



The Myth of the Middle Class Squeeze: Employment and Income by Class in Six Western Countries, 1980- 2020

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Abstract

The public debate depicts the middle class as the victim of employment polarization and income stagnation. This narrative of a squeezed middle class suggests that people above and below fared better in terms of job and income growth. However, this narrative ignores basic insights from class theory and lacks empirical evidence. Based on the Luxembourg Income Study, we trace the evolution of employment and income by class for six large Western countries – France, Germany, Poland, Spain, the UK and US –, 1980-2020. Over this period, employment of the upper-middle and middle class strongly expanded, while the skilled and low-skilled working class shrank everywhere. Working-class households also made consistently smaller income gains than middle-class households in all countries except Poland. Real labor income of the working class declined in Germany, stagnated in the US and grew by less than one percent annually in France and the UK. A cohort analysis of wage growth shows that the promise of doing better than one's parents and grandparents held for middle-class households. However, this same promise vanished for the working class – most evident in Germany and the US. The great economic loser of the last decades was not the middle, but the working class.

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1 Introduction

Over the last two decades, income inequality has moved to the top of the research agenda in sociology (e.g. Alderson and Nielsen 2002; Gornick and Jäntti 2013; McCall and Percheski 2010) and economics (e.g. Atkinson 2015; Autor 2014; Piketty 2014). In contrast, less attention has been devoted to the question of how absolute incomes have evolved over time (Kenworthy 2013; Nolan 2018). Yet while individuals only have a very vague idea of income inequality (Engelhardt and Wagener 2018; Kenworthy and McCall 2008), they are keenly aware of how their absolute income evolves year by year.

Since the 1980s, growth in median incomes has slowed down across the Western world, stagnating over long periods in Germany, France or the US (Nolan 2020). Income stagnation not only means that productivity growth is not shared equally, but also translates into stalled living standards for successive cohorts. In the public debate, income stagnation has been linked with middle class squeeze. Across the Western world, a common narrative considers the middle class as the primary victim of the new gilded age – both in terms of falling employment (Autor and Dorn 2013, Jaimovich and Siu 2019) and eroding incomes (Grabka and Frick 2009, Pressman 2007). Primarily proposed by economists, this narrative has found a large echo in the mass media.¹

The corrosive effect of stagnating incomes on households is undisputed. However, we challenge the thesis of a middle-class squeeze and argue instead that the great loser of the last four decades was not the middle class, but the people laboring below them, the working class. Our goal is to show empirically how different social classes fared between 1980 and 2020. We trace the evolution of employment and income by class in six large Western countries – France, Germany, Poland, Spain, the United Kingdom and the United.

Our selection of six Western high-income countries is based on three criteria. The first criterion is the availability of comparable occupational data over several decades which excludes Italy. The second criterion is population size and we include, besides the US, five out of Western Europe's six most populous countries (without Italy). A third criterion relates to institutional variety in terms of markets and states – welfare capitalism – and our study compares examples of the liberal Anglo-Saxon regime, the conservative continental regime, the conservative Mediterranean regime and the post-socialist regime (Esping-Andersen 1999, Ferragina and Seeleib-Kaiser 2011). However, we believe that our main argument that the working and not the middle class lost out over the last decades holds more broadly and we therefore provide additional evidence for six small and affluent European countries.

Our analysis is based on the best available comparative micro-dataset, the Luxembourg Income Study (LIS), which combines several dozen country surveys such as the Current Population Survey for the US or the Socio-Economic Panel for Germany. We focus on the household level as the decisive locus of people's life chances and show how the working-age population fared over the last decades in terms of household labor income and household disposable income.

Our paper makes four contributions to the literature on inclusive growth, an economic scenario in which incomes increase equally for all social classes (Nolan 2018; Parolin and Gornick 2021). Our first contribution is conceptual and delves into class theory. We argue that most income-based definitions of the middle class are at odds with the economic history of industrial societies. By

¹ For the US: *New York Times*, "What's really squeezing the middle class?", April 25 2007. *Financial Times*, "The crisis of middle class America", July 30 2010. *Wall Street Journal*, "The middle class squeeze", September 25 2015. For the UK: *Guardian*, "Robots will not lead to fewer jobs – but the hollowing out of the middle class", August 20 2017. For Germany: *Spiegel*, "Deutschlands Mittelschicht schrumpft dramatisch" [Germany's middle class shrinks dramatically], December 13 2012. *Süddeutsche Zeitung*, „Schrumpfende Mittelschicht: arbeite hart, aber besser geht es dir nicht“ [Shrinking middle class: work hard, but you won't fare any better], August 29 2015. For Spain: *El Diario* "Adiós a la clase media" [Farewell to the middle class], December 18 2014. *El País*: "La Clase media menguante" [The declining middle class], September 29 2019.

considering everyone as middle class except the poor and the very well-off, these income-based definitions ignore the working class (e.g. OECD 2019). Instead, we go back to occupations as the building blocks of the class structure and propose an occupation-based class indicator that reflects salient differences in the labor market hierarchy of affluent societies. By distinguishing the low-skilled from the skilled working class and the middle class from the upper-middle class, we obtain a class measure that is both meaningful to laypeople and easy to implement in international surveys.

Second, we show that the evolution of household incomes is usefully analyzed in terms of social class as the economic trajectories of classes diverged dramatically since the 1980s. But rather than support the popular view of a middle-class squeeze, our results reveal that the working class has come under greater pressure. Since the 1980s, both the skilled and low-skilled working class have done significantly worse in terms of household income growth than the middle and, above all, upper-middle class.

Third, we take full advantage of our comparative design and contrast the income trajectories of different classes across affluent countries, moving beyond the strong single country studies on the class-income nexus (e.g. Wodtke 2016; Zhou and Wodtke 2019). While our comparison reveals systematic parallels – the income hierarchy of social classes looks very similar across Western countries –, it also points to differences. Since the early 1980s, the working class fared worse in terms of income growth in Germany and the United States than in Spain and, above all, Poland, with France and the United Kingdom in-between.

Fourth, our analysis shows how the diverging class destinies played out over time for different birth cohorts. Throughout the post-war decades, each successive generation obtained higher incomes than the preceding generation. However, this mechanism of increasing real incomes broke down in Germany and the United States in the 1980s for the working class. While middle-class members born into Generation X (1966-1980) continued to earn more than previous middle-class generations, the working class of Generation X earned no more than their working-class parents (born 1946-1965) or grandparents (born 1926-45).

Our paper first discusses the decoupling of productivity growth and income growth, before arguing that the commonly used income-based definitions of the middle class are misleading. We propose to replace them by an occupation-based class indicator and discuss our key hypothesis that the working class has done worse in terms of employment and income growth than the middle class over the last decades. The results section presents how employment evolved in different classes and compares change in real income on an annualized basis across classes and countries. The conclusion discusses the far-reaching political implications of working-class decline.

2 Theoretical background

2.1 The decoupling of productivity and income

Over the last two decades, the absolute evolution of incomes received much less sociological attention than relative changes in incomes as captured by indicators of inequality. However, while the meaning of the Gini index remains obscure to most people, workers intuitively grasp what annual changes in their incomes mean for their lives.

In the long run, the evolution of labor income is determined by growth in productivity. For lack of a better measure, productivity is often approximated by GDP per capita and shows for the Western world a continuous slowdown. Averaged for France, Germany, Spain, the UK and US, productivity growth fell from a mean annual increase of 3 percent in the 1970s to 2.5 percent in the 1980 and 2 percent in the 1990s, before leveling off at 1 percent between 2000 and 2020 (OECD statistics).

The key question is whether productivity growth feeds into higher labor incomes. In the three decades after World War II, wages rose in line with productivity for the large majority of Western workers (Iversen and Soskice 2019; Piketty 2014). Indeed, annual wage raises were the central mechanism that translated the economy-wide productivity gains into broad-based improvements in living

standards (Baccaro, Blyth and Pontusson 2022). The 1980s constitute the watershed decade when the Keynesian class compromise based on full employment and collective bargaining fell apart – and when the nexus between productivity growth and workers’ earnings became loose (Piketty 2014; Stansbury and Summer 2018).

As a consequence, the distribution of national income shifted from labor (wages) to capital (profits) (Karabarbounis and Neiman 2014; Kristal 2010). The decreasing labor share meant that workers relying on wages lost out relative to capital owners living off profits. In parallel, wage inequality soared among wage-earners. As a disproportionate share of labor income went to the employees at the very top of the pay scale, many workers in the lower half of the distribution were left empty-handed (Atkinson 2015; Kenworthy 2013; Piketty 2014). The public discussion in economics (e.g. Boehm 2014, Jaimovich 2020) and the media (see footnote 1) suggest that it was primarily the middle class that lost out from economic growth. Yet we argue that this narrative runs contrary to basic insights from class sociology.

2.2 The crux of defining the middle class as middle-income group

The narrative of a squeezed middle class implicitly suggests that people both above and below fared better in terms of income and job growth than people in the middle class. However, few concepts are as hazy and difficult to define as that of the middle class (Chauvel 2013; Cherlin 2014). This difficulty has been heightened by recent interest in class analysis by economists who began to churn out studies on the decline of the middle class, measuring the middle class as an income group (e.g. Grabka and Frick 2009, Pressman 2007, Ravallion 2010). Notably two income-based definitions of the middle class proved influential.

A first definition endorsed by the OECD considers the middle 60 percent – households between the 20th and 80th income percentile – as middle class (Dallinger 2013; OECD 2015). However, close to 20 percent of the working-age population in Western Europe receive benefits from unemployment, disability, sickness or social assistance (OECD 2003: 175). This definition, thereby, includes basically all households in the middle class except those living on social benefits. For the United States in 2021, this definition means that households with gross incomes between \$27,012 and \$141,100 belonged to the middle class. The lower bound is almost identical to the threshold for workers receiving food assistance (SNAP) for a two-person household with earned income.² According to this definition, either people struggle to afford food and are eligible for SNAP – or they are middle class and lumped together with households gaining five times as much as they do.

A second income-based definition – favored by the ILO (Vaughan-Whitehead, Vazquez-Alvarez and Maître 2016) and recently also adopted by the OECD (2019) – includes all households with more than 60 percent and less than 200 percent of the median income in the middle class (see also Atkinson and Brandolini 2013). However, in France, Poland, Spain or the UK, the minimum wage amounted to 55 to 60 per cent of the median wage in 2020 (OECD statistics). This means that whoever lives in a one-person household and earns the minimum wage belongs to the middle class – and thus workers toiling in the most menial jobs in fast-food restaurants, textile factories or cleaning services.

Both definitions lead to very large and heterogeneous middle classes. In the first case, they encompass, by construction, 60 percent of households. In the second case, they comprise more than two thirds of all households in Germany, Italy and the UK, and more than three quarters in Denmark, Norway and the Netherlands (Bosch and Kalina 2016; Grimshaw and Rafferty 2016; Kochhar 2017).

² In New York State in 2021, eligibility to the supplemental nutrition assistance program (SNAP) for a two-person household with earned income (and no elderly or disabled member) was 26,136\$ (see: <https://otda.ny.gov/programs/snap/> website accessed on 8 March 2022). The income percentiles are based on the Household Income Percentile Calculator for the United States: <https://dqydj.com/household-income-percentile-calculator/> (accessed on 8 March 2022).

These inflated conceptualizations of the middle class lend little help for empirical analysis. Moreover, by including in the middle class whoever holds a job and is not poor, these definitions are ahistorical as they totally ignore the working class. The widely held view in economics is that “middle class” living standards begin when poverty ends” (Ravallion 2010: 446) is at odds with the history of Western industrial societies that were dominated by large – and increasingly affluent – working classes over much of the 20th century (Cherlin 2014; Goldthorpe et al. 1969; Todd 2014). Historically, the middle class comprised a small category of non-manual employees such as doctors, lawyers, priests, scientists and other professionals, professors and teachers. They were situated below the tiny powerful elite of landlords and nobles, factory owners and entrepreneurs, but above the large working class laboring in manual jobs as farmworkers, construction workers, assemblers, or domestic aides (Hobsbawm 1999, Kocka 1995). Over most of the 20th century, the term “working class” appeared more often in English-language books than “middle class” (based on Google’s ngram corpus of English books, see Oesch 2022: 9).

The distinction between the middle and working class is not only entrenched in the daily lexicon – between workers and employees, manual and non-manual work, blue-collar and white-collar jobs –, but many people also continue to consider themselves as working class. An analysis of the International Social Survey Programme (ISSP) shows that in 2009 36 percent of Americans and 40 percent of Brits perceived themselves as working class. By contrast, only a few percent perceived themselves as upper class (Oesch and Vigna 2023). This dispels the misunderstanding that the middle class clusters around the middle of the income structure. In most Western countries, carpenters and mechanics, brick masons and truck drivers earn wages close to the national average. Yet few historians and sociologists would consider these working-class occupations to represent the middle class.

2.3 Advantages of an occupation-based class definition

If the dominant income-based definitions of the middle class simply reflect middle-income groups (Gornick and Jäntti 2013), how else can the middle class be conceptualized? We follow the dominant tradition in stratification research and consider occupations to be the cornerstones of contemporary labor markets and the resulting class system (Grusky 2005, Treiman 1977).³ Besides income levels, occupations share other crucial properties such as training requirements and channels of recruitment, typical working conditions and social protection, and even geographical location (e.g. farmers, miners and dockers). The class hierarchy then arises from the technical division of labor that is rooted in the occupational structure. Workers in different occupations control different amounts of productive resources which, in turn, place them into asymmetrical social relations to each other (Wodtke 2016; Wright 1985). Typical examples are the contrasts between medical doctors and nursing aides, managers and secretaries, engineers and machine operators.

The broad social recognition of occupations is usefully exploited in the micro-class approach (Weeden and Grusky 2005). Yet for the debate on the squeezed middle class, occupations need to be merged into larger and hierarchically ordered social classes. The two key productive resources that differentiate occupations hierarchically are the amount of authority and, above all, expertise (Wright 1997). The more authority and expertise an occupation requires, the more difficult the workers are to replace, the more bargaining power they wield and the more advantageous their work contracts are (Goldthorpe 2000; Le Grand and Tåhlin 2013). Authority and expertise are thus usefully summarized as productive resources that determine an occupation’s position in the class hierarchy. These resources are mainly acquired through formal education as well as informal training and work

³ However, note that some claims concerning occupations are overstretched: Contrary to an influential argument (e.g. Erikson and Goldthorpe 2002), occupations are not better predictors of permanent income over the life course than single measures of income (Brady et al. 2018; Shahbazian and Bihagen 2022).

experience. For empirical research, productive resources can be equated with the skill requirements of a given occupation.⁴

We propose to distinguish four social classes that comprise occupations with similar levels of skill requirements: an upper and upper-middle class (short: upper-middle class), a middle class, a skilled working class, and an unskilled working class. We separate the upper-middle class of professionals and managers from the core of the middle class that includes semi-professionals, associate managers and technicians. While access to the professions and many positions in management requires the equivalent of a university degree, shorter post-secondary degrees are typically sufficient to become an associate professional or technician. A similar logic applies to the division within the working class. Skilled working-class occupations normally require a few years of post-compulsory education – often in the form of vocational training – whereas low-skilled working class occupations are entry-level jobs that can be learned in a few months of on-the-job training.

This four-fold class hierarchy has strong parallels with the four hierarchical skill levels distinguished in the ILO's International Classification of Occupations (ISCO) (Elias 1997). Schematically, a four-fold hierarchy also exists in large organizations, be it in manufacturing (engineers, technicians, welders and assemblers), hospitality (general managers, accountants, cooks and dishwashers) or health care (doctors, nurses, nursing aides and cleaners).

2.4 The squeezed working class

Once the working class is brought back from oblivion, it becomes easier to argue that the middle-class squeeze is actually a working-class squeeze. It is the working class that fared worst in terms of employment and income growth. The decline of the working class began in the 1970s, which marked both the high-point and end of the Golden Age of industrial capitalism. Under the influence of skill-biased technological change and globalization, the working class began to shrink as labor demand for welders and mechanics, assemblers and machine operators dried up. Besides technological change and offshoring, the working class was further put under pressure from the neoliberal turn in political economy (Jacobs and Myers 2014) and the return of mass unemployment in the 1980s (Eichengreen 2008).

Over the same period, the middle class was anything but in decline. The ongoing race between technology and education – between skill-biased technological change and educational expansion – led to a steady increase in its ranks. This shift in employment from the working to the middle class can be observed across the Western world. In Britain, the proportion of the labor force set in working-class occupations dwindled from 55 to 30 percent among men and from 50 to 35 percent among women between 1951 and 2011. In parallel, the middle class – defined as lower and higher managerial and professional occupations – increased its share from 11 to 40 percent among men and from 8 to 30 percent among women (Bukodi and Goldthorpe, 2018: 36). Likewise, over the 20th century in Germany and the United States, every subsequent birth cohort was less likely to work in an unskilled manual job and more likely to hold a middle class job (Breen and Müller 2020: 252). In the United States over the period of 1980-2015, employment dropped among production workers, laborers and office clerks, but expanded steeply among technicians, professionals and managers (Autor 2020: 114). The simultaneous losses in working class jobs and gains in middle class jobs have also been documented for France between 1982-2018 (Goux and Maurin 2019) as well as in Germany and Spain between 1992-2015 (Oesch and Piccitto 2019).

