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# Low-Wage Work and Labour Market Policies: A European Cross-Country Study

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# Low-Wage Work and Labour Market Policies: A European Cross-Country Study*

## Abstract

We study the incidence, sources, and dynamics of low-wage employment using harmonised linked employer-employee administrative data from Denmark, France, Germany, the Netherlands, Portugal, and the United Kingdom. We define low-wage employment relative to the country-specific median hourly wage and examine how worker characteristics, firm-specific wage premia, wage progression, and labour market institutions shape outcomes at different parts of the lower wage distribution. Three main findings emerge. First, worker characteristics account for most of the wage gap facing low-wage workers, though firm-specific wage premia matter too, especially at the very bottom, where they are around half as large as the worker component. These firm premia reflect both sorting across industries and pay differences across firms within industries. Second, low-wage employment is at least partly transitory, as workers at the bottom see faster subsequent wage growth and change firms more often. Third, minimum wages and marginal effective tax rates show limited systematic association with wage growth or job-to-job mobility, though higher minimum wages are linked to a smaller share of workers below 70% of the median. These patterns are broadly similar across countries and point to the joint importance of worker skills and access to higher-paying firms for improving low-wage workers' prospects.

## JEL classification

J24, J31, J38, J62

## Keywords

low-wage employment, cross-country, matched employer-employee data, wage premia, taxes

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# 1. Introduction

Low-wage employment is common in European labour markets, but its causes and consequences are not well understood. Some workers earn low wages because they have limited skills, job experience, or other characteristics associated with lower productivity. Others may earn low wages because they work at firms or in jobs that pay less than otherwise similar employers. This distinction matters. If low wages mainly reflect worker characteristics, wage growth may depend mostly on training, experience, and career progression. If firms also matter, moving to a higher-paying employer may be an important route out of low pay.

Despite a growing literature on low-wage employment (e.g., see Schnabel (2021)), cross-country evidence on what drives workers into low-wage jobs and whether they escape from them remains limited. Do low-wage workers move up the wage ladder over their careers, or does low-wage employment tend to persist? Countries differ considerably in their labour market institutions, such as minimum wages and collective bargaining arrangements. This makes it difficult to distinguish patterns that are common across economies from those that are driven by country-specific factors. Existing cross-country studies of low-wage dynamics have largely relied on survey data, which limits the precision with which mobility patterns can be tracked over time and the comparison across countries. Studies using administrative linked employer-employee data, by contrast, have focused on wage inequality broadly rather than on the dynamics of low-wage employment specifically (e.g., see Card et al. (2013); Song et al. (2019); OECD (2021)).

We address this research gap by studying the incidence, sources, and dynamics of low-wage employment using harmonised linked employer-employee administrative data from Denmark, France, Germany, the Netherlands, Portugal, and the United Kingdom (UK) over the period 2006–2019. These six countries vary in their labour market institutions, wage-setting systems, and levels of wage inequality. They are therefore well suited for documenting which patterns are common across institutional contexts and which differ across countries.

We define low-wage employment relative to the country-specific median hourly wage and distinguish three groups of workers: those earning below 70% of the median, those earning between 70% and 85%, and those earning between 85% and 100%.[1] Rather than applying a single low-wage threshold, this approach allows us to examine how outcomes vary across different parts of the wage distribution. Workers at different points within the low-wage range are not a uniform group. As we will document, they differ in their worker and job characteristics, which may lead to different trajectories out of low-wage

[1]The OECD defines the incidence of low pay as the share of full-time workers earning less than two-thirds (66.7%) of the gross median earnings of all full-time workers in a country. Thus, our lowest group is very close to this definition.

employment. We therefore examine whether wage growth differs between workers at the very bottom of the distribution and those closer to the median. In several analyses, we compare these three groups to a fourth group with above-median hourly wages. We also analyse the association between wage growth and observable worker characteristics, including gender, age, full-time/part-time employment status, and nationality.

Our first contribution is to decompose wage differences into worker and firm components using the two-way fixed effects framework of Abowd et al. (1999). We do this separately for the three groups with below-median hourly wages and for a fourth group with above-median hourly wages. This allows us to separate the contribution of individual worker characteristics from that of firm-specific wage premia along the wage distribution, and thereby to shed light on what determines low wages at different parts of the low-wage employment distribution. We find that worker characteristics explain the lion's share of low-wage employment, but that firm characteristics play an important role, especially at the low end of the wage distribution.

Our second contribution is to examine whether low-wage workers escape low pay over time. Even if low wages primarily reflect worker characteristics, workers may still move up the wage distribution by moving to higher-paying firms or by accumulating human capital and experience. We therefore study wage growth and labour market mobility across the wage distribution over a five-year horizon. This horizon is long enough to smooth out short-term fluctuations and to evaluate whether transitions out of low-wage employment are persistent. This detailed analysis is possible because of the large administrative datasets we use. Earlier work, predominantly based on small survey samples (e.g., see Clark and Kanellopoulos (2013)), was less equipped for this. We also circumvent a common limitation of the literature, identified by Schnabel (2021): the treatment of low-wage work as a binary variable.

Our third contribution is to relate these patterns to two key labour market policies: the minimum wage and the tax and transfer system. In many countries (e.g., France and Portugal), minimum wages are high relative to median wages. In such countries with binding minimum wages, employment is typically concentrated just above the minimum wage. Tax and benefit systems can reinforce low-wage concentration. Gradual withdrawal of in-work benefits as earnings rise and the tapering of employer contribution reductions can create low-wage traps on both the supply and demand sides, although these taper rates vary widely across countries. We relate institutional differences in minimum wages, taxes, and benefits to differences in low-wage employment, wage growth, and job mobility across countries. While existing work has documented how minimum wages affect wage dynamics and worker reallocation within single countries (Dustmann et al. 2022; Engbom and Moser 2022; Bergolo et al. 2025; Jardim et al. 2022), our analysis exploits cross-country variation to examine how both minimum wages and marginal effective tax rates relate to

the incidence and dynamics of low-wage employment across six countries simultaneously.

Our analysis yields four main findings. First, low wages primarily reflect individual worker characteristics, such as skills, but firm-specific wage premia also play an important role. In particular, the firm component is relatively large at the very bottom of the wage distribution, where this component is roughly half as important as the worker component. Low wages at the very bottom thus reflect both who workers are and where they work. Second, among workers earning below the country-specific median hourly wage, the firm component diminishes relative to the worker component as one moves up the wage distribution. This pattern underscores the long-term importance of education, training, and upskilling. Third, low-wage employment is at least partly transitory. Wage growth is higher at the lower end of the distribution across all countries, and workers just below the 70% threshold are particularly likely to move above it. These three findings are generally consistent across countries, suggesting that the fundamental patterns driving low-wage dynamics are common across different institutional settings. Fourth, the higher the ratio of the country-specific statutory minimum wage to the median wage is, the smaller is the share of workers earning below 70% of the median, but there is no association between minimum wages and individual wage growth or job-to-job transition rates. In contrast, country-specific marginal effective tax rates are unrelated to wage growth but positively associated with job-to-job transitions. This fourth finding indicates a limited role of these labour market institutions for the labour market dynamics of low-wage workers.

The paper proceeds as follows. Section 2 reviews the related literature, and Section 3 describes the data and documents key features of low-wage employment across countries. Section 4 presents the empirical framework and results, examining in turn the worker and firm components of low wages, wage growth and mobility, and the role of labour market institutions. Section 5 concludes.

## 2. Literature review

Two key questions motivate the literature on low-wage employment. First, what drives workers into low-wage employment? Is it primarily their own characteristics, such as low skills or limited experience, or does it reflect the characteristics of the firms that employ them? Second, is low-wage employment transitory, acting as a stepping stone toward better-paid work, or does it tend to persist, trapping workers in a cycle of low pay or unemployment? In addition, an important strand of the literature is on how institutions shape the incidence and dynamics of low-wage employment.

On the first question, a large body of work has documented that both worker and firm characteristics contribute to variation in wages, but that the former typically dominate. This literature, however, does not focus on low-wage employment in particular but instead studies how worker and firm fixed effects determine the mean and variance of wages.

Specifically, in their seminal paper, Abowd et al. (1999) (AKM) decompose wages into worker and firm fixed effects using French linked employer-employee data and find that person effects, reflecting time-invariant worker characteristics such as skills and productivity, are the primary source of wage variation, while firm effects are important but secondary.

Subsequent work has confirmed and extended this finding while also pointing to a larger role for firms than these early estimates suggested and that their role has been growing significantly in some countries (e.g. Germany). Card et al. (2013) apply the AKM framework to Germany and show that rising wage inequality over 1985–2009 reflects both growing differences between workers and between firms, as well as increasing sorting of high-wage workers to high-wage firms. Song et al. (2019) document that two-thirds of the rise in US earnings inequality occurred between rather than within firms, driven mainly by increasing segregation of similar workers into similar firms. In addition, Card et al. (2018) show that firm-specific pay premia typically account for about 20% of wage variation in levels. Firm-specific wage premia also appear to matter disproportionately for low-wage workers: Goldschmidt and Schmieder (2017) show that German workers lose 10-15% of their wages when their jobs are outsourced, reflecting the loss of firm-specific pay premia, and that outsourcing of low-wage services such as cleaning and security accounts for around 9% of the overall rise in German wage inequality since the 1980s.[2] At the cross-country level, (OECD 2021; Criscuolo et al. 2026) find that around one-third of overall wage inequality can be explained by pay differences between firms rather than differences in worker skills, and up to two-thirds of changes in wage inequality over time. In imperfectly competitive labour markets, frictions to labour mobility motivate the existence of firm wage premia for otherwise similarly productive workers.

The second question remains the subject of ongoing debate in the literature. Low-wage employment may act as a stepping stone toward better-paid work, providing workers with experience and skills that facilitate upward mobility. Alternatively, it may constitute a dead end, trapping workers in persistent low pay or pushing them into repeated spells of unemployment. Schnabel (2021) provides a comprehensive overview of the evidence, concluding that upward mobility from low-wage employment is limited but that low-wage jobs can act as stepping stones for certain groups, particularly younger workers, while generating scarring effects for others. This motivates a view of low-wage employment as a heterogeneous phenomenon rather than a uniform trap or springboard.

The scarring view finds support in Stewart (2007), who shows that in Britain the employment prospects of low-wage workers are almost as poor as those of the unemployed.

[2]The idea that firm characteristics play an independent role in shaping low wages is not new. For example, Wachtel and Betsey (1972) argue that low wages cannot be explained primarily by workers' individual characteristics but are substantially determined by structural, demand-side factors such as industry and firm type.

Indeed, low-wage jobs lead more often to (repeated) unemployment than to better-paid work. Cai et al. (2018) offer a more nuanced picture using British panel data, finding evidence of both state dependence and stepping-stone effects: low-wage workers are more likely to remain low-paid than similar higher-paid workers, but low-wage employment still raises the probability of moving into higher-paid work relative to unemployment or inactivity. However, they find no evidence to support a low-pay, no-pay cycle. Cai (2014) finds a similar pattern using Australian panel data, suggesting that this combination of state dependence and stepping-stone effects is not specific to Britain, while Buddelmeyer et al. (2010) find evidence of heterogeneity across demographic groups, with low-paid employment associated with a significantly elevated risk of subsequent unemployment for women but not for men. Our paper bridges the literature on stepping stones and the literature on the AKM framework by evaluating the role of worker fixed effects and firm fixed effects in (the persistence of) low-wage employment.

