



Between-Class Earnings Inequality

in 30 European Countries

A Regression-Based Decomposition

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Abstract

This article studies earnings inequality between social classes across 30 European countries. Class inequality in earnings is found across the board although there are some exceptions. However, the degree of class inequality varies strongly across countries being larger in Western and Southern European countries and smaller in Eastern and Northern European countries. Furthermore, we find that differences in class composition in terms of observed characteristics associated with earnings account for a substantial proportion of these between-class differences. Differences between classes

in the returns to education and other characteristics play less of a role. In all these respects there is a sizeable cross-national variation. This points to important differences between countries in how earnings are structured by social class.

Keywords

social class – earnings inequality – cross-national variation – Europe – inequality decomposition – EU-SILC

1 Introduction

In sociological literature, social class is a key indicator of inequality (Goldthorpe, 2007). Social class captures individual's position in the labour market and has been shown to influence life chances by structuring a range of outcomes, including individual's short-term income instability and insecurity, material deprivation and economic vulnerability, long-term income prospects and wealth levels, together with social mobility (Whelan and Maître, 2010; Lahtinen et al., 2018; Bukodi et al., 2019; Albertini and Radl, 2012). Several country case studies have also shown a link between social class and earnings for example in the UK and the US (e.g. Weeden et al., 2007; Williams, 2017; Wodtke, 2016). However, cross-national variations in the degree of economic inequality between class categories has received little sustained attention. We know little about the degree of economic inequality say between the working class and salariat and how that inequality differs across countries. Are the working classes relatively better off in some contexts than others and if so, why? In this study, we contribute to the comparative evidence by providing an up-to-date account on class inequality in earnings across thirty European countries.

Thus far, studies on the relationship between social class and earnings have mostly focused on single countries and trends over time in inequality between versus within classes, prompted initially by the 'death of class' claims that the role of social class in determining economic standing and incomes was much reduced due to technological change and globalization (Clark and Lipset, 1991). Country case studies have shown that social class still matters for income and earnings as much as it did some decades ago (e.g. Weeden et al., 2007; Williams, 2017; Wodtke, 2016). More recently, studies into social class and earnings have been motivated by an interest in the implications of rising earnings

inequality across the rich countries for 'polarisation', including the impact that may have on politics and the rise of populism (Burgoon et al., 2019; Engler and Weisstanner, 2020). However, the literature on class inequality in earnings across countries is less developed. Albertini et al. (2020) is a rare comparative study on the relationship between class and earnings, but also concentrates on the extent to which between-class differentials changed over time. The only comparative study we know focuses on how those differentials vary across countries is Le Grand and Tåhlin (2013) but they provide evidence on 11 countries using limited data. In another comparative study, we investigate the relation between overall earnings inequality and overall between-class inequality in earnings (Goedemé et al., 2021a). However, we did not look into specific class differences in earnings, and how these arise. We thus need to improve country comparative evidence on how earnings are structured by social class in different contexts. Furthermore, greater earnings differentials are likely to contribute to stronger forms of class stratification in other domains – such as, health, life satisfaction, or political attitudes – giving another motivation to study earning gaps between classes in a country-comparative perspective (Brooks and Svalfors, 2010; Kunst and Roskam, 2010; Edlund and Lindh, 2015; Paskov et al., 2020).

In this article, we employ data from EU-SILC 2017 to investigate how the relationship between social class and earnings varies across 30 European countries and assess potential drivers of these class-earnings gradients. The particular advantage of EU-SILC is its high-quality data on earnings and the availability of a range of individual and household characteristics. Our social class measure is based on the European Socio-Economic Classification (ESeC). In addition to providing a comparative picture of class earnings inequality across 30 countries, we develop and apply a regression-based decomposition method to see the extent to which the variation in between-class earnings differentials is accounted for by two explanations. First, we consider differences across countries in class composition in observed characteristics, and second, we consider differences in the returns to these observed characteristics. We can thereby assess the extent to which class composition and returns to certain characteristics explain class earnings inequality across countries.

Key findings are that class inequality in earnings can be found across the board although there are some exceptions. In a few countries the average earnings of the working class are higher than that of the intermediate class, in those contexts, the logic of the class ranking does not seem to hold. Importantly, both the ratio of average earnings of the salariat and the intermediate to

the working class vary widely across countries. Earnings inequality between the salariat and working class is generally larger in Western European and Southern European countries and smaller in Eastern and Northern European countries. Differences across countries in class composition account for a substantial proportion of between-class differences, with educational profiles particularly important for the salariat-to-working-class gap but employment-related factors playing a larger role for the intermediate-to-working-class one. Differences between classes in the returns to education and other characteristics play little or no role in the gap between the salariat versus working class, but do contribute to the earnings gap between the intermediate and working class, though class composition remains much more important. In all these respects there is a sizeable cross-national variation. We conclude that there are important differences between countries in how earnings are structured by social class.

2 Class and Earnings

Social class theory aims to capture where people stand in the economic structure, on the basis that in market economies it is the market position, especially the position in the labour market, that captures and defines social and economic advantages and disadvantages (Rose et al., 2010; Goldthorpe, 2007; Wright, 1997). While there is broad agreement in the literature about who belongs to the salariat and the working classes (Le Grand and Tählin, 2013), theoretical perspectives differ on what type of economic inequality one should expect to emerge between social classes and why, and this applies in particular to the relationship between class and current earnings.

A common theoretical theme is that the work of managers and professionals requires more specific skills and expertise and is harder for an employer to monitor, so employers are incentivised to promote their cooperation, loyalty, and work effort by providing a range of benefits that will not be available to the working class. Rather than higher current earnings, though, Goldthorpe (2007) highlights aspects such as earnings security in terms of low risk of job loss and unemployment; short-run earnings stability from week to week and month to month; and better long-term earnings prospects. From Wright's (1997) perspective, on the other hand, one can expect managers and professionals to be incentivised to act in the interest of the employer by higher wages as well as promotion prospects. Wright also emphasises the role of differences

in bargaining power between classes, with managers and professionals better placed to bargain for a larger share of profits in the form of higher earnings.

Sørensen's (1999) discussion of class conceived as 'life condition concept' versus 'exploitation concept' is also relevant when thinking about class and earnings, in particular his emphasis on how some employment relationships create 'rents', and the importance of how 'open' versus 'closed' an employment relationship is to outsiders. Tåhlin, in turn, argues that class inequalities in earnings are due not to power or employment relations attached to different class positions but to differences in the skills content of the jobs (Le Grand and Tåhlin, 2013; Tåhlin, 2007). From this perspective, workers in higher class positions have higher wages because their education, qualifications, and skills make them more productive, and therefore class is a good proxy for earnings because it captures workers' abilities and skills. Furthermore, to the extent that individual or household characteristics that are associated with earnings (e.g., gender, household composition) are also associated with class, a relationship between class and earnings is likely to be empirically observed. As discussed by Rose and colleagues (2010), these associated factors can also be seen as elements of social class inequalities.

There are thus a range of pathways through which the relationship between class and earnings could emerge. In this article we are specifically interested in how class inequality in earnings varies across countries.

3 Cross National Differences in the Class Earnings Gap

Empirically, trends over time in the relationship between social class and earnings have been studied for individual countries in Wodtke (2016); Wodtke (2017); Zhou and Wodtke (2019); Weeden et al. (2007) for the US, Williams (2013); Williams (2017) for the UK, Bihagen et al. (2010); Tåhlin (2007) for Sweden, and Albertini (2013) for Italy. Comparative studies are much less common, but see Le Grand and Tåhlin (2013); Albertini et al. (2020), and Goedemé et al., 2021a.

Limited interest in how between-class earnings differentials vary across countries is surprising since many of the reasons for being concerned with how those differentials are changing over time can also serve to motivate cross-sectional comparative analysis. The primary motivation for us is to establish whether class structures earnings in a similar way across countries. While class is often taken as an indicator of economic inequality, we currently do not have an up-to-date picture on how wide earnings gaps between class categories are

and to what extent these gaps differ across countries. Current earnings capture how different social class categories are rewarded on the labour market, but they are also central to an individual's command over resources more broadly. While Brady et al.'s (2018) finding that a cross-sectional snapshot provides a relatively robust proxy for permanent income relates to disposable household income rather than individual pre-tax earnings, Kim et al. (2018) show that one year of cross-sectional earnings is a good predictor of long-term earnings. There are thus good reasons to believe that cross-sectional earnings are related to short-term income instability and insecurity and long-term income prospects and wealth levels.

An additional motivation behind country-comparative analysis is to understand comparative research on class inequality in other domains. If widening gaps over time in earnings differentials between classes may be expected to strengthen class differentials in domains such as health, social mobility, life satisfaction, and political preferences and voting behaviour, then countries with wider earnings differentials would also be expected to display stronger class patterning in those domains: the implications of being in one class versus another will in all likelihood be stronger where earnings differentials between those classes are wider. Incorporating measures of country-level earnings inequality into the analysis, a common strategy, cannot be guaranteed to capture those differentials (Goedemé et al., 2021a). It is therefore important to investigate differences in earnings between classes across countries empirically.

