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Abstract

Welfare states are often reduced to their role as providers of social protection and redistribution. In 1990, Esping-Andersen argued that they also affect employment creation and the class structure. We analyse the stratification outcomes for three welfare regimes – Britain, Germany and Denmark – over the 1990s and 2000s. Based on individual-level surveys, we observe a disproportionate increase among professionals and managers, and a decline among production workers and clerks. The result is clear-cut occupational upgrading in Denmark and Germany. In Britain, high and low-end service jobs expanded, resulting in a polarized version of upgrading. Growth in low-end service jobs – and thus polarization – is no precondition for full employment. Both Britain and Denmark halved their low-educated unemployment rate between 1995 and 2008. Yet low-end service jobs expanded only in Britain, not in Denmark. The cause is the evolution of labour supply: rising educational attainment means that fewer low-educated workers look for low-skilled jobs.

Keywords

Esping-Andersen, polarization, social class, unemployment, welfare state

Introduction

Welfare states are often reduced to their role as providers of social protection and redistribution. However, they also crucially affect employment creation and the structuring of class. This is the argument that Esping-Andersen put forward in *The Three Worlds of Welfare Capitalism* (1990) and developed further in *Changing Classes* (1993):

and abolishes ‘empty slots’, it helps decide who fills them and how they are to be rewarded, it defines what is undertaken within them, and, finally, it shapes the pattern of mobility between them. (Esping-Andersen, 1993: 20)

The structure of the welfare state is a key feature in the contemporary process of social stratification: it creates

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Since 1990, the argument that the occupational structures of different welfare regimes evolve differently has come under question. Globalization, unleashed capitalism and austerity have been seen as severely limiting the scope for government intervention and for national idiosyncrasies in job creation (Streeck, 2009). As a result, technological change associated with computerization has been expected to lead to similar patterns of occupational change across countries (Autor et al., 2008).

Contrary to this convergence argument, Esping-Andersen predicted that welfare regimes would continue to diverge on their post-industrial employment trajectories. Institutional differences should be particularly consequential for one class: low-paid interpersonal service workers. As technology and globalization have little impact on interpersonal services, people need to provide them locally and in person. At the same time, interpersonal services may be produced by any of the three agents that Esping-Andersen defined as the cornerstones of a welfare regime: the market, the state or the family. First, governments can privilege the market. By permitting wages in interpersonal services to decline, prices for these services will fall, market demand increase and employment rise in the private sector. Second, governments can assume responsibility for employing workers at wages closer to the median by creating public service jobs within the welfare state. Third, the solution can reside in families engaging in self-servicing, with the consequence that home production replaces market-supplied or public services.

The three alternatives schematically coincide with the dominant strategies of Esping-Andersen's three welfare regimes. The liberal welfare regime stimulates *market* growth in low-paid private services. The social-democratic regime creates a disproportionate number of jobs in mid-paid *public* services. The conservative regime delegates interpersonal service to women within the *household*. As a result, the occupational structure of service societies should evolve in different directions – and the welfare state continues to be 'the midwife of post-industrial employment evolution' (Esping-Andersen, 1990: 192).

The evolution in the ranks of low-skilled interpersonal service workers should thus provide the litmus

test for the welfare regime argument. According to Esping-Andersen (1990), this class should strongly expand at the occupational bottom end in the liberal welfare regime, undergo moderate growth around the middle in the social-democratic regime, and stagnate in the conservative regime. Yet since lower growth in low-paid service jobs may lead to higher unemployment, an analysis of occupational change must focus both on qualitative change in the job structure and on quantitative change in the number of jobs.

Esping-Andersen convincingly argues that institutions channel firms' labour demand into different occupational outcomes. However, we expect an institutional factor at the margins of the welfare regime to be decisive for change in the employment structure: the evolution of labour supply in terms of skills. The idea is that the *number* and *productivity* of lowly educated workers are not a given entity that is immune to government influence. Over the last decades, not only did jobs for the unqualified become scarcer, but so did the unqualified themselves. In the absence of large migrant inflows, educational expansion reduced the number of low-educated workers and increased the productivity of the average worker in interpersonal services. Yet some countries succeeded better than others in taking advantage of educational expansion to produce a compressed skill structure. Moreover, different welfare regimes did not create the same incentives for employers to invest in skills and to adopt technologies enhancing the productivity of interpersonal service workers (Acemoglu, 2003; Gautié and Schmitt, 2010). Accordingly, we argue that the interaction between welfare regimes and labour supply drives the employment structure of different countries into different directions.

Esping-Andersen (1990: 197–217) compared the employment structure over the 1970s and 1980s for Germany, Sweden and the United States. This article adopts the same comparative perspective and analyses the pattern of occupational change over the 1990s and 2000s for three welfare regimes: Britain, Germany and Denmark, where Britain stands for the liberal, Denmark for the social-democratic and Germany for the conservative welfare regime. Our analysis is set at the individual level and based on data stemming from Britain and Denmark's labour

force surveys and Germany's Socio-Economic Panel. With only three cases, the added value of our analysis lies in depicting precisely *what* happened in the employment structure over the last two decades rather than determining *why* it happened.

Our article is structured as follows. The next section reviews the literature on the link between welfare regimes and occupational change and introduces a set of hypotheses. The following section presents our data and analytical strategy. We then provide descriptive evidence for occupational upgrading based on measures for social class and job-quality quintiles, before analysing the change in unemployment and wages. The ensuing section documents educational expansion and the impact of immigration on occupational change. We conclude with a discussion of our key findings.

Welfare regimes and occupational change

Esping-Andersen's book *The Three Worlds of Welfare Capitalism* has been mainly acclaimed for its typology of welfare states and the independence from the market that welfare states offer to citizens. However, the argument of welfare states as agents of de-commodification mainly looked to the past and soon proved outdated as welfare states increasingly turned towards re-commodification (Pierson, 2001) and social investment (Esping-Andersen et al., 2002). In contrast, the book's argument about the stratifying impact welfare states have on post-industrial societies was clearly forward-looking. Esping-Andersen predicted a variety of future employment scenarios for post-industrial societies:

Different welfare-state/labor market interactions produce different post-industrial trajectories. They influence not only the rate of growth of services, but also the relative emphasis on social-welfare activities as opposed to personal services; they influence the skill and occupational composition of the labor force. (Esping-Andersen, 1990: 192)

In the vast literature on occupational change, a strong focus on political institutions – welfare regimes – is unusual. The consensus view argues that long-term

occupational change is driven by technology (Manning, 2004). Over time, workers are displaced from sectors in which technological change has a pervasive impact such as agriculture and manufacturing, to sectors where technology's influence is more limited, such as social and personal services. In the 1990s, economists agreed that skill-biased technological change was leading to a linear increase in the demand for highly educated workers at the expense of the less educated (Berman et al., 1998). The outcome was seen as positive in terms of occupational upgrading, but as negative in terms of bleak employment prospects for the low educated.