The most closely related cross-country evidence for Europe comes from Clark and Kanellopoulos (2013), who analyse persistence in low pay for male workers across twelve European countries using the European Community Household Panel over 1994–2001. They find positive and statistically significant state dependence in every country, which refers to the situation where current low-wage work directly positively influences the probability of future low-wage work. Importantly, they conclude that the majority of observed low-pay persistence reflects worker heterogeneity rather than state dependence. In addition, they argue that the cross-country variation in state dependence is not systematically related to labour market institutions. Their analysis, however, is limited to male workers and relies on survey data from the mid-1990s. Our paper revisits these questions using richer and more recent linked employer-employee data for both men and women, allowing us to examine whether their conclusions hold in a more recent period and for a broader set of workers.

A separate strand of the literature examines how labour market institutions shape the incidence and dynamics of low-wage employment. On minimum wages, Jardim et al. (2022) find that minimum-wage increases in Seattle raised hourly wages but reduced hours worked in low-wage jobs, particularly for less experienced workers. Hijzen et al. (2026) analyse the 2019 minimum-wage increase in Spain and show that this policy increased earnings for directly affected workers and had a slight positive effect on those just above the new threshold. However, this wage growth led to a net drop in low-wage employment, as job losses outweighed the modest rise in employment just above the new minimum wage. Dustmann et al. (2022) study Germany's first national minimum wage and find that it raised wages without lowering employment, leading instead to the reallocation of low-wage workers toward larger, higher-paying, and more productive establishments. Engbom and Moser (2022) document large spillover effects of minimum-wage increases

on the broader wage distribution in Brazil, with wage gains concentrated at the bottom and muted employment effects driven by reallocation toward more productive firms. In a recent working paper, Bergolo et al. (2025) show that a large minimum-wage reform in Uruguay compressed the distribution of firm-specific wage premia, driven primarily by rising premia at low-paying firms. These findings suggest that minimum wages interact with firm wage-setting in ways that are relevant for understanding how the incidence of low-wage employment varies across countries with different minimum-wage levels.

The tax and benefit system may also shape work incentives at the bottom of the wage distribution. Carone et al. (2004) and Barreto et al. (2025) show that high marginal effective tax rates, reflecting the combined effect of income taxes, social contributions and the withdrawal of means-tested benefits, can affect labour dynamics and create low-wage traps where workers have little financial incentive to increase their earnings. The extent of these traps varies considerably across countries, which motivates an examination of whether cross-country differences in marginal effective tax rates are associated with differences in wage progression among low-wage workers.

## 3. Data and Descriptive Statistics

### 3.1. Data Sets and Sample Selection

We use linked employer-employee data for six countries over the period 2006–2019.[3] For each country, we draw on the following data source(s): Denmark (Integrated Database for Labour Market Research (IDAN) and other data from Statistics Denmark), France (Annual Declaration of Social Data (DADS-Panel)), Germany (Integrierte Erwerbsbiographien (IEB)), the Netherlands (Statistics Netherlands), Portugal (Quadros de Pessoal), and the UK (Annual Survey of Hours and Earnings (ASHE)). All data sets contain anonymized individual and firm identifiers that allow workers to be tracked across employers over time. Except for France and the United Kingdom, which are based on 8% and 1% random samples of employees, respectively, all other data sets cover the full population of dependent employees.

Our sample covers workers aged 20–64 years, restricted to each worker's main job in a given year, defined as the job with the highest annual earnings. For Germany, only full-time workers are included due to data constraints, and hourly wages are computed assuming a standard 37-hour workweek. We restrict the sample to non-agricultural private-sector firms with at least 10 employees. This restriction allows us to concentrate on low-pay employment as a result of market-based wage-setting, while limiting the impact

[3] For Germany, data are available only until 2018. The AKM decomposition in Section 4.1 is estimated over the period 2010–2019 (2010–2018 for Germany), while the mobility analysis in Section 4.2 uses the full 2006–2019 period to accommodate longer outcome horizons (only until 2018 for Germany).

of seasonal employment and excess churn among very small firms. We also exclude apprentices and the self-employed as these workers generally fall under exemptions to minimum wage legislation and are generally not in the social security data. In all countries and years, the top and bottom 1% of the hourly wage distribution are dropped to exclude outlier wage observations. While our primary focus is on low-wage employment, we impose this sample restriction to overcome key issues involving administrative errors, non-compliance with wage regulations, and exemptions. Given that our analysis centers on low-wage employment defined as employment below the median wage rather than only escaping low-wage employment of the absolute lowest wage observations, we prioritize a cleaner distribution that enhances the reliability of our estimates.

Our key variables are computed based on detailed information on earnings and paid working hours. Using the main job, hourly wages are defined based on total earnings (including bonuses and overtime pay where available) and total paid working hours (including working overtime where available). All wages are deflated to real terms using country-specific consumer price indices, with 2015 as the reference year.

We analyse low-wage employment at different parts of the bottom of the wage distribution. Specifically, we compute the median hourly wage for each country and year, and define three groups relative to this median: G1 comprises workers earning at or below 70% of the median, G2 comprises workers earning between 70% and 85%, and G3 comprises workers earning between 85% and 100%. Workers earning above the median (G4) serve as the reference group in the regression analyses.

In the empirical analysis, we control for a range of worker and firm characteristics: residential location (NUTS-2), industry (NACE 2-digit), firm size (10–49, 50–249, and ≥250 employees), age group (20–29, 30–49, and 50–64), gender, educational attainment,[4] part-time status (based on each country's own definition of full-time employment), and nationality (country of birth).[5]

Table 1 reports descriptive statistics for workers in each wage group. Low-wage workers in G1 tend to be younger, more likely to be female, more likely to work part-time, more likely to be foreign-born, and more likely to have low educational attainment than workers closer to or above the median. These patterns are broadly consistent across countries, although there is considerable variation in the magnitude of the differences.

[4]Educational attainment is classified into four groups based on the International Standard Classification of Education (ISCED) 2011: ISCED 1–2 (up to lower secondary), ISCED 3–4 (up to post-secondary non-tertiary), ISCED 5–6 (up to bachelor's level), and ISCED 7–8 (master's level, doctoral level or equivalent). For the Netherlands, individuals who graduated before 1995 are retained in a fifth group, as educational attainment is not observed for this group. For the United Kingdom, where educational attainment is unavailable, we use three occupation groups based on the International Standard Classification of Occupations (ISCO) 2008: ISCO 1–3 (high-skilled), ISCO 4–8 (middle-skilled), and ISCO 9 (low-skilled). For France, we similarly proxy skill using the French occupational classification (Catégorie socioprofessionnelle), with managers and craftsmen/shopkeepers as high-skilled and manual workers as low-skilled.

[5]For the UK, information on an individual's country of birth is not available.

TABLE 1. Descriptive statistics by wage group and country

| | *N* | Share (%) | Age (mean) | Female (%) | Foreign-born (%) | Full-time (%) | Low skill (%) | High skill (%) | Large firm (%) |
|---|---|---|---|---|---|---|---|---|---|
| *Panel A: G1 (≤70% of median)* | | | | | | | | | |
| Germany | 70,948,311 | 22.4 | 38.3 | 45.3 | 15.6 | – | 16.0 | 16.5 | 15.2 |
| Denmark | 2,414,756 | 11.6 | 32.7 | 59.8 | 13.4 | 66.9 | 24.5 | 23.1 | 3.8 |
| France | 3,267,165 | 10.4 | 35.5 | 62.6 | 18.2 | 41.1 | 36.5 | 1.0 | 36.7 |
| Netherlands | 16,492,749 | 21.6 | 33.4 | 56.3 | 20.9 | 24.1 | 20.9 | 12.5 | 59.3 |
| Portugal | 4,374,686 | 5.8 | 37.8 | 69.3 | 7.7 | 90.7 | 78.1 | 3.0 | 27.3 |
| UK | 429,052 | 15.7 | 38.8 | 65.8 | – | 53.6 | 29.0 | 7.5 | 69.7 |
| *Average* | – | 14.6 | 36.1 | 59.8 | 15.1 | 55.3 | 34.1 | 10.6 | 35.3 |
| *Panel B: G2 (70–85% of median)* | | | | | | | | | |
| Germany | 41,077,472 | 14.1 | 39.3 | 35.4 | 10.6 | – | 10.7 | 19.4 | 21.5 |
| Denmark | 3,646,987 | 17.3 | 38.8 | 62.1 | 12.6 | 78.8 | 25.2 | 21.1 | 5.1 |
| France | 7,179,772 | 22.2 | 35.9 | 53.1 | 14.0 | 55.7 | 41.9 | 1.2 | 47.7 |
| Netherlands | 11,521,169 | 14.3 | 38.0 | 53.2 | 16.0 | 41.0 | 14.2 | 12.6 | 56.9 |
| Portugal | 6,889,861 | 25.4 | 38.5 | 54.5 | 6.2 | 95.3 | 69.5 | 4.4 | 29.0 |
| UK | 344,520 | 20.7 | 40.3 | 58.1 | – | 34.5 | 18.8 | 11.0 | 70.0 |
| *Average* | – | 19.0 | 38.4 | 52.7 | 11.9 | 61.1 | 30.0 | 11.6 | 38.4 |
| *Panel C: G3 (85–100% of median)* | | | | | | | | | |
| Germany | 43,197,908 | 13.5 | 40.4 | 32.8 | 8.8 | – | 8.8 | 21.0 | 30.9 |
| Denmark | 4,604,996 | 20.5 | 42.0 | 51.3 | 8.4 | 90.5 | 19.9 | 29.1 | 6.4 |
| France | 5,741,240 | 17.4 | 38.3 | 46.8 | 11.9 | 63.5 | 41.9 | 2.7 | 52.7 |
| Netherlands | 11,010,499 | 13.6 | 40.3 | 50.1 | 12.7 | 48.6 | 9.3 | 16.5 | 57.4 |
| Portugal | 5,126,202 | 18.6 | 38.6 | 43.5 | 4.6 | 96.1 | 62.7 | 6.8 | 36.2 |
| UK | 261,207 | 13.2 | 41.1 | 50.9 | – | 22.9 | 14.6 | 17.8 | 70.2 |
| *Average* | – | 16.1 | 40.1 | 45.9 | 9.3 | 64.3 | 26.2 | 15.7 | 42.3 |
| *Panel D: G4 (>100% of median, reference group)* | | | | | | | | | |
| Germany | 155,117,074 | 50.0 | 43.3 | 24.8 | 6.7 | – | 4.1 | 41.1 | 51.2 |
| Denmark | 10,816,887 | 50.6 | 44.2 | 35.7 | 6.3 | 93.0 | 11.6 | 46.3 | 9.5 |
| France | 16,186,462 | 50.0 | 42.5 | 40.3 | 10.5 | 68.3 | 18.9 | 32.9 | 59.0 |
| Netherlands | 39,670,567 | 50.5 | 44.2 | 43.8 | 9.4 | 55.2 | 3.7 | 33.7 | 64.5 |
| Portugal | 16,420,267 | 50.1 | 40.2 | 36.6 | 2.5 | 96.4 | 37.4 | 32.5 | 42.4 |
| UK | 1,052,640 | 50.3 | 42.1 | 44.7 | – | 14.6 | 3.8 | 63.5 | 74.1 |
| *Average* | – | 50.3 | 42.8 | 37.6 | 7.1 | 65.5 | 13.2 | 41.7 | 50.1 |

*Notes:* Wage groups are defined relative to the country-year median hourly wage. *N* denotes the number of worker-year observations over the full sample period. "Low skill" denotes ISCED 1–2 (up to lower secondary education); for the UK, ISCO 9 (elementary occupations); for France, manual workers (CSP). "High skill" denotes ISCED 5–8 (bachelor's degree or above); for the UK, ISCO 1–3; for France, managers and craftsmen/shopkeepers (CSP). "Large firm" denotes establishments with 250 or more employees. Full-time status is not reported for Germany, which includes full-time workers only. Foreign-born status is not available for the UK. The "Average" row reports the unweighted simple average across the six countries in each panel.