Furthermore, having established the extent of differences in average earnings between social classes, understanding what underpins this variation across developed countries should also be informative as to how class structuring operates in different contexts. One straightforward explanation could be that the composition of the various classes in terms of characteristics associated with higher versus lower earnings differs across countries. If for example the gap in educational attainment between the working class and the other classes is wider in one country than another, then the earnings differential between them would be expected to vary even if the return to different levels of education was the same for each class. Variations in class composition could be caused by at least three factors. One is cross-national variation in the occupational composition of social classes, potentially driven by differences in the supply of skills and demand for certain occupations, which may result in a different composition of social classes with regard to characteristics that strongly correlate with occupation. Second, dynamics of occupational closure may vary across countries implying that the same occupations allow or attract

more easily people with some characteristics than others in some countries compared to others. This may either be the result of deliberate action (e.g. hiring policies) or through the lack of some policies such as limited supply of childcare or family-friendly work arrangements (pointing to 'self-selection'). Third, the overall shape of the economy and the relative size of various industries and economic sectors may impact both on the occupational composition of social classes as well as the composition of occupations with respect to other background characteristics. To sum up, country differences in the class earnings gap could be determined by the fact that social classes are composed of individuals with different characteristics. For example, it could be that the average working-class person in country A is more educated or more experienced than the average working-class person in country B, and that could explain variation in class earnings inequality between those countries.

A second explanation for cross-national variation in earnings inequality between social classes relates to the overall cross-national differences in returns to a range of characteristics including education. This points to dynamics not directly related to social class. For instance, if the relative share of females in the working class as compared to the salariat does not differ between two countries, but wage discrimination by gender is more sizeable in one country as compared to another, earnings inequality between classes will also vary. Similarly, if the composition of classes by economic sector does not differ sizeably between two countries, but in one country some economic sectors generate relatively higher earnings than the same sectors in the other country, this will also contribute to cross-national variations in between class inequality. In the empirical analysis, we are not able to make a distinction between the latter two explanations. Given that in both cases earnings inequality between classes emerges due to a difference in the composition of the salariat and intermediate vs. the working class, we group them together in what we call 'compositional effects'.

Another explanation may be that between-class earnings inequality is driven by differences between classes in the returns to observable characteristics such as education, that is, in the class-specific earnings effects of a range of socio-economic variables. We employ 'returns' as a convenient umbrella term to simply denote the direction and strength of the conditional association between earnings and other socio-economic and demographic variables. If such differences in returns are much more marked and play a much larger role in driving between-class earnings differentials in some countries than others, then that in turn would point to the importance of underlying institutional and context-specific factors affecting power relations and class-specific

processes of wage formation, including differences in collective bargaining, minimum wage policies and between-class differences in levels of discrimination by gender or migration background.

The contributions of class composition versus class-specific returns to between-class earnings differentials thus suggest quite different 'stories' about the relationship between class and earnings, and distinguishing them will play a central role in our analysis. Because of the socio-economic characteristics that correlate both with class and earnings, we need to study the relationship between class and earnings net of those characteristics, and for that purpose we develop and employ a shift-share decomposition method described in Section 5.

4 Data and Variables Employed

To assess the relationship between social class and earnings across a broad range of countries, we make use of the EU Statistics on Income and Living Conditions (EU-SILC) microdata. EU-SILC is the main source for comparative research into earnings and income inequality in Europe, and covers all EU Member States, plus Iceland, Norway, Serbia, Switzerland and the United Kingdom. We make use of the 2017 data (release of Spring 2019), which excludes Iceland and Switzerland. EU-SILC is a survey among random samples of the population living in private households. The data are collected in a partially *ex ante* harmonised manner, though countries vary in sample design, mode of data collection (especially the use of survey data vs. register data), and questionnaire design (Goedemé and Zardo Trindade, 2020). In most countries all household members aged 16 and over are interviewed, while in some countries a part of the questionnaire is for selected respondents only (including Denmark, Finland, the Netherlands, Norway, Sweden and Slovenia). In all countries EU-SILC has some form of a complex sample design, and we take this as much as possible into account when estimating standard errors and confidence intervals, in accordance with the procedures proposed in Goedemé (2013).

The target population for our study is the population at work, aged 18–64 and with earnings above zero in the income reference year. The income reference year is the calendar year before the survey year (i.e., 2016), except for Ireland (the 12 months preceding the interview) and the United Kingdom (the current year). The sample size for our subsample of interest varies between 2,500 (Denmark and Sweden) and 17,000 individuals (Italy), that is, only including cases with observations for all relevant variables for this study (this

variation in sample size is broadly in line with the overall strong variation in EU-SILC's sample sizes across countries).

Turning to the variables to be included in our analysis, earnings and social class play a central role and need to be discussed in some detail. The earnings variable available from EU-SILC is gross earnings in the income reference year, which includes cash and near-cash income from employment as well as profits and losses from self-employment.¹ We only include observations with total gross earnings higher than zero, and winsorize at the 999th permille. The earnings variable will reflect both pay per hour and the number of hours worked, so both part-time working and time spent not in work during the year will affect total earnings. This measure of earnings must be distinguished from on the one hand the hourly earnings measure that would usually be employed in estimating human capital models, and on the other the measures of household income including other income sources and after tax that would be used in analysing household income inequality. Hourly earnings cannot be robustly constructed from the information available in EU-SILC, but in any case the annual earnings variable has advantages for current purposes. Differences in pay per hour, in hours worked per week, and in weeks worked in the year are all likely to be highly structured in social class terms, so being able to capture them in this earnings measure is valuable in assessing earnings gaps between the classes. Gross earnings are a major component of household income, but the latter is also affected by how individuals group together in households, while disposable income is also substantially affected by the redistributive impact of social protection transfers and direct taxes; unpacking class gaps in disposable household income is a highly worthwhile exercise but even more complex than the analysis of individual gross earnings on which we concentrate here, and on which it could build.

Social class is conceptualised and operationalized in accordance with the European Socio-Economic Classification (ESeC), which is specifically designed for international comparisons (Rose and Harrison, 2010). In this article we look at earnings inequality among three major social classes and distinguish between 'Salariat', 'Intermediate' and 'Working' classes. We thus collapse the original ten-class version of ESeC into the three-class schema following the collapsing guidelines by Rose and Harrison (2010) as shown in Table 1. ESeC defines social class based on employment status, size of the firm (in the case of self-employed), supervisory status (in the case of employees), and occupation. In EU-SILC 2017, occupations are classified in accordance with the

¹ In France and Austria, employee income also includes the value of the private use of a company car, see Goedemé and Zardo Trindade (2020).

TABLE 1 Collapsing ESeC from 10 to 3 classes

ESeC class	10-class	3-class	Terminology
High salariat	1	1+2	Salariat
Lower salariat	2		
Higher white collar	3	3+4+5+6	Intermediate class
Petit bourgeois	4		
Small farmers	5		
Higher grade blue collar	6		
Lower white collar	7	7+8+9	Working class
Skilled manual	8		
Semi-/non-skilled	9		
Never worked	10	Excluded	Excluded

SOURCE: ROSE AND HARRISON (2010)

International Standard Classification of Occupations (ISCO 2008), at the two-digit level while a three-digit ISCO would typically be used for constructing ESeC. Therefore, we use a version of the original ESeC based on two-digit ISCO code.² In most countries, this results in between 40 and 43 occupational groups. In three countries occupation is available at a more aggregated level, this is the case in Germany (9 groups), Ireland (25 groups), Malta (10 groups) and Slovenia (10 groups). Given that occupational information in EU-SILC is available either as two-digit ISCO or more aggregate form, working with a more detailed class schema would lead to mismatches in class allocation. Focusing on a three-class schema, therefore, is a more reliable option (Rose and Harrison, 2010).

In order to capture differences in profiles across classes and decomposing earnings gaps between them, we include a range of variables that are commonly associated with earnings, including employment characteristics but also human capital and demographic factors. In our analysis we will use nine variables grouped into the following blocks:

² We use an adapted version of the Stata do-file published on the GESIS website, (<https://www.gesis.org/en/gml/european-microdata/eu-silc>, last accessed 05/11/2019), first classifying the self-employed into those with versus without employees, and looking at the size of the firm only for the former. For details and limitations of the ESeC coding in EU-SILC, see Goedemé et al. (2021b). The do-file for generating ESeC in EU-SILC can be downloaded from <https://www.timgoedeme.com/tools/esec-in-eu-silc/>.

- (1) *Hours Worked* – Proportion of full-year full-time hours worked (*FYFTE*). Each month for which the respondent reports having worked full-time (FT) is counted as 1/12, with months working part-time counted proportionately based on reported typical hours worked per week at the time of the interview, the only hours measure collected in the survey.
- (2) *Education* – Highest level of education is measured in three categories – lower secondary and below; higher secondary and post-secondary, non-tertiary; tertiary education.
- (3) Labour Market:
Potential work experience – number of years since the start of the first regular job;
Temporary contract – yes or no;
Economic sector of activity – measured in 13 categories using NACE.
- (4) Personal:
Gender;
Health status – whether or not person reported feeling (very) limited in the activities they usually do because of health problems for at least the past six months;
Disability status – whether someone received disability benefits in the income reference year;
Immigration status – whether someone was born outside the country.
- (5) *Household Type*: distinguishing single person; multi-person with one earner and no children; single-parent households; one-earner households with at least one child and one non-earning adult; other households without children; and other households with children.

While not all of these can be thought of as 'characteristics' *per se*, we will use that encompassing term for convenience as we distinguish the profile of the classes in those terms and the returns accruing to them in earnings.