This consensus view was shattered in the early 2000s by two studies showing a trend towards a polarizing employment structure in the United States (Wright and Dwyer, 2003) and the United Kingdom (Goos and Manning, 2007). The dominant explanation of polarization was again technology, but this time the focus was on tasks rather than skills (Autor et al., 2008). Computers take over routine tasks typically done in mid-paid clerical and production jobs, but have little impact on non-routine analytical tasks required in highly paid professions or on non-routine interpersonal service tasks done in low-paid service jobs. Rather than lead to occupational upgrading, technological change may thus hollow out the middle of the employment structure and therefore result in polarization.

While it is uncertain whether technological change leads to upgrading or polarization, it is clear that it should affect West European countries in a similar way – to the extent that Western companies have access to similar types of technology. It is here that a focus on institutions and a comparative research design proves useful. Technological progress may account for common trends in occupational change across countries, but it is clearly insufficient to unearth the causes of cross-country variation.

According to Esping-Andersen, institutions should be particularly consequential for how countries deal with the technologically induced 'cost disease' associated with William Baumol (1967). The idea is that technological change increases productivity in manufacturing to a greater extent than in services. Manufacturing will therefore shed workers who, in turn, look for jobs in services. Yet the service

sector's capacity for job expansion may be limited by its low productivity growth: interpersonal services such as caring for the elderly, cutting hair or serving drinks have an indispensable handicraft attribute and necessarily involve face-to-face contact. If wages in services follow those in manufacturing, the costs of personal services will constantly rise and 'service sector labor will tend to out-price itself' (Esping-Andersen, 1990: 193).

The shift from (higher-productivity) employment in manufacturing to (lower productivity) jobs in interpersonal services is mediated by a country's welfare regime. Thereby, Esping-Andersen (1999: 111–2) distinguishes three ideal-typical institutional responses to Baumol's cost disease. One response consists of letting wage inequality increase. By allowing earnings in interpersonal services to adjust to lower productivity growth, the consequence is strong growth in service jobs paid at poverty-level wages. A second response consists of subsidizing personal services by creating these jobs within the public sector – notably in elderly care, childcare, health and education. A third response lets earnings in interpersonal services follow wage developments in the economy – otherwise these services will struggle to recruit workers. As a result, low-productivity interpersonal services become too costly to develop within the market and are mainly carried out within the family.

Of course, governments choose a mix of the three ideal-typical responses. Still, countries of the liberal welfare regime tend to favour the first response of private services, whereas countries of the social-democratic regime disproportionately resort to the second response of public services, mainly financed through consumption taxes. The Bismarckian welfare state of the conservative regime, geared towards social insurances, has never made the provision of public services a priority. A compressed wage structure and high payroll taxes hamper the job creation in low-skilled private services. This may leave the family as the primary caretaker of young children, the elderly, the sick and the handicapped (Scharpf, 2000: 219–20).

Every one of the three responses has a drawback according to Iversen and Wren's (1998) service trilemma. The liberal response of low-paid private services

leads to large wage inequality. The social-democratic response of expanding public services creates escalating fiscal demands on the state. The conservative response of delegating services to the family results in high unemployment among the lowly educated.

Baumol's cost disease and Iversen and Wren's service trilemma thus lead to bleak expectations about post-industrial employment trajectories. However, they share one questionable premise, namely that the quantity and quality of low-skilled people is constant over time. They presuppose that both the *number* and *productivity* of low-skilled workers are a given entity immune to government influence. We argue that this presupposition is at odds with the evolution of labour supply – both in terms of productivity and numbers.

By means of a generous benefit system and stringent wage-setting rules, a welfare regime can push the wages of low-skilled workers closer to the median. In this situation, employers have two options: they can abstain from hiring those workers whose marginal productivity is lower than their wage. Alternatively, they can try to increase the productivity of these same workers in order to make it worthwhile hiring them. The reasoning is that if the wages of workers are downwardly sticky, their productivity must be changed upwards.

How do you increase the productivity of interpersonal service workers? The basic idea is that high minimum wages and small wage differentials make firms more willing to adopt technologies complementary to low-educated workers. Technological change is thus seen as being, to some extent, endogenous (Acemoglu, 2003: 127).¹ And the potential of technology – and hence productivity increases – in low-skilled services is probably larger than commonly assumed. In supermarkets, self-service check-outs are replacing a great number of cashiers. In airports, self-service check-in is becoming the rule rather than the exception. In large restaurants, radio systems allow waiters to send orders electronically to the kitchen and serve more customers in less time. In cleaning and maintenance, advances made in sensors open up large fields for robotics and thus productivity-increasing devices. In public transport, unmanned trains operate in a growing number of cities.

In sum, labour market institutions and, more generally, the welfare regime have an influence on what production techniques are adopted in low-skilled sectors of different countries – and there is considerable scope for productivity growth in interpersonal services, as Wren (2013: 7) shows in her cross-national comparison of productivity growth rates in different subsectors. A large multi-country study led by Gautié and Schmitt (2010) on employment in low-wage sectors finds that nursing assistants and call centre employees tend to be better skilled and more versatile in Denmark and Germany than in the United Kingdom and the United States. This leads to higher worker productivity and translates into wages closer to the national median in the former two countries (Lloyd et al., 2010: 460; Méhaut et al., 2010: 320). Technology adoption and human resources practices thus seem more likely to upgrade the employment structure in the conservative and, above all, social-democratic welfare regimes than in the liberal one.

However, the reliance on technology and better skilled workers not only improves productivity and justifies higher wages, but also reduces the employment opportunities for low-educated people. The increase in productivity in low-skilled services limits wage inequality, but possibly exacerbates the lack of low-skilled jobs. Do governments, by solving the problem of quality, run into a problem of quantity? Much depends on the labour market's supply side. Over the last two decades, not only jobs for the unqualified became scarcer but also the unqualified themselves. While technological progress increased firms' demand for qualified labour, educational expansion made sure that ever larger proportions of each cohort had at least medium levels of skills. Therefore, in the 'race between education and technology', labour supply driven by rising educational attainment seems to have kept pace with labour demand shaped by continuous technical change (Goldin and Katz, 2008).