### 3.2. Wage Distribution Descriptives

We begin by documenting key features of the wage distribution across countries, focusing on the extent of wage compression at the bottom, the incidence of low-wage employment, and the characteristics of workers in each wage group.

Figure 1 shows two measures of wage compression at the bottom of the wage distribution across countries. Figure 1A reports the statutory minimum wage as a share of the median hourly wage, which differs by up to 13 percentage points across the five countries with a statutory minimum wage. The United Kingdom and Portugal have the highest minimum wages relative to the median, while the Netherlands has the lowest. A high minimum wage relative to the median compresses the wage distribution at the bottom by pushing wages upward toward the median, see Lee (1999).

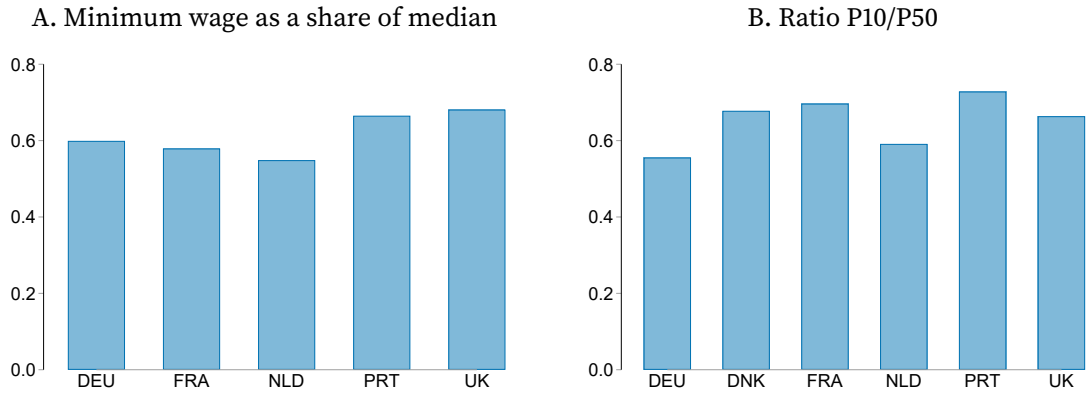


FIGURE 1. Compression at the bottom of the wage distribution across countries

*Notes:* Panel A reports the statutory minimum wage as a share of the median hourly wage. Panel B reports the ratio of the 10th percentile to the median of the hourly wage distribution. Panel A excludes Denmark because there is no statutory minimum wage. Both panels report values for 2018, the most recent year for which data are available across all countries in the sample.

Figure 1B reports the ratio of the 10th percentile to the median (P10/P50) as a measure of wage inequality at the bottom of the distribution: the higher the P10/P50 ratio, the lower the wage inequality at the bottom. Hence, a higher P10/P50 ratio suggests more wage compression at the bottom. Countries like Portugal and the UK with a high minimum wage relative to the median (Figure 1A) tend to also exhibit less wage inequality at the bottom (Figure 1B), which is consistent with minimum wages playing an important role in compressing the wage distribution. Notably, Denmark, which has no statutory minimum wage, nevertheless exhibits a relatively high P10/P50 ratio, likely reflecting the role of collective bargaining in setting wage floors, see Mogstad et al. (2025).

Figure 2 shows the share of workers in each of the three defined wage groups across countries. In Germany and the Netherlands, the largest group of low-wage employment

earns below 70% of the median. In contrast, in France and Portugal, relatively many workers earn between 70% and 100% of the median. This is consistent with the compression evidence in Figure 1: countries with a high minimum wage relative to the median, and thus higher wage compression, tend to have fewer workers below 70% of the median, as the minimum wage pushes wages upward. In the following section, we look more closely at the underlying drivers of low wages and the degree to which low-wage employment is transitory.

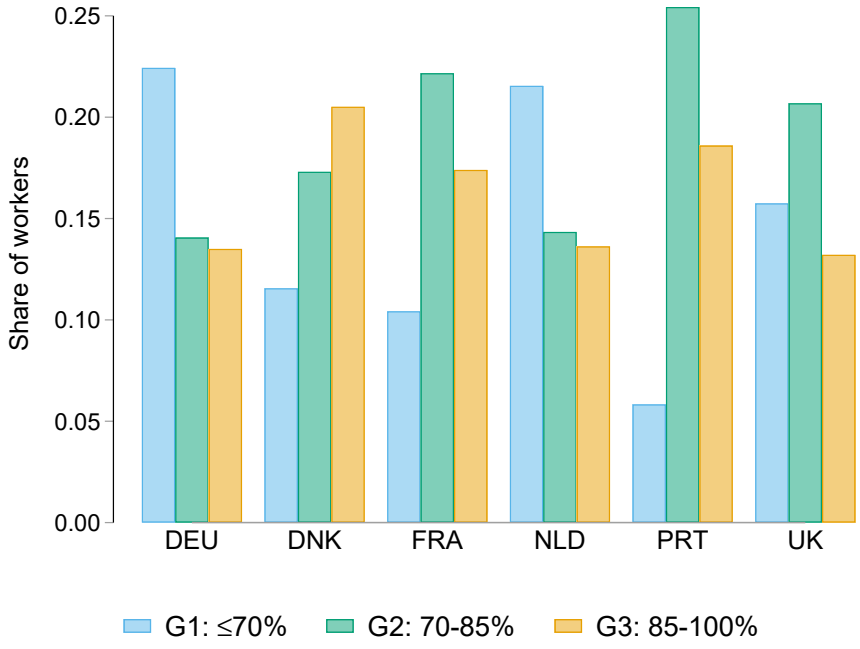


FIGURE 2. Share of workers by wage group

*Notes:* Bars report the share of workers in three groups defined relative to the country-year median hourly wage: at or below 70% of the median, between 70% and 85%, and between 85% and 100%.

## 4. Empirical Methods and Results

### 4.1. Decomposing Wage Differences

A central question in understanding the consequences of low-wage employment is whether it primarily reflects the characteristics of workers, such as skills and worker productivity, or those of the firms that employ them. This distinction matters for understanding persistence: some worker characteristics are fixed over time, like education and innate ability, whereas firm-related wage components can change as workers move across jobs, opening a potential pathway out of low-wage work. To disentangle these two sources, we follow Abowd et al. (1999) and decompose wage differences across groups below and above the

median into worker and firm components using a two-way fixed effects model.

Let $w_{ijt}$ denote the real hourly wage of worker $i$ employed at firm $j$ in year $t$. Our baseline two-way fixed effects specification, based on the largest connected set, is:

$$\log w_{ijt} = \alpha_i + \psi_j + \mathbf{X}'_{ijt}\boldsymbol{\beta} + \varepsilon_{ijt}, \tag{1}$$

where $\alpha_i$ is a worker fixed effect capturing time-invariant skills and productivity and other time-constant unobservables, $\psi_j$ is a firm fixed effect capturing firm-specific wage premia, and $\mathbf{X}_{ijt}$ is a vector of time-varying observable characteristics including age group indicators, working time (full-time vs. part-time), and year fixed effects. Hence, the worker (firm) component is defined as the time-invariant factors unique to each worker (firm) that are unaccounted for by the time-varying worker characteristics. We estimate equation (1) separately for each country and present the results in Figure 3. We normalize worker and firm effects within each country to sum to zero, i.e., we take out the grand mean. Thus, all effects should be interpreted relative to this.

Since the AKM model cannot be credibly estimated for the United Kingdom due to the small mobility network based on the 1% sample, we complement the AKM decomposition with a one-way fixed effects decomposition that includes only firm fixed effects alongside observable worker controls for age group, nationality, part-time status, and education[6] (see Section 3). This allows us to include the United Kingdom in the firm effects analysis. Results from the one-way decomposition are reported in Appendix Figure A1.

After estimating Equation (1), we further decompose the estimated firm fixed effects into a between-industry component and a within-industry firm component by projecting firm effects $\hat{\psi}_j$ onto NACE 3-digit industry indicators and NUTS-2 regional area indicators (the latter included as controls but not reported separately). The inclusion of NUTS-2 regional area indicators implies that our estimates use within-region variation and therefore do not capture differences in wage premia associated with residential location. The decomposition allows us to assess how much of the firm-level wage premia at the bottom of the wage distribution reflect differences between sectors, as opposed to differences across firms within the same sector.

Figure 3 shows the worker and firm components of log wage differentials for the four groups: G1-G3 (characterised by below median earnings) and G4 (the group with above median earnings). For G1-G3, worker fixed effects and firm pay premia are negative and thus account for lower wages, whereas the opposite holds for G4. Importantly, across all countries, worker fixed effects account for the majority of the wage differential, which suggests that individual characteristics, such as skills, drive low wages more than the firms at which workers are employed.

[6] Education is proxied by the most "stable" occupation, i.e. high, medium and low-skilled occupations (ISCO 1–3, 4–8, and 9, respectively).