5 Class Structures and Earnings Differences

5.1 Social Class Structures

Using the 3-class schema derived from ESeC as described above, Table 2 depicts the social class structure of the working population across the thirty European countries we are covering. The size of the working class is largest in Eastern Europe and relatively small in Western Europe, ranging from around 20% in the Netherlands to over half of the active population in Bulgaria. The size of the salariat class is close to or above 50% in the Nordic countries, Luxembourg

and the Netherlands, and 30% or below in Greece, Serbia, Bulgaria and Romania. Apart from that, no clear geographical pattern emerges: the salariat is relatively small in, for instance, Germany and Hungary, and relatively large in Estonia, France, the United Kingdom and Belgium. The pattern is even more diverse regarding the size of the intermediate class, ranging from around 15% of the active population in Norway, Latvia and Lithuania, and around 25% in France, Poland and Spain, to 35% or more in Greece and Germany.

TABLE 2 The size of social classes as a percentage of the total population at working age and currently in work (%), EU-SILC 2017

Country	Country code	Working class	Intermediate class	Salariat
Austria	AT	28	29	43
Belgium	BE	28	23	49
Bulgaria	BG	56	16	28
Croatia	HR	48	19	33
Cyprus	CY	40	24	36
Czech Republic	CZ	40	22	37
Denmark	DK	31	17	52
Estonia	EE	40	16	44
Finland	FI	37	19	44
France	FR	29	25	47
Germany	DE	30	38	32
Greece	EL	35	35	30
Hungary	HU	51	17	32
Ireland	IE	35	28	37
Italy	IT	34	28	37
Latvia	LV	46	13	40
Lithuania	LT	46	13	42
Luxembourg	LU	31	18	51
Malta	MT	30	31	39
Netherlands	NL	22	22	56
Norway	NO	26	16	58
Poland	PL	41	22	37
Portugal	PT	44	20	36
Romania	RO	47	27	27
Serbia	RS	48	21	30
Slovakia	SK	45	23	32

TABLE 2 The size of social classes as a percentage of the total population (*cont.*)

Country	Country code	Working class	Intermediate class	Salariat class
Slovenia	SI	36	32	32
Spain	ES	43	25	32
Sweden	SE	34	15	50
United Kingdom	UK	29	24	47
Total		35	26	39

Note: Total is population-weighted average across countries. Figure A1 in appendix displays the table graphically.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

The composition and characteristics of a particular social class also vary across countries. For example, the self-employed account for about 20% of the salariat in Greece and Italy, but 5% or less in countries as diverse as Norway, Malta, Romania and Croatia. Class profiles also differ with respect to variables such as time spent in work during the year, gender, immigration status and highest degree of education achieved, as we will see. Next, though, we examine the scale of the observed differences in earnings between social classes, before any such differences in composition are taken into account.

5.2 *Between-Class Earnings Differences*

We now focus our analysis on the ratio of average earnings in the salariat or the intermediate class compared to the working class. To derive these ratios, we first compute the natural logarithm of earnings for each respondent in the sample, then calculate the average of the log of earnings for each social class, and subsequently compute the ratio of the exponent of the average for each social class.³ Table 3 shows that in most countries there is a sizeable gap between the average earnings of the salariat and the working class (with countries ordered on this basis). On average across all these countries, average gross earnings of the salariat are 1.9 times as high as those of the working class. However, this ratio ranges from around 1.5. in some Eastern European (e.g., Slovakia, Serbia, Romania, Slovenia) and Nordic countries (e.g., Sweden and Denmark) up to

³ This is somewhat cumbersome, but it will allow us to employ regression-based decompositions of earnings inequality between classes in Section 6 – these typically depart from the natural logarithm of earnings for reasons we outline there.

2.5 in Luxembourg and Ireland. The ratio of salariat and working class average earnings is generally larger in Western European and Southern European countries and smaller ratios are found in Eastern and Northern European countries. Bulgaria is an exception among the Eastern European countries with a larger class-earnings ratio.

The average earnings difference between the intermediate class and the working class is also shown in Table 3, and is much more modest. The average ratio across the thirty countries is about 1.14. However, in some countries – Serbia, Lithuania, and especially Romania – the average earnings of the intermediate class are actually lower than those of the working class, which means that the logic of the class ranking in those countries does not seem to hold. This is very different to Luxembourg and Germany where the intermediate class earns, on average, about 50% more than the working class.

TABLE 3 The ratio of average earnings of the salariat to the working class and of the intermediate class to the working class, EU-SILC 2017

Country	Salariat/ working class	Intermediate/ working class
SK	1.38 (1.33–1.42)	1.11 (1.07–1.16)
RS	1.55 (1.46–1.63)	0.87 (0.80–0.95)
RO	1.55 (1.49–1.61)	0.36 (0.31–0.40)
SI	1.57 (1.46–1.68)	1.06 (1.00–1.13)
HU	1.58 (1.49–1.67)	0.93 (0.82–1.04)
CZ	1.64 (1.59–1.69)	1.17 (1.12–1.21)
SE	1.65 (1.53–1.76)	1.13 (1.02–1.24)
DK	1.65 (1.52–1.78)	1.19 (1.08–1.30)
IT	1.66 (1.60–1.72)	1.13 (1.09–1.17)
FI	1.69 (1.61–1.78)	1.00 (0.91–1.09)
EE	1.70 (1.61–1.79)	0.98 (0.90–1.06)
BE	1.70 (1.61–1.79)	1.20 (1.13–1.28)
PL	1.72 (1.66–1.77)	1.01 (0.96–1.05)
HR	1.74 (1.67–1.81)	1.11 (1.05–1.18)
EL	1.77 (1.71–1.84)	1.12 (1.06–1.17)
LV	1.78 (1.70–1.87)	0.88 (0.81–0.96)
NO	1.82 (1.69–1.94)	1.37 (1.25–1.49)
LT	1.90 (1.76–2.03)	1.30 (1.16–1.45)
NL	1.91 (1.80–2.02)	1.17 (1.09–1.26)

TABLE 3 The ratio of average earnings of the salariat (*cont.*)

Country	Salariat/ working class	Intermediate/ working class
MT	1.92 (1.82–2.02)	1.19 (1.13–1.25)
AT	1.99 (1.86–2.12)	1.35 (1.27–1.44)
FR	2.00 (1.88–2.12)	1.22 (1.15–1.29)
PT	2.11 (2.03–2.19)	1.20 (1.15–1.26)
BG	2.13 (2.00–2.25)	1.42 (1.32–1.52)
UK	2.18 (2.09–2.27)	1.17 (1.12–1.23)
ES	2.23 (2.10–2.37)	1.39 (1.31–1.47)
CY	2.27 (2.12–2.41)	1.37 (1.29–1.46)
DE	2.31 (2.19–2.42)	1.48 (1.41–1.55)
LU	2.51 (2.35–2.66)	1.49 (1.34–1.65)
IE	2.52 (2.34–2.69)	1.31 (1.21–1.41)
Total	1.88 (1.85–1.91)	1.14 (1.12–1.16)

Note: Total is population-weighted average across countries. Countries ordered by ratio of the Salariat and the working class. 95% Confidence intervals between brackets. Data are displayed graphically in Figure A2.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

6 Between-Class Earnings Differences, Class Composition and Differing Returns

6.1 Regression-Based Decomposition Method

We now aim to assess the extent to which the differences in average earnings between the classes reflect differences in observed characteristics versus differences in returns to those characteristics. We outline in this sub-section how regression-based decompositions of earnings inequality will allow us to do so. As noted earlier, these decompositions typically start from the natural logarithm of earnings, because returns to individual and household characteristics are expected to follow a loglinear pattern rather than a linear pattern; while the distribution of residuals can be expected to approximate much more closely a normal distribution when regressing the log of earnings on other variables, rather than untransformed earnings. A shift-share approach allows us to decompose the difference in average earnings between social classes into three elements:

- (1) observed differences in the average composition of each social class (e.g., in terms of hours worked, education, gender, economic sector, etc.);
- (2) observed differences between social classes in returns to these 'characteristics';
- (3) the 'unexplained' difference between social classes that remains after we have controlled for these observed factors.

The role of differences in characteristics (1) is the focus of Section 6.2, while the additional impact of differing returns to those characteristics (2) is considered in Section 6.3. The overall extent to which the differences in average earnings between the classes can be accounted for by these differences in characteristics and returns taken together is then discussed in Section 7.

First, we describe the estimation/decomposition strategy. This is based on estimating an OLS regression of the log of earnings in the following format for each country separately:

$$\ln(\text{earnings}) = \beta_0 + \beta_{11} \text{class}_1 + \beta_{12} \text{class}_2 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_z x_z + \beta_{i21} x_2 \text{class}_1 + \beta_{i22} x_2 \text{class}_2 + \beta_{i31} x_3 \text{class}_1 + \beta_{i32} x_3 \text{class}_2 + \dots + \beta_{iz2} x_z \text{class}_2 + u \quad (1)$$

with *class* being dummy variables, which take the value of 0 for the working class and the value of 1 either for the salariat class (class 1) or the intermediate class (class 2). $x_2 \dots x_z$ represent a list of covariates and $\beta_2 \dots \beta_z$ the accompanying list of regression coefficients. We also include a series of interactions between the two social class dummies and each of the covariates. This means that we estimate the earnings returns to each characteristic separately for each social class. u represents the error term. The fit of this model is generally satisfactory, as shown by the R-squared values in Appendix Table A1, ranging from 0.23 in Hungary to 0.76 in Cyprus.