As working-class jobs became harder to find, trade unions saw their membership erode and the working class lost bargaining power. Between 1980 and 2020, union density was halved in France, Germany, the UK and the US (OECD statistics). Over the same 40 years, coverage with collective

⁴ In Western societies where close to 90 percent of labor market participants do not own their business, but work as employees, the main productive resource for the mass of people is not capital, but expertise and skills.

bargaining remained stable only in a few countries – at over 80 percent in France and Spain – but eroded in many other countries, decreasing from 25 to 12 percent in the US and from over 80 percent to half of the workforce in Germany and to a quarter in the UK (OECD statistics).

The weaker bargaining power of the working class also shows in the reduction of industrial conflict. In OECD countries, strikes fell to historically low levels in the 2000s and 2010s (Vandaele 2016, Van der Velden 2007). Their declining number closely mirrors the downward trend in union density (Kelly 2015). The working class did not only lose economic, but also political power as left parties – their traditional allies – moved towards the center. Confronted with a shrinking base of working-class voters, the working class ceased to be the prime priority of the left which instead began to court the salaried middle class (Hall 2017).

In the context of weaker labor demand, neoliberal economic policy and eroding bargaining power, the working class struggled to secure its share of economic growth. In an American study based on the General Social Survey, Wodtke (2016) finds that income differences between social classes increased by about 60 percent between 1980 and 2019. This disparity was driven by growing incomes for senior managers and stagnating incomes for workers. Similarly, Ikeler and Limonic (2018) show with U.S. census data for 1970 to 2010 that the middle class did not only benefit from disproportionate job expansion, but also saw its earnings advantage increase relative to the working class. In the same logic, between 1980 and the mid-2010s, the wages of men with only a high-school education declined, whereas the wage returns to tertiary education increased (Lleras-Muney 2017). Over that period, the median real wage in the US remained almost flat, even though the average real wage rose by over one percent per year (Machin 2016). The higher people were in the American income hierarchy, the more strongly their incomes rose between 1980 and 2018 – with negative growth for the bottom 15 percent and exponential growth for the top one percent (Saez and Zucman 2020: 16).

The finding that median household income lagged behind mean household income does not just apply to the US, but to most Western countries since the 1980s – because households at the top pocketed a disproportionate share of total national income (Nolan 2018, Nolan and Thewissen 2018, Nolan and Weisstanner 2022). In a comparative analysis, Kenworthy (2013) finds that the income gap between high-income (75th percentile) and low-income households (25th percentile) tended to widen in a large number of countries between the mid-1980s and 2010. Similarly, previous research shows that the Great Recession increased the disparity in work income between social classes in Europe (Albertini et al. 2020; Moawad 2022). The economic situation of the upper class improved between 2005 and 2014, whereas working-class incomes worsened. An analysis for Spain shows that while the middle class was not immune to the Great Recession, the lower classes suffered much larger income losses in its wake (Muñoz de Bustillo and Anton 2016).

Summing-up the argument

Our paper's key hypothesis is that in affluent Western countries, the working class (notably the low-skilled working class) has fared worse in terms of income growth than the middle class (and particularly the upper-middle class) since the 1980s. We argue that labor demand and political power have become biased against the working class, reducing its size and eroding its income. For this argument to hold, our empirical analysis needs to establish that different classes diverged in terms of employment evolution and, crucially, labor income growth.

A crucial argument we need to address is how the diverging class destinies played out over time, notably across birth cohorts. Over the Golden Age of the post-war decades, the Silent Generation (1926-45) and Baby Boomers (1946-65) enjoyed rising material standards across the Western world as real incomes increased for every successive cohort. This upward movement slowed down and may even have come to a standstill for Generation X (born 1966-1980), particularly in France (Chauvel and Schröder 2014, 2015) and the UK (Anderson 2022). Our argument thus expects that the income trajectories of later birth cohorts differed by social class. The economic slowdown experienced by

Generation X should have left much deeper marks on the incomes of the working than the middle class.

3 Data and methods

3.1 Data and sample

Our analysis uses data from the Luxembourg Income Study (LIS) and focuses on six large Western countries. Besides the United States, we include five of Western Europe's six most populous countries: Germany, the United Kingdom, France, Spain and Poland (Italy was excluded because occupations were measured too coarsely to create a class variable). As argued above, these countries were selected for reasons of data availability, institutional variety and large populations. Moreover, these six countries are major players of the world economy. At the starting point of our study in 1980, they accounted together for almost half of the world's industrial production (Christian 2004: 408). However, we expect our argument of the squeezed working class to hold more widely and also show results for six small and affluent European countries, namely Austria, Denmark, Finland, Ireland, the Netherlands and Switzerland.

The LIS database constitutes a unique source of cross-nationally comparable income data. For each of our selected countries, it assembles over a dozen annual surveys, such as the Current Population Survey for the US, the Socio-Economic Panel for Germany, the Household Budget Surveys for France, Poland and Spain or the Family Resources Survey for the UK. We select the first survey year that contains consistent information on occupation and allows us to distinguish social classes. Our analysis covers three to four decades, with the longest time spans for the US (1979-2019), Spain (1980-2016), France and Germany (1984-2018), and shorter periods for the UK (1991-2018) and Poland (1999-2020).

Our analysis focuses on household labor income of the working-age population. We therefore exclude households without any annual labor income and households where the main earner was younger than 25 (and thus possibly still in education or training) as well as those older than 60 (and thus possibly retired). After further removing observations with missing values on income and occupation, we still have very large analytical samples of, on average, 5,564 observations per survey year in Germany, 21,619 in France, 20,045 in Poland, 6,003 in Spain, 11,329 in the UK and 39,070 in the US. We replicate our analysis on a larger sample that also includes households without any annual labor income, but the results for income growth over time remain unchanged.

3.2 Measures

Our dependent variable is household labor income, adjusted for inflation (with LIS consumer price indices) and household size (with the LIS equivalence scale, the square root of the number of household members). As our interest lies on how different classes fared over time within a given country, we avoid the fluctuation of exchange rates and do not convert incomes into U.S. dollars based on purchasing power parities (see Atkinson, Guio, and Marlier 2017).

Our analytical focus is on household income because people's life chances are primarily determined by the economic situation of their household, and not just their personal finances. Indeed, most families pool their resources among household members, and the household is thus the decisive unit of consumption, notably in terms of housing and food. Within the household, our key focus is on labor income because we argue that the economic rewards on labor markets changed over time for different classes. While labor income is by far the most important contributor to household incomes (Salverda and Haas 2014: 79), government transfers also play a relevant role for many working-class households. We therefore also show results for household disposable income, which includes labor and capital income as well as government transfers, but deduces taxes. In addition, we provide robustness tests for individual labor income in the Appendix and show that including all respondents aged 25 to 60 in our analysis, regardless of whether they had any annual labor income or not, makes no differences for the class pattern of income growth over time.

Our key independent variable is social class. We try to measure our four-class indicator as consistently as possible across countries by using information from three harmonized variables: (i) occupation based on ISCO-88 at the 1-digit level; (ii) employment status separating employers, the self-employed and employees; (iii) education distinguishing low, middle and high attainment. The four classes are constructed based on the following logic.

- The upper and upper-middle class (henceforth *upper-middle class*) includes all employed and self-employed managers (ISCO 1), except those without post-compulsory education, as well as all employed and self-employed professionals (ISCO 2) with higher education. In addition, it encompasses all employers whose occupation is manager or professional.
- The *middle class* includes managers (ISCO 1) without post-compulsory education, professionals (ISCO 2) without higher education, all associate managers, associate professionals and technicians (ISCO 3) as well as office clerks (ISCO 4) with higher education. Moreover, the middle class comprises all employers and self-employed whose occupation is neither manager nor professional.
- The *skilled working class* includes all occupations that are set at ISCO's second skill level and require a few years of post-compulsory education, often in the form of vocational degrees (Elias 1997), namely clerks without higher education (ISCO 4), service and sales workers (ISCO 5), skilled agricultural workers (ISCO 6), craft workers (ISCO 7), as well as plant and machine operators (ISCO 8). Workers in these occupations are considered to be part of the skilled working class if they obtained upper-secondary education (but not tertiary education in the case of office clerks).
- Otherwise, if holders of these same occupations (ISCO 4-8) have no post-compulsory education and hence did not formally learn their trade, they are attributed to the *low-skilled working class*, which additionally includes all laborers in elementary occupations (ISCO 9).

We assign a class position to each household based on the occupation, employment status and education of what LIS calls the "household head". Depending on the country survey, the household head is either self-defined by household members or attributed to the member with the highest income or the member responsible for accommodation. This procedure is close to the dominance method, which uses the household member with the "dominant" labor market position to determine a household's social class (Erikson 1984). Over the period under study, households were more frequently headed by men than women. In the appendix, we show results disaggregated by the household head's gender in the appendix. The descriptive statistics of our variables and the coding of our class variable are shown in Tables A.1 and A.2 (appendix A).⁵

Some stratification scholars may doubt the use of education when constructing class measures. Our decision is motivated by theoretical and practical reasons. Theoretically, education and occupations are systematically linked as educational trajectories feed into specific occupations, and access to many occupations is conditional on distinctive educational degrees. This is the case for vocational degrees that are a prerequisite for skilled working class positions in many European countries (Allmendinger 1989), as well as for many professions that require university degrees, such as medical

⁵ Our 4-class indicator closely resembles the class scheme of Erikson, Goldthorpe and Portocarero (EGP) (Erikson and Goldthorpe 1992). Our upper-class and upper-middle class correspond to EGP's higher-grade service class I, our middle class to EGP's lower-grade service class II, our skilled working class includes EGP's higher-grade routine non-manual employees (IIIa), lower-grade technicians (V) and skilled workers (VI), our low-skilled working class is composed of lower-grade routine non-manual employees (IIIb) and semi- and unskilled manual and agricultural workers (VII). Finally, we allocate the small proprietors (EGP IV) to the middle class: Even when active in working-class occupations, the self-employed are not subject to anyone's authority and have enough productive resources to employ themselves.

doctors, lawyers, or psychologists (Weeden 2002). Individuals cannot work in these professions without higher education.⁶

Moreover, our analysis of several countries over several decades runs into the practical problem that consistent occupational information is available only at an aggregate level. By crossing occupation with education, we obtain a more precise measure of people's productive resources and, hence, their class position. It helps us, for instance, to avoid misclassifying managers with only compulsory education (e.g. lower-grade managers of small shops and restaurants) as upper-middle class. Likewise, it permits us to remove from the upper-middle class individuals classified as professionals (ISCO 2), but who don't have higher education and may work in professions that did not require higher education over much of the period under study (e.g. nurses and midwives, pre-primary teachers, artists).

3.3 Method

Our analytical strategy is straightforward. We try to give readers a tangible sense of how real incomes evolved over time by showing income change by social class on an annualized basis. We first do so with descriptive statistics and then estimate separate multivariate income regressions for each country. In these regressions, we use the logarithm of income and account for the influence that aging and rising female employment have on workforce composition by controlling for the age and gender of the household head as well as household size. For easier comparison, results are again shown as annualized percentage change in labor income over the period covered for each class and based on the following equation:

$$\gamma(\log_income)_{it} = \beta_0 + \beta_1 \text{Class}_{it} + \beta_2 \text{Period}_t + \beta_3 \text{Controls}_{it} + \varepsilon_{it} \quad (1)$$

For clarification purposes, suppose that the predicted inflation-corrected labor income for an unskilled working class household is \$30,000 in 1979 as compared to \$31,200 in 2019. This represents an income gain of 4.0 percent $[(31,200 - 30,000)/30,000]$ over 41 years, which corresponds to a mean annual increase of 0.1 percent (4.0/41). Our results section will feature these mean annual changes in inflation-corrected labor incomes.

Our key argument is that the labor market prospects of the working class were hampered by a historical trend that started in the early 1980s and carried over the following three decades. When calculating the annual mean income growth for a given class over a given period, the actual range of years considered can make a large difference because of business cycle fluctuations. Data availability makes it difficult to use the same starting year for all countries. Yet even a common starting year would not correct for country differences in business cycles (Nolan 2020). Instead, we address this issue by also showing how annual income varied by decade in each country.

Finally, we examine how the historical trend played out for different birth cohorts. We do so by distinguishing three sociologically meaningful birth cohorts who began their work careers in different historical contexts: the Silent Generation, born 1926-1945, the Baby Boomers 1946-1965 and Generation X 1966-1980 (Howe and Strauss 1992). For this analysis, we restrict the sample to individuals aged 35 to 50 years in order to compare the same age range for each cohort and thus avoid out-of-sample predictions (our data contain no observations for individuals below age 35 in the Silent Generations or above age 50 in Generation X).

These three birth cohorts allow us to analyze how labor incomes evolved over the life course for workers in the same social class who were born in different periods of the 20th century. This answers the question as to whether working-class children born in the 1970s were worse off than their working

⁶ For this reason, the practice of entering occupational class and education as two seemingly independent variables into the same wage regression answers the non-sensical questions of "What would medical doctors or lawyers earn if they had low education? What would farmhands or dishwashers earn if they had university education?"

class parents and grandparents. Our goal is descriptive and does not aim to causally disentangle cohort, period and age effects. We estimate the following equation:

$$\gamma(\log_income)_{it} = \beta_0 + \beta_1 \text{Class}_{it} + \beta_2 \text{Cohort}_t + \beta_3 \text{Class}_{it} * \text{Cohort}_t + \beta_4 \text{Controls}_{it} + \varepsilon_{it} \quad (2)$$

The interaction effect between class and cohort allows us to show how classes' income trajectories varied across cohorts, controlling for age, gender and household size.

4 Findings

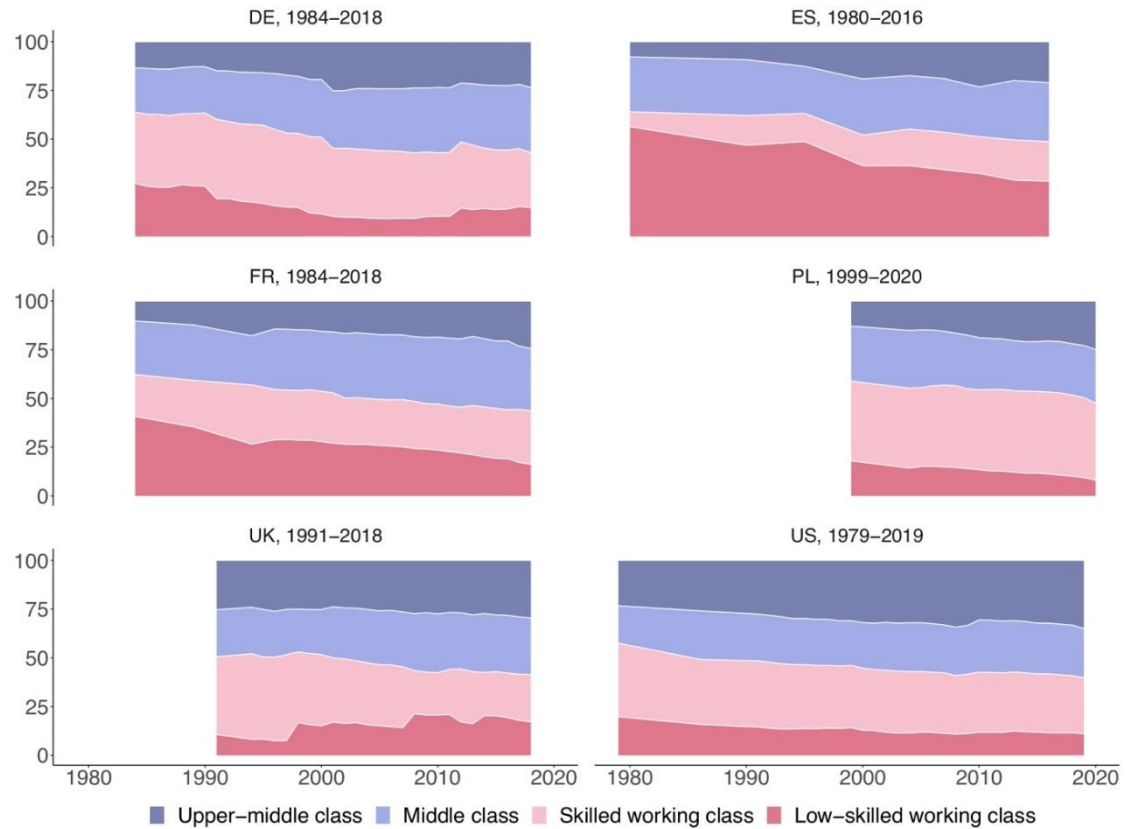
4.1 Change in employment

Before analyzing the evolution in income, we need to document that labor demand has been biased against the working class. For this reason, Figure 1 shows how the class composition of the economically active population aged 25 to 60 evolved over the last four decades. In the 1980s and early 1990s, the two working classes jointly outnumbered the two middle classes in all six countries. With over a third of the labor force, the skilled working class was initially the largest single class in Germany (37% in 1984), Poland (41% in 1999), the UK (40% in 1991) and the US (38% in 1979), whereas the low-skilled working class was numerically predominant in France (41% in 1984) and Spain (56% in 1980).