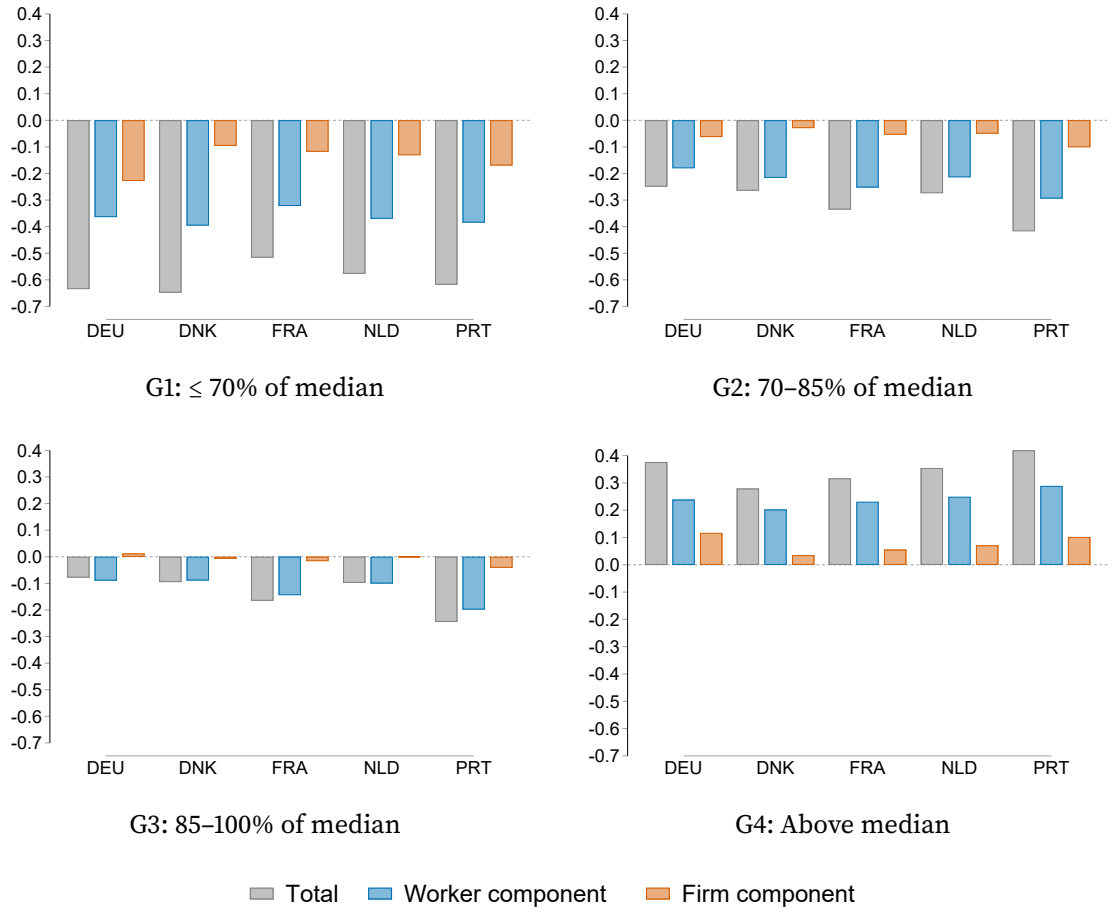


FIGURE 3. Worker and firm components of wage differentials

*Notes:* Figure 3 shows the average estimated worker and firm fixed effects from Equation (1) for workers in each wage group. For each worker, the log wage differential relative to the grand mean is decomposed into a worker component ($\hat{\alpha}_i$), a firm component ($\hat{\psi}_j$), and a residual. Note that the worker and firm components do not sum to the total, as the total also reflects the contribution of time-varying observable characteristics (age group, full-time status) and the residual, which are not shown separately. The bars report the mean of each component across workers in the wage group. Fixed effects are normalised to have mean zero within each country. Results are shown for all countries except the UK, for which the AKM model cannot be credibly estimated because of the small mobility network. The data for Germany contain full-time employed workers only.

The relative importance of the two components differs markedly across groups. For workers who earn below 70% of the median, the firm component is roughly half as important as the worker component, which signals that wages at the very bottom of the distribution reflect both lower worker components and employment at low-paying firms. For workers in G2 and G3, the firm component is considerably smaller relative to the worker component, which suggests that firm pay premia become less important further up the wage distribution.[7]

[7]The results of the one-way decomposition provided in Figure A1 show a relatively large contribution of

Figure 4 shows to what extent the firm component is driven by differences across industries, or by differences between firms within the same industry. This distinction matters for understanding the nature of low firm pay premia: a large between-industry component implies that low-wage workers are concentrated in systematically low-paying industries, whereas a large within-industry component implies that low-wage workers are employed at low-paying firms even relative to other firms in the same industry. Across countries, the between-industry and within-industry components are of approximately equal importance for workers in G1 and G2, which suggests that low firm pay premia reflect both employment in low-paying industries and employment at low-paying firms within those industries in roughly equal measure.[8]

The results provided in this section show that low wages reflect both worker and firm characteristics, with worker effects being most important overall and firm effects being particularly important for workers at the very bottom of the distribution. Since changing firms can alter the firm wage premia a worker is subject to, there is scope for low-wage workers to escape low pay. They can do this in at least two ways. First, they can invest in skills (captured by age in our regression, which proxies labor market experience). Second, their wage can still increase if they move to a higher-paying firm or job if their skill persists. We examine the latter mechanism in Section 4.2.

firms compared to that of workers. These results highlight that accounting for unobserved worker heterogeneity is important for understanding wage inequality and underscores the use of the two-way fixed effects model.

[8]This is related to recent findings of Haltiwanger et al. (2024), who find that increasing between-firm variance in wages is driven by across-industry variation in particular using data from 18 US states over the period 1996-2018.


FIGURE 4. Between and within industry components of the firm-specific factors of wage differentials

*Notes:* Figure 4 decomposes the firm component into between-industry and within-industry components. Results are shown for all countries except for the UK for which the AKM model cannot be credibly estimated.

### 4.2. Escaping Low-wage Jobs: A Mobility Analysis

The decomposition results from Section 4.1 show that firm components matter, particularly for workers at the very bottom of the distribution. Since moving across employers can alter the firm wage premia a workers is subject to, this gives potential for wage mobility. Thus, we examine whether low-wage employment is transitory or persistent by analysing wage growth and job mobility across the wage distribution.

We measure wage growth over horizons of $h$ years. Let $\Delta \log w_{i,t+h} = \log w_{i,t+h} - \log w_{it}$. In the spirit of Dustmann et al. (2022), we begin by estimating a specification that relates workers' individual wage growth to the position in the wage distribution:

$$\Delta \log w_{i,t+h} = \sum_k \gamma_k \mathbb{1}\{w_{it} \in k\} + \eta_t + u_{it}, \tag{2}$$

where $\mathbb{1}\{w_{it} \in k\}$ indicates the worker's position at time $t$ in the distribution of the hourly wage as a percentage of the median,[9] and $\eta_t$ denotes year fixed effects. The parameters of interest, $\gamma_k$, capture the average wage growth by bin $k$. Standard errors are clustered at the worker level throughout. We estimate Equation (2) separately for each country on a balanced sample of workers over a five-year horizon.[10]

Next, we summarise wage growth differences across the three low-wage groups (G1–G3), rather than across bins. While Equation (2) provides a detailed picture of wage growth along the full distribution, it does not account for differences in observable worker characteristics across wage groups. To address this, we estimate a conditional specification that aggregates workers into the three low-wage groups and allows the relationship between observable characteristics and wage growth to differ across groups. This permits us both to obtain group-specific estimates of wage growth net of observable characteristics and to examine which characteristics are most strongly associated with wage growth within each group. To do so, we estimate:

$$\Delta \log w_{i,t+h} = \sum_k \gamma_k \mathbb{1}\{w_{it} \in g\} + \sum_k \gamma_Z \mathbb{1}\{w_{it} \in g\} \mathbf{Z}_{it} + \eta_t + u_{it}, \tag{3}$$

where $\mathbb{1}\{w_{it} \in g\}$ indicates the worker's initial relative wage group, $\mathbf{Z}_{it}$ includes age group indicators, gender, working time (full-time vs. part-time),[11] nationality (foreign born/native born), region (NUTS 2), and industry (NACE 2-digit), and year fixed effects.[12]

Figure 5 shows the (unconditional) average wage growth across the 200 bins over a five-year horizon, based on Equation 2.

[9] For the UK, which is based on a 1% sample, we use 100 wage bins rather than 200 to ensure sufficient observations per bin.

[10] For the mobility analysis, we construct a balanced sample requiring that each worker is observed in both the base year and the end year of the relevant horizon. Results for the full, unbalanced sample are reported in Appendix Figures A8–A10. There are smaller quantitative differences, but no qualitative ones, indicating that selection into employment is not driving our conclusions.

[11] For Germany, we restrict to full-time workers due to data constraints. Results for full-time workers across all countries are reported in Appendix Figures A2–A4, and results for one-year horizons are reported in Appendix Figures A5–A7. Results do not differ qualitatively.

[12] Educational attainment itself is not measured consistently across countries, as France and the United Kingdom use occupation groups as a proxy due to data constraints. For this reason, we do not include it as a covariate in this wage growth and mobility analysis. In the one-way AKM decomposition described in Section 4.1 (results reported in Figure A1), by contrast, we do include this harmonised occupation-based proxy as an approximate control, alongside other worker characteristics. As a robustness check, we also estimate an alternative specification following Dustmann et al. (2022), in which observable characteristics enter additively rather than interactively; results for wage growth and mobility outcomes are reported in Appendix Tables A3 and A4. Results for one-year horizons are reported in Appendix Figures A5–A7.

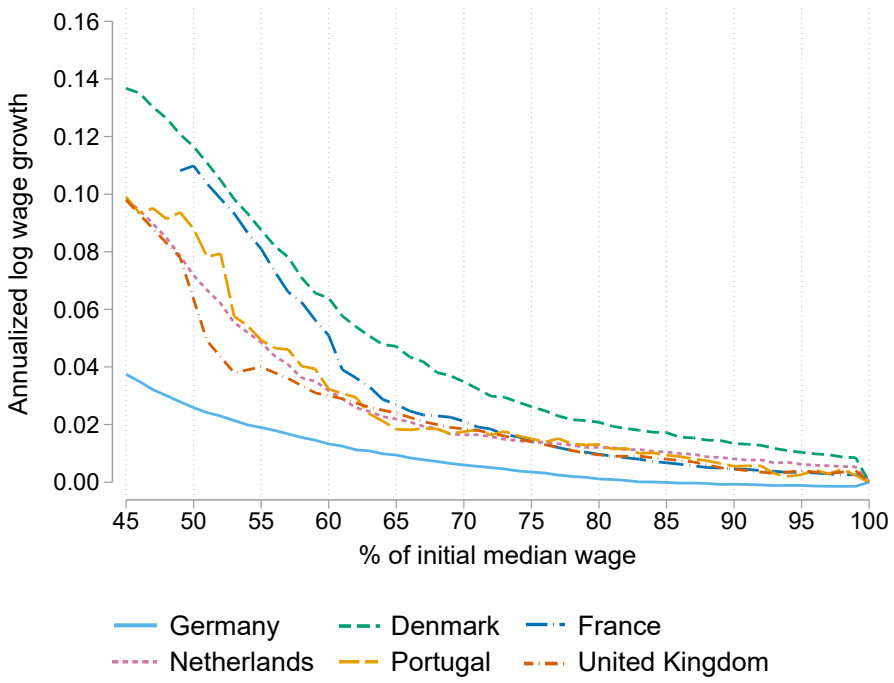


FIGURE 5. Wage growth

*Notes:* The figure shows unconditional annualized log wage growth over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage. Coefficients are measured relative to workers at 100% of the median wage. Standard errors clustered at the worker level.

Across all countries, wage growth is higher at the lower end of the distribution, which suggests that there is upward wage mobility and that low-wage employment is at least partly transitory. This could be due to mean reversion, which we return to later. Denmark stands out with particularly high wage growth at the bottom of the distribution, while Germany exhibits low and relatively flat wage growth across the entire distribution. Notice that this could potentially be driven by sample selection, since we for Germany only have full-time employed workers.[13]

For most countries, wage growth is fairly high between 45% and 55% of the initial median wage, decreasing further in the initial wage; by around the 70% threshold, i.e., the G1/G2 boundary, the relationship becomes much less pronounced. Results for one-year horizons are qualitatively similar (See Appendix Figures A5–A7).