Based on these estimated regression models, we can then identify class compositional effects on the earnings ratio in two steps. In the first step, we re-estimate the ratio of average earnings as follows (illustrated for the salariat vs. the working class):

$$\text{Earnings ratio} = \frac{\exp(\beta_0 + \beta_{11} + \beta_2 \bar{x}_{2_1} + \beta_3 \bar{x}_{3_1} + \dots + \beta_z \bar{x}_{z_1} + \beta_{i21} \bar{x}_{2_1} + \beta_{i31} \bar{x}_{3_1} + \dots + \beta_{iz1} \bar{x}_{z_1})}{\exp(\beta_0 + \beta_2 \bar{x}_{2_w} + \beta_3 \bar{x}_{3_w} + \dots + \beta_z \bar{x}_{z_w})} \quad (2)$$

where each of the regression coefficients is multiplied by the country-specific class average of the corresponding covariate (with subscript 1 indicating salariat and *w* working class). In other words, this simply corresponds to the ratio

of expected average earnings of both classes. A major advantage of using an OLS regression is that if the ratio is re-estimated by imputing average population characteristics that apply to each class, then the outcome is equal to the unconditional ratio of average earnings. In contrast, if one used a quantile regression to estimate the median of each social class (which might be a preferable indicator of 'typical' earnings), the predicted ratio of medians would not be the same as the unconditional, bivariate result. In a second step, the ratio can be re-estimated by replacing the class-specific averages of each covariate with the average characteristics of the overall population. In other words, $\bar{x}_{z_1}, \bar{x}_{z_2}, \dots, \bar{x}_{z_p}$ and $x_{z_w}, x_{z_{w+1}}, \dots, x_{z_p}$ in the equation above, are replaced with $\bar{x}_{z_p}, \bar{x}_{z_{p+1}}, \dots, \bar{x}_{z_p}$, both in the numerator and the denominator.

Having assessed the role of differences in individual and household characteristics, we can then estimate the additional contribution of differences in returns to those characteristics to the earnings gap between social classes. This is done by re-fitting the regression model as specified above, but now leaving out the interaction between social class and the covariates. Subsequently the ratio is re-estimated as previously, using population averages for all covariates, both in the numerator and denominator. This shows the additional contribution of differences in returns, on top of the 'effect' of differences in the composition of social classes.

This regression approach is inspired by, but somewhat different from the more commonly employed Oaxaca-Blinder decompositions, which starts from a separate regression for each social class (Oaxaca, 1973; Blinder, 1973). We prefer this approach because it allows for a more intuitive grasp of the 'remaining gap' in average earnings between social classes after controlling for compositional effects, and because it allows us to identify the contribution of compositional effects as compared to the contribution of class-differences in returns to individual and household characteristics. Like Blinder-Oaxaca it is a pure 'accounting' exercise not to be interpreted in a causal fashion.

6.2 *The Contribution of Differences in Class Composition*

In assessing the role of differences in class profiles, we capture their composition in terms of the nine variables grouped in five 'blocks of characteristics' as described in Section 4:

- (1) Number of hours worked in the previous calendar year ("FYFTE");
- (2) Education;
- (3) Labour Market – sector, temporary contract and potential experience;
- (4) Personal – gender, health, disability, and immigrant status;
- (5) Household type.

TABLE 4 Absolute change in the ratio of average earnings of the salariat and working class when cumulatively equalising the average composition of classes, EU-SILC 2017

Country	Hours worked	Education	Labour market characteristics	Personal characteristics	Household type	Total
SK	-0.04	-0.14	0.01	0.02	0.00	-0.16
RS	-0.04	-0.28	-0.02	0.04	0.00	-0.29
RO	-0.01	-0.27	0.03	0.02	0.00	-0.23
SI	-0.07	-0.35	0.07	0.00	0.01	-0.34
HU	-0.05	-0.33	-0.03	0.02	-0.01	-0.40
CZ	-0.05	-0.16	0.01	0.00	0.00	-0.20
SE	-0.10	-0.11	-0.05	0.00	0.01	-0.25
DK	-0.17	-0.13	0.02	0.01	0.01	-0.25
IT	-0.07	-0.21	-0.06	-0.03	0.00	-0.37
FI	-0.20	-0.07	-0.01	0.01	-0.01	-0.29
EE	-0.02	-0.20	-0.02	0.02	0.00	-0.23
BE	-0.25	-0.20	0.01	0.00	0.00	-0.45
PL	-0.10	-0.23	-0.01	0.03	0.00	-0.32
HR	-0.03	-0.33	-0.01	0.02	0.00	-0.35
EL	-0.26	-0.05	-0.04	0.00	-0.01	-0.36
LV	-0.08	-0.26	-0.06	0.05	0.00	-0.35
NO	-0.14	-0.22	-0.06	-0.04	0.01	-0.45
LT	-0.13	-0.27	0.04	0.06	0.01	-0.29
NL	-0.33	-0.13	-0.06	-0.01	-0.01	-0.53
MT	-0.11	-0.43	0.05	0.02	0.00	-0.48
AT	-0.23	-0.18	-0.01	-0.04	0.00	-0.46
FR	-0.26	-0.12	-0.02	-0.01	0.00	-0.42
PT	-0.14	-0.53	-0.01	0.01	0.00	-0.68
BG	-0.11	-0.48	-0.02	0.04	0.00	-0.58
UK	-0.39	-0.19	-0.12	-0.02	0.00	-0.72
ES	-0.26	-0.36	-0.20	-0.03	-0.01	-0.86
CY	-0.23	-0.29	-0.14	-0.03	-0.01	-0.70
DE	-0.43	-0.30	-0.04	0.00	0.00	-0.78
LU	-0.30	-0.31	-0.20	-0.03	0.01	-0.84
IE	-0.47	-0.20	-0.15	-0.01	0.00	-0.83

Note: Countries ordered from low to high unconditional earnings ratio. The data are graphically displayed in Figure A3 in Appendix 1.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

We 'simulate' the impact of having a common profile across countries for a particular class in each of these five blocks in a cumulative way: Tables 4 and 5 show how the predicted earnings ratio changes in each country when cumulatively substituting the average characteristics across the countries for the actual class characteristics in the country for each block. The sum of the change for each 'block' is then equal to the total difference between the unconditional earnings ratio and the counterfactual ratio in which class profiles are identical across social classes in terms of all the observed characteristics.

Table 4 and Figure A5 show the results for the salariat versus the working class. We can see that accounting for hours worked is an important factor in many countries (despite being only a rough indicator of the number of hours worked). However, there are several countries where differences in the educational profile matter at least as much, if not more, especially in Eastern and Southern Europe. Controlling for differences in hours worked and education profile leads to a reduction in the ratio of average wages between these classes in all 30 countries. Averaging out differences in labour market profiles increases the earnings ratio in some countries, but reduces it in most of those with the highest earnings ratios. The contribution of class differences in personal characteristics and especially in household characteristics is very small. So, differences in educational profiles and number of hours worked in the year are generally the most important contributory factors, in some countries differences in employment characteristics are also important, while (additional) differences in personal and household characteristics mostly contribute relatively little. These findings hold when earnings rather than the log of earnings are regressed on social class and the other covariates.

Table 5 shows that the corresponding results for the earnings ratio of the intermediate to the working class, which are rather different. Controlling for the number of hours worked again reduces the earnings gap between these classes considerably in many countries, and especially so in the 'old' EU Member States, but controlling for education often does not make much difference. The class profile in terms of employment characteristics now makes a larger difference in quite a few countries while personal and household characteristics play little role. So, differences in educational profile mostly contribute much less than for the ratio of salariat to working class earnings, while differences in employment profiles are more important. These findings hold when regressing earnings rather than the log of earnings on social class and the other covariates, although in that case, differences in hours worked have in all countries a relatively smaller role.

TABLE 5 Absolute change in the ratio of average earnings of the intermediate class and working class when cumulatively equalising the average composition of classes, EU-SILC 2017

Country	Hours worked	Education	Labour market characteristics	Personal characteristics	Household type	Total
RO	0.02	0.02	0.37	-0.01	0.00	0.40
RS	-0.01	-0.02	0.11	0.00	0.00	0.09
LV	0.02	-0.02	0.07	0.03	0.00	0.10
HU	-0.02	-0.05	0.07	0.02	0.02	0.03
EE	-0.01	-0.03	0.03	-0.01	0.00	-0.01
FI	-0.12	0.03	0.05	0.00	0.00	-0.04
PL	-0.05	-0.02	0.12	-0.02	-0.01	0.02
SI	-0.04	-0.03	0.03	0.00	0.00	-0.04
HR	-0.02	-0.03	0.03	0.01	0.00	-0.01
SK	-0.02	-0.04	0.00	0.01	0.00	-0.06
EL	-0.16	0.02	0.05	-0.02	0.01	-0.11
SE	-0.07	0.02	0.03	-0.02	0.01	-0.03
IT	-0.04	0.00	-0.05	-0.03	0.00	-0.12
CZ	-0.03	-0.04	-0.01	0.00	0.00	-0.08
NL	-0.13	0.00	0.00	0.00	0.00	-0.13
UK	-0.13	-0.02	-0.02	-0.01	0.00	-0.18
MT	-0.03	-0.06	0.01	0.00	0.00	-0.07
DK	-0.07	0.07	-0.02	0.02	0.01	0.02
PT	-0.08	-0.04	-0.01	-0.02	0.00	-0.15
BE	-0.17	-0.05	0.01	-0.01	0.00	-0.22
FR	-0.12	0.01	-0.02	-0.01	0.00	-0.13
LT	-0.03	-0.05	0.01	0.02	-0.01	-0.05
IE	-0.16	-0.02	0.00	-0.02	0.00	-0.20
AT	-0.14	0.01	0.02	-0.03	0.00	-0.15
NO	-0.08	-0.05	-0.08	-0.04	0.00	-0.24
CY	-0.03	-0.02	-0.14	-0.03	-0.01	-0.23
ES	-0.15	-0.05	-0.11	-0.03	0.00	-0.34
BG	-0.06	-0.11	0.00	0.00	0.00	-0.17
DE	-0.14	-0.05	-0.07	0.02	0.00	-0.24
LU	-0.11	0.05	-0.13	-0.07	0.00	-0.26