Three to four decades later, the class composition looks very different as the middle class and upper middle class jointly outnumber the skilled and unskilled working class in every one of the six countries. While the upper-middle class has become the most sizeable single class in the UK (30%) and the US (35%) at the end of the 2010s, it is the middle class that predominates in Germany (33%), France (32%) and Spain (30%). Only in Poland has the skilled working class remained the largest class category with 40 percent of the workforce in 2020.

These findings do not seem to be driven by differential selection into employment over time either. For the five countries under study which we observe for three decades and more (all except Poland), the share of households headed by an adult aged 25 to 60 where no member was in paid employment – because of unemployment or economic inactivity – decreased over time: from 31% in the 1980s to 28% in the 1990s and 24% in the 2000s and 2010s.

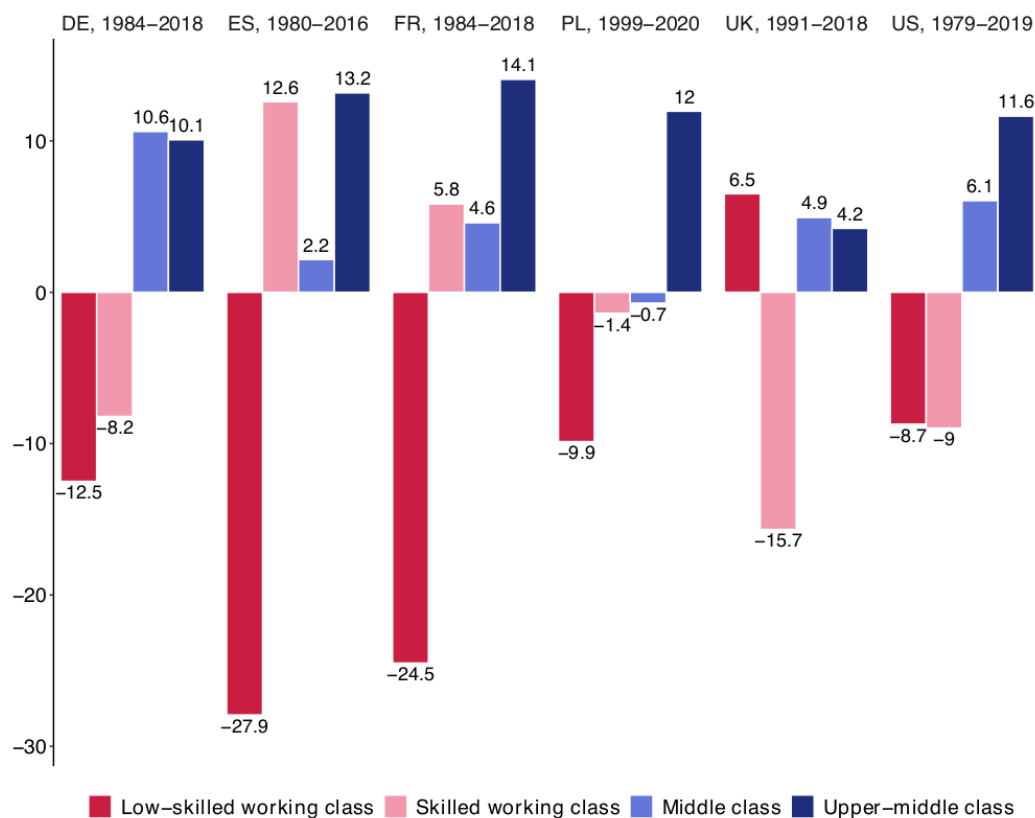
Figure 1: The class composition of the workforce over time (in %)



The employment shifts observed for the different classes are summarized in Figure 2. The transformation of the class structure was particularly profound in France and Spain where the share of the low-skilled working class shrank by 25 and 28 percentage points, respectively, between the early 1980s and late 2010s. In parallel, the upper-middle class expanded its employment share by over 13 points in both countries. In Germany and the US, the proportion of the skilled and low-skilled working class each declined by around 10 points, whereas the two middle class segments each increased their employment share by almost 10 points. In Poland, the decrease mainly concerned the low-skilled working class, whereas the employment gains benefitted exclusively the upper middle class.

For these five countries, our results paint a clear-cut picture of occupational upgrading as employment expanded in the upper-middle and middle class at the expense of the working class. The evolution looks different in the UK where job growth was concentrated at both ends of the class hierarchy. While employment declined in the skilled working class, it expanded in the low-skilled working class and the two middle class segments. The outcome is a polarizing class structure that sets the British employment trajectory apart from that of other Western European countries – and confirms the findings of earlier studies based on the UK labor force survey (Goos and Manning 2007, Oesch and Piccitto 2019).

Figure 2: Change in the employment share of different classes (in percentage points)



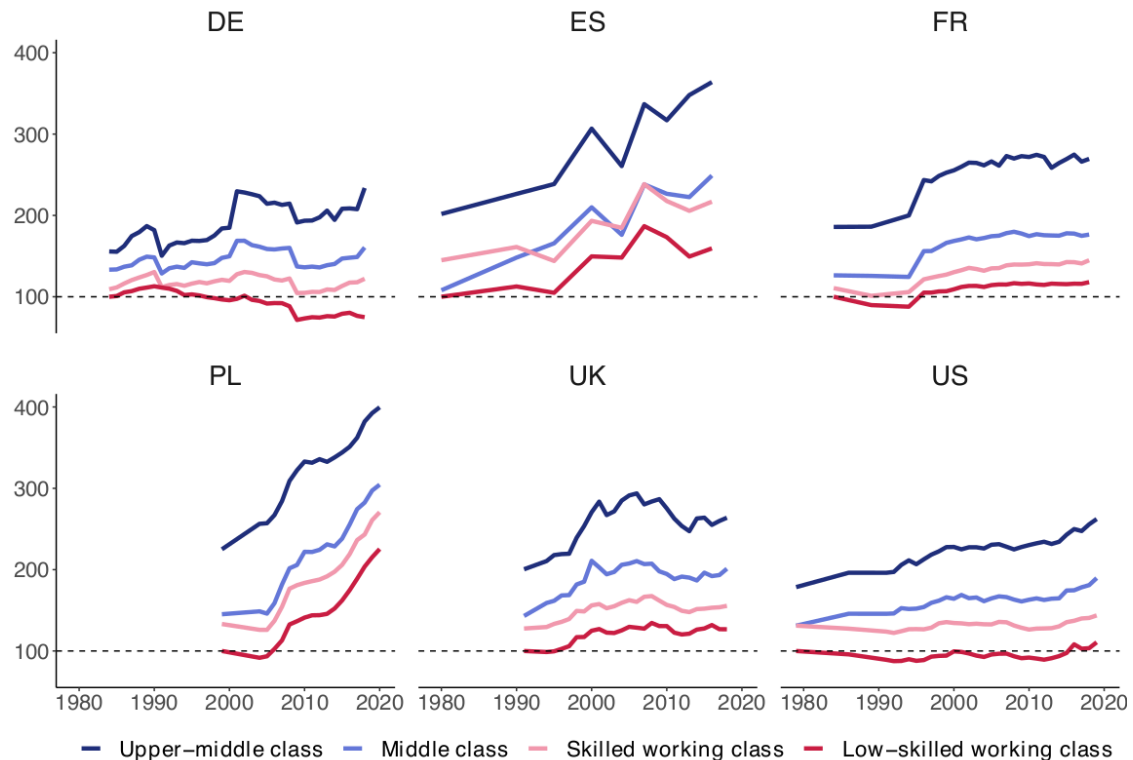
4.2 Change in labour income

In terms of employment, we find no evidence for the argument that the middle class has been squeezed, yet the middle class may still have lost out in terms of incomes. We examine this possibility in Figure 3 by showing how inflation-corrected household labor income evolved for different classes over the last decades. For easier interpretation, we set the income of the low-skilled working class at 100 in the first year within each country and express all other incomes relative to this reference value. Figure 3 shows for each country the expected income hierarchy between social classes. Upper-middle class households receive, on average, the highest labor income and low-skilled working class households the lowest, with the middle class and the skilled working class in-between. Our class indicator appears to capture the different levels of labor market rewards.

When comparing the income evolution of the working class between countries, three patterns can be distinguished. In Germany and the United States, both the skilled and unskilled working class treaded water over the last three decades, their inflation-corrected labor incomes stagnated between the beginning of the 1980s and 2018. In the UK and France, the working classes experienced some income growth during the 1990s, but the increase was modest. Finally, in Poland and Spain, working-class households enjoyed substantial income growth. The period of rising incomes spanned two decades for Poland (2000–2020), and lasted in Spain from the mid-1990s to 2008 when its housing bubble burst.

Contrary to the working class, the incomes of the middle and upper-middle class followed everywhere a consistently upward trajectory over the last decades. In Germany and the United States, notably upper-middle class households were on a path of rising incomes that stands in stark contrast with the stagnation (in the US) and even income loss (in Germany) experienced by the low-skilled working class.

Figure 3: Evolution of indexed real household labor income by social class over four decades



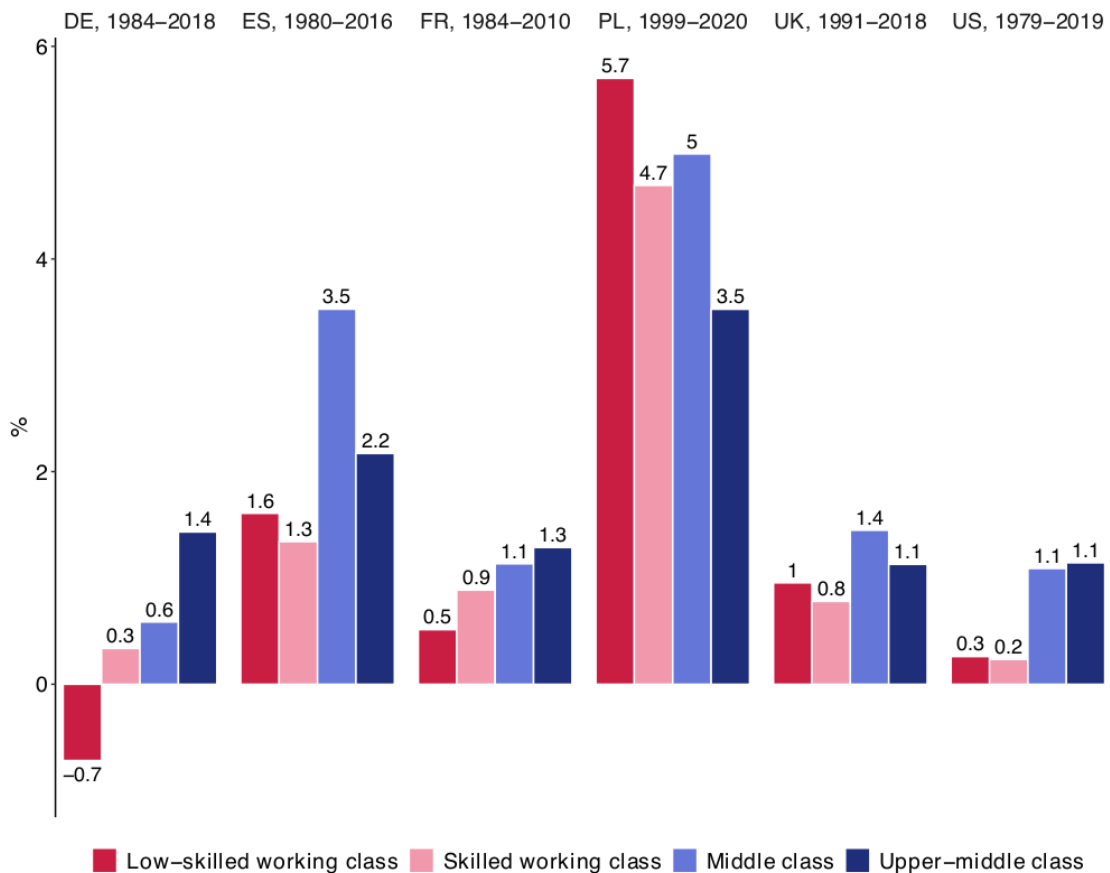
Note: household labor income is corrected for inflation and adjusted for household size. Values are indexed for the low-skilled working class in the first year of observation (that is, all incomes are expressed relative to the income of the low-skilled working class which is set, within each country, at 100 at the beginning of the time series).

The income evolution of different classes becomes more tangible when presented on an annualized basis. This is done in Figure 4 and confirms that the class destinies diverged most strongly in Germany. Between 1984 and 2018, the low-skilled middle class lost, on average, 0.7 percent of income per year, whereas the upper-middle class experienced substantial income gains of 1.4 percent annually. The skilled working class also did poorly with weak income gains of 0.3 percent per year, followed by the middle class with annual gains of 0.6 percent.

A similar pattern can be observed for the US where the household labor incomes of the low-skilled and skilled working class were almost stagnant over the last four decades. Between 1979 and 2019, they increased by only 0.2 to 0.3 percent per year, whereas the middle and upper-middle class experienced robust gains of 1.1 percent annually. For France, we observe similar orders of magnitude at the two ends of the class structure, with income growth of 0.5 percent for the low-skilled working class and 1.3 percent for the upper-middle class. Class disparities in income growth were thus more modest in France than in Germany and the US. They were even smaller in the UK, where all four classes saw their incomes grow by about 1 percent annually between 1991 and 2018, with only a minor advantage for the two middle-class segments.

Annual incomes rose fastest in Spain and, above all, Poland. In Spain, all four classes enjoyed rising incomes of over one percent per year. However, the income gains were almost double among the middle and upper-middle class. The sizeable income gains in Spain were dwarfed, in turn, by the economic boom that Poland witnessed over the first two decades of the 21st century. Unlike in the other countries, the rewards of Poland's strong economic growth were not skewed toward the upper-middle class, but benefitted the low-skilled working class the most. With annual income gains of almost 5 and 6 percent respectively, Poland's skilled and low-skilled working-class households more than doubled their income between 1999 and 2020.

Figure 4: Annual mean change in household labor income, in % (descriptive statistics)

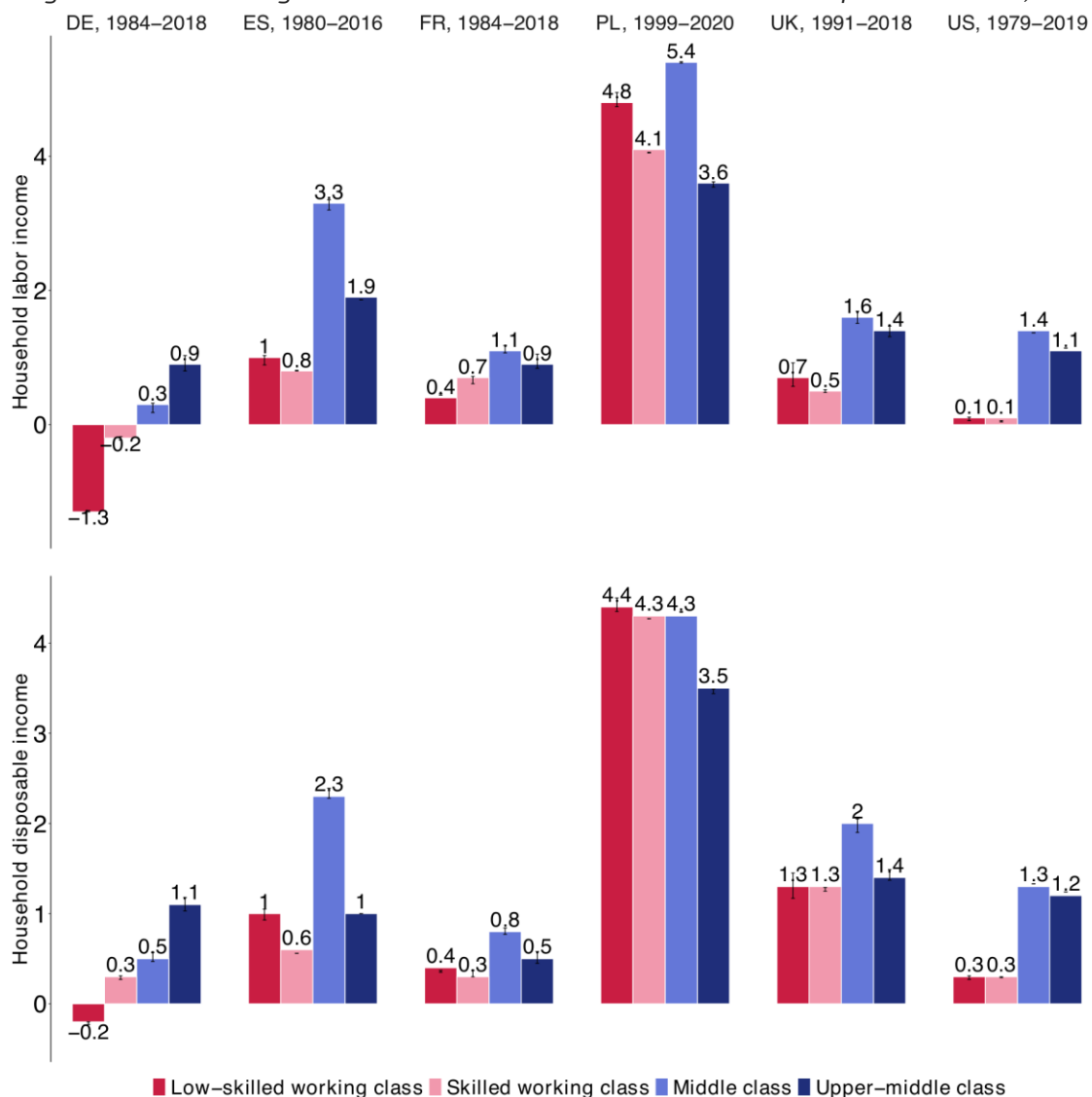


Note: household income is corrected for inflation and adjusted for household size.