Table 2 reports the results from estimating Equation (3). Conditional wage growth is positive and highest for workers in G1 across all countries except for Denmark, confirming the pattern from Figure 5. That is, low-wage workers are associated with the strongest wage growth even after controlling for observable characteristics. Wage growth declines

[13] If, e.g., hourly wages are the same for part-time workers and full-time workers, but measurement error is higher for part-time workers, then excluding part-time workers would give a flatter curve.

monotonically from G1 to G3 in most countries, and is close to zero or negative for G3 workers in Germany and the Netherlands, which suggests that wage progression is most limited for workers just below the median.

Turning to the interaction coefficients in Panel B, age emerges as a strong and consistent predictor of wage growth across all countries and wage groups. Young workers (aged 20–29) are associated with consistently higher wage growth than prime-age workers across all countries and wage groups, with the effect being largest for workers in G1. Consistent with Topel and Ward (1992), this finding suggests that upward wage mobility is particularly pronounced early in the career, and that age is an important driver of wage progression at the bottom of the distribution. Conversely, older workers (aged 50–64) are associated with lower wage growth than prime-age workers across all countries and groups, which suggests flatter age-earnings profiles later in the career. Female workers are associated with lower wage growth than male workers in all countries and wage groups, and foreign-born workers are also associated with lower wage growth than native-born workers. The association between part-time status and wage growth is more mixed, with positive effects in some countries and negative effects in others.

TABLE 2. Conditional wage growth and interactions by wage group

| | DEU | DNK | FRA | NLD | PRT | UK |
|---|---|---|---|---|---|---|
| *Panel A: Conditional wage growth ($\gamma_g$)* | | | | | | |
| G1 (≤70%) | 0.017*** | 0.022 | 0.020*** | 0.015*** | 0.034*** | 0.058*** |
| | ( 0.001) | ( 0.021) | ( 0.002) | ( 0.005) | ( 0.001) | ( 0.011) |
| G2 (70–85%) | 0.002* | 0.031*** | 0.008*** | 0.003 | 0.017*** | 0.043*** |
| | ( 0.001) | ( 0.006) | ( 0.002) | ( 0.004) | ( 0.001) | ( 0.011) |
| G3 (85–100%) | -0.003*** | 0.018*** | 0.006** | 0.003 | 0.013*** | 0.029*** |
| | ( 0.001) | ( 0.005) | ( 0.002) | ( 0.004) | ( 0.001) | ( 0.009) |
| *Panel B: Interactions ($\gamma_Z$)* | | | | | | |
| Young (20–29) × G1 | 0.025*** | 0.027*** | 0.015*** | 0.041*** | 0.009*** | 0.025*** |
| | ( 0.000) | ( 0.001) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G2 | 0.019*** | 0.005*** | 0.011*** | 0.019*** | 0.008*** | 0.021*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G3 | 0.017*** | 0.003*** | 0.008*** | 0.017*** | 0.009*** | 0.020*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.001) |
| Old (50–64) × G1 | -0.015*** | -0.009*** | -0.004*** | -0.006*** | -0.005*** | -0.011*** |
| | ( 0.000) | ( 0.001) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G2 | -0.009*** | -0.006*** | -0.001*** | -0.006*** | -0.005*** | -0.009*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G3 | -0.008*** | -0.006*** | -0.001*** | -0.006*** | -0.004*** | -0.010*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| Female × G1 | -0.006*** | -0.031*** | -0.007*** | -0.006*** | -0.018*** | -0.007*** |
| | ( 0.000) | ( 0.001) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G2 | -0.004*** | -0.011*** | -0.005*** | -0.002*** | -0.011*** | -0.006*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G3 | -0.003*** | -0.007*** | -0.003*** | 0.000*** | -0.007*** | -0.005*** |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| Foreign-born × G1 | -0.001*** | -0.010*** | -0.004*** | -0.009*** | 0.001** | — |
| | ( 0.000) | ( 0.001) | ( 0.000) | ( 0.000) | ( 0.000) | |
| × G2 | -0.003*** | -0.004*** | -0.002*** | -0.005*** | -0.002*** | — |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | |
| × G3 | -0.002*** | -0.003*** | -0.002*** | -0.002*** | -0.007*** | — |
| | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.001) | |
| Part-time × G1 | — | 0.004*** | -0.003*** | 0.008*** | 0.005*** | -0.003*** |
| | | ( 0.001) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G2 | — | 0.002*** | -0.004*** | -0.007*** | 0.003*** | 0.005*** |
| | | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.000) |
| × G3 | — | -0.009*** | -0.009*** | -0.011*** | -0.002*** | 0.011*** |
| | | ( 0.000) | ( 0.000) | ( 0.000) | ( 0.001) | ( 0.000) |

*Notes:* Coefficients from Equation (3) (interacted specification). Panel A reports group-specific intercepts ($\gamma_g$). Panel B reports selected interaction coefficients ($\gamma_Z$). The dependent variable is annualized log wage growth over a five-year horizon. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference group. Reference categories: age 30–49, male, native-born, full-time. Region (NUTS 2) and industry (NACE 2-digit) interactions are estimated but not reported. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

The wage growth results discussed above capture average wage progression across the distribution, but may partly reflect mean reversion: workers with temporarily low wages in the base year will tend to see high wage growth simply as their wages return to their normal level, regardless of any genuine upward mobility. The welfare implications of mean reversion depend critically on its underlying source. When mean reversion is driven by measurement error, observed wage gains do not correspond to actual changes in earnings and are therefore unlikely to affect workers' utility. By contrast, if mean reversion reflects the dissipation of transitory but genuine wage shocks, the associated wage increases constitute real income gains and should be valued by workers. As we use rich administrative data with accurate information on individuals' wages and hours for all countries, the incidence of measurement error seems less likely than the incidence of genuine wage shocks.

To complement the wage growth analysis, we analyse how the individual's wage bin is related to labour market mobility over a five-year horizon. Specifically, we re-estimate Equations (2) and (3), and replace the wage growth variable with two binary indicators for labour market transitions: whether a worker moves to another firm, and whether a worker exits salaried employment altogether.

Figure 6 shows the unconditional probability of moving to another firm over a five-year horizon. Across all countries, job-to-job mobility is higher at the lower end of the wage distribution, which suggests that firm transitions are an important channel through which low-wage workers can improve (or worsen) their wages. France exhibits a notable spike in job-to-job mobility around 61–62% of the median, which is exactly at around the minimum wage level.

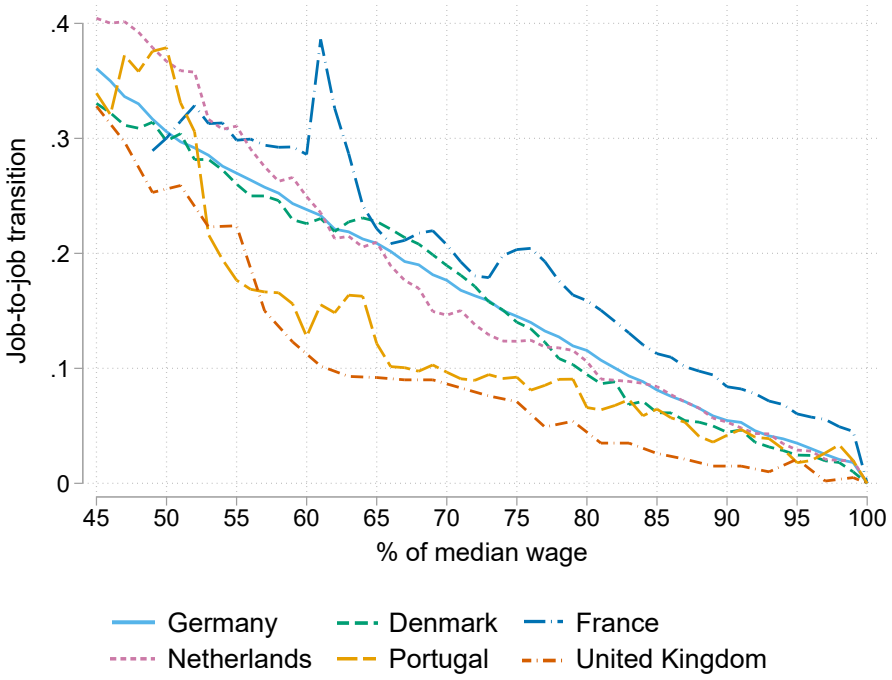


FIGURE 6. Probability of moving to another firm

*Notes:* The figure shows the probability of moving to another firm over a five-year horizon. Coefficients are measured relative to workers at 100% of the median wage. Standard errors are clustered at the worker level.

Figure 7 shows the unconditional probability of exiting salaried employment over a five-year horizon, by bin relative to workers at 100% of the median wage.[14] Relative to workers at 100% of the median wage, exit rates are also generally higher at the lower end of the distribution across all countries. This finding is consistent with greater job instability among low-wage workers. There is, however, considerable variation across countries at the very bottom of the distribution: Portugal exhibits the highest exit rates at the bottom of the distribution, followed by France and Germany, while Denmark and the United Kingdom have the lowest exit rates. Importantly, low-wage work is thus less likely to function as a stepping stone into high-paid work, within our analysis sample and in accordance with the predefined sample restrictions, in countries with a higher probability of moving out of salaried employment such as Portugal.

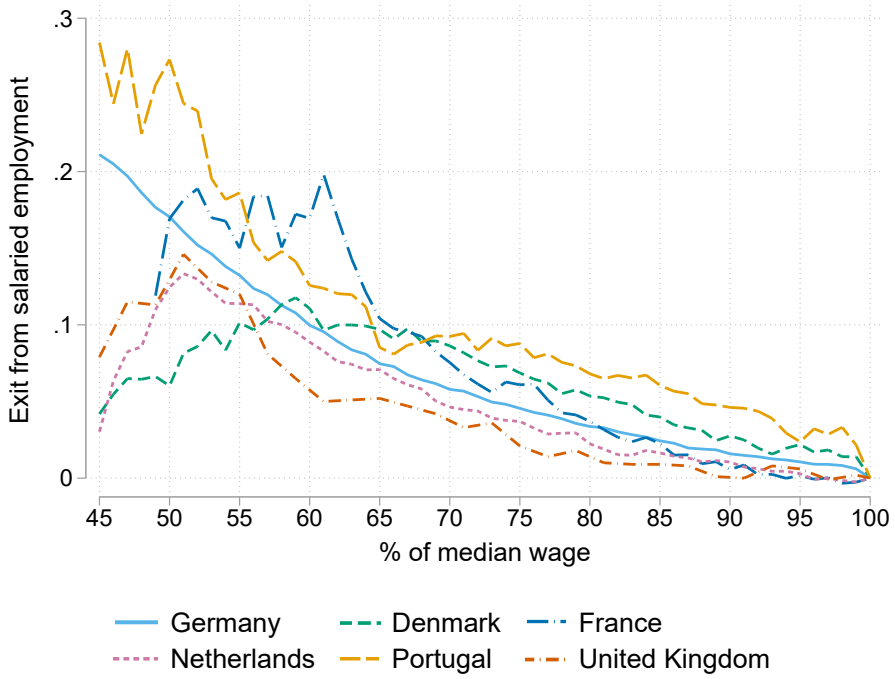


FIGURE 7. Probability of moving out of salaried employment

*Notes:* The figure shows the probability of moving out of work. The sample for this outcome requires employment at the start of the horizon and continued presence in the panel at the end, but not employment at the end; see footnote 14 for details. Initial wage position is measured relative to the country-year median hourly wage. Coefficients are measured relative to workers at 100% of the median wage. Standard errors clustered at the worker level.