Note: Countries ordered from low to high unconditional earnings ratio. The data are graphically displayed in Figure A4 in Appendix 1.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

6.3 *The Contribution of Differences in Returns*

We now look at the role of differences between the classes in the return accruing to the range of observed characteristics in terms of the earnings associated with them. To provide a point of comparison Tables 6 and 7 first show again the total effect of harmonising the composition of a given class across countries in terms of observed characteristics. They then show the further impact of also equalising the returns to these characteristics across classes in each country (at the average return to that characteristic in that country). Table 6 shows that for earnings of the salariat versus working class, equalising returns to individual and household characteristics produces a change in the earnings ratio that varies widely but is quite modest in scale for most countries. Even where this has the largest impact (in Romania, Slovenia, Greece and Luxembourg), it is dwarfed by the impact that harmonising composition was seen to have.

TABLE 6 Absolute change in the ratio of average earnings of the salariat and working class when equalising the average composition of social classes and returns to characteristics across classes within countries, EU-SILC 2017

Country	Equal composition	Equal returns	Total counterfactual change
SK	-0.16	0.02	-0.14
RS	-0.29	-0.01	-0.31
RO	-0.23	-0.11	-0.33
SI	-0.34	-0.09	-0.43
HU	-0.40	-0.05	-0.45
CZ	-0.20	-0.03	-0.23
SE	-0.25	-0.05	-0.30
DK	-0.25	-0.06	-0.31
IT	-0.37	-0.05	-0.42
FI	-0.29	-0.07	-0.36
EE	-0.23	0.00	-0.23
BE	-0.45	-0.03	-0.48
PL	-0.32	-0.01	-0.33
HR	-0.35	0.00	-0.35
EL	-0.36	-0.11	-0.47
LV	-0.35	-0.03	-0.38
NO	-0.45	-0.01	-0.47
LT	-0.29	-0.07	-0.36

TABLE 6 Absolute change in the ratio of average earnings (*cont.*)

Country	Equal composition	Equal returns	Total counterfactual change
NL	-0.53	-0.06	-0.59
MT	-0.48	-0.03	-0.51
AT	-0.46	-0.08	-0.54
FR	-0.42	-0.05	-0.47
PT	-0.68	-0.03	-0.71
BG	-0.58	0.03	-0.54
UK	-0.72	-0.03	-0.75
ES	-0.86	0.00	-0.85
CY	-0.70	-0.01	-0.71
DE	-0.78	-0.04	-0.82
LU	-0.84	-0.09	-0.94
IE	-0.83	-0.05	-0.88

Note: Countries ordered from low to high unconditional earnings ratio. The data are graphically displayed in Figure A5 in Appendix 1.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

Table 7 and Figure A6 show the corresponding results for the earnings ratio of the intermediate to the working class. We see that averaging the returns to characteristics across these classes now has a noticeable relative impact in quite a few countries, including Hungary, Finland, Slovenia, Sweden, Denmark and Austria. The impact is even more outspoken when regressing earnings rather than the log of earnings on characteristics (Figures available from the authors).

TABLE 7 Absolute change in the ratio of average earnings of the intermediate and working class when equalising the average composition of social classes and returns to characteristics across classes within countries, EU-SILC 2017

Country	Equal composition	Equal returns	Total counterfactual change
RO	0.40	-0.02	0.37
RS	0.09	-0.06	0.02

TABLE 7 Absolute change in the ratio of average earnings (*cont.*)

Country	Equal composition	Equal returns	Total counterfactual change
LV	0.10	-0.08	0.02
HU	0.03	-0.09	-0.06
EE	-0.01	-0.04	-0.05
FI	-0.04	-0.08	-0.12
PL	0.02	-0.03	-0.01
SI	-0.04	-0.10	-0.13
HR	-0.01	-0.06	-0.06
SK	-0.06	0.00	-0.06
EL	-0.11	0.01	-0.10
SE	-0.03	-0.11	-0.14
IT	-0.12	-0.05	-0.17
CZ	-0.08	0.00	-0.09
NL	-0.13	-0.05	-0.18
UK	-0.18	-0.05	-0.23
MT	-0.07	-0.03	-0.11
DK	0.02	-0.11	-0.09
PT	-0.15	-0.02	-0.18
BE	-0.22	-0.03	-0.25
FR	-0.13	-0.06	-0.19
LT	-0.05	-0.05	-0.10
IE	-0.20	-0.07	-0.26
AT	-0.15	-0.08	-0.23
NO	-0.24	-0.02	-0.26
CY	-0.23	0.00	-0.23
ES	-0.34	-0.05	-0.39
BG	-0.17	0.00	-0.17
DE	-0.24	-0.04	-0.29
LU	-0.26	-0.07	-0.33

Note: Countries ordered from low to high unconditional ratio. The data are graphically displayed in Figure A6 in Appendix 1.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS.

7 Between-Class Inequality after 'Controlling' for Differences in Composition and Returns

To see how much of the variation in between-class earnings differentials across countries can be accounted for by differences in composition and in returns to characteristics combined, we now compare those actual ratios with the ones produced when we harmonise the composition of a given social class in terms of observed characteristics across countries and also equalise the returns to individual and household characteristics across classes within each country.

Table 8 and Figure A7 show that on average the ratio of average earnings of the salariat to the working class falls by about 26% when the controls are introduced, varying between a 10% drop in Slovakia and a 38% drop in Spain. However, in all cases the ratio remains substantially above 1, varying between 1.1 in Hungary and 1.6 in Bulgaria. In 28 out of 30 countries average earnings of the salariat are still 20% or more above those of the working class. Generally speaking, the higher the actual ratio of average earnings, the stronger the reduction in this ratio in the counterfactual, though quite a few countries change rank when ordered by the counterfactual rather than the actual earnings ratio – for example, the Netherlands and Spain move down about 10 positions, while the Czech Republic and Estonia move up that much. Cross-national variation in the between-class earnings ratio is substantially reduced, with the coefficient of variation decreasing from 0.15 to 0.09; almost all of this reduction is attributable to the harmonisation of class composition rather than the equalisation of returns across classes within countries.

TABLE 8 Ratio of average earnings of the salariat and working class, before and after controlling for observable differences in population composition and returns to individual and household characteristics, EU-SILC 2017

Country	Bivariate	Equal observables
HU	1.59 (1.51–1.67)	1.13 (1.02–1.24)
SI	1.59 (1.51–1.67)	1.15 (1.05–1.25)
SE	1.50 (1.42–1.59)	1.20 (1.11–1.29)
RO	1.55 (1.50–1.60)	1.22 (1.16–1.28)
RS	1.54 (1.47–1.61)	1.23 (1.15–1.30)
IT	1.65 (1.61–1.70)	1.23 (1.20–1.27)
SK	1.38 (1.34–1.42)	1.24 (1.19–1.29)
BE	1.73 (1.67–1.78)	1.25 (1.19–1.30)

TABLE 8 Ratio of average earnings of the salariat and working class (*cont.*)

Country	Bivariate	Equal observables
FI	1.65	(1.60–1.70)
NL	1.89	(1.83–1.96)
EL	1.77	(1.73–1.81)
DK	1.64	(1.55–1.73)
NO	1.80	(1.71–1.90)
HR	1.72	(1.66–1.78)
ES	2.23	(2.12–2.35)
PT	2.11	(2.05–2.17)
LV	1.78	(1.71–1.85)
PL	1.73	(1.68–1.78)
MT	1.94	(1.86–2.01)
AT	1.99	(1.89–2.08)
CZ	1.68	(1.63–1.73)
EE	1.69	(1.62–1.77)
DE	2.30	(2.23–2.37)
UK	2.24	(2.14–2.35)
LT	1.86	(1.75–1.97)
IE	2.40	(2.28–2.51)
FR	2.00	(1.91–2.10)
CY	2.27	(2.19–2.34)
LU	2.50	(2.40–2.60)
BG	2.13	(2.02–2.23)

Note: Sample restricted to all cases without missing observations. For some countries figures differ from those in Table 3. 95% confidence intervals between brackets. Countries ordered from low to high by counterfactual earnings ratio.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

Table 9 and Figure A8 show that the earnings ratio for the intermediate to the working class declines on average by about 15% going from the actual to the counterfactual, but this change varies from a reduction of 28% in Spain to an increase in Romania. The number of countries in which this earnings ratio is not significantly different from 1 (at the 95% confidence level) increases from 5 to 12. Only three countries (Germany, Cyprus and Bulgaria) have a ratio (statistically significantly) above 1.1, and in seven countries the average earnings of the intermediate class are significantly lower than those of the working

class. The coefficient of variation for this earnings ratio falls from an actual 0.19 to 0.11 in the counterfactual, with the harmonisation of class composition accounting for about three-quarters of that decline but equalising returns now contributing one-quarter.