We examine the class-income nexus in greater detail with a multivariate model that accounts for age, gender and household size. The upper panel of Figure 5 shows the adjusted predictions of these models (also known as marginal effects), again expressed on an annualized basis, and compares household labor income with household disposable income. These results lead to very similar conclusions. We observe again that Poland is the only country where working-class households obtained comparable gains in labor income as did middle-class households. Poland’s broadly shared income growth contrasts with the situation in the US, Spain and, above all, Germany where the middle and upper-middle class earned, on average, one percent more per year over the last three decades than did the low-skilled working class. Summed up over thirty years, this led to a widening of the labor income gap by 33 percent.

If the focus is shifted to household disposable income rather than household labor income, conclusions remain almost unchanged (Figure 5, lower panel). Thanks to the redistributive character of taxes and transfers, the low-skilled and skilled working class fared a bit better in Germany and the UK in terms of disposable income rather than labor income. Germany’s low-skilled working class lost one percentage point less of disposable income than labor income – but still had to contend with negative growth in disposable income between 1984 and 2018. Similarly, in the UK, the income trajectories become more similar across classes if we compare disposable rather than labor household income.

Figure 5: Annual change in household labor income and household disposable income, in %



Note: Results are based on a regression on the log of household income with controls for class, age, gender and household size (see equation (1) above). We use the income predicted by the regression for a given class at the beginning and end of each period in order to calculate the difference. This difference is then divided by the number of intervening years.

As the majority of household heads are men, we also depict change in labor and disposable income for the subsample of households headed by women (see Figure A.1 in Appendix A). The same class pattern holds for this subsample: Except in Poland and the UK, working-class households fared systematically worse than middle-class households, notably in Germany and the US. While the subsample of households headed by women saw their incomes rise somewhat faster in the UK, their income evolution was particularly dire in France, with basically no increase at all over the last four decades.

Results remain unchanged if we include all households in our analysis (headed by a man or woman aged 25 to 60), regardless of whether they had any annual labor income or not (see Figure A.2 in Appendix A). If the focus is further shifted to the evolution of *individual* labor income instead of *household* labor income, results change slightly (see Figure A.3 in Appendix A). While the hierarchy of income gains remains unchanged in Germany, Spain and the US, increases in annual income become smaller everywhere. Notably in Spain and Poland, households were able to raise their labor incomes not only because earnings per hour increased (i.e., the price of labor increased), but also because more people per household were in paid employment as women increased their labor market

participation (i.e., the volume of labor increased). However, this factor only affects the absolute level of labor income gains (which are higher at the household than the individual level), but not the relative class disparities in income gains. The conclusion that the working class lost out over the last decades – notably in Germany and the US – also holds with respect to individual labor income.

4.3 Differences across birth cohorts

The question arises of how the income evolution of classes varied across birth cohorts. Figure 6 provides an answer by showing the predicted household labor income by class for three cohorts. These analyses control for age (in single years), gender and household size and are restricted to individuals aged 35 to 50. For easier interpretation, we set the income at 100 for the low-skilled working class born into the Silent Generation (1926-45) and express all other incomes relative to this reference value.

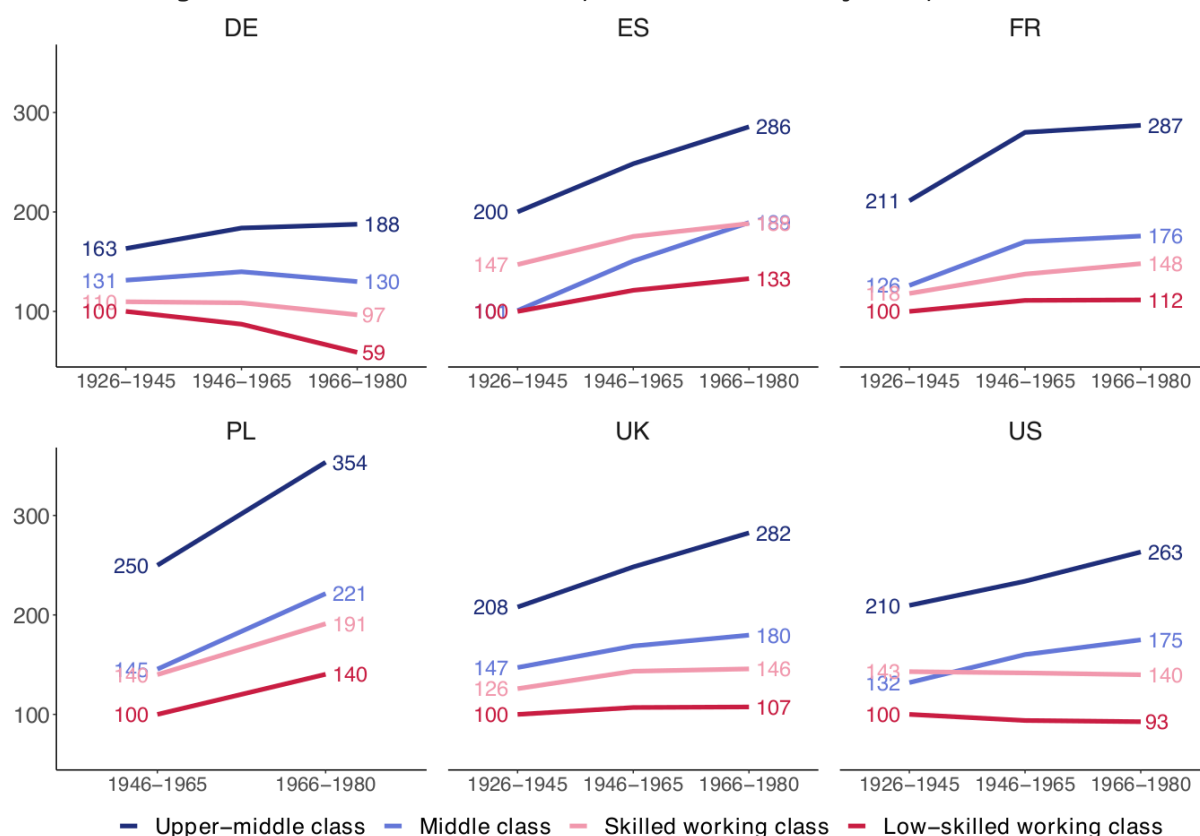
When comparing the experience of different working-class cohorts, three income trajectories can be distinguished. First, a *downward trajectory* describes the German experience where working-class incomes at a given age were highest in the Silent Generation, stagnated for workers belonging to the Baby Boomers (1946-65) and declined for workers in Generation X (1966-1980). In Germany's low-skilled working class, each successive generation had to settle for lower incomes than the Silent Generation whose early working lives coincided with the *Wirtschaftswunder* – economic miracle – of the post-war decades.

Second, a *stagnant trajectory* applies to the working-class experience of the three birth cohorts in the United States. In clear contrast to the American middle and upper-middle class, the working class born into the Baby Boomer and Generation X cohorts made no income gains compared to their working-class parents and grandparents. In the US, as in Germany, the living standards of the working class had stalled for successive birth cohorts.

Third, an *upward trajectory* applies, in a weak version, to France and UK where ensuing working-class cohorts did slightly better than the working class in the Silent Generation. However, income gains were meager and remained below the increases observed for the same birth cohorts in the middle and upper-middle class. A clear upward trajectory can only be observed for Poland and Spain. In Spain, working-class households of Generation X earned inflation-corrected labor incomes that exceeded those of working-class households in the Silent Generation by almost 50 percent in Spain. Similarly, in Poland where our data cover a shorter time span, the working-class incomes of Generation X surpassed those of the Baby Boomer working class by 50 percent.

If the focus is shifted to the middle and upper-middle class, country differences shrink. The incomes of the middle and upper-middle class barely grew across birth cohorts in Germany. In France, the US and the UK, households of the middle and upper-middle class saw their incomes grow slowly, but they fared clearly better in the Baby Boomer cohort than in the Silent Generation and, with the notable exception of France, somewhat better in Generation X than among Baby Boomers. Again, we observe the strongest income gains of the upper-middle and middle class across birth cohorts in Spain and, over just one generation, in Poland.

Figure 6: Household labor income by class and cohort (adjusted predictions)



Note: Results are based on a linear regression on the log of household income with controls for class, cohort, class*cohort, age, gender and household size. They show the adjusted predictions for the cohort term and interaction term between class and cohort, based on equation (2) shown above. All incomes are expressed relative to the income of the low-skilled working class in the Silent Generation which is set, within each country, at 100.

5 Robustness tests

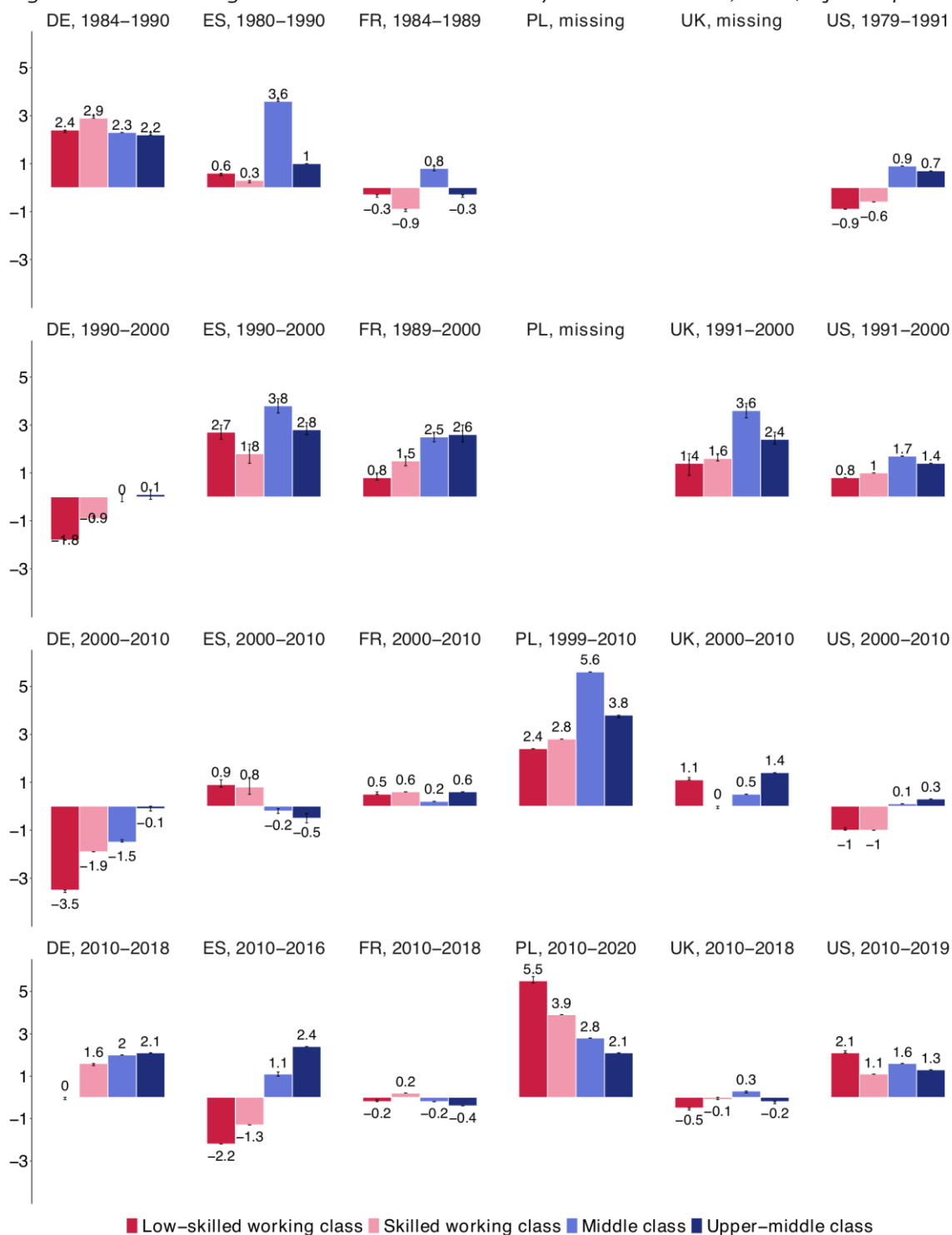
5.1 Differences across decades

So far, our focus was on average income growth over 30 to 40 years, but these periods may hide large period differences. Figure 7 therefore shows annual income growth for each decade between 1980 and 2020. Findings are again striking for Germany where the 1990s and, above all, early 2000s were lost decades that brought income stagnation for the two middle-class segments; it is therefore true that the incomes of the German middle class were squeezed between 1990 and 2010. Yet the two working-class segments fared even worse – with income losses of up to 2 percent per year between 1990 and 2010. Moreover, while Germany’s low-skilled working class saw its incomes grow in the boom period of the late 1980s, it was left out of the economic recovery from 2010 to 2018 that only benefitted the three other classes.

In the US, income growth was substantial during the Clinton boom of the 1990s and, again, during the recovery after the Great Recession in the 2010s. In contrast, in the 1980s and the 2000s, there was modest income growth for the middle and upper-middle class, whereas both decades brought income losses of up to one percent annually for working-class households.

The income evolution over the last decades looks similar in France and the UK. In both countries, the only decade with sizeable income growth were the 1990s that led to much larger gains among the two middle classes than the working-class segments. In the 2000s, income growth hovered below one percent, and in the 2010s it was close to zero for all classes.

Figure 7: Annual change in household labor income by class and decade, in % (adjusted predictions)



Note: For technical details, see note below Figure 5.

For Spain, the analysis by decade shows strong income growth across the economy in the 1990s. This catch-up growth was slowed down in the 2000s by the Great Recession. The recovery in the 2010s exclusively benefitted the middle and upper-middle classes, whereas the two working-class segments continued to lose 1 to 2 percent annually. Finally, Poland's households enjoyed strong income increases in the 2000s and 2010s, but it was only in the last decade that it became skewed in favor of the two working-class segments.

5.2 A different measure of stratification

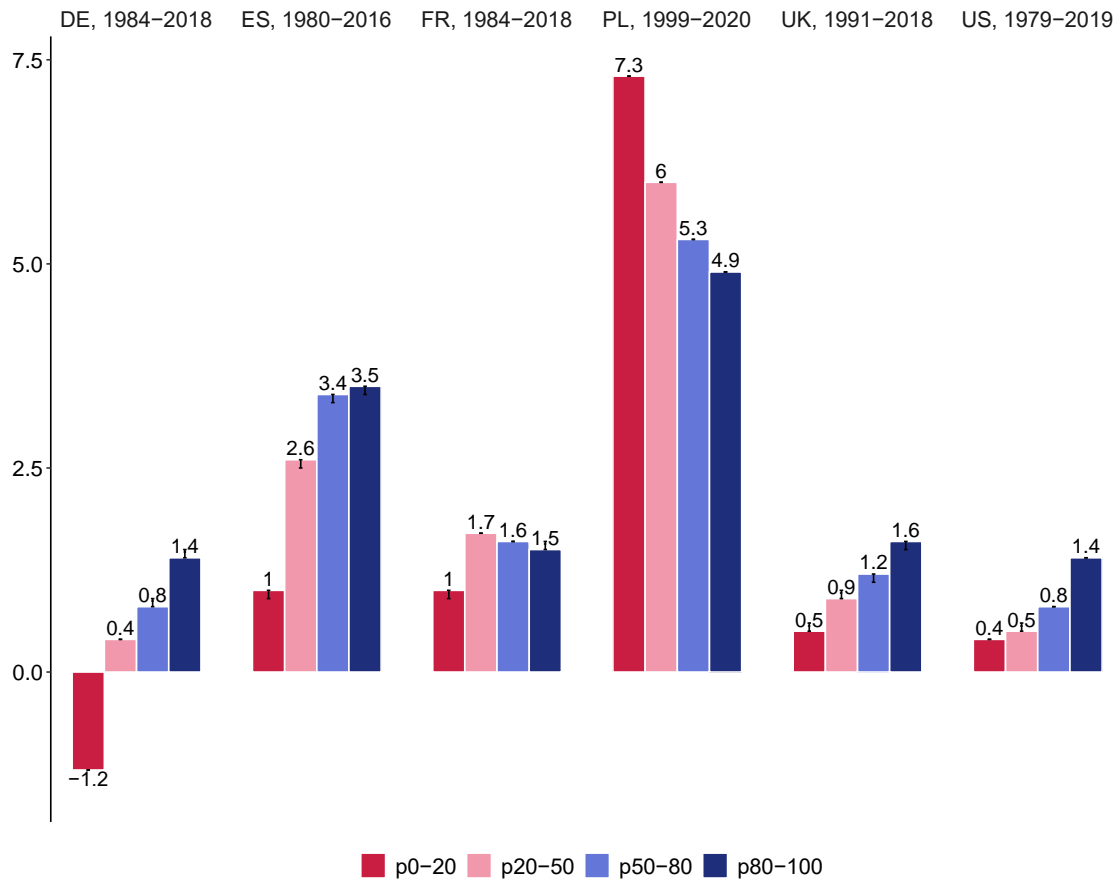
A second concern is that our finding of a working-class squeeze is simply a matter of definition. We examine this possibility by re-running our analysis with the income-based middle-class definition used by the OECD (2015). It consists in separating the bottom (p0-p20) and top quintile (p80-p100) of the income distribution from the middling households set between the 20th and 80th income percentile. These middle-income households are seen as the middle class, which we further divide into a lower (p20-p50) and upper segment (p50-80).