Some countries succeeded better than others in taking advantage of educational expansion to produce a compressed skill structure. The International Adult Literacy Surveys suggests that both the disparity of literacy among the population as well as the share of people with poor literacy are significantly

lower in Denmark or Germany than in Britain or the United States (Freeman and Schettkat, 2001: 584; Gesthuizen et al., 2011: 270–1). Therefore, thanks to strongly rising skill levels, a country may achieve low rates of unemployment *without* job expansion in the labour market's bottom end.

However, the skill distribution of a country's workforce not only depends on its educational system, but also on immigration. The large inflow of low-skilled Hispanic immigrants into the American labour market partly explains the strong expansion of low-end service jobs in the United States over the 1990s (Wright and Dwyer, 2003: 309). Without a growing pool of workers willing to fill these low-wage jobs, the wages of these jobs would have had to rise, these services would have become more expensive and these jobs would not have been created in the market, but been partly substituted by household production (Cortes and Tessada, 2011). In the period under study, a possible equivalent to Hispanic immigration in the United States was the strong surge in Polish and Baltic immigration to Britain in the early 2000s – a migratory flow which was much larger than in Germany or Denmark.²

These arguments allow us to spell out three sets of expectations about the evolution of (1) interpersonal services workers, (2) occupational change and (3) low-educated unemployment in the three countries under study.

1. Following Esping-Andersen, the category of interpersonal service workers should grow strongly at the bottom of the occupational structure in Britain's liberal welfare regime, expand moderately at wages closer to the median in Denmark's social-democratic welfare regime and stagnate in Germany's conservative welfare regime.
2. As a consequence, the employment structure should expand at both ends and lead to occupational polarization in Britain, whereas occupational upgrading is the more likely outcome in Denmark and Germany.

This leads to two competing hypotheses about the evolution of unemployment:

- 3.1. Low-educated unemployment can only be kept at bay under the condition that the number of interpersonal service jobs expands and the occupational structure polarizes. Polarization and low unemployment in Britain should therefore contrast with upgrading and high unemployment among the low-educated in Denmark and Germany.
- 3.2. Growth in interpersonal service jobs and polarization are not a necessary condition for low unemployment among the low educated. The creation of low-skilled interpersonal services jobs – and thus polarization – strongly depends on the evolution of labour supply in terms of skills. All three countries experienced strong educational expansion, but only Britain large inflows of low-paid migrants. As a consequence, polarization should only be observed in Britain – *regardless* of the evolution of low-skilled unemployment.

Country selection, data and strategy of analysis

Our analysis focuses on three countries which come close to Esping-Andersen's ideal-typical welfare regimes: Britain as a liberal, Denmark as a social-democratic and Germany as a conservative welfare regime. For these three countries, we analyse change in the occupational structure for the period between 1990/1991 and 2007/2008. These two cut-off points are at the end of long cyclical upswings that were followed by two Europe-wide recessions (1991–1993 and 2008–2010).

We use large scale micro-level datasets which contain detailed information on individuals' occupation and education: the national labour force survey for Britain (UK-LFS, spring quarter), the Danish labour force survey stemming from Denmark's cooperation with Eurostat (EU-LFS) and the German Socio-Economic Panel (SOEP). Since the Danish labour force survey does not include earnings, we impute earnings of occupations from the merged Danish samples in EU-SILC 2004, 2005 and 2006. Our target population includes both employees and the self-employed and is restricted to people aged 18 to 65 years who spend at least 20 hours per week in

paid employment. Table 2 in Appendix 1 gives an overview of the key features of these datasets.

Our analytical approach based on the three welfare regimes has little causal traction, since our three countries differ in many potentially relevant dimensions. Therefore, we are much better prepared to describe what happened in the employment structure than to determine the causes for why it happened. Accordingly, our objective is to establish the pattern of occupational change as accurately as possible, using two different approaches.

First, we use a class measure which combines a hierarchical with a horizontal criterion (see Oesch, 2006). The hierarchical criterion distinguishes between more or less advantageous employment relationships. We simply divide occupations into two hierarchical levels that roughly correspond to the split between the middle and the working class. The second dimension is horizontal and distinguishes occupations according to four different types of work logic: an interpersonal, organizational, technical and independent work logic. By combining the hierarchical and horizontal dimensions, we obtain an 8-class schema (see Table 1). This schema allows us to clearly distinguish interpersonal service workers.³ Individuals are allocated to different classes based on information about (a) their employment status (to distinguish employees from employers and the self-employed who are allocated to the independent work logic) and (b) their occupation as measured with International Standard Classification of Occupations (ISCO)-88 four-digit or comparable codes. The schema's rationale and operationalization is discussed in greater detail elsewhere (Oesch, 2006; see also Oesch, 2013: 55–6).

Second, we use an analytical strategy which traces the evolution of job-quality quintiles over time – a strategy that has become increasingly popular to document change in the occupational structure (e.g. Fernández Macías, 2012; Goos and Manning, 2007; Wright and Dwyer, 2003). This approach implies that occupations are distinguished as precisely as possible given the data at hand (ISCO-88 codes at the four-digit level or comparable codes).⁴ We thus distinguish between 108 (Denmark), 145 (Germany) and 171 (Britain) different occupations. We then need to determine their *quality*. While a

Table 1. Change of workforce in occupational classes (share in %), 1990/1991–2007/2008.

	<i>Interpersonal service logic</i>	<i>Technical work logic</i>	<i>Organizational work logic</i>	<i>Independent work logic</i>
	Socio-cultural (semi-) professionals Medical doctors Teachers Social workers	Technical (semi-) professionals Engineers Architects Technicians	(Associate) managers Administrators Consultants Accountants	Liberal professionals and large employers Entrepreneurs Lawyers Dentists
GB	9 → 13	8 → 8	17 → 23	2 → 2
DE	10 → 14	10 → 10	13 → 18	1 → 3
DK	15 → 17	8 → 8	11 → 18	2 → 3
	Interpersonal service workers Assistant nurses Waiters Shop assistants	Production workers Mechanics Carpenters Assemblers	Office clerks Secretaries Receptionists Mail clerks	Small business owners Shop owners Independent artisans Farmers
GB	11 → 15	25 → 16	16 → 12	12 → 11
DE	10 → 11	36 → 23	13 → 13	6 → 7
DK	18 → 18	24 → 21	13 → 8	9 → 7

Data: see Table 2.

Notes: Values in grey/in boxes indicate an employment share in 2007/2008 that is 20 percent higher/20 percent lower than in 1990/1991. The shares refer to a target population of individuals aged 18–65 years who spend at least 20 hours per week in paid employment.

large array of job attributes matter to people and hence affect a job's quality, we consider earnings to be both the most relevant and most reliably measurable indicator of an occupation's quality. Accordingly, we compute the median earning of each occupation by averaging the hourly median earning at the beginning and the end of the period under study.