[14]Considering our sample selections, the variable that represents exiting salaried employment also equals one for other exits out of our analysis sample, e.g., employment at firms with fewer than ten employees, or employment in the public sector, etc. The sample for this outcome requires employment at $t + 5$ and that the worker can still be traced in year $t + 5$, regardless of employment status at that point; it does not require employment specifically at $t + 5$, since this would be definitionally incompatible with measuring exit from employment.

Table 3 reports the conditional results from Equation (3). Compared with the unconditional results in Figures 6 and 7, controlling for observable worker characteristics changes the picture for some countries.

TABLE 3. Conditional mobility by wage group

| | DEU | DNK | FRA | NLD | PRT | UK |
|---|---|---|---|---|---|---|
| *Panel A: Job-to-job transition ($\gamma_g$)* | | | | | | |
| G1 (≤70%) | 0.079*** | 0.129 | 0.176*** | -0.020 | 0.141*** | 0.016 |
| | ( 0.013) | ( 0.102) | ( 0.026) | ( 0.049) | ( 0.011) | ( 0.088) |
| G2 (70–85%) | -0.081*** | 0.094 | 0.070*** | -0.084* | 0.086*** | -0.010 |
| | ( 0.013) | ( 0.070) | ( 0.022) | ( 0.044) | ( 0.010) | ( 0.081) |
| G3 (85–100%) | -0.089*** | -0.116 | -0.005 | -0.069 | 0.034*** | 0.027 |
| | ( 0.013) | ( 0.076) | ( 0.023) | ( 0.046) | ( 0.011) | ( 0.077) |
| *Panel B: Exit from salaried employment ($\gamma_g$)* | | | | | | |
| G1 (≤70%) | 0.061*** | 0.202*** | 0.128*** | 0.031 | 0.070*** | -0.143** |
| | ( 0.009) | ( 0.077) | ( 0.017) | ( 0.036) | ( 0.008) | ( 0.071) |
| G2 (70–85%) | -0.004 | 0.024 | 0.041*** | -0.051 | 0.042*** | -0.125 |
| | ( 0.009) | ( 0.053) | ( 0.015) | ( 0.034) | ( 0.008) | ( 0.077) |
| G3 (85–100%) | -0.019** | -0.044 | 0.029* | -0.089** | 0.046*** | -0.106 |
| | ( 0.009) | ( 0.053) | ( 0.016) | ( 0.038) | ( 0.009) | ( 0.072) |

*Notes:* Coefficients from Equation (3) (interacted specification). Panel A reports group-specific intercepts ($\gamma_g$) for job-to-job transitions and Panel B for exits from salaried employment. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference group. Outcomes are measured over a five-year horizon. Standard errors are clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

G1 workers are more likely to move to another firm than above-median workers in most countries, with the largest effects in France and Portugal, consistent with the unconditional patterns in Figure 6. The Netherlands is an exception: despite showing positive unconditional job-to-job mobility, the conditional coefficient for G1 is slightly negative, suggesting that the high raw mobility among low-wage Dutch workers reflects their observable characteristics rather than their wage position. For G2 and G3, job-to-job mobility is generally not higher than for above-median workers, suggesting that the elevated unconditional mobility for these groups is largely driven by differences in observable worker characteristics. Panel B shows that G1 workers are more likely to exit from salaried employment than above-median workers in most countries, broadly consistent with the unconditional patterns in Figure 7. The United Kingdom stands out with markedly negative coefficients across all three groups when controlling for observable characteristics. For G2 and G3,

exit rates are generally not higher than for above-median workers across countries, again suggesting that for workers closer to the median the unconditional pattern is primarily driven by observable characteristics.

Finally, Table 4 examines which worker characteristics drive these mobility patterns for G1 workers.[15] For job-to-job transitions, age is the dominant factor: young workers are considerably more likely to move to another firm than prime-age workers across all countries, while older workers are considerably less likely to do so. Female workers are less likely to change firms. Except for the UK, the same holds for full-time employed workers. The picture looks quite different for the probability of exiting from salaried employment. Panel B shows that older workers are by far the most likely to exit the labour market among G1 workers, with large and consistent positive coefficients across all countries. This may, however, reflect retirement transitions rather than involuntary job loss. In Germany, women are more likely to exit from salaried employment; potentially, this represents full-time employed women only. Foreign-born and part-time workers are also more likely to exit from salaried employment across all countries except for the UK. In contrast, young workers show near-zero or negative effects in all countries except for the Netherlands and the UK, suggesting they are not disproportionately likely to leave the labour market when they are in low-wage employment.

Taken together, the wage growth and mobility results suggest that low-wage employment is at least partly transitory across all countries in our sample. Workers at the lower end of the distribution consistently exhibit higher wage growth and greater job mobility than workers closer to the median, which is consistent with the existence of pathways out. However, elevated mobility at the bottom partly coincides with employment instability which may undermine durable escape from low wage employment. At the same time, the persistence of low wages at the very bottom of the distribution and the considerable variation in mobility patterns across countries suggest that the degree to which low-wage employment is transitory differs both within and across countries. In particular, older workers, women and foreign-born workers tend to face more limited pathways out of low-wage employment, while younger workers are more likely to progress. In the next section, we examine whether these differences can be partly explained by cross-country variation in labour market institutions.

[15] Table 4 reports selected interaction coefficients for G1 ($\gamma_Z$) from Equation (3), focusing on the lowest wage group (G1). Corresponding results for G2 and G3 are reported in Appendix Tables A1 and A2. Results are qualitatively similar.

TABLE 4. Interaction coefficients by country, G1 (≤70% of median)

| | DEU | DNK | FRA | NLD | PRT | UK |
|---|---|---|---|---|---|---|
| *Panel A: Job-to-job transition ($\gamma_Z$× G1)* | | | | | | |
| Young (20–29) | 0.157*** | 0.159*** | 0.211*** | 0.179*** | 0.103*** | 0.201*** |
| | ( 0.001) | ( 0.003) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.004) |
| Old (50–64) | -0.131*** | -0.139*** | -0.139*** | -0.108*** | -0.095*** | -0.104*** |
| | ( 0.001) | ( 0.004) | ( 0.004) | ( 0.002) | ( 0.003) | ( 0.004) |
| Female | -0.099*** | -0.028*** | -0.062*** | -0.036*** | -0.033*** | -0.028*** |
| | ( 0.001) | ( 0.002) | ( 0.003) | ( 0.001) | ( 0.003) | ( 0.004) |
| Foreign-born | 0.021*** | -0.013*** | 0.012*** | 0.008*** | 0.059*** | — |
| | ( 0.001) | ( 0.004) | ( 0.004) | ( 0.001) | ( 0.005) | |
| Part-time | — | 0.089*** | 0.097*** | 0.093*** | 0.111*** | -0.070*** |
| | | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.004) | ( 0.003) |
| *Panel B: Exit from salaried employment ($\gamma_Z$× G1)* | | | | | | |
| Young (20–29) | 0.007*** | -0.019*** | 0.011*** | -0.074*** | 0.016*** | 0.078*** |
| | ( 0.000) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.003) |
| Old (50–64) | 0.173*** | 0.298*** | 0.225*** | 0.213*** | 0.197*** | 0.203*** |
| | ( 0.001) | ( 0.003) | ( 0.003) | ( 0.001) | ( 0.002) | ( 0.003) |
| Female | 0.133*** | -0.019*** | -0.029*** | -0.027*** | -0.018*** | -0.057*** |
| | ( 0.000) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.003) |
| Foreign-born | 0.094*** | 0.109*** | 0.064*** | 0.133*** | 0.162*** | — |
| | ( 0.001) | ( 0.003) | ( 0.003) | ( 0.001) | ( 0.003) | |
| Part-time | — | 0.071*** | 0.097*** | 0.062*** | 0.051*** | -0.058*** |
| | | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.003) | ( 0.002) |

*Notes:* Coefficients on selected interactions from Equation (3) (interacted specification). Panel A reports interaction coefficients ($\gamma_Z$) for job-to-job transitions and Panel B for exits from salaried employment, both for workers in G1. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference group. Outcomes are measured over a five-year horizon. Reference categories: age 30–49, male, native-born, full-time. Region (NUTS 2) and industry (NACE 2-digit) interactions are estimated but not reported. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

### 4.3. Labour Market Institutions

Labour market institutions play a central role in shaping wage-setting, incentives for working (efficiency wages), and transitions at the lower end of the wage distribution. In this section, we discuss how two key institutions, i.e. the minimum wage and the marginal tax rate, relate to wage compression, wage growth, and job mobility among low-wage workers.

#### 4.3.1. Minimum Wages

A higher minimum wage relative to the median potentially compresses the wage distribution at the bottom, which may affect both the incidence of low-wage employment and the dynamics of wage progression. On the one hand, a high minimum wage reduces the share of workers below 70% of the median by pushing wages upwards. On the other hand, by compressing the wage distribution, it may also reduce the returns to job mobility. That is, if wages are clustered just above the minimum, there is less to gain from switching firms. At the same time, workers just below the threshold may find it easier to cross it, which could increase the probability of escaping low-wage employment. We examine these potential relationships by relating the minimum wage relative to the median to four outcomes for workers in G1 (those earning below 70% of the median), as the minimum wage is most likely to be binding for this group: the share of workers in G1, average wage growth, the probability of job-to-job transition, and the probability of moving out of salaried employment.

Figure 8 plots the minimum wage relative to the median against the share of workers in G1, with each observation representing a country-year. The figure shows that countries with a higher minimum wage relative to the median in a given year tend to have a smaller share of workers below 70% of the median. This relationship is primarily driven by within-country variation over time; the cross-country pattern is less pronounced, as some countries with a relatively high minimum wage relative to the median, such as Germany, also have a comparatively high share of workers in G1. For within countries, the result is driven by Portugal, UK, and France. This finding is consistent with the compression mechanism described above: a higher minimum wage pushes wages upward toward the median, reducing the incidence of low-wage employment.