This analysis allows us to also address the concern that lower income growth for the working class is driven by a selection effect. As educational expansion and occupational upgrading allowed many working-class children to move into middle-class jobs (Breen and Müller 2020), the decreasing number of people employed in working-class occupations may have become more negatively selected. To the extent that the relative size of income groups in the OECD definition is held constant over time (20% at the bottom and top, 60% in the middle), the bottom income quintile should be more negatively selected in 2020 than in 1980.

When re-running our analysis with these income groupings, we do not find the u-shaped pattern of income growth associated with the squeezed middle narrative (see Figure 8). On the contrary, incomes evolved most sluggishly in the bottom quintile in every single country except Poland. Likewise, the lower segment of middle-income households (p20-p50) fared everywhere worse than the upper segment (p50-p80), again with the exception of Poland and France where differences between income groups are minimal. Over the last decades, the higher a household was in the income hierarchy, the more substantial was its income growth – a feature previously shown by Thomas Piketty (2014) and colleagues (notably Saez and Zucman 2020: 16).

Figure 8 not only discards the idea that middle-income households were the great losers, but also throws doubt on the claim that our earlier findings of unequal income growth across classes are biased by increasingly negative selection into the shrinking working class.

Figure 8: Annual change in household labor income by income groups (adjusted predictions)



The results based on income groups suggest that our conclusions are not sensitive to a particular measure of social stratification. The same conclusion holds if we create an additional category of the lower-middle class that includes small employers, the self-employed and office clerks. We replicate our analyses with this more detailed 5-class measure in Appendix B. With respect to employment, we still observe in all countries strong growth in the middle and upper-middle classes and a decline in the low-skilled working class. The lower-middle class remained constant in Germany, Spain and the US, but saw its employment share decrease in France, Poland and the UK (see Figures B.1 and B.2 in Appendix B). When comparing the evolution of labor incomes, the lower-middle class fared better than the working class in all six countries, but experienced less income growth than the middle and upper-middle class in Germany, France and the UK (see Figures B.3 and B.4 in Appendix B). Given the similarity of results, the more parsimonious 4-class schema seems preferable to the 5-class schema.

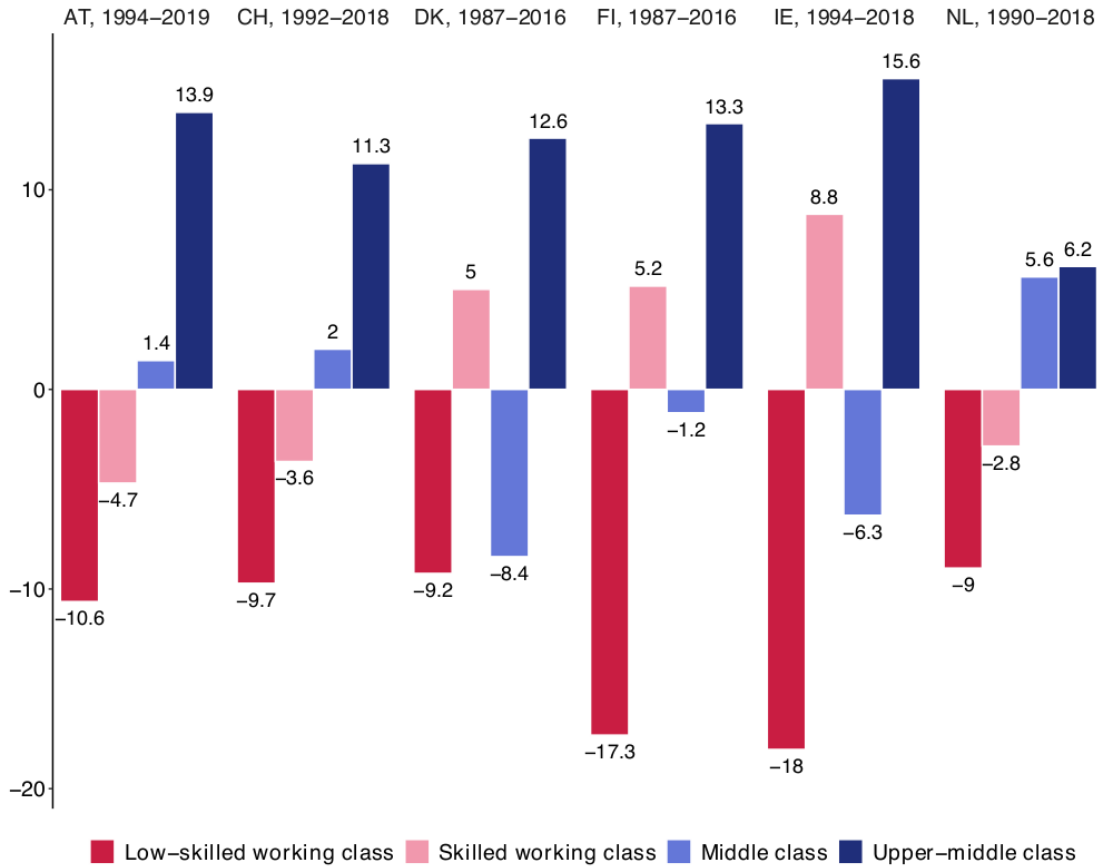
5.3 A different set of countries

Our results do not show a middle-class squeeze in terms of employment or income. However, skeptical readers may wonder to what extent this finding for six large countries generalizes to other Western countries. We address this concern by running the same analysis on six small and affluent West European countries, which we select because LIS provides consistent information on incomes and occupations over the last three decades.

Figure 9 shows that in every single one of these countries, employment decreased most in the low-skilled working class and expanded most in the upper-middle class. For these small countries, we also observe a clear pattern of occupational upgrading. The upwards change in the class structure is particularly clear for Austria, the Netherlands and Switzerland, where employment shifts were linear: the higher a class in the hierarchy, the more employment increased – with job growth in the two

middle-class segments and a decline in the two working-class segments. In Denmark, Finland and Ireland, there was a relative increase in the skilled working class and a relative decline in the middle class. The analysis of a sample restricted to employees (and thus without employers and the self-employed) suggests that this fall in the middle class was exclusively due, in Finland and Ireland, to the declining employment among small business owners and the self-employed, including shop owners, small artisans and farmers (see Figure A.4 in Appendix A).

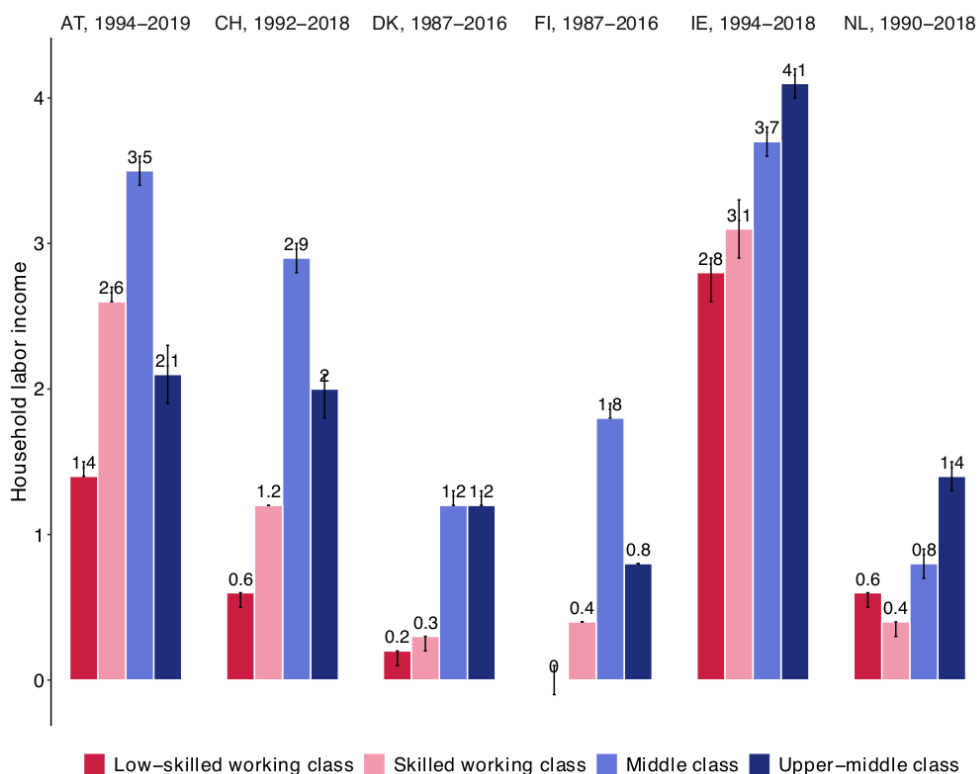
Figure 9: Employment change by class in small European countries (in percentage points)



Note: AT: Austria, CH: Switzerland, DK: Denmark, FI: Finland, IE: Ireland, NL: Netherlands

For the same six small European countries, Figure 10 shows the evolution of incomes and confirms that middle-class households everywhere experienced greater increases in labor income than the two working-class segments – with the low-skilled working class seeing the lowest income gains (except in the Netherlands where the skilled working class fared even worse). Income growth was stronger in some countries than in others. In Austria, the labor incomes of the working class increased annually by 1 to 2 percent and those of the middle class by 2 to 3 percent. In Ireland, the annual income gains of the working and middle class even reached 3 and 4 percent, respectively. In contrast, the incomes of working-class households almost stagnated in Finland, the Netherlands and Denmark over the last three decades – and only increased by about one percent among the middle class.

Figure 10: Annual change in household labor income in small European countries, in % (adjusted predictions)



Note: For technical details, see note below Figure 5.

6 Conclusion

In their recent forays into class analysis, prominent economists argued that the middle class was declining (Pressman 2007), eroding (Vaughan-Whitehead 2020) and had been wrecked by technology (Autor and Dorn 2013). The dominant thesis was that technology “led the middle class to experience a hollowing out in terms of wages and employment” (Jaimovich 2020: 4). Our paper rejects this thesis on the basis of three main findings.

The middle class experienced gains in both employment and income: There has been no middle class squeeze over the last decades, neither in terms of employment nor income. In the 1980s and early 1990s, the middle and upper-middle class were still outnumbered by the skilled and low-skilled working class in the six large Western countries that we studied. Yet over the last four decades, the relative sizes shifted as job opportunities expanded for managers, professionals and technicians, while they declined for laborers, assemblers, craft workers and clerks. The ranks of the (upper-)middle class swelled by 10 to 20 percentage points, while those of the working class decreased to the same extent. Consistent with a host of recent comparative studies (Fernandez-Macias & Hurley 2017, Haslberger 2021, Oesch and Piccitto 2019), we observe the upgrading of the class structure in all countries except the UK where the class structure polarized, with employment growth in the upper-middle and middle class as well as in the low-skilled working class.

Over the last three to four decades, there was no income squeeze of the middle class either as household labor income of the middle and upper-middle class increased, on average, by about one percent per year in France, the UK and the US. This may appear modest when compared to the post-war decades, but corresponds nonetheless to an income increase of 33 percent over thirty years. The

income trajectory of middle and upper-middle class households was steeper in Spain with annual increases of 2 to 3 percent and in Poland with 3 to 4 percent, but flatter in Germany with less than one percent. Over the last decades, the promise of doing economically better than one's parents and grandparents still held for the members of the middle and upper-middle class in France, Poland, Spain, the UK and US. The only exception is Germany where living standards stagnated for successive middle-class cohorts.

The working class lost out: Both in terms of employment and income, the great loser over the last decades was the working class. In the wake of skill-biased technological change, globalization and the neoliberal turn in politics, labor market opportunities deteriorated for the working class. The employment share of the low-skilled working class fell massively in both the large and small countries we studied, the UK being the sole exception. The skilled working class also shrank in most countries, albeit less strongly. As a result, in the 21st century, the working class lost its majority status that it had held in Europa and the US over most of the 20th century.

In terms of income growth, the two working-class groups fared systematically worse than the two middle-class groups, Poland being the only exception. Over the last decades, working-class households saw their labor income decline in Germany, stagnate in the US and increase by less than one percent per year in France and the UK. Only Spain and, above all, Poland saw a substantial rise in the household labor income of the working class. The trend was particularly bleak in Germany and the US. In the US, the march towards economic prosperity had stalled for the working class among Baby Boomers and Generation X. In Germany, working-class households in the two successive cohorts even had to settle for lower labor incomes than working-class households in the Silent Generation.

Country differences: In the large Western countries under study, annual growth of inflation-corrected household income was weak since the 1980s, barely one percent per year for the middle class and barely half a percent for the working class. The two exceptions are Spain and Poland. Starting from a lower level of economic prosperity, these two countries experienced robust GDP growth and (almost) caught up to the more affluent Western countries. In Spain and Poland, not only the incomes of the middle class, but also those of the working class are today substantially higher than they were in the birth cohorts of their parents and grandparents.

Poland's households enjoyed particularly large income increases, and these increases skewed in favor of the working class – a pattern that is exceptional among both the large and small countries considered. Over much of the last two decades, Poland's anti-liberal Law and Justice Party (PiS) was in power. While internationally known for its disdain of the rule of law and minority rights, PiS also introduced labor-friendly policies, increasing minimum wages and social spending, notably on child benefits (Meardi and Guardiancich 2022). Buoyed by rapid economic growth, these policies boosted working-class incomes and secured the party a disproportionate share of working-class votes (Ost 2018; Siemsen 2020).

The opposite scenario applies to Germany where the 1990s and 2000s were lost decades. In the 1990s, the post-reunification recession resulted in rising unemployment that weakened trade unions, collective bargaining and work councils. In the early 2000s, the Hartz laws introduced new forms of marginal employment (mini-jobs) and curtailed unemployment benefits (Baccaro and Höppner 2022; Carlin and Soskice 2009). Mass unemployment, weaker unions and labor market deregulation resulted in large annual income losses for the working class between the early 1990s and the early 2000s. In the 2010s, Germany left its long slump behind and embarked on sustained GDP growth that benefitted the upper-middle, middle and skilled working class with annual income rises of two percent – but left the low-skilled working class empty-handed. However, given the introduction of a legal minimum wage in 2015 and the return to full employment in the mid-2010s, future growth in Germany will probably be less unequally distributed as it was in the 1990s and 2000s.

The shifts in Germany's recent economic history remind us that results are sensitive to period definitions. Had we focused on shorter periods such as the decade from 2010 to 2020, we would have stressed the unequal income growth across classes in Spain, the stagnation in France and the UK, robust increases in Germany and the US as well as massive gains in Poland.

Implications of the working-class decline: Our paper's main findings is the extraordinary decline that the working class experienced over the last decades, both in terms of employment and income. In our view, much of the recent political turmoil in Western democracies is due to the working class losing out. As neither markets nor politics delivered any real improvement in living standards over the last decades, growing shares of the working class turned towards candidates and parties of the radical right. In the context of insecure jobs and stagnant incomes, these parties' vociferous resistance to globalization, multiculturalism and national elites struck a chord with the discontented working-class electorate (Bornschieer and Kriesi 2012).

Given the empirical evidence, we see only one way in how the thesis of a middle class squeeze could be rescued: by arguing that there is no such a thing as the working class because the middle class begins when poverty ends (Ravaillon 2010). This semantic argument has gained substantial traction among economists and international organizations such as the OECD. Yet it is so clearly inconsistent with the recent history of industrial societies that it requires a healthy measure of amnesia. Between 1945 and 2020, 34 articles mentioned the working class in the title of the *American Sociological Review* and 76 articles in the *American Journal of Sociology*. This is a lot of attention for a non-existent class.

A final question remains: Why did the narrative of a middle-class squeeze gain so much public prominence despite the lack of evidence? Besides the argument that the middle class has replaced the working class in the language of the 21st century, two additional arguments focus on morals and expectations. According to a moral argument, the stagnation of working-class incomes may not have been overly worrisome to many pundits, as it only seemed natural that in the knowledge economy workers without higher education would see their incomes stall. The perception of the problem changed, however, once white-collar employees with post-secondary educational degrees experienced a slowdown of income growth. For the educated middle-class, the halted economic elevator appeared altogether undeserved and was seen as "a broken promise".

Finally, the thesis of the middle class squeeze may also be linked to people's expectations of income growth. Three decades of massive GDP growth after 1945 led to firmly entrenched expectations of rising incomes and living standards. Workers socialized in this context came to view annual income gains of half to one percent as a step back (Inglehart and Norris 2017). Moreover, the slowdown in economic growth did not only mean that there was less income to distribute – but, crucially, this income was distributed unequally as a small elite class pocketed the lion's share in the new gilded age (Hacker and Pierson 2010; Piketty 2014).

The statement that the middle class has been left behind is therefore correct when compared with the fortune of those *above*. However, it completely ignores that the real losers of the last few decades were situated *below* – the working class.