We thus equate occupational upgrading with an expansion of occupations with high median earnings at the expense of occupations with low median earnings. Once we have calculated the median earnings of each occupation, all the occupations are rank-ordered from the lowest- to the highest-paid. These rank-ordered occupations are grouped into five equally large quintiles, containing as close as possible to 20 percent of total employment at the beginning of the period under study. We then determine the pattern of occupational change on the basis of how occupations in the different quintiles evolve in terms of employment (for more detail, see Oesch, 2013: 37–42).

The occupational hierarchy looks surprisingly similar in our three countries: sales assistants and

farmhands are in the bottom quintile Q1, bricklayers and truck drivers in the lower-middle quintile Q2, secretaries and machine mechanics in the middle quintile Q3, nurses and police officers in the upper-middle quintile Q4 and senior officials and medical doctors in the top quintile Q5.

Occupational change since 1990

We begin our empirical analysis by examining change in the class structure over the last two decades (see Table 1). Three evolutions are noteworthy. First, the evolution in the ranks of interpersonal service workers seems consistent with Esping-Andersen's expectations. This class includes, among others, assistant nurses, waiters and shop assistants and expanded in Britain from 11 to 15 percent of the workforce, but remained stable in Germany at 11 percent and in Denmark at 18 percent between the beginning of the 1990s and the end of the 2000s. Britain thus made up some ground in terms of interpersonal service jobs with respect to Denmark. In

contrast, Germany still lingered behind in terms of interpersonal services at the end of the 2000s.

Second, the stability in interpersonal service jobs contrasts with the substantial fall in employment among production workers. While taking place in all three countries, the relative decline of the industrial working class was particularly marked in Germany and Britain. Alongside production workers, the ranks of office clerks were also thinning: the workforce employed in occupations such as secretaries, receptionists or mail clerks strongly decreased in Britain and Denmark, but remained unchanged in Germany.

Third, we observe in all three countries growing employment shares in the salaried middle class, notably among socio-cultural (semi-)professionals (e.g. medical doctors and teachers) and (associate) managers (e.g. administrators and consultants). While the former are disproportionately employed in the welfare state, the latter mainly work in private business services. Interestingly, the expansion among socio-cultural professionals was smallest in Denmark. Since the welfare states had developed earlier in Sweden and Denmark than in the rest of Europe, socio-cultural professionals had – like interpersonal service workers – already constituted a large category in Denmark in the early 1990s. Hence, although Denmark witnessed slower growth among socio-cultural professionals and interpersonal service workers than Britain or Germany since the early 1990s, it still employed a larger proportion of its workforce in these two categories than the other two countries at the end of the 2000s.

These analyses suggest that the occupational structure of our three countries upgraded over the last two decades: the salaried middle class (comprising socio-cultural and technical professionals as well as managers) expanded to reach about 42 to 44 percent of total employment, whereas the employment share of the working and lower-middle class (service workers, production workers and clerks) fell to between 43 and 48 percent. Only in Britain do we observe substantial relative growth in one of the three lower-class categories, namely among interpersonal service workers. Over this period, there was little change among employers and the self-employed which accounted for a stable share of 10 to 15 percent of the workforce.

A look at the class structure only provides us with a rough picture of the overall pattern of occupational change. To get a better idea, we examine in Figure 1 how employment evolved across five job-quality quintiles, where quintile 1 is defined as comprising, in 1990, the 20 percent of employment in the occupations with the lowest median earnings and the top quintile the 20 percent of employment in the occupations with the highest median earnings. We further disaggregate the employment change in each quintile according to four occupational classes: (a) (associate) professionals and managers, (b) interpersonal service workers, (c) production workers and (d) clerks.⁵

Figure 1 confirms that the employment structure upgraded in all three countries, as net job growth was everywhere strongest in the top quintile Q5. However, upgrading was clear-cut only in Denmark and Germany. In Britain, occupational change between 1991 and 2008 had a polarizing thrust to it as strong growth in the top quintile Q5 went along with moderate growth in the bottom-quintile 1 – a finding consistent with the pattern of change reported for Britain for the period 1979–1999 (Goos and Manning, 2007: 121).

A look at the occupational categories shows us that upgrading was driven, in all three countries, by the growing number of managers and professionals in the two top quintiles 4 and 5. In parallel, production workers saw their employment decrease in the four bottom quintiles 1 to 4, whereas clerical jobs disappeared from the lower-middle quintiles 2 and 3. What sets the three countries apart from each other is the evolution among interpersonal service workers. Consistent with Esping-Andersen's expectation, we observe growth of this category within the low-end quintile 1 in Britain. In Denmark, interpersonal service jobs did not expand at the bottom of the occupational hierarchy, but in quintile 2, thus offsetting the small decreases in quintiles 1 and 3. In Germany, there was no growth in the employment share of this category.

Since interpersonal service jobs in Britain expanded exclusively in the lowest-paid occupations of quintile 1, differential growth in these jobs goes a long way in explaining why Britain's employment structure polarized and why Germany's did not. In

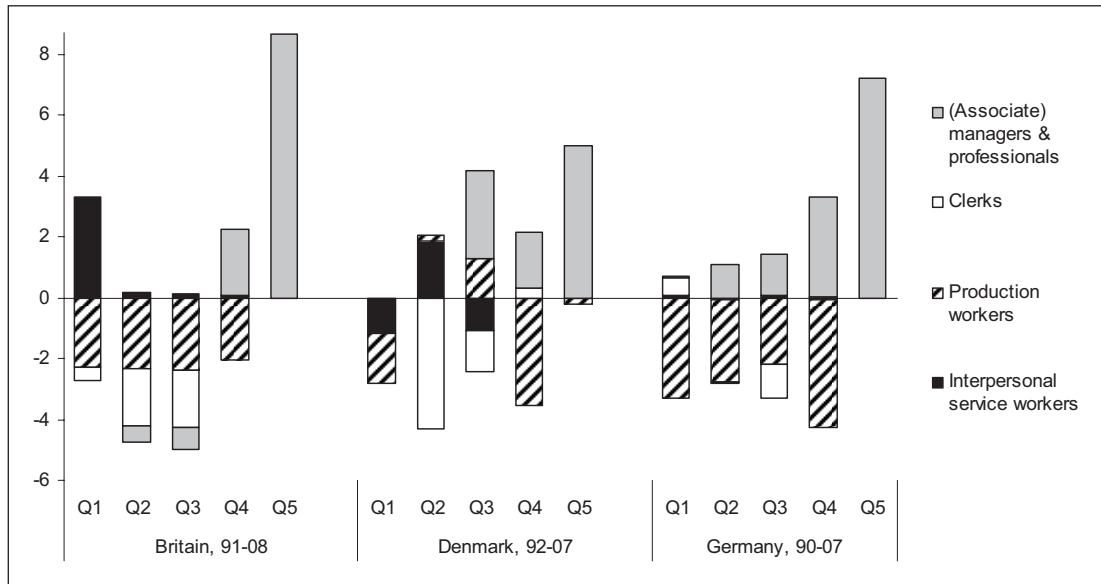


Figure 1. Change in quintiles' share of total employment in percentage points – contribution by occupational categories.