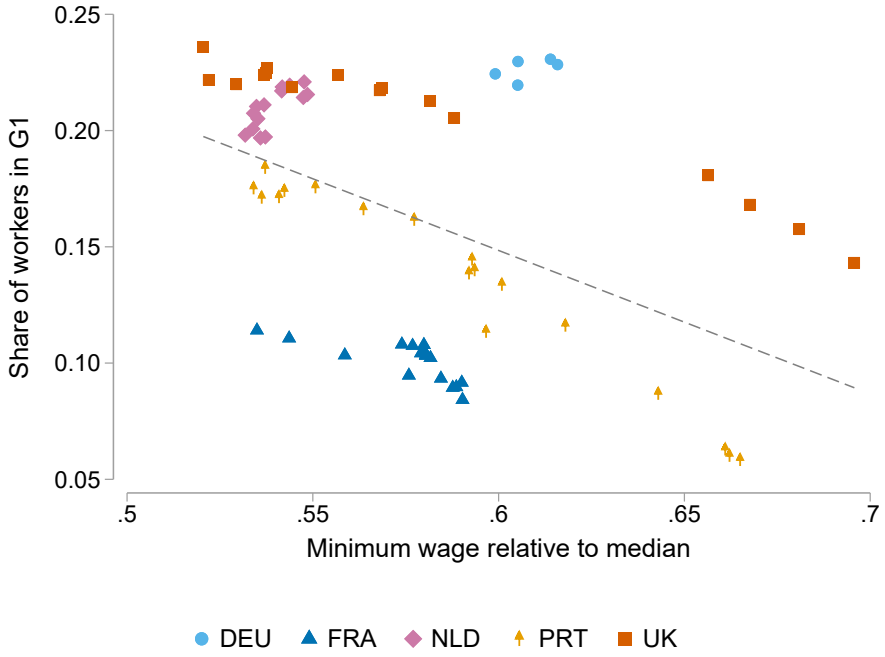


FIGURE 8. Minimum wage and incidence of low-wage employment

*Notes:* The figure shows a scatter plot of the minimum wage relative to the median wage ($\frac{\text{MW}_{ct}}{\text{Median}_{ct}}$) against the share of workers in G1 (earning below 70% of the median). Each observation is a country-year. Denmark is excluded as it does not have a statutory minimum wage. Germany is only observed from 2015 onwards, when the first national minimum wage was introduced. The dashed line shows a linear fit across all country-year observations pooled together, and therefore reflects a combination of within- and across-country variation, unlike the within-country estimate reported in Table 5.

Next, we control for time and country effects. For each country and year, we compute the Kaitz index, i.e., the statutory minimum wage relative to the median wage, $\frac{\text{MW}_{ct}}{\text{Median}_{ct}}$, and estimate:

$$Y_{ct} = \alpha + \beta \left( \frac{\text{MW}_{ct}}{\text{Median}_{ct}} \right) + \tau_t + \gamma_c + \epsilon_{ct}, \tag{4}$$

where $Y_{ct}$ denotes the outcome in question, and $\tau_t$ and $\gamma_c$ denote year and country fixed effects, respectively. We consider the following three outcomes: the share of workers earning below 70% of the median wage (G1), average annualised 5-year wage growth among low-wage workers, and the probability of job-to-job transitions over a 5-year horizon. The regressions include country and year fixed effects, so identification comes from within-country changes over time in the minimum wage relative to the median.[16]

The results in Table 5 reveal a strong negative association between the relative mini-

[16] A5 reports the results of running regression (4) without year fixed effects. Results for the G1 share are qualitatively similar, though smaller in magnitude. The coefficient for wage growth remains statistically insignificant. For job-to-job transitions, the coefficient becomes statistically significant, though the sign remains positive as in the main specification.

mum wage and the incidence of very low wages. Specifically, a 10 percentage point higher minimum wage relative to the median is associated with roughly a 7 percentage point lower share of workers earning below 70% of the median. This finding is consistent with the descriptive evidence presented in Figures 1 and 2, suggesting that countries with relatively higher wage floors tend to exhibit greater compression at the bottom of the wage distribution and fewer workers in the lowest wage group.

The country fixed effects indicate that, after accounting for differences in the minimum wage relative to the median, the Netherlands, Portugal, and the United Kingdom all have significantly higher G1 shares than France, suggesting that cross-country differences in low-wage incidence are not fully explained by minimum wage levels alone.

By contrast, we find little evidence that the minimum wage is systematically associated with subsequent labour market dynamics. The estimated coefficients for wage growth and job-to-job mobility are both positive but statistically insignificant. Thus, although higher minimum wages are associated with a smaller fraction of workers at the very bottom of the wage distribution, they do not appear to be systematically related to the subsequent wage progression or job mobility of low-wage workers after accounting for country and year fixed effects.

Taken together, these findings suggest that differences in the minimum wage are more strongly related to the cross-sectional distribution of wages than to the dynamics of labour market mobility. Countries with relatively high minimum wages tend to have fewer workers in the lowest wage group, reflecting greater wage compression at the bottom of the distribution, but they do not exhibit systematically different patterns of wage growth or job-to-job mobility. While these results should not be interpreted causally, they are consistent with a large literature showing that minimum wages primarily affect the lower tail of the wage distribution (Lee (1999)), whereas their effects on employment are generally modest and heterogeneous (Dube (2019)), partly reflecting the reallocation of workers toward more productive, higher-paying firms rather than job loss (Engbom and Moser (2022)).

TABLE 5. Minimum wage and labour market outcomes

| | (1) G1 share | (2) Wage growth | (3) Job-to-job |
|---|---|---|---|
| MW/Median | -0.7314*** | 0.1296 | 0.2526 |
| | (0.0986) | (0.1020) | (0.2897) |
| Country fixed effects (ref.: France): | | | |
| NLD | 0.0728*** | 0.0166*** | 0.1372*** |
| | (0.0051) | (0.0061) | (0.0188) |
| PRT | 0.0509*** | -0.0101*** | -0.1726*** |
| | (0.0040) | (0.0030) | (0.0075) |
| UK | 0.0995*** | -0.0020 | -0.0968*** |
| | (0.0046) | (0.0048) | (0.0123) |
| $N$ | 46 | 46 | 46 |
| $R^2$ | 0.980 | 0.771 | 0.979 |
| Within $R^2$ | 0.559 | 0.060 | 0.026 |

*Notes:* Coefficients from regression (4) with country and year fixed effects. Robust standard errors in parentheses. The dependent variables are the share of workers in G1, average annualised log wage growth over 5 years, and the probability of job-to-job transition over a 5 year window, all for workers in G1. The minimum wage is expressed relative to the country-year median wage. Denmark is excluded as it does not have a statutory minimum wage. Similarly, Germany is excluded since minimum wage data are only available from 2015 onwards, which does not overlap with the period covered by the labour market outcomes used here. This period varies by country: 2002–2014 for France and Portugal, 2006–2014 for the Netherlands, and 2004–2014 for the United Kingdom, reflecting differences in data availability. *** p<0.01, ** p<0.05, * p<0.10.

#### 4.3.2. Marginal Tax Rates

Next, we investigate how marginal effective tax rates (METRs) affect labour market outcomes for low-wage workers. In particular, if there are high METRs at the bottom of the wage distribution, which means that a large share of a wage increase is absorbed by higher taxes or reduced benefits, workers may have weaker incentives to seek higher-paying jobs or work longer hours. Conversely, low METRs preserve the returns to wage progression and may facilitate upward mobility.

We use data on METRs from the OECD Tax-Benefit Model (OECD 2024), which provides METRs for all six countries over the period 2001–2024 at different earnings levels, family types, and working hours. METRs are defined as the change in net income over the change in gross income following a given change in earnings. Hence, METRs capture the combined effect of income taxes, social contributions, and benefit withdrawals. We focus on single full-time employees without children, as this family type provides the

most comparable baseline across countries, given that family-related tax and benefit entitlements vary considerably in their design across the six countries in our sample. In addition, family and household constellations cannot be identified for all of our datasets, and METRs are not defined and assigned at the individual level but rather at the wage-group level. We restrict the sample of workers to full-time employees since METRs depend on working time. Thus, our results should be interpreted with caution when thinking about the general population.

Since METRs in the Tax-Benefit Model are expressed as a percentage of the median wage, we assign each wage group a single METR value based on the earnings level within the group. In the main specification, we use the METR at the upper boundary of each group's earnings range, that is, 70%, 85%, and 100% of the median wage for G1, G2, and G3, respectively. This choice reflects the incentive to move out of the group: the relevant marginal tax rate for a worker seeking to progress to a higher wage group is the rate they face at the point of transition. We check robustness to two alternative assignment methods: a country-specific time-varying midpoint, in which the representative earnings level within each group is estimated from the data and allowed to vary across countries and over time; and the median METR over a narrow sub-interval of each group's earnings range, which reduces sensitivity to spikes in the METR schedule near benefit phase-out thresholds.

We then estimate:

$$Y_{cgt} = \alpha + \beta t_{cgt} + \tau_t + \gamma_c + \lambda_g + \epsilon_{cgt}, \tag{5}$$

where $Y_{cgt}$ denotes average wage growth or job-to-job mobility for wage group $g$ in country $c$ in year $t$, $t_{cgt}$ is the marginal effective tax rate for the corresponding earnings level, and $\tau_t$, $\gamma_c$, and $\lambda_g$ denote year, country, and wage group fixed effects, respectively.

Figure 9 provides a first look at the raw relationship between METRs and labour market outcomes across wage groups and countries. Panel A shows that higher METRs tend to be weakly associated with lower wage growth. Panel B shows a weak positive relationship between METRs and job-to-job transitions, though the pattern is noisy across wage groups and countries. This is an interesting finding as it is inconsistent with the notion that low METRs in particular preserve wage returns through upward mobility.

Table 6 reports the estimates from Equation (5). Column (1) is the main specification, in which each wage group is assigned the METR at its upper earnings boundary, reflecting the marginal tax rate faced by a worker seeking to move into the next wage group. Columns (2) and (3) report robustness checks using alternative methods for assigning METRs to wage groups as described above.

The results offer some, but limited, evidence that marginal tax rates shape wage progression or job mobility among low-wage workers. In the main specification, METRs

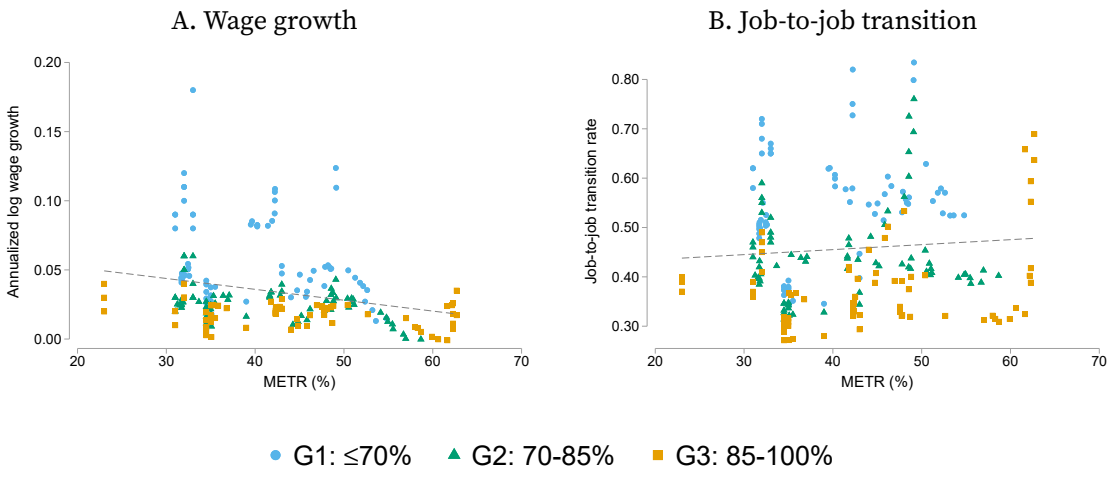


FIGURE 9. METR and labour market outcomes

*Notes:* Each panel shows a scatter plot of the outcome against the METR for wage groups G1–G3, with each observation representing a country-year-group combination. The dashed line shows a linear fit. METRs are from the OECD Tax-Benefit Model (OECD 2024) for single workers without children working full-time (38 hours), the OECD Tax-Benefit Model's standard full-time definition applied uniformly across all six countries, assigned at the upper boundary of each wage group. Figure A11 in the appendix presents the corresponding scatter plots using two alternative assignment methods.

are not associated with wage growth, with the coefficient being statistically insignificant. The robustness check in column (2) yields coefficients that are also close to zero and statistically insignificant, consistent with the wage growth result in the main specification. However, the robustness check in column (3) suggests that higher METRs are associated with higher wage growth, with the coefficient being statistically significant at the 5% level. The magnitude, however, is small: a ten percentage point increase in the METR is associated with an increase in annualised wage growth of approximately 0.006 log points. For job-to-job transitions, the estimated coefficient in the main specification is positive and statistically significant at the 1% level, and the first robustness check in column (2) yields a similarly sized and significant coefficient, while the coefficient in column (3) is slightly smaller but also statistically significant.