7 References

- Albertini, Marco, Gabriele Ballarino, and Deborah De Luca. 2020. "Social Class, Work-Related Incomes, and Socio-Economic Polarization in Europe, 2005–2014." *European Sociological Review* 36(4):513–32. doi: [10.1093/esr/jcaa005](https://doi.org/10.1093/esr/jcaa005).
- Alderson, Arthur S., and François Nielsen. 2002. "Globalization and the Great U-Turn: Income Inequality Trends in 16 OECD Countries." *American Journal of Sociology* 107(5):1244–99. doi: [10.1086/341329](https://doi.org/10.1086/341329).
- Allmendinger, Jutta. 1989. "Educational Systems and Labor Market Outcomes." *European Sociological Review* 5(3):231–50. doi: [10.1093/oxfordjournals.esr.a036524](https://doi.org/10.1093/oxfordjournals.esr.a036524).
- Anderson, Lewis Robert. 2022. *The Future Is Bright – or Is It? Comparing Opportunities across the Generations in the UK*. preprint. SocArXiv. doi: [10.31235/osf.io/wx8uz](https://doi.org/10.31235/osf.io/wx8uz).
- Atkinson, A. B. 2015. *Inequality: What Can Be Done?* Cambridge, Massachusetts: Harvard University Press.
- Atkinson, A. B., and Andrea Brandolini. 2013. "Two On the Identification of the Middle Class." Pp. 77–100 in *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*, edited by J. C. Gornick and M. Jantti. Stanford: Stanford University Press.
- Atkinson, Anthony B., Anne-Catherine Guio, and Éric Marlier, eds. 2017. *Monitoring Social Inclusion in Europe*. 2017 edition. Luxembourg: Publications Office of the European Union.
- Autor, David H., David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. 2020. "The Fall of the Labor Share and the Rise of Superstar Firms*." *The Quarterly Journal of Economics* 135(2):645–709. doi: [10.1093/qje/qjaa004](https://doi.org/10.1093/qje/qjaa004).
- Autor, David H. 2014. "Skills, Education, and the Rise of Earnings Inequality among the 'Other 99 Percent.'" *Science* 344(6186):843–51. doi: [10.1126/science.1251868](https://doi.org/10.1126/science.1251868).
- Autor, David H., and Dorn, David. 2013. "The Great Divide: How Technology Wrecks the Middle Class." *New York Times* August 24.
- Autor, David H., and David Dorn. 2013. "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market." *American Economic Review* 103(5):1553–97. doi: [10.1257/aer.103.5.1553](https://doi.org/10.1257/aer.103.5.1553).
- Baccaro, Lucio, Mark Blyth, and Harry Jonas Pontusson. 2022. "Introduction: Rethinking Comparative Capitalism." Pp. 1–74 in *Diminishing Returns: The New Politics of Growth and Stagnation*, edited by L. Baccaro, M. Blyth, and H. J. Pontusson. Oxford: Oxford University Press.
- Baccaro, Lucio, and Martin Höpner. 2022. "The Political-Economic Foundations of Export-Led Growth: An Analysis of the German Case." Pp. 238–67 in *Diminishing Returns: The New Politics of Growth and Stagnation*, edited by L. Baccaro, M. Blyth, and H. J. Pontusson. Oxford: Oxford University Press.
- Boehm, Michael. 2014. "Job Polarisation and the Decline of Middle-Class Workers' Wages." *VoxEU. Org* 8.
- Bornschieer, Simon, and Hanspeter Kriesi. 2012. "The Populist Right, the Working Class, and the Changing Face of Class Politics." Pp. 28–48 in *Class Politics and the Radical Right*, edited by J. Rydgren. New York: Routledge.
- Bosch, Gerhard, and Thorsten Kalina. 2008. "Low-Wage Work in Germany: An Overview." Pp. 19–112 in *Low-wage work in Germany, The Russell Sage Foundation case studies of job quality in advanced economies*, edited by G. Bosch and C. Weinkopf. New York: Russell Sage Foundation.
- Breen, Richard, and Walter Müller, eds. 2020. *Education and Intergenerational Social Mobility in Europe and the United States*. Stanford, California: Stanford University Press.
- Bukodi, Erzsébet, and John H. Goldthorpe. 2018. *Social Mobility and Education in Britain: Research, Politics and Policy*. 1st ed. Cambridge University Press.

- Carlin, Wendy, and David Soskice. 2009. "German Economic Performance: Disentangling the Role of Supply-Side Reforms, Macroeconomic Policy and Coordinated Economy Institutions." *Socio-Economic Review* 7(1):67–99. doi: [10.1093/ser/mwn021](https://doi.org/10.1093/ser/mwn021).
- Chauvel, L., and M. Schroder. 2014. "Generational Inequalities and Welfare Regimes." *Social Forces* 92(4):1259–83. doi: [10.1093/sf/sot156](https://doi.org/10.1093/sf/sot156).
- Chauvel, Louis. 2014. "Welfare Regimes, Cohorts and the Middle Classes. Income Inequality: Economic Disparities and the Middle Class in Affluent Countries." Pp. 115–41 in *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*, edited by J. C. Gornick and M. Jäntti. Stanford, California: Stanford University Press.
- Chauvel, Louis, and Martin Schröder. 2015. "The Impact of Cohort Membership on Disposable Incomes in West Germany, France, and the United States." *European Sociological Review* 31(3):298–311. doi: [10.1093/esr/jcu091](https://doi.org/10.1093/esr/jcu091).
- Cherlin, Andrew J. 2014. *Labor's Love Lost: The Rise and Fall of the Working-Class Family in America*. New York: Russell Sage Foundation.
- Christian, David. 2004. *Maps of Time: An Introduction to Big History*. Berkeley: University of California Press.
- Dallinger, Ursula. 2013. "The Endangered Middle Class? A Comparative Analysis of the Role Played by Income Redistribution." *Journal of European Social Policy* 23(1):83–101. doi: [10.1177/0958928712456573](https://doi.org/10.1177/0958928712456573).
- Eichengreen, Barry. 2008. *The European Economy since 1945: Coordinated Capitalism and Beyond*. 5. print., 1. paperback print. Princeton, NJ: Princeton University Press.
- Elias, Peter. 1997. Occupational Classification (ISCO-88): Concepts, Methods, Reliability, Validity and Cross-National Comparability. Vol. 20. OECD Labour Market and Social Policy Occasional Papers. 20. Paris: OECD Publishing. doi: [10.1787/304441717388](https://doi.org/10.1787/304441717388).
- Engelhardt, Carina, and Andreas Wagener. 2018. "What Do Germans Think and Know about Income Inequality? A Survey Experiment." *Socio-Economic Review* 16(4):743–67. doi: [10.1093/ser/mwx036](https://doi.org/10.1093/ser/mwx036).
- Erikson, Robert. 1984. "Social Class of Men, Women and Families." *Sociology* 18(4):500–514. doi: [10.1177/0038038584018004003](https://doi.org/10.1177/0038038584018004003).
- Esping-Andersen, Gøsta. 1999. *Social Foundations of Postindustrial Economies*. Oxford: Oxford University Press.
- Fernández-Macías, Enrique, and John Hurley. 2016. "Routine-Biased Technical Change and Job Polarization in Europe." *Socio-Economic Review* mww016. doi: [10.1093/ser/mww016](https://doi.org/10.1093/ser/mww016).
- Ferragina, Emanuele, and Martin Seeleib-Kaiser. 2011. "Thematic Review: Welfare Regime Debate: Past, Present, Futures?" *Policy & Politics* 39(4):583–611. doi: [10.1332/030557311X603592](https://doi.org/10.1332/030557311X603592).
- Goldthorpe, John Harry. 2000. *On Sociology: Numbers, Narratives, and the Integration of Research and Theory*. Oxford: Oxford University Press.
- Goldthorpe, John, David Lockwood, Frank Bechhofer, and Jennifer Platt. 1969. *The Affluent Worker in the Class Structure*. Cambridge: Cambridge Univ. Pr.
- Goos, Maarten, and Alan Manning. 2007. "Lousy and Lovely Jobs: The Rising Polarization of Work in Britain." *Review of Economics and Statistics* 89(1):118–33. doi: [10.1162/rest.89.1.118](https://doi.org/10.1162/rest.89.1.118).
- Gornick, Janet C., and Markus Jäntti, eds. 2013. *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*. Stanford, California: Stanford University Press.
- Goux, Dominique, and Eric Maurin. 2019. "Forty Years of Change in Labour Supply and Demand by Skill Level–Technical Progress, Labour Costs and Social Change." *Economie et Statistique* 510(1):131–47.

- Grabka, Markus M., and Joachim R. Frick. 2008. The Shrinking German Middle Class: Signs of Long-Term Polarization in Disposable Income? 4 (4). DIW Berlin Weekly Report.
- le Grand, Carl, and Michael Tåhlin. 2013. "Class, Occupation, Wages, and Skills: The Iron Law of Labor Market Inequality." Pp. 3–46 in *Comparative Social Research*. Vol. 30, edited by G. Elisabeth Birkelund. Emerald Group Publishing Limited.
- Grimshaw, Damian, and Anthony Rafferty. 2016. "How Have Middle-Income Households Fared in Unequal Britain? A Focus on Work and Employment Trends." Pp. 586–632 in *Europe's Disappearing Middle Class?*, edited by D. Vaughan-Whitehead. Edward Elgar Publishing.
- Grusky, David. 2005. "Foundations of a Neo-Durkheimian Class Analysis." Pp. 51–81 in *Approaches to Class Analysis*, edited by E. O. Wright. Cambridge University Press.
- Hacker, Jacob S., and Paul Pierson. 2010. *Winner-Take-All Politics: How Washington Made the Rich Richer—and Turned Its Back on the Middle Class*. 1st Simon & Schuster hardcover ed. New York: Simon & Schuster.
- Hall, Peter A. 2017. "The Comparative Political Economy of the 'Third Way.'" Pp. 31–58 in *Revival: The Third Way Transformation of Social Democracy (2002): Normative Claims and Policy Initiatives in the 21st Century*, edited by O. Schmidtke. London: Taylor and Francis.
- Haslberger, Matthias. 2021. "Routine-Biased Technological Change Does Not Always Lead to Polarisation: Evidence from 10 OECD Countries, 1995–2013." *Research in Social Stratification and Mobility* 74:100623. doi: [10.1016/j.rssm.2021.100623](https://doi.org/10.1016/j.rssm.2021.100623).
- Hobsbawm, Eric J. 1999. *Industry and Empire: From 1750 to the Present Day*. London: The New Press.
- Howe, Neil, and William Strauss. 1992. "The New Generation Gap." *Atlantic Monthly* 270:67–89.
- Ikeler, Peter, and Laura Limonic. 2018. "Middle Class Decline? The Growth of Professional-Managers in the Neoliberal Era." *The Sociological Quarterly* 59(4):549–70. doi: [10.1080/00380253.2018.1479197](https://doi.org/10.1080/00380253.2018.1479197).
- Inglehart, Ronald, and Pippa Norris. 2017. "Trump and the Populist Authoritarian Parties: The Silent Revolution in Reverse." *Perspectives on Politics* 15(2):443–54. doi: [10.1017/S1537592717000111](https://doi.org/10.1017/S1537592717000111).
- Iversen, Torben, and David W. Soskice. 2019. *Democracy and Prosperity: Reinventing Capitalism through a Turbulent Century*. Princeton, New Jersey: Princeton University Press.
- Jacobs, David, and Lindsey Myers. 2014. "Union Strength, Neoliberalism, and Inequality: Contingent Political Analyses of US Income Differences since 1950." *American Sociological Review* 79(4):752–74. doi: [10.1177/0003122414536392](https://doi.org/10.1177/0003122414536392).
- Jaimovich, Nir. 2020. *Disappearing Middle Class: Job Polarization and Policy Approaches*. 8. UBS Center Public Paper Series.
- Jaimovich, Nir, and Henry E. Siu. 2019. *How Automation and Other Forms of IT Affect the Middle Class: Assessing the Estimates*. Brookings Economic Studies.
- Karabarbounis, Loukas, and Brent Neiman. 2014. "The Global Decline of the Labor Share*." *The Quarterly Journal of Economics* 129(1):61–103. doi: [10.1093/qje/qjt032](https://doi.org/10.1093/qje/qjt032).
- Kelly, John. 2015. "Conflict: Trends and Forms of Collective Action" edited by P. Ralph Darlington. *Employee Relations* 37(6):720–32. doi: [10.1108/ER-06-2015-0102](https://doi.org/10.1108/ER-06-2015-0102).
- Kenworthy, Lane. 2013. "Has Rising Inequality Reduced Middle-Class Income Growth?" Pp. 101–14 in *Income inequality: economic disparities and the middle class in affluent countries*, edited by J. C. Gornick and M. Jäntii. Stanford, California: Stanford University Press.
- Kenworthy, Lane, and Leslie McCall. 2008. "Inequality, Public Opinion and Redistribution." *Socio-Economic Review* 6(1):35–68. doi: [10.1093/ser/mwm006](https://doi.org/10.1093/ser/mwm006).
- Kochhar, Rakesh. 2017. *Middle Class Fortunes in Western Europe*. LIS Working Paper Series. 702. Luxembourg: Luxembourg Income Study (LIS).

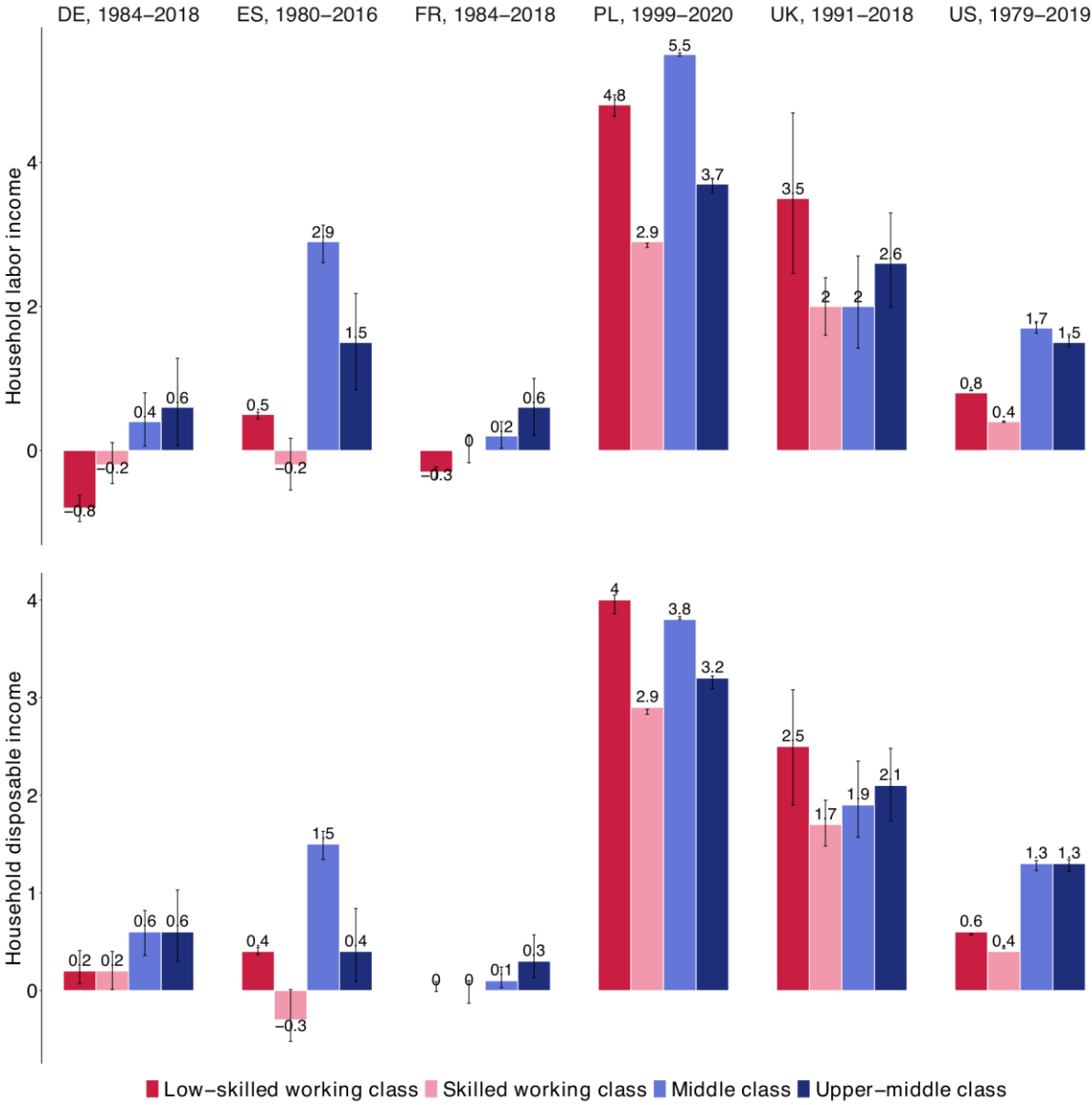
- Kocka, Jürgen. 1995. "The Middle Classes in Europe." *The Journal of Modern History* 67(4):783–806. doi: [10.1086/245228](https://doi.org/10.1086/245228).
- Kristal, Tali. 2010. "Good Times, Bad Times: Postwar Labor's Share of National Income in Capitalist Democracies." *American Sociological Review* 75(5):729–63. doi: [10.1177/0003122410382640](https://doi.org/10.1177/0003122410382640).
- Lleras-Muney, Adriana. 2017. Comments to "Case, A., & Deaton, A. (2017). Mortality and Morbidity in the 21st Century." Brookings Papers on Economic Activity.
- Machin, Stephen. 2016. "Rising Wage Inequality, Real Wage Stagnation and Unions." Pp. 329–54 in *Inequality: Causes and Consequences*. Vol. 43, *Research in Labor Economics*. Emerald Group Publishing Limited.
- McCall, Leslie, and Christine Percheski. 2010. "Income Inequality: New Trends and Research Directions." *Annual Review of Sociology* 36(1):329–47. doi: [10.1146/annurev.soc.012809.102541](https://doi.org/10.1146/annurev.soc.012809.102541).
- Meardi, Guglielmo, and Igor Guardiancich. 2022. "Back to the Familialist Future: The Rise of Social Policy for Ruling Populist Radical Right Parties in Italy and Poland." *West European Politics* 45(1):129–53. doi: [10.1080/01402382.2021.1916720](https://doi.org/10.1080/01402382.2021.1916720).
- Moawad, Jad. 2022. "How the Great Recession Changed Class Inequality: Evidence from 23 European Countries." *Social Science Research* 102829. doi: [10.1016/j.ssresearch.2022.102829](https://doi.org/10.1016/j.ssresearch.2022.102829).
- Muñoz de Bustillo, Rafael, and José Ignacio Antón. 2016. "Knocking on Heaven's Door: Changes in the World of Work and the Middle Class in Spain." Pp. 495–542 in *Europe's Disappearing Middle Class?*, edited by D. Vaughan-Whitehead. Cheltenham: Edward Elgar Publishing.
- Nolan, Brian. 2018. *Inequality and Inclusive Growth in Rich Countries: Shared Challenges and Contrasting Fortunes*. Oxford: Oxford University Press.
- Nolan, Brian. 2020. "The Median Versus Inequality-Adjusted GNI as Core Indicator of 'Ordinary' Household Living Standards in Rich Countries." *Social Indicators Research* 150(2):569–85. doi: [10.1007/s11205-020-02311-0](https://doi.org/10.1007/s11205-020-02311-0).
- Nolan, Brian, and Stefan Thewissen. 2018. "The Evolution of Living Standards for Middle and Lower Income Households in OECD Countries." Pp. 13–49 in *Generating Prosperity for Working Families in Affluent Countries*, edited by B. Nolan. Oxford: Oxford University Press.
- Nolan, Brian, and David Weisstanner. 2022. "Rising Income Inequality and the Relative Decline in Subjective Social Status of the Working Class." *West European Politics* 45(6):1206–30. doi: [10.1080/01402382.2022.2038892](https://doi.org/10.1080/01402382.2022.2038892).
- OECD. 2003. *Employment Outlook*. Paris: OECD.
- OECD. 2009. *Addressing the Labour Market Challenges of the Economic Downturn: A Summary of Country Responses to the OECD–EC Questionnaire*. Paris: Organization for Economic Cooperation and Development.
- OECD. 2015. *Minimum Wages after the Crisis: Making Them Pay*. Paris: OECD.
- Oesch, Daniel. 2022. *Contemporary Class Analysis*. Seville: European Commission.
- Oesch, Daniel, and Giorgio Piccitto. 2019. "The Polarization Myth: Occupational Upgrading in Germany, Spain, Sweden, and the UK, 1992–2015." *Work and Occupations* 46(4):441–69. doi: [10.1177/0730888419860880](https://doi.org/10.1177/0730888419860880).
- Oesch, Daniel, and Nathalie Vigna. 2023. "Subjective Social Class Has a Bad Name, but Predicts Life Chances Well." *Research in Social Stratification and Mobility* 83:100759. doi: [10.1016/j.rssm.2023.100759](https://doi.org/10.1016/j.rssm.2023.100759).
- Ost, David. 2018. "Workers and the Radical Right in Poland." *International Labor and Working-Class History* 93:113–24. doi: [10.1017/S0147547917000345](https://doi.org/10.1017/S0147547917000345).