Relative change in employment in quintiles in percentage points:

Britain: Q1: 0.6, Q2: -4.6, Q3: -4.8, Q4: 0.2, Q5: 8.7

Denmark: Q1: -2.7, Q2: -4.6, Q3: 1.6, Q4: 0.8, Q5: 4.9

Germany: Q1: -2.6, Q2: -1.7, Q3: -1.9, Q4: -1.0, Q5: 7.2

Data: see Table 2.

effect, without growth in interpersonal service jobs, Britain would have witnessed a similar-sized employment decrease in quintile 1 of about three percentage points, as did Germany.

The 1990s marked a particular decade for Germany: the short reunification boom giving way to a long recession. Occupational change may thus look very different in the 1990s than in the 2000s. We control for potential timing effects in Germany by analysing occupational change for four periods of six years each (the first period of 1984–1990 applies to West Germany only). At the beginning of each period, occupations are reallocated into the five quintiles so that each quintile again comprises 20 percent of total employment.⁶ In order to illustrate the period-differences in employment growth, we compute these changes in absolute numbers.

Figure 2 shows that the first two periods 1984–1990 and 1990–1996 coincided with clear-cut occupational upgrading. Jobs expanded primarily at the top of the occupational hierarchy both during the

boom of the late 1980s and the bust of the early 1990s when Germany lost more than a million jobs in the lowest-paid quintile 1, while creating half a million jobs in the highest-paid quintile 5. Occupational upgrading was thus particularly strong during the recession, as the burden of economic restructuring, firm downsizing and unemployment disproportionately fell on low-educated workers. The two following periods 1996–2002 and 2002–2007 were marked by a transition from upgrading towards a more polarized pattern. While employment continued to expand most strongly in the highest earning occupations of quintiles 4 and 5 and fell in the middle quintile 3, there was also modest job growth in low-end quintile 1.

Germany's evolution from upgrading towards polarization is consistent both with the thesis of polarized technological change (Autor et al., 2008) and the thesis of institutional change from a coordinated economy to an unfettered model of capitalism (Streeck, 2009) – an argument to which we return below.

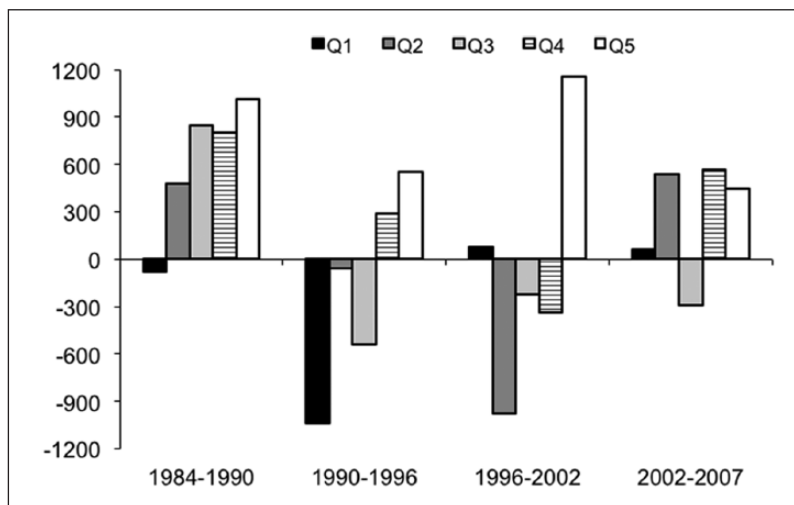


Figure 2. Employment change in job quality quintiles in Germany over 6-year periods (in 1000 jobs). Note: the period 1984–1990 applies to West Germany only. Data: SOEP, 1984–2007.

Low-skilled unemployment and relative wages

An open question is whether the social-democratic and conservative welfare regimes – exemplified by Denmark and Germany – pay for their sluggish growth of interpersonal service jobs with higher unemployment, notably among low-educated workers. We examine this question in Figure 3 by showing how the unemployment rate of low-educated workers evolved between 1991 and 2008.⁷

The unemployment rate of low-educated workers strongly depends on the business cycle and is thus closely related to the evolution of general unemployment: between 1991 and 2008, the correlation coefficient (Pearson's r) between the two time series is 0.98 for Britain, 0.83 for Germany and 0.75 for Denmark. In Germany, low-educated unemployment doubled between 1992 and 2004 – from below 10 percent to 20 percent – and remained at a high level of 15 percent in 2008. In stark contrast, Britain and Denmark witnessed a gradual decline of their low-educated unemployment rate between 1995 and 2005 from over 12 percent to below 6 percent – until the outburst of the global financial crisis in 2008 led again to a rise.

Upgrading has thus not wrecked the labour market prospects of low-educated workers. In 2008, their unemployment rate was below 7 percent in Britain and Denmark – and thus moderate despite an on-going process of occupational upgrading. Particularly noteworthy is the evolution in Denmark where the job structure was strongly upgrading, with sizeable job losses in the bottom-end quintile 1 (–42,000 jobs between 1992 and 2007), but low-educated unemployment nonetheless fell to below 4 percent prior to the global financial crisis.