TABLE 9 Ratio of average earnings of the intermediate class and working class, before and after controlling for observable differences in population composition and returns to individual and household, EU-SILC 2017

Country	Bivariate	Equal observables
RO	0.36 (0.33–0.38)	0.73 (0.65–0.80)
FI	0.98 (0.92–1.04)	0.85 (0.80–0.91)
HU	0.94 (0.84–1.04)	0.88 (0.78–0.98)
RS	0.86 (0.81–0.91)	0.89 (0.83–0.94)
LV	0.88 (0.82–0.95)	0.90 (0.83–0.98)
SI	1.06 (1.01–1.11)	0.93 (0.88–0.98)
EE	0.98 (0.91–1.06)	0.94 (0.86–1.01)
SE	1.08 (1.00–1.16)	0.94 (0.86–1.02)
UK	1.17 (1.09–1.25)	0.94 (0.87–1.01)
BE	1.20 (1.14–1.26)	0.95 (0.90–1.00)
IT	1.13 (1.10–1.17)	0.96 (0.93–0.99)
IE	1.25 (1.18–1.31)	0.98 (0.93–1.03)
NL	1.17 (1.12–1.23)	0.99 (0.94–1.04)
PL	1.00 (0.96–1.04)	0.99 (0.96–1.03)
ES	1.39 (1.32–1.46)	1.00 (0.96–1.05)
EL	1.12 (1.08–1.15)	1.02 (0.98–1.05)
HR	1.09 (1.04–1.15)	1.03 (0.97–1.09)
PT	1.21 (1.16–1.25)	1.03 (0.99–1.07)
FR	1.22 (1.17–1.28)	1.03 (0.98–1.09)
SK	1.11 (1.07–1.15)	1.05 (1.01–1.08)
MT	1.19 (1.14–1.23)	1.08 (1.04–1.13)
DK	1.18 (1.10–1.25)	1.09 (1.01–1.17)
NO	1.36 (1.26–1.45)	1.09 (1.01–1.17)
AT	1.35 (1.28–1.41)	1.12 (1.06–1.18)
CZ	1.21 (1.16–1.25)	1.12 (1.08–1.17)
CY	1.38 (1.33–1.42)	1.15 (1.11–1.19)
LU	1.49 (1.38–1.60)	1.16 (1.06–1.26)

TABLE 9 Ratio of average earnings of the intermediate class (*cont.*)

Country	Bivariate		Equal observables	
LT	1.27	(1.15–1.40)	1.17	(1.05–1.30)
DE	1.47	(1.43–1.51)	1.18	(1.14–1.22)
BG	1.42	(1.33–1.50)	1.25	(1.17–1.33)

Note: Sample restricted to all cases without missing observations on any of the regression variables. 95% confidence intervals between brackets. Countries ordered from low to high by counterfactual earnings ratio.

SOURCE: EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

8 Discussion and Conclusions

Social class has been shown to be related to many indicators of individual well-being and behaviour. However, relatively little is known about variations across countries in how social class is associated with current earnings, a key dimension of access to economic resources. In this article we first argued that alongside the evolution over time of earnings differentials between social classes, as studied by for example Albertini et al. (2020), how these differentials vary across developed countries is also of significant interest. We then investigated class earnings gaps across 30 European countries in a consistent fashion using micro-data from EU-SILC 2017. To study the relationship between class and earnings net of characteristics associated with both, and to distinguish the role of differences across classes in the returns to those characteristics, we outlined and employed a regression-based shift-share decomposition method. This allowed us to detect the extent to which between-class earnings inequalities reflect differences in the composition of social classes as compared to between-class differences in returns to education, labour market participation and other factors.

The first key conclusion is that major class categories structure earnings across a diverse set of countries, although patterns vary by country. For instance, in three countries in our sample – Serbia, Lithuania, and especially Romania – the intermediate class had lower average earnings than the working class. This means that the logic of the class ranking in those countries does not seem to hold even when looking at the three major class categories. This poses a challenge to class theory. The second key conclusion is that both the ratio of average earnings of the salariat and the intermediate to the working

class vary widely across countries. In some Eastern European and Nordic countries, the salariat earned around 1.5 times more than the working class on average, while that ratio was 2.5 in some Western European countries like Ireland and Luxembourg. Similarly, there was a notable cross-country variation in the earnings gap between the intermediate and working class. While class structures earnings, it does so to a varying degree across countries, and in some contexts the expected class hierarchy does not hold.

Our third key contribution was to show how differences in class composition and returns to characteristics influence class inequality in earnings across countries. While class is typically defined as a concept that captures individual's position in the labour market (Goldthorpe, 2007, Wright, 1997), characteristics of individuals belonging to different social classes differ across countries, and that matters for the class inequality that we observe. We found that differences in average class composition in terms of characteristics associated with earnings accounted for a substantial proportion of between-class differences within countries, with educational profiles particularly important for the salariat-to-working-class gap whereas employment-related factors played a larger role for the intermediate-to-working-class gap. Differences between classes in the returns to education and other observable characteristics played relatively little or no role in the gap between the salariat versus working class, but made some contribution to the earnings gap between the intermediate and working class, though class composition remained much more important there. This suggests that somewhat different mechanisms may be at work. The importance of differences in educational profiles for the salariat-to-working-class ratio may be seen as consistent with the literature that puts human capital to the forefront of the contrast between those classes (Tåhlin, 2007). Yet, it is interesting to see that there is a strong variation across countries in the degree to which compositional differences in educational profile, as compared to work intensity and other labour market characteristics, can account for average earnings differences between classes. This suggests that there is considerable variation across countries in how earnings are structured by social class. Further research is needed to tease out to what extent this variation is due to class differences in educational profile rather than country differences in the association between earnings and education, and which factors drive cross-national variations in these regards. The role of differences in returns in particular for the intermediate-to-working-class gap, on the other hand, may suggest a particular role for institutional and context-specific factors shaping power relations both between and within classes regarding the degree to which members of particular classes can reap the benefits of having a higher

education, working more hours, and having other characteristics that are generally associated with higher earnings. The relative unimportance of class differences in returns to background characteristics in some countries is equally interesting and also merits further research.

It is worth emphasising that many of the features of class composition for which one is 'controlling' are structured by class-related processes, as is most evident in the case of education profiles. They are in that sense mediating variables for class dynamics rather than independent of them (Richards and Paskov, 2016; Rose and Harrison, 2010; Tählin, 2007). Yet as we illustrate, they play a differing role in driving class inequality across countries.

Our analysis also illustrated that cross-national variation in class earnings inequality is partially accounted for by compositional differences. Cross-national variation was substantially diminished when we looked at the counterfactual ratio in which class profiles across countries are identical across social classes in terms of all the observed characteristics. In other words, we can conclude that class inequality in earnings differs partly because the profile of class incumbents differs across countries. However, some cross-national variation persists even after accounting for differences in profiles. A range of institutional and structural factors known to underlie overall earnings dispersion, such as collective bargaining institutions and labour power, minimum wages, and occupational profiles, may impact on the average gaps in earnings between the classes not only through their effects on class composition and returns but also through other channels, all of which need to be investigated in future research.

A final note is that variations in class earnings inequality such as those demonstrated in this study can help to understand comparative evidence on class gradients in other domains, such as political attitudes or health. For example, class cleavages in political attitudes have shown to be common but the strength of those cleavages differs across countries, which is sometimes explained by the level of income inequality or generosity of welfare arrangements in a society (Edlund and Lindh, 2015). However, as shown in Goedemé et al. (2021a), while countries with higher levels of between-class inequality tend to have higher levels of overall earnings inequality, this relationship is far from perfect. Since class inequality is not the same as income inequality, economic inequality between social classes needs to be considered in its own right when we are seeking to understand class inequalities in other domains.

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References

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., Ballarino, G. and De Luca, D. (2020). Social Class, Work-Related Incomes, and Socio-Economic Polarization in Europe, 2005–2014. *European Sociological Review* 36(4): 513–532.

Albertini, M. and Radl, J. (2012). Intergenerational transfers and social class: Inter-vivos transfers as means of status reproduction? *Acta Sociologica* 55(2): 107–123.

Bihagen, E., Nermo, M. and Erikson, R. (2010). Social class and employment relations: comparisons between the ESeC and EGP class schemas using European data. In: Rose, D. and Harrison, E. (eds) *Social Class in Europe: An Introduction to the European Socio-Economic Classification*. London: Routledge, pp.89–113.

Blinder, A.S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *The Journal of Human Resources* 8(4): 436–455.

Brady, D., Giesselmann, M., Kohler, U., et al. (2018). How to measure and proxy permanent income: evidence from Germany and the U.S. *The Journal of Economic Inequality* 16(3): 321–345.

Brooks, C. and Svalfors, S. (2010). Why does class matter? Policy attitudes, mechanisms, and the case of the Nordic countries. *Research in Social Stratification and Mobility* 28(2): 199–213.

Bukodi, E., Paskov, M. and Nolan, B. (2019). Intergenerational Class Mobility in Europe: A New Account. *Social Forces*. DOI: 10.1093/sf/soz026.

Burgoon, B., van Noort, S., Rooduijn, M., et al. (2019). Positional deprivation and support for radical right and radical left parties*. *Economic Policy* 34(97): 49–93.