- Parolin, Zachary J., and Janet C. Gornick. 2021. "Pathways toward Inclusive Income Growth: A Comparative Decomposition of National Growth Profiles." *American Sociological Review* 86(6):1131–63. doi: [10.1177/00031224211054808](https://doi.org/10.1177/00031224211054808).
- Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Harvard University Press.
- Pressman, Steven. 2007. "The Decline of the Middle Class: An International Perspective." *Journal of Economic Issues* 41(1):181–200. doi: [10.1080/00213624.2007.11507000](https://doi.org/10.1080/00213624.2007.11507000).
- Ravallion, Martin. 2010. "The Developing World's Bulging (but Vulnerable) Middle Class." *World Development* 38(4):445–54. doi: [10.1016/j.worlddev.2009.11.007](https://doi.org/10.1016/j.worlddev.2009.11.007).
- Saez, Emmanuel, and Gabriel Zucman. 2020. "The Rise of Income and Wealth Inequality in America: Evidence from Distributional Macroeconomic Accounts." *Journal of Economic Perspectives* 34(4):3–26. doi: [10.1257/jep.34.4.3](https://doi.org/10.1257/jep.34.4.3).
- Salverda, Wiemer, and Christina Haas. 2014. "Earnings, Employment, and Income Inequality." Pp. 49–81 in *Changing Inequalities in Rich Countries: Analytical and Comparative Perspectives*, edited by W. Salverda, B. Nolan, D. Checchi, I. Marx, A. McKnight, I. G. Tóth, and H. van de Werfhorst. Oxford University Press.
- Siemsen, Pascal. 2020. "Voting PiS: Voting Left When Voting Far-Right Populist?" *Polish Political Science Review* 8(1):87–99. doi: [10.2478/ppsr-2020-0006](https://doi.org/10.2478/ppsr-2020-0006).
- Stansbury, Anna, and Lawrence Summers. 2017. *Productivity and Pay: Is the Link Broken?* w24165. Cambridge, MA: National Bureau of Economic Research. doi: [10.3386/w24165](https://doi.org/10.3386/w24165).
- Todd, Selina. 2014. *The People: The Rise and Fall of the Working Class, 1910–2010*. London: John Murray.
- Treiman, Donald J. 1977. *Occupational Prestige in Comparative Perspective*. New York: Academic Press.
- Van der Velden, Jacobus H. A., ed. 2007. *Strikes around the World, 1968–2005: Case-Studies of 15 Countries*. Amsterdam: Amsterdam University Press.
- Vandaele, Kurt. 2016. "Interpreting Strike Activity in Western Europe in the Past 20 Years: The Labour Repertoire under Pressure." *Transfer: European Review of Labour and Research* 22(3):277–94. doi: [10.1177/1024258916658804](https://doi.org/10.1177/1024258916658804).
- Vaughan-Whitehead, Daniel. 2020. "European Middle Class under Threat." in *The middle class in world society: negotiations, diversities and lived experiences*, edited by C. Suter, S. Madheswaran, and B. P. Vani. New York: Routledge.
- Vaughan-Whitehead, Daniel, Rosalia Vazquez-Alvarez, and Nicolas Maître. 2016. "Is the World of Work behind Middle-Class Erosion?" Pp. 1–61 in *Europe's Disappearing Middle Class?*, edited by D. Vaughan-Whitehead. Edward Elgar Publishing.
- Weeden, Kim A. 2002. "Why Do Some Occupations Pay More than Others? Social Closure and Earnings Inequality in the United States." *American Journal of Sociology* 108(1):55–101. doi: [10.1086/344121](https://doi.org/10.1086/344121).
- Weeden, Kim A., and David B. Grusky. 2005. "The Case for a New Class Map." *American Journal of Sociology* 111(1):141–212. doi: [10.1086/428815](https://doi.org/10.1086/428815).
- Wodtke, Geoffrey 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. doi: [10.1086/684273](https://doi.org/10.1086/684273).
- Wright, Erik Olin. 1985. *Classes*. London: Verso.
- Wright, Erik Olin. 1997. *Class Counts: Comparative Studies in Class Analysis*. Cambridge: Cambridge University Press.

Zhou, Xiang. 2019. "Equalization or Selection? Reassessing the 'Meritocratic Power' of a College Degree in Intergenerational Income Mobility." *American Sociological Review* 84(3):459–85. doi: [10.1177/0003122419844992](https://doi.org/10.1177/0003122419844992).

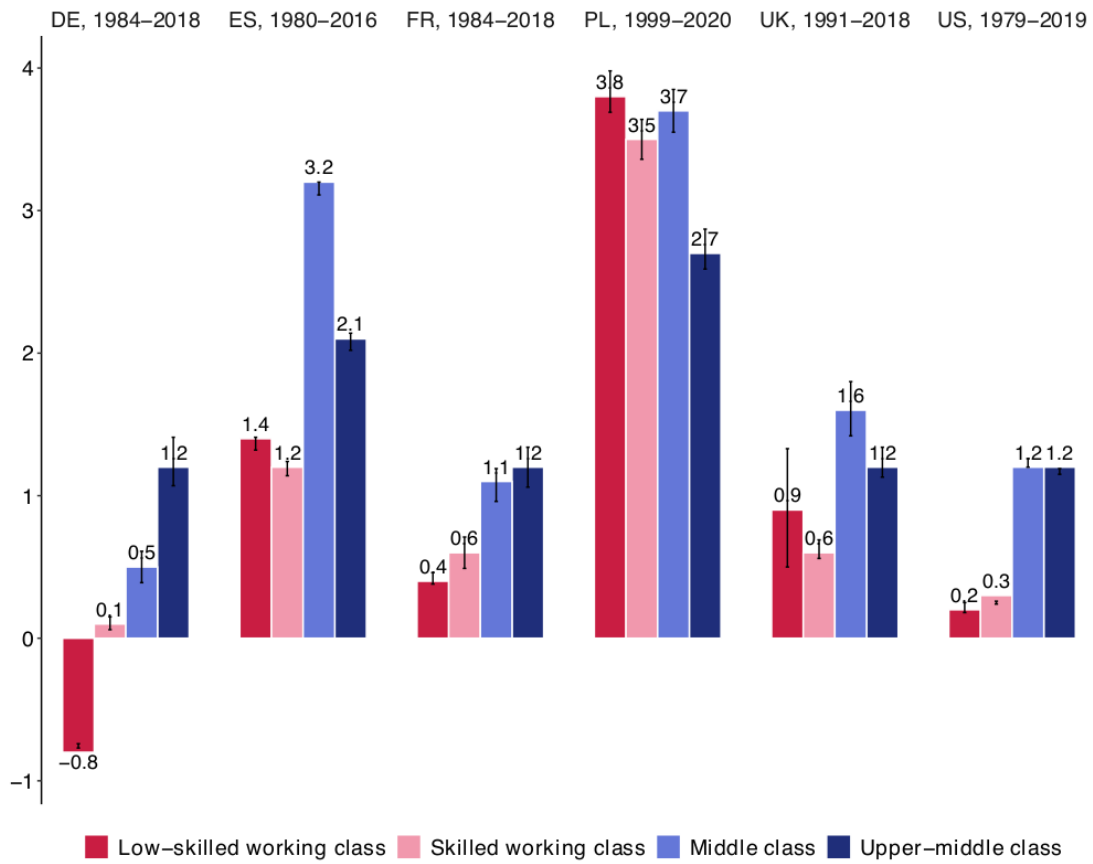
8 Appendix A – supplementary materials

Figure A.1 annual change in household labor income and household disposable income, in % (adjusted predictions) – households headed by women only



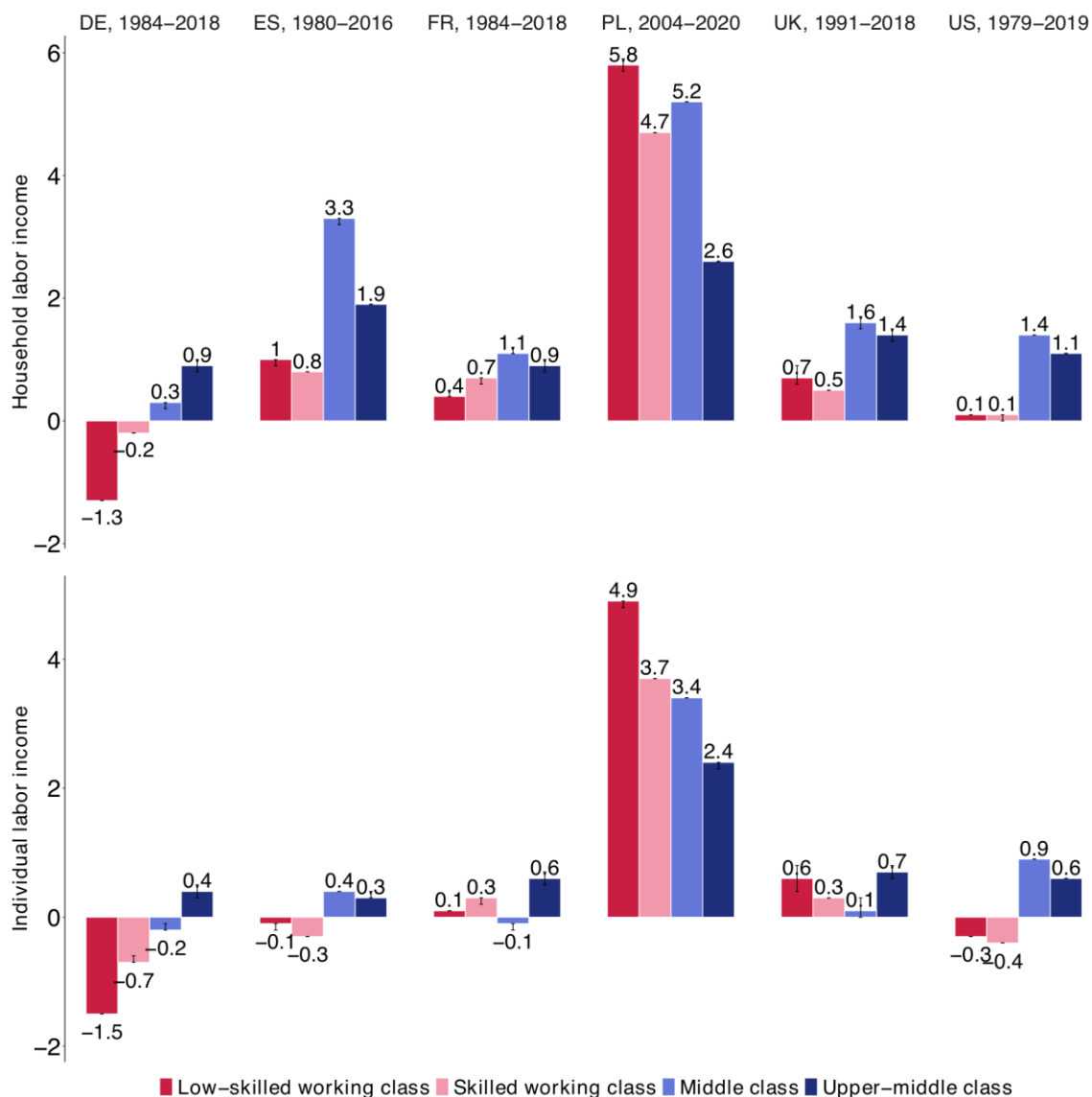
Note: Results are based on a linear regression on the log of household income with controls for class, age and household size (see equation (1) above). We calculate the predicted income for a given class at the beginning and the end of each period, then take the difference and divide this difference by the number of intervening years.

Figure A.2: Annual change in household labor income, in % – also including households with zero annual labor income (adjusted predictions)



For technical details, see note below Figure S.2.

Figure A.3: Annual change in household labor income (above) and individual labor income (below), in % (adjusted predictions)



Note: Results are based on a linear regression on the log of household income – or individual income – with controls for class, age, gender and household size. We calculate the predicted income for a given class at the beginning and end of each period, then take the difference and divide this difference by the number of intervening years.