Unemployment rates may convey too optimistic a picture of the job opportunities of the low educated if involuntary labour market withdrawal takes other forms such as illness, disability, or domesticity. Many authors thus prefer the employment rate to the unemployment rate. However, the low-educated employment rates (the employment-to-population ratios of low-educated individuals aged 25 to 64 years) do not show any general downward trend either. On the contrary, in Denmark we observe an increase prior to the Great Recession from a 5-year average of 62 percent (1991–1995) to 65 percent (2006–2010). For Germany, there was a substantial decline in the 1990s (from 53 percent in 1991–1995 to 48 percent in 1996–2000), which was followed by a strong increase in

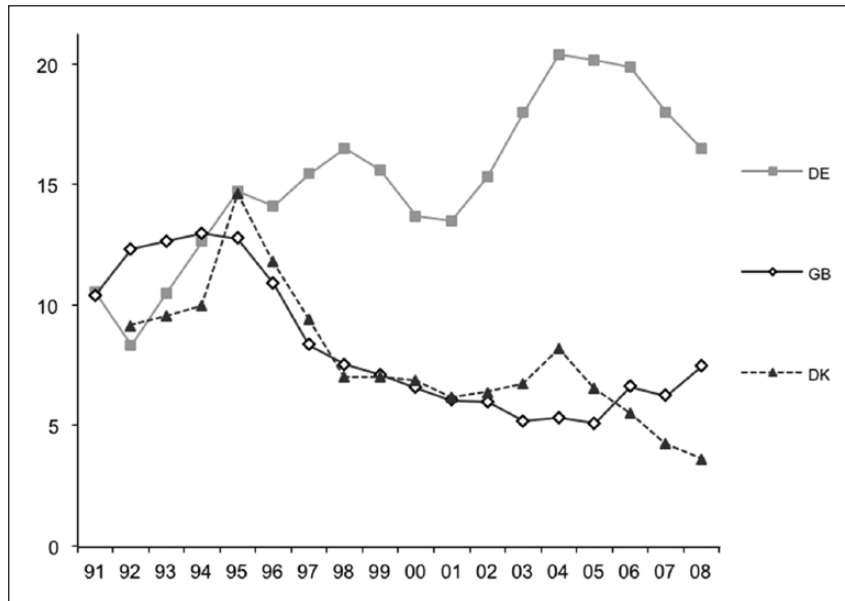


Figure 3. Low-educated unemployment rate in percent, 1991–2008.

Source: OECD Education at a Glance, various years.

the 2000s to reach 55 percent over the period 2006–2010. In Britain, the employment rate of low-educated workers increased from 61 (1991–1995) to 66 percent (2001–2005), but fell again to 60 percent during the Great Recession (2006–2010) (OECD Education at a Glance Database).

Germany stands out as having higher levels of unemployment and lower levels of employment among the low educated than Britain and Denmark. Is this the price a conservative welfare regime has to pay for sheltering its wage structure? We analyse this question by plotting the evolution of interpersonal service workers' relative wages against the evolution of their relative employment in Britain and Germany.⁸

Figure 4 shows the results and reveals that in 1996, the hourly wages of interpersonal service workers relative to the national median wage were substantially higher in Germany than in Britain. Interpersonal service workers received, on average, 73 percent of the median wage in Germany as compared to 63 percent in Britain. Since 1996, however, wage-setting institutions became more inclusive in Britain, notably with the introduction of the national minimum wage in 1999. The opposite occurred in

Germany where wage-setting institutions eroded under the influence of mass unemployment, employer exits from collective bargaining, the expansion in temporary agency work, the rise of 'mini-jobs' and cutbacks in unemployment benefits linked to Hartz IV (Eichhorst and Marx, 2011; Streeck, 2009).

Accordingly, Figure 4 shows interpersonal service workers' pay in Britain to have evolved in a U-shaped pattern: relative to the national median, their earnings dropped between 1993 and 1999, stabilized over the period 1999–2002 and increased in the years from 2002 to 2008, when the minimum wage acquired real bite. In parallel, we observe a steady increase in the employment share of interpersonal service workers – with no apparent difference between periods when their relative wages were rising and periods when they were falling.

In Germany, the relative wages of interpersonal service workers increased between 1993 and 1996, but then declined steadily up to 2005 and remained stable thereafter. Interpersonal service workers' share in total employment fell during the post-reunification crisis 1993–1996 (when relative wages had

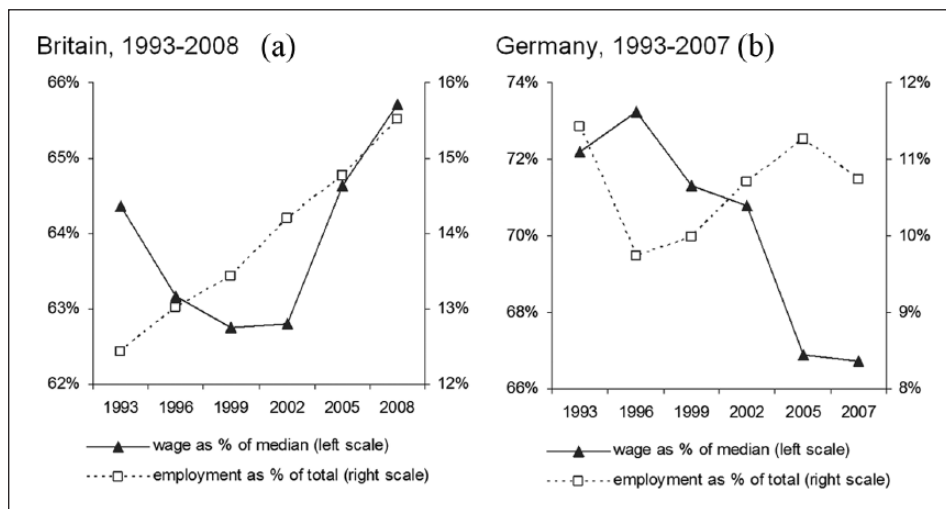


Figure 4. Interpersonal service workers' relative wages (as % of the median wage – left scale) and relative employment (as % of total employment – right scale). (a) Britain, 1993–2008 and (b) Germany, 1993–2007. Data: BHPS, 1993–2008, SOEP, 1993–2007.

continued to rise) and slowly recovered after 1996 up to 2005.

Our analysis of SOEP data suggests that job growth among interpersonal service workers primarily took place in *non-standard* employment: In the bottom quintile 1, Germany lost 415,000 *permanent* jobs, but created 95,000 *fixed-term* jobs between 1990 and 2007, notably among the young. The German increase in temporary jobs contrasts with the British experience. In 2008, only one out of twenty jobs in Britain's bottom quintile 1 were on a fixed-term basis (4.8%) as compared to one out of six jobs in Germany's bottom quintile 1 in 2007 (17%; own computations based on UK-LFS and SOEP).

Despite the substantial fall in relative wages and the de-standardisation of the employment relationship in Germany, Figure 4 shows that job growth in interpersonal services was anything but spectacular. While the employment share of interpersonal service workers constantly expanded in Britain between 1993 and 2008 – resulting in an increase of 3.1 percentage points – the period of relative job growth was limited in Germany to the years between 1996 and 2005, resulting in an increase of 1.5 percentage points only. Both in relative and absolute terms, Germany created fewer jobs in interpersonal service jobs than

Britain – despite having a lower starting point in the early 1990s and having strongly decreased the pay of these occupations relative to the median.