Clark, T.N. and Lipset, S.M. (1991). Are Social Classes Dying? *International Sociology* 6(4): 397–410.

Edlund, J. and Lindh, A. (2015). The democratic class struggle revisited: The welfare state, social cohesion and political conflict. *Acta Sociologica* 58(4): 311–328.

Engler, S. and Weisstanner, D. (2020). The threat of social decline: income inequality and radical right support. *Journal of European Public Policy*. DOI: 10.1080/13501763.2020.1733636. 1–21.

Goedemé, T. (2013). How much confidence can we have in EU-SILC? Complex sample designs and the standard error of the Europe 2020 poverty indicators. *Social Indicators Research* 110(1): 89–110.

Goedemé, T., Nolan, B., Paskov, M., et al. (2021a). Occupational Social Class and Earnings Inequality in Europe: A Comparative Assessment. *Social Indicators Research*. DOI: 10.1007/s11205-021-02746-z.

Goedemé, T., Paskov, M. and Nolan, B. (2021b). The measurement of social class in EU-SILC: Comparability between countries and consistency over time. In: Guio, A.-C., Marlier, E. and Nolan, B. (eds) *Improving the understanding of poverty and social exclusion in Europe*. Luxembourg: Publications Office of the European Union, pp.313–328.

Goedemé, T. and Zardo Trindade, L. (2020). MetaSILC 2015: a report on the contents and comparability of the EU-SILC income variables. *INET Oxford Working Paper No. 2020-01*. Oxford: Institute for New Economic thinking, University of Oxford.

Goldthorpe, J.H. (2007). *On Sociology, Second Edition*. Stanford: Stanford University Press.

Kim, C., Tamborini, C.R. and Sakamoto, A. (2018). The Sources of Life Chances: Does Education, Class Category, Occupation, or Short-Term Earnings Predict 20-Year Long-Term Earnings? *Sociological Science* 5(9): 206–233.

Kunst, A.E. and Roskam, A.-J. (2010). Using the ESeC to describe socio-economic inequalities in health in Europe. In: Rose, D. and Harrison, E. (eds) *Social Class in Europe: An Introduction to the European Socio-Economic Classification*. London: Routledge, pp.216–234.

Lahtinen, H., Sirniö, O. and Martikainen, P. (2018). Social class and the risk of unemployment: Trends, gender differences and the contribution of education. *Acta Sociologica*. DOI: 10.1177/0001699318817594.

Le Grand, C. and Tählin, M. (2013). Class, Occupation, Wages, and Skills: The Iron Law of Labor Market Inequality. In: Birkelund, E.G. (ed) *Class and Stratification Analysis*. Bingley: Emerald, pp.3–46.

Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review* 14(3): 693–709.

Paskov, M., Präg, P. and Richards, L. (2020). Does downward social mobility make people more hostile towards immigrants? *Research in Social Stratification and Mobility*. DOI: <https://www.doi.org/10.1016/j.rssm.2020.100543>. 100543.

Richards, L. and Paskov, M. (2016). Social class, employment status and inequality in psychological well-being in the UK: Cross-sectional and fixed effects analyses over two decades. *Social Science & Medicine* 167: 45–53.

Rose, D. and Harrison, E. (2010). *Social Class in Europe: An Introduction to the European Socio-Economic Classification*. London: Routledge.

Rose, D., Harrison, E. and Pevalin, D. (2010). The European socio-economic classification: A prolegomenon. In: Rose, D. and Harrison, E. (eds) *Social Class in Europe: An Introduction to the European Socio-Economic Classification*. London: Routledge, pp.3–38.

Sørensen, A.B. (1999). Employment Relations and Class Structure. *The Sociological Review* 47(2_suppl): 16–42.

Tählin, M. (2007). Class Clues. *European Sociological Review* 23(5): 557–572.

Weeden, K.A., Kim, Y.-M., Di Carlo, M., et al. (2007). Social Class and Earnings Inequality. *American Behavioral Scientist* 50(5): 702–736.

Whelan, C.T. and Maitre, B. (2010). Welfare regime and social class variation in poverty and economic vulnerability in Europe: an analysis of EU-SILC. *Journal of European Social Policy* 20(4): 316–332.

Williams, M. (2013). Occupations and British Wage Inequality, 1970s–2000s. *European Sociological Review* 29(4): 841–857.

Williams, M. (2017). Occupational Stratification in Contemporary Britain: Occupational Class and the Wage Structure in the Wake of the Great Recession. *Sociology* 51(6): 1299–1317.

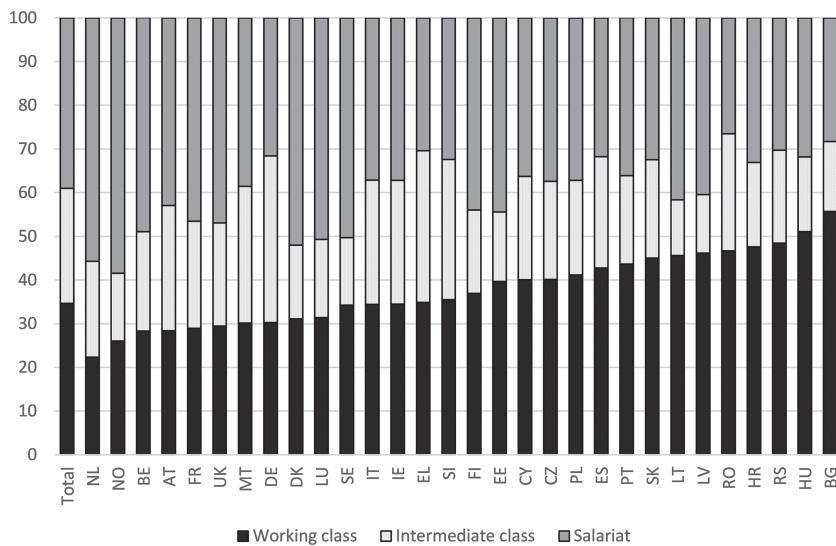
Wodtke, G.T. (2016). Social Class and Income Inequality in the United States: Ownership, Authority, and Personal Income Distribution from 1980 to 2010. *American Journal of Sociology* 121(5): 1375–1415.

Wodtke, G.T. (2017). Social Relations, Technical Divisions, and Class Stratification in the United States: An Empirical Test of the Death and Decomposition of Class Hypotheses. *Social Forces* 95(4): 1479–1508.

Wright, E.O. (1997). *Class counts: Comparative studies in class analysis*. Cambridge: Cambridge University Press.

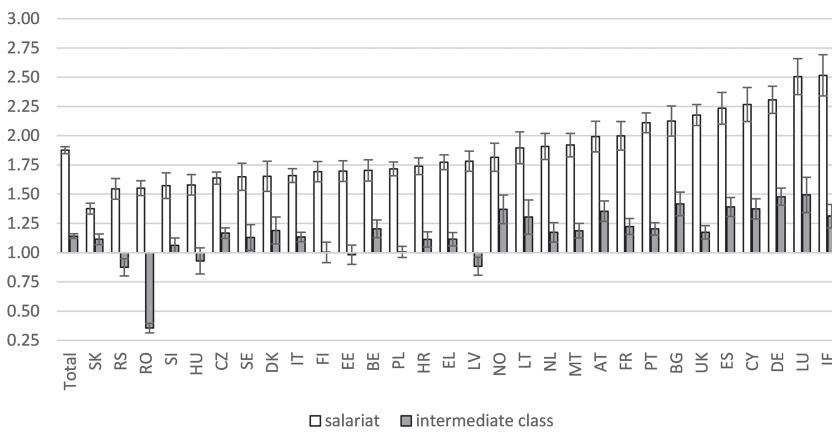
Zhou, X. and Wodtke, G.T. (2019). Income Stratification among Occupational Classes in the United States. *Social Forces* 97(3): 945–972.

Appendix 1: Additional Graphs



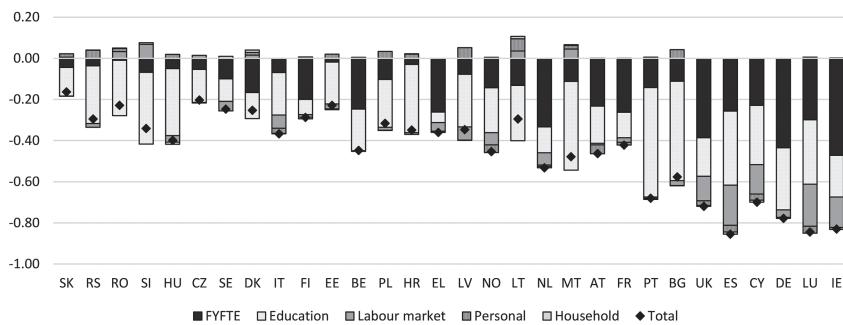
Note: People at working age and currently at work only. Total is population-weighted average across countries. Countries sorted by the size of the working class.

