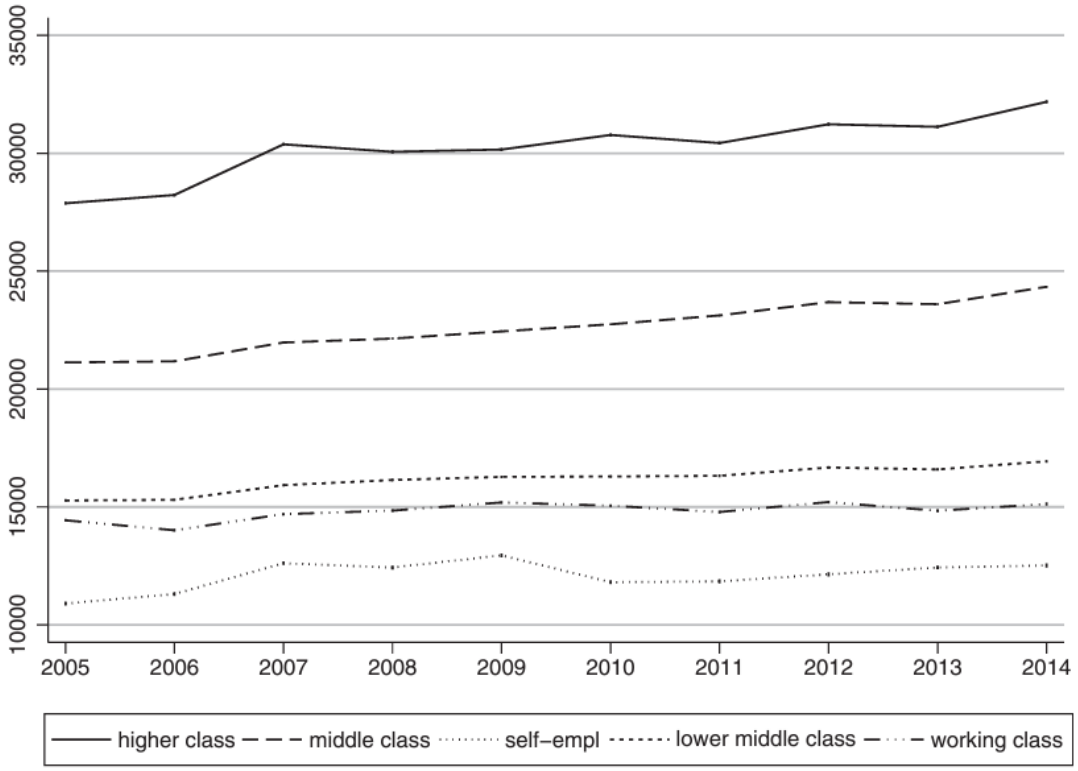

Figure A1. Predicted median work-related income of social classes, EU-25, 2005–2014

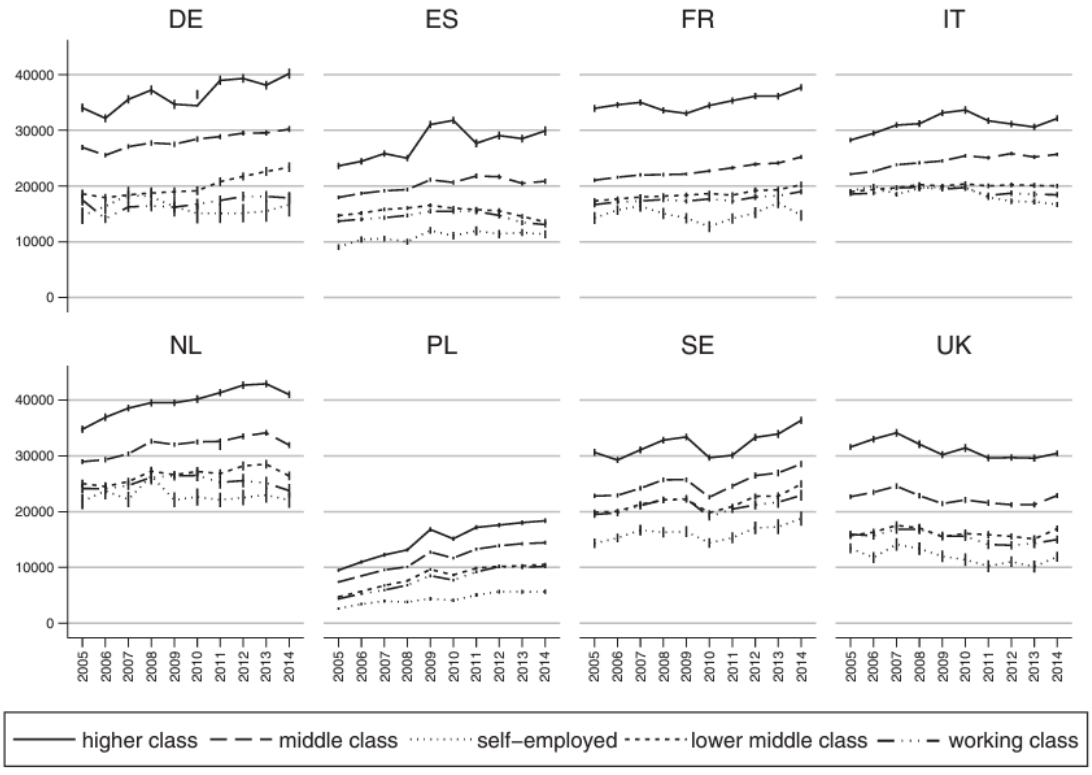

Figure A2. Predicted median work-related income of social classes. Eight major European countries, 2005–2014