Figure A.4: Employment change by class in small and affluent European countries – employees only, employers and self-employed respondents excluded (in percentage points)

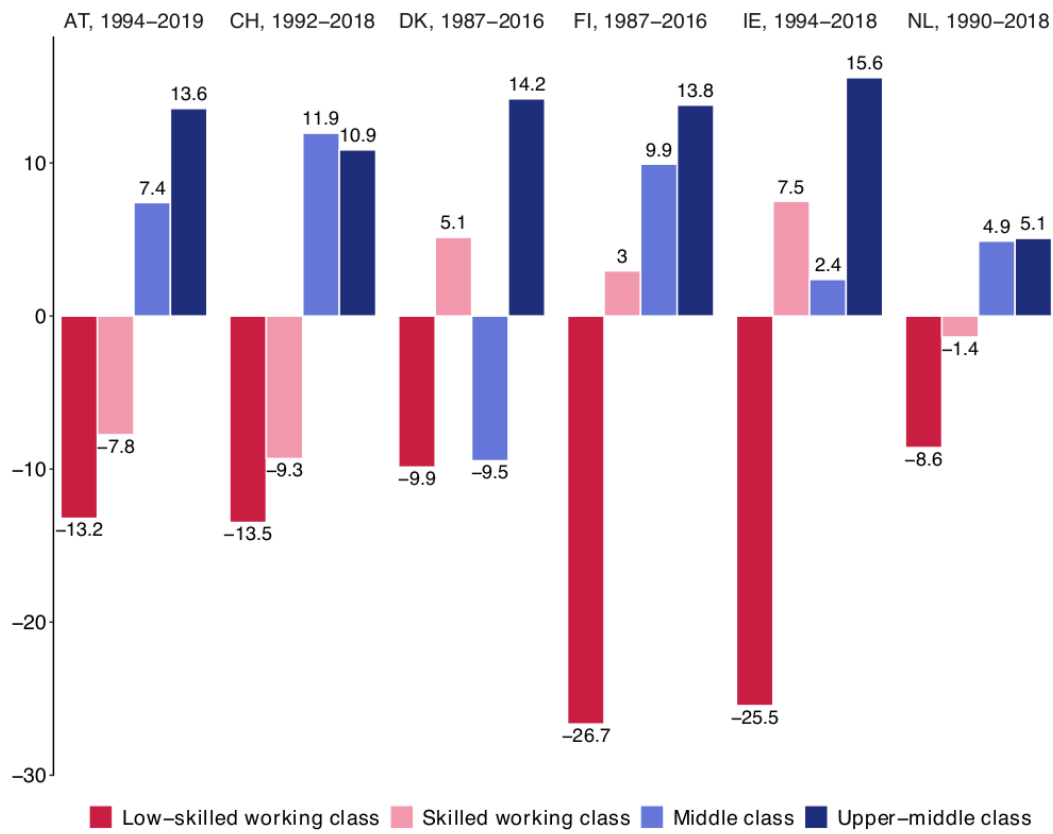


Table A.1: Descriptive statistics

		DE		ES		FR		PL		UK		USA		
		1984	2018	1980	2016	1984	2018	1999	2020	1991	2018	1979	2019	
Household labor income	Mean	29,107€	43,922€	10,443€	20,947€	21,425€	31,813€	16,477zł	36,890zł	23,358E	31,340E	44,059\$	62,001\$	
Size of classes	Low-skilled working	%	23	13	56	28	37	15	16	8	9	17	20	10
	Skilled working class	%	38	27	8	20	23	28	41	39	36	21	36	27
	Middle class	%	23	34	28	30	28	32	28	27	26	29	18	26
	Upper-middle class	%	16	26	8	22	12	25	15	26	29	33	26	37
Household size	Mean	3.2	2.8	4.2	3.0	3.3	2.8	3.7	3.2	2.9	2.8	3.2	3.0	
Houshold head	Male	%	90	52	95	66	88	79	70	68	88	61	82	55
Age	Mean	42	45	43	46	40	45	42	44	41	44	40	43	
N observations		6,966	19,198	34,815	15,829	12,912	45,378	42,411	36,777	6,974	17,182	75,085	68,333	

Table A.2: Coding of the class variable with LIS-data

	ISCO == 1 & education != "Low"
	ISCO == 2 & education == "High"
Upper-middle class	(ISCO == 1 ISCO ==2) & status == "Employer"
	ISCO == 2 & status == "Self-employed" & education == "High"
	ISCO == 1 & status == "Self-employed" & education != "Low"
	ISCO == 4 & education == "High"
	ISCO == 3
Middle class	ISCO == 1 & education == "Low"
	ISCO == 2 & education != "High"
	(ISCO == 4 ISCO == 5 ISCO ==6 ISCO ==7 ISCO == 8 ISCO == 9) & status == "Self-employed"
	(ISCO == 5 ISCO ==6 ISCO ==7 ISCO == 8) & education != "Low"
Skilled working class	ISCO == 4 & education == "Medium"
	ISCO == 10
	ISCO == 9
Low-skilled working class	(ISCO == 4 ISCO == 5 ISCO ==6 ISCO ==7 ISCO == 8) & education == "Low"

9 Appendix B –analyses with a 5-class schema including the lower-middle class

Figure B.1: the class composition of the workforce over time (in %)

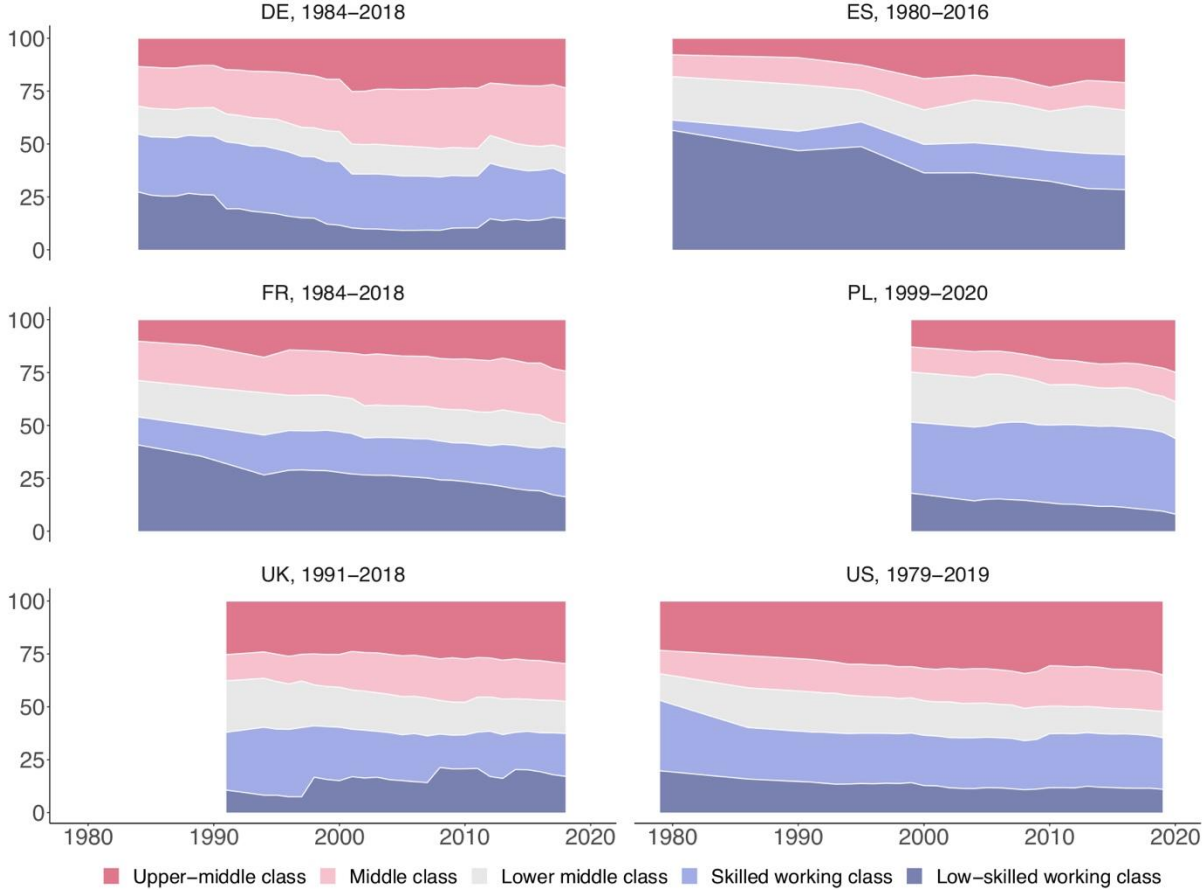


Figure B.2: change in the employment share of different classes (in percentage points)

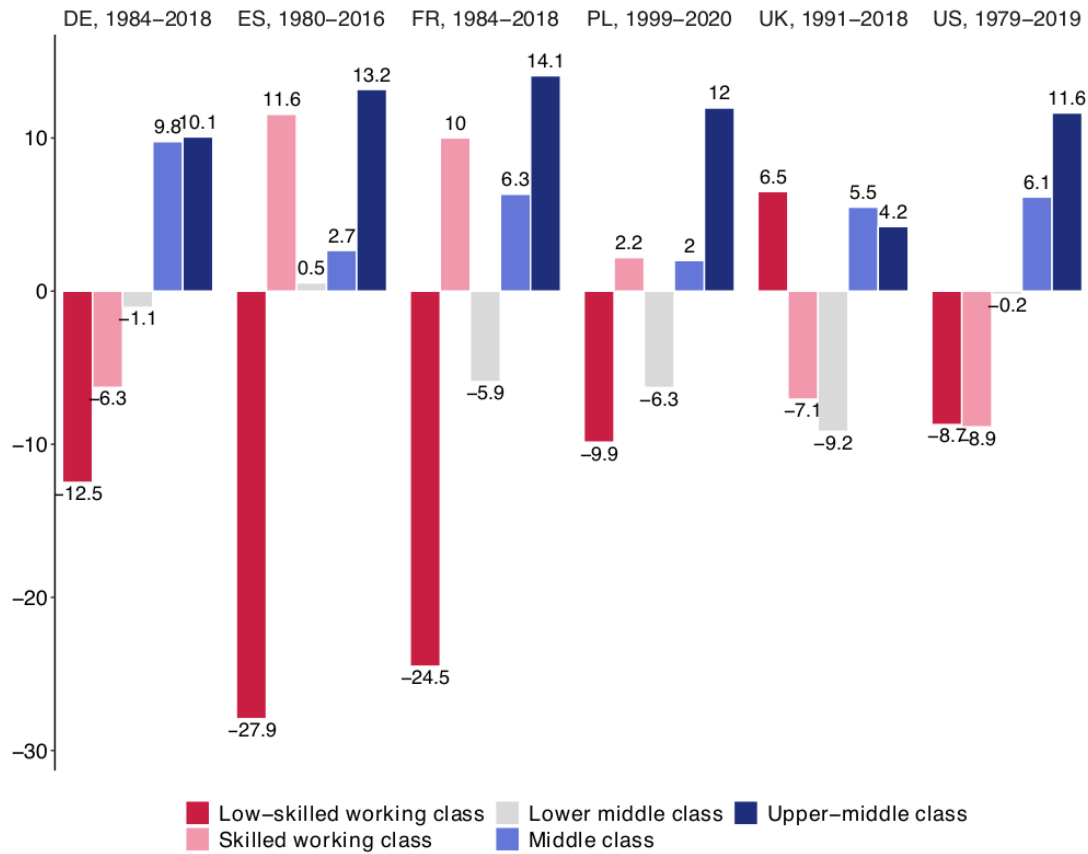
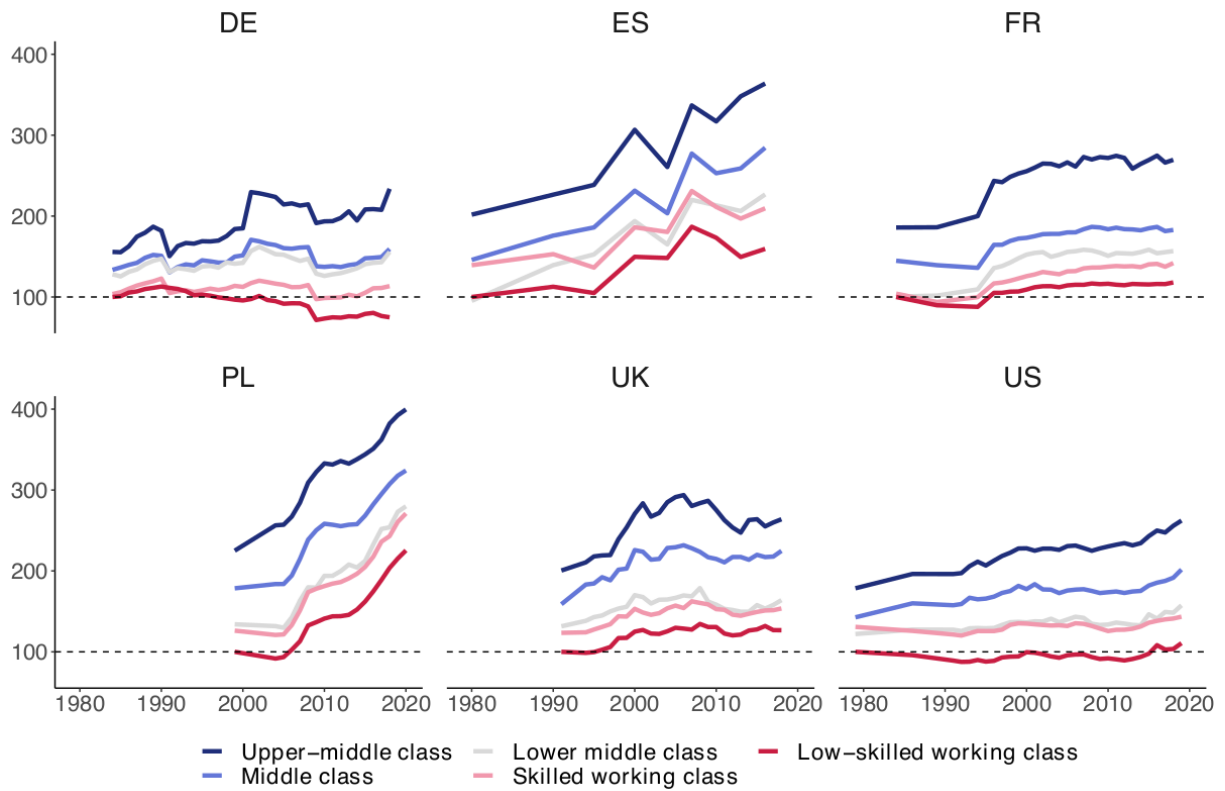
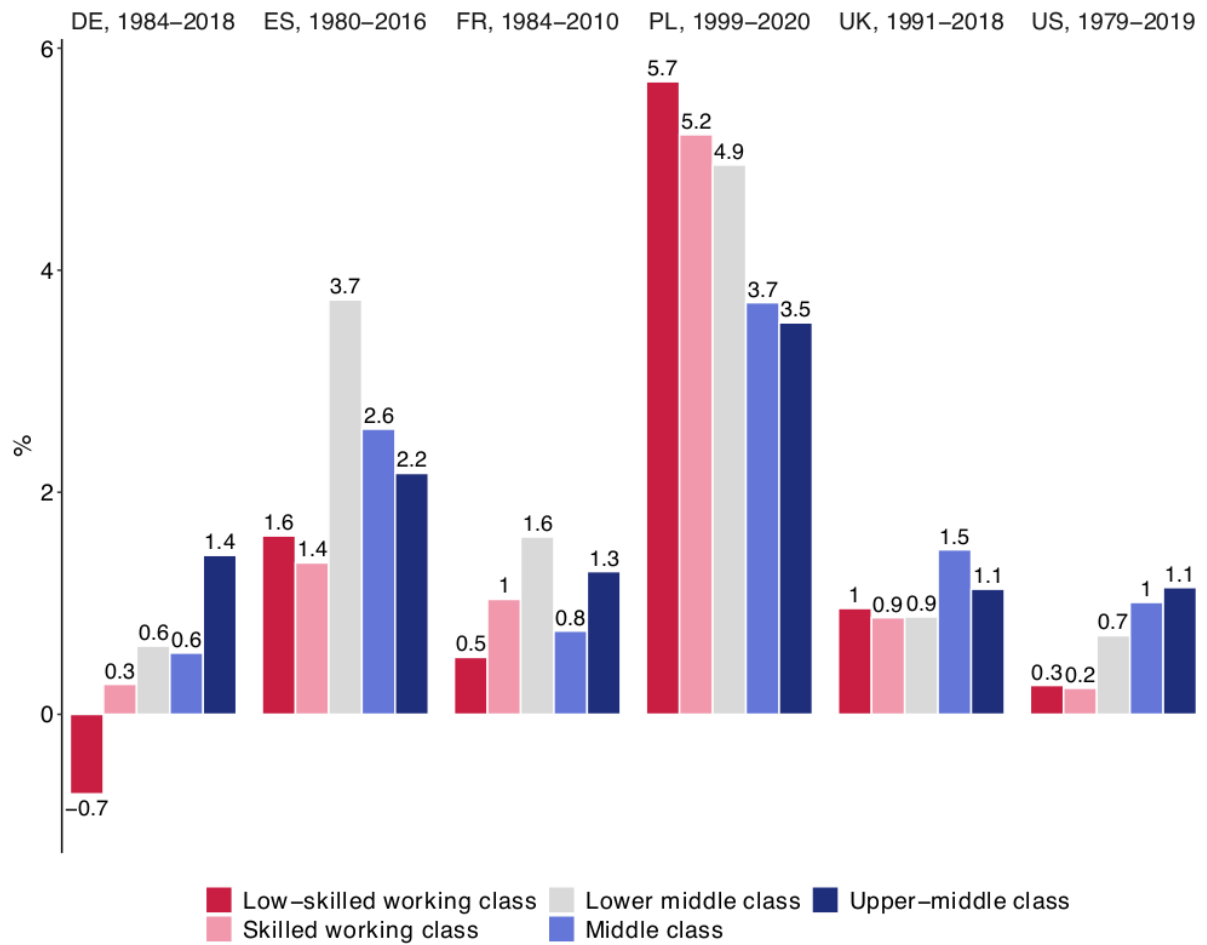


Figure B.3: evolution of indexed real household labor income by social class over four decades



Note: household labor income is corrected for inflation and adjusted for household size. Values are indexed for the low-skilled working class in the first year of observation (that is, all incomes are expressed relative to the income of the low-skilled working class which is set, within each country, at 100 at the beginning of the time series).

Figure B.4: annual mean change in household labor income, in % (descriptive statistics)



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