FIGURE A1 The distribution of social classes in 30 European countries (%), EU-SILC 2017
EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



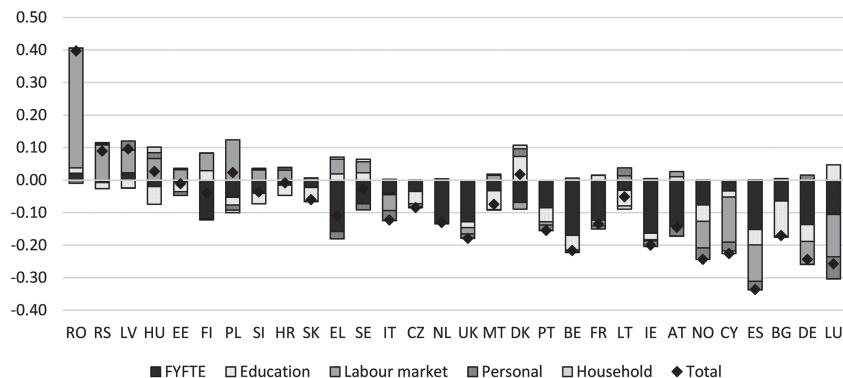
Note: X-axis crosses Y-axis at 1. Earnings were first transformed by computing the natural logarithm, subsequently the exponent of the average value of the transformed earnings was estimated. Total is population-weighted average across countries. 95% confidence intervals.

FIGURE A2 The ratio of average earnings of the salariat to the working class and of the intermediate class to the working class, EU-SILC 2017
EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



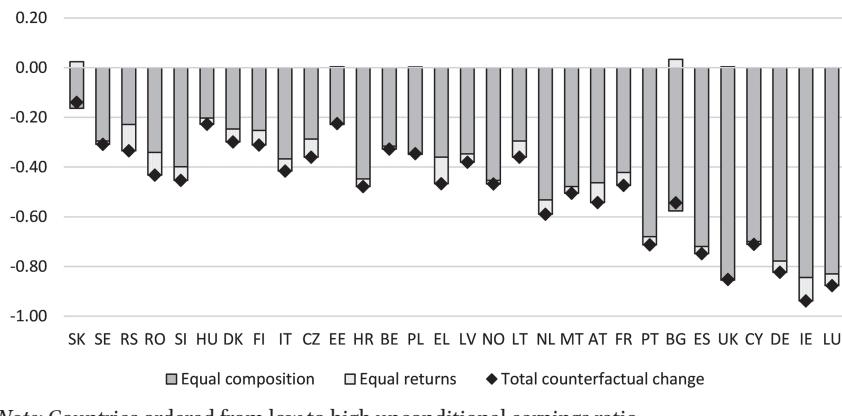
Note: Countries ordered from low to high unconditional earnings ratio. FYFTE = full-year, full-time equivalent hours.

FIGURE A3 Absolute change in the ratio of average earnings of the salariat and working class when cumulatively equalising the average composition of classes, EU-SILC 2017
EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



Note: Countries ordered from low to high unconditional ratio. FYFTE = full-year, full-time equivalent hours.

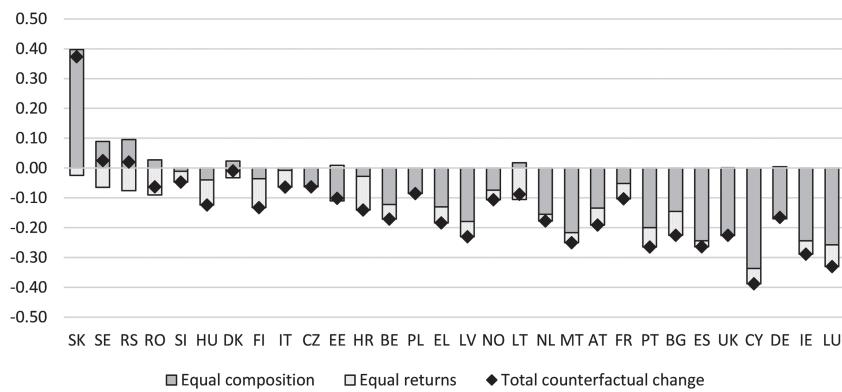
FIGURE A4 Absolute change in the ratio of average earnings of the intermediate class and working class when cumulatively equalising the average composition of classes, EU-SILC 2017
EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



Note: Countries ordered from low to high unconditional earnings ratio.

FIGURE A5 Absolute change in the ratio of average earnings of the salariat and working class when equalising the average composition of social classes and returns to characteristics across classes within countries, EU-SILC 2017

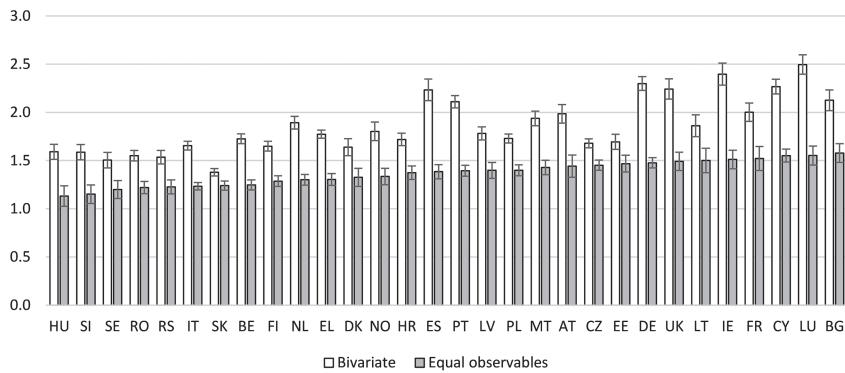
EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



Note: Countries ordered from low to high unconditional earnings ratio.

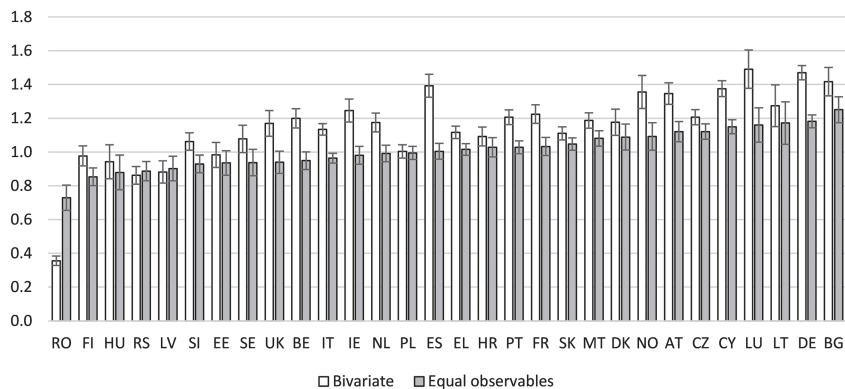
FIGURE A6 Absolute change in the ratio of average earnings of the intermediate and working class when equalising the average composition of social classes and returns to characteristics across classes within countries, EU-SILC 2017

EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



Note: Sample restricted to all cases without missing observations on covariates. 95% confidence intervals.

FIGURE A7 Ratio of average earnings of the salariat and working class, before and after controlling for observable differences in population composition and returns to individual and household characteristics, EU-SILC 2017
 EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS



Note: Sample restricted to all cases without missing observations on any of the regression variables. 95% confidence intervals.

FIGURE A8 Ratio of average earnings of the intermediate class and working class, before and after controlling for observable differences in population composition and returns to individual and household, EU-SILC 2017
 EU-SILC 2017 (RELEASE SPRING 2019), COMPUTATIONS BY THE AUTHORS

Appendix 2: Additional Tables

TABLE A1 R-squared and degrees of freedom, regressing (the log of) earnings on social class and additional covariates, including and excluding the interaction of each covariate and social class

Country	Log of earnings		Earnings		Design degrees of freedom
	R ² with interactions	R ² no interactions	R ² with interactions	R ² no interactions	
AT	0.48	0.47	0.39	0.36	6,058
BE	0.51	0.48	0.45	0.40	271
BG	0.38	0.37	0.23	0.19	7,349
CY	0.76	0.74	0.53	0.47	4,310
CZ	0.50	0.48	0.34	0.32	1,762
DE	0.65	0.64	0.45	0.42	13,495
DK	0.54	0.50	0.36	0.33	5,906
EE	0.31	0.29	0.33	0.31	6,154
EL	0.50	0.48	0.27	0.24	3,177
ES	0.41	0.40	0.36	0.33	2,198
FI	0.48	0.46	0.38	0.35	10,209
FR	0.48	0.45	0.35	0.29	772
HR	0.46	0.41	0.37	0.30	2,406
HU	0.23	0.21	0.34	0.31	4,042
IE	0.57	0.55	0.36	0.33	628
IT	0.36	0.35	0.28	0.25	8,091
LT	0.37	0.34	0.30	0.25	4,943
LU	0.59	0.57	0.43	0.39	3,971
LV	0.46	0.44	0.37	0.34	1,142
MT	0.55	0.53	0.40	0.35	3,901
NL	0.58	0.57	0.43	0.40	13,327
NO	0.45	0.43	0.38	0.36	6,272
PL	0.43	0.41	0.31	0.28	13,056
PT	0.54	0.51	0.35	0.30	4,715
RO	0.66	0.61	0.49	0.45	946
RS	0.44	0.41	0.25	0.22	562
SE	0.41	0.38	0.36	0.32	5,927

TABLE A1 R-squared and degrees of freedom, regressing (the log of) earnings (*cont.*)

Country	Log of earnings		Earnings		Design degrees of freedom
	R ² with interactions	R ² no interactions	R ² with interactions	R ² no interactions	
SI	0.44	0.39	0.40	0.34	2,854
SK	0.38	0.36	0.25	0.23	5,601
UK	0.47	0.45	0.29	0.26	682

SOURCE: COMPUTATION BY THE AUTHORS ON EU-SILC 2017 UDB (RELEASE SPRING 2019)