The results in Figure 4 leave us with two puzzles: why did interpersonal service jobs stagnate in Germany despite a substantial increase in wage inequality and a systematic de-standardisation of the employment relationship – and why did these same jobs grow in Britain after the introduction of the minimum wage in 1999? We argue that this apparently paradoxical finding is explained, on the one hand, by the business cycle and economic policy and, on the other, by the evolution of labour supply.

The 1990s and 2000s were two decades during which Britain and Germany experienced contrasting business cycles. Britain enjoyed uninterrupted economic growth of at least 2 percent of GDP between 1994 and 2007. In contrast, Germany's economy struggled with the post-reunification crisis over the period 1993–2004 when the German GDP grew by at least 2 percent in only 2 out of 11 years. The German response to this long crisis was wage restraint. Yet this strategy of internal devaluation did not only decrease the earnings in – and thus prices for – interpersonal services. It also depressed the disposable income of German consumers. This proved

problematic as the price elasticity of demand for interpersonal services is probably not very large – unlike for industrial goods. In other words, consumer demand for interpersonal services is relatively insensitive to prices and hence to relative wages of the workers providing these services (Glyn, 2001: 710). In contrast, consumer demand for these services is strongly dependent on disposable income, and hence on the business cycle (Carlin and Soskice, 2009: 95). As a result of wage restraint, German exports picked up, whereas interpersonal service jobs stagnated under the pressure of austerity. Accordingly, the contribution of private consumption to GDP growth in Germany has steadily declined since the mid-1990s as its economic model became increasingly dependent on exports (Armingeon and Baccaro, 2012: 273). The opposite scenario of growing real wages, growing domestic demand and growing GDP applied to Britain between the late 1990s and 2007, spurring the strong expansion in interpersonal service jobs.

Shifting labour supply: education, gender and nationality

Differences in the business cycle are only one part of the story. The other part is linked to the differential evolution of labour supply. Between the early 1990s and the late 2000s, the adult population of Britain, Germany and Denmark underwent a process of massive educational upgrading. The share of the population aged 25 to 64 years without upper secondary schooling declined in all three countries: by 14 percentage points in Britain, by 8 percentage points in Germany and by 1.4 percentage points in Denmark. Over the same period, the proportion of the adult population with upper secondary education, consisting of general degrees or vocational training, remained unchanged in Britain and Germany, but decreased by 12 percentage points in Denmark. These decreases were compensated for by the strong rise in the proportion of adults with tertiary education. The increase amounted to 13 percentage points in Britain and Denmark and to 7 percentage points in Germany (own calculations based on UK-LFS, EU-LFS and SOEP).

The increase among university-trained workers at the expense of workers with compulsory schooling

partially explains why the number of low-paid jobs could diminish without causing a rise in low-educated unemployment. In Britain, however, skill supplies were also shaped by the strong surge in immigration from Eastern Europe (notably Poland, the Baltic States and the Slovak Republic) after the 2004 enlargement of the European Union. These immigrants were often hired for jobs far below the occupations to which they would be assigned on the basis of their educational attainment (Dustmann et al., 2013). Through this downgrading, they may have provided the abundant and inexpensive labour supply that stimulated job creation at the low-skill end of the British labour market – a factor largely absent from the Danish and German labour markets of the 2000s.

We examine this argument in a last analysis by disaggregating relative change in employment for four different nationality-gender groups: national men, national women, foreign men and foreign women. The goal is to determine each group's net contribution to the observed pattern of occupational change. The result is shown in Figure 5 and confirms that, in Britain, expansion in low-paid occupations of quintile 1 was exclusively due to job growth among foreign workers. The relative increase of quintile 1 by 0.6 percentage point was the result of a fall in employment among British men and women (–1.1 percentage points), which was overcompensated by employment growth among foreign men and women (+1.8 percentage points). At the same time, in Britain, all four nationality-gender groups underwent a polarizing pattern of change where job growth was stronger at the bottom and the top than in the middle. Consequently, immigration contributed to the polarization of Britain's employment structure, but it was not the only driving force.

In Denmark, foreign workers also increased their employment share in the two bottom quintiles 1 and 2 (by 1.1 and 0.8 percentage points, respectively). But this increase was not large enough to compensate for the large drop in employment among Danish men and, above all, Danish women within these two low-end quintiles. In Germany, employment shifts were very similar for nationals and foreigners. As in the two other countries, occupational upgrading in Germany was strongly driven by national women,

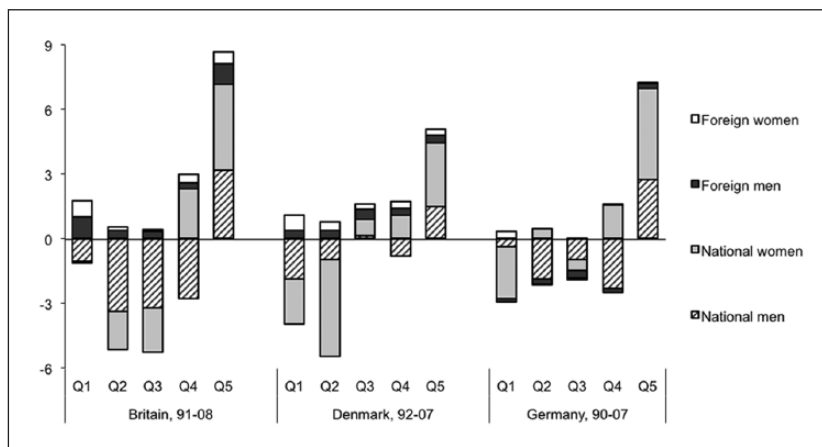


Figure 5. Change in quintiles' share of total employment in percentage points by nationality-gender groups.
Data: see Table 2.

whereas national men saw their relative employment decline in the middle quintiles in all three countries.

Discussion and conclusion

What do our findings imply for Esping-Andersen's argument that the welfare regime decisively shapes post-industrial employment trajectories? Consistent with his hypothesis, we observe an expansion of interpersonal service workers at the bottom of the occupational structure only in Britain's liberal welfare regime. The share of the workforce employed in interpersonal services stagnated in both Denmark and Germany. However, this is less surprising for Denmark than Germany, as interpersonal services accounted for a much higher proportion of employment in Denmark than in Germany at the beginning of the 1990s. This finding underlines that in Denmark – as in Sweden – the period of disproportionate employment growth in public services came to an end in the 1990s and 2000s (OECD, 2009). The class structure of the three countries under study thus became more similar over the last two decades and, contrary to Esping-Andersen's expectation, we observe some convergence.

In all three countries, the strong increase in the ranks of professionals and managers and the parallel decline among production workers and clerks resulted in an upgrading of the occupational structure. This

process was clear-cut in Denmark. In Britain, the growth in interpersonal service jobs led to a polarized version of upgrading as employment increased at both ends of the occupational hierarchy.

Of the three countries studied, we observe the most intricate employment trajectory in Germany. The Schröder government's reform agenda led to employment de-standardisation and greater wage inequality. Germany took steps away from a coordinated economy towards a more liberal model of capitalism (Streeck, 2009). While this evolution is visible in terms of increasing occupational polarization and growing wage inequality, it has not resulted in strong growth in interpersonal service jobs – as the combination of an export-based strategy with wage restraint and welfare state retrenchment depressed internal demand for much of the 1990s and 2000s.

Esping-Andersen (1990, 1993) was right when considering interpersonal service workers' employment trajectory as decisive for post-industrial social stratification. Britain's labour market would not have expanded at its occupational bottom-end without the growth in interpersonal service jobs, mostly filled by foreign workers. However, other factors than those originally singled out explain the divergent employment trajectories of our three welfare regimes. Differential growth in public sector employment no longer plays a major role. Rather, the evolution of labour supply and particularly immigration policy

– more liberal in Britain than in Denmark or Germany over the period under study – led to diverging outcomes in our three countries.

Likewise, evidence in favour of the welfare regime hypothesis is mixed with respect to unemployment. Our data do not lend support to the assumption that sectoral change and Baumol's cost disease result in high levels of low-educated unemployment *if* countries do not create large numbers of (low-end) interpersonal service jobs. True, Britain succeeded both in increasing its share of the workforce in interpersonal services and in decreasing the unemployment rate of low-educated individuals. At the same time, Denmark also managed to halve its low-educated unemployment rate between the mid-1990s and 2008 – but did so without witnessing any net job growth either in the labour market's bottom quintile or in interpersonal services. A very similar scenario applies to another small and affluent European country, Switzerland (Oesch, 2013).

The dramatic increase in lower-tail earnings inequality in Germany since 2000 makes the country an ideal test case for the hypothesis that low wage floors lead to job expansion in low-end services. Our data suggest that Germany's socially divisive strategy of internal devaluation was insufficient to set a boom in interpersonal service jobs in motion. While Germany's labour market policy became more liberal, its macro-economic policy remained conservative.

If polarization of the employment structure is no precondition for full employment, what led the believers in Baumol's cost disease model – or, for that matter, in Iversen and Wren's service trilemma – astray? In our view, these models unduly focus on low-end service jobs as the principal source of employment growth in post-industrial societies, on two grounds.

First, employment growth has primarily taken place among (associate) managers and (semi-) professionals either working in private business services or in health and education – and these services did not primarily expand at the bottom, but rather the middle and top of the occupational hierarchy (Wren, 2013: 14–5). In contrast, jobs in low-end services have been growing slowly at best, declined at worst – as the combined use of automation and robotics with organizational innovation and upskilling have

increased worker productivity in retail trade, hospitals or call centres.

Second, it may not be a tragedy that low-end services do not fulfil their role as job machines in post-industrial economies. The constant rise in cohorts' educational attainment over the last decades has meant that there are not only less low-skilled jobs but also less low-educated workers available to staff these jobs. Accordingly, we only observe a substantial job expansion at the labour market's bottom-end in those countries where large inflows of migrants provided an abundant workforce willing to accept low wages: Hispanics in the United States (Wright and Dwyer, 2003: 309), Eastern Europeans in Britain (Oesch, 2013: 96) or Romanians and South Americans in Spain (Oesch and Rodríguez Menés, 2011: 531).

The evolution of labour supply thus appears as the blind spot of Iversen and Wren's service trilemma. It probably also constitutes an unduly neglected key variable of how welfare regimes affect social stratification and occupational change.

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Notes

1. An alternative way of increasing productivity in interpersonal service jobs is by raising quality and thus obtaining more added value per employee. This seems to be the strategy followed by the hotel industry in the major European cities with a strong expansion of 4-star hotels at the expense of more modest establishments.
2. Between 2002 and 2007, the annual net migration rate per 1000 inhabitants – inflows minus outflows of the foreign population over the resident population – was 4.1 in Britain, 1.8 in Denmark and 1.2 in Germany (OECD International Migration Database).

3. Interpersonal service workers comprise, for Germany, the following International Standard Classification of Occupations (ISCO)-1988 4-digit codes: 3225, 3227–3228, 5000–5160, 5164–5220, 9003–9152. For Britain, they comprise the following Standard Occupational Classification (SOC)-90 3-digit codes: 370, 615–630, 640–641, 643–644, 651–690, 699, 719–792, 870–871, 873–875, 941–959.
4. Since occupations are coded at a more aggregated level in the Danish survey, we combine them with information on the economic sector in order to obtain a more fine-grained measure of occupations.
5. The eight classes in Table 1 map into these four categories as follows: socio-cultural and technical (semi-) professionals as well as (associate) managers are merged into a single category of professionals and managers. Employers and the self-employed are no longer kept separate on the basis of their employment status, but are attributed to one of the four categories based on their occupation. Interpersonal service workers, production workers and clerks remain unchanged.
6. This implies that some occupations set in quintile 2 in 1984 are allocated to quintile 1 in 1990 if employment in the occupations of quintile 1 has decreased. In other words, more occupations are necessary to provide 20 percent of total employment in this same quintile in 1990 than 1984.
7. Low-educated workers are defined as having an educational attainment of lower-secondary school at most: no more than 9 to 10 years of formal education (ISCED levels 0–2).
8. We did not run these analyses for Denmark as our Danish labour force survey data do not contain information on earnings.

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Appendix I

Table 2. Key features of the datasets used.

	British Labour Force Survey	Danish Labour Force Survey	German Socio- Economic Panel
	UK-LFS	EU-LFS	SOEP
Period covered in study	1991–2008	1992–2007	1990–2007
Sample size, ^a early 1990s	54,760	10,965	7977
Sample size, ^a end of 2000s	41,402	51,062	9400
Information on occupation	SOC90 3-digit SOC2000 3-digit	ISCO-88 2-digit + NACE industry	ISCO-88 4-digit
Earnings included	Yes (after 93)	No, imputed from EU-SILC 04-06	Yes

ISCO: International Standard Classification of Occupations; SOC: Standard Occupational Classification.

^aOur samples include individuals aged 18 to 65 years who spend at least 20 hours per week in paid employment.