Taken together, these results suggest that the tax and benefit system plays a very limited role in shaping the wage dynamics of low-wage workers in our sample. However, we do observe a positive relationship between METRs and the job-to-job transition rates.

TABLE 6. METR and labour market outcomes — regression results

| | (1) | (2) | (3) |
|---|---|---|---|
| *Panel A: Wage growth* | | | |
| METR | -0.0002 | 0.0000 | 0.0003 |
| | (0.0002) | (0.0002) | (0.0003) |
| Country fixed effects (ref.: France): | | | |
| DEU | -0.0065 | -0.0100** | -0.0150*** |
| | (0.0047) | (0.0048) | (0.0055) |
| DNK | 0.0199*** | 0.0175*** | 0.0151*** |
| | (0.0044) | (0.0042) | (0.0037) |
| NLD | -0.0036 | -0.0060* | -0.0096** |
| | (0.0035) | (0.0036) | (0.0038) |
| PRT | -0.0081*** | -0.0084*** | -0.0087*** |
| | (0.0023) | (0.0023) | (0.0023) |
| UK | 0.0244*** | 0.0251*** | 0.0261*** |
| | (0.0046) | (0.0044) | (0.0045) |
| $N$ | 216 | 216 | 216 |
| $R^2$ | 0.723 | 0.722 | 0.723 |
| Within $R^2$ | 0.003 | 0.000 | 0.003 |
| *Panel B: Job-to-job transition* | | | |
| METR | 0.0027*** | 0.0025* | 0.0019 |
| | (0.0011) | (0.0014) | (0.0012) |
| Country fixed effects (ref.: France): | | | |
| DEU | -0.0457** | -0.0391 | -0.0298 |
| | (0.0198) | (0.0249) | (0.0223) |
| DNK | 0.1057*** | 0.1154*** | 0.1242*** |
| | (0.0172) | (0.0171) | (0.0161) |
| NLD | 0.0517*** | 0.0536*** | 0.0610*** |
| | (0.0166) | (0.0202) | (0.0179) |
| PRT | -0.0890*** | -0.0885*** | -0.0883*** |
| | (0.0086) | (0.0087) | (0.0085) |
| UK | 0.1193*** | 0.1158*** | 0.1147*** |
| | (0.0101) | (0.0110) | (0.0111) |
| $N$ | 216 | 216 | 216 |
| $R^2$ | 0.813 | 0.809 | 0.806 |
| Within $R^2$ | 0.046 | 0.027 | 0.010 |

*Notes:* Coefficients from regression (5) with country, year, and wage group fixed effects. Robust standard errors in parentheses. Country coefficients are relative to France (reference category). The regression sample covers 2002–2014 for Germany, Denmark, France, and Portugal, 2006–2014 for the Netherlands, and 2004–2014 for the United Kingdom, reflecting the availability of the underlying labour market outcomes. The sample is restricted to full-time workers, as METRs are computed for full-time earnings. Column (1) assigns the METR at the upper boundary of each wage group (main specification). Columns (2) and (3) report robustness checks using a country-specific time-varying midpoint and the median over a narrow interval, respectively. *** p<0.01, ** p<0.05, * p<0.10.

## 5. Conclusion

This paper documents the drivers and dynamics of low-wage employment across six countries using harmonised linked employer-employee data. Three main findings emerge.

First, low wages primarily reflect individual worker characteristics. However, firm-specific wage premia also play an important role, particularly at the very bottom of the wage distribution, where the firm component is around half the size of the worker component. The firm component reflects both concentration in low-paying industries as well as differences between firms within the same industry in roughly equal measure. Hence, there is not only substantial self-selection of individuals into low-wage sectors, but there also exists within economic sectors substantial variation in firm-specific wage premia.

Second, despite the importance of these structural factors, low-wage employment is at least partly transitory. Wage growth is higher at the lower end of the distribution across all countries, and workers just below the 70% threshold are particularly likely to move above it. Workers at the lower part of the wage distribution do seem to experience a higher probability of moving to another firm.

Third, we evaluated the role of minimum wages and the role of marginal effective tax rates in labour market outcomes of low-employment workers. We show that the country-specific statutory minimum wage relative to the median wage is negatively related to the country's share of workers earning below 70% of the median. However, we find no relationship between the statutory minimum wage and two other dimensions of labour market dynamics, namely wage growth and job-to-job transitions. In addition, we show that the country-specific marginal effective tax rates are unrelated to wage growth but are weakly positively associated with job-to-job transitions. Taken together, the labour market institutions we consider in this paper seem not much related to the incidence of low-wage employment.

Overall, our findings suggest that the fundamental mechanisms driving low-wage employment, i.e. the relative importance of worker and firm characteristics, and the degree to which low-wage employment is transitory, are broadly similar across countries despite considerable differences in labour market institutions.

These findings have several implications for policies aimed at improving the position of low-wage workers. The dominant role of worker characteristics suggests that policies affecting skills and productivity are likely to be important for longer-run earnings prospects. Education, training, and opportunities for upskilling may therefore be particularly relevant for workers whose low pay stems mainly from their own persistently low earnings potential, rather than from working at a low-paying firm.

At the same time, firms also matter, especially at the very bottom of the wage distribution. Since firm-specific wage premia vary substantially both across and within industries,

policies that facilitate mobility toward better-paying employers may complement investments in worker skills. Better information about vacancies and reductions in barriers to occupational or geographic mobility could allow some workers to obtain higher wages without necessarily changing industry.

Our results also suggest that low-wage employment should not necessarily be viewed as a persistent "low-wage trap". Workers at the bottom experience relatively high subsequent wage growth and job-to-job mobility. This implies that policy may need to distinguish between workers for whom low wages are a temporary stage and workers who remain persistently low paid.

Finally, the institutional results should be interpreted with caution. Higher minimum wages are associated with a smaller lower tail of the wage distribution, but we find little systematic relationship between minimum wages or marginal effective tax rates and subsequent wage growth. However, since these results are based primarily on associations rather than causal policy reforms, they do not imply that these institutions are unimportant. Rather, they suggest that differences in worker characteristics, firms, and mobility may be at least as important for understanding the longer-run prospects of low-wage workers.

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# Appendix

## One-way decomposition

Figure A1 replicates the worker and firm decomposition from Figure 3 using a one-way fixed effects model, which allows the United Kingdom to be included in the analysis.

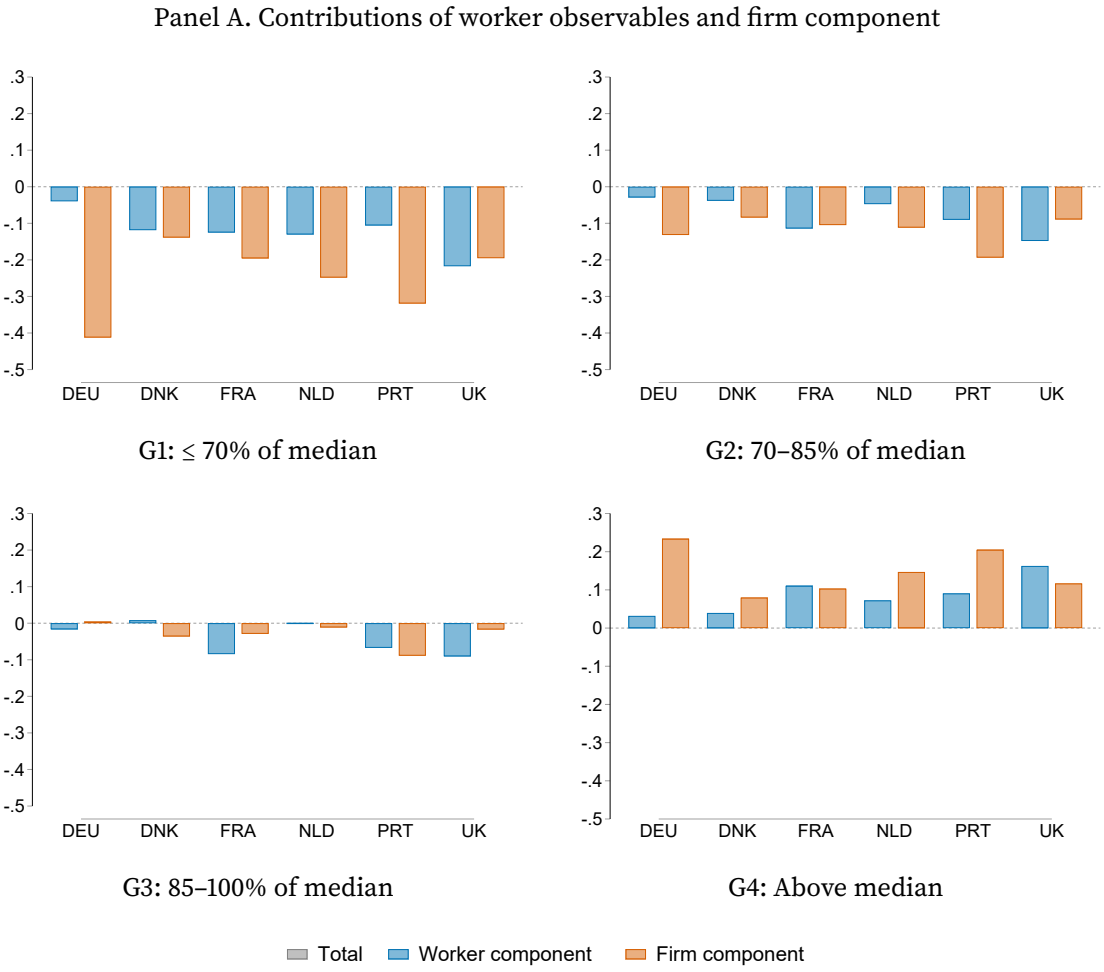


FIGURE A1. One-way decomposition of wage differentials

*Notes:* Panel A shows the average worker observable and firm components of log hourly wage differentials by wage group, estimated using a one-way fixed effects model. Panel B decomposes the firm component into between-industry and within-industry components. Unlike the AKM model in Figure 3, the one-way fixed effects model does not require worker mobility across firms for identification, which allows the UK to be included.

Panel B. Between and within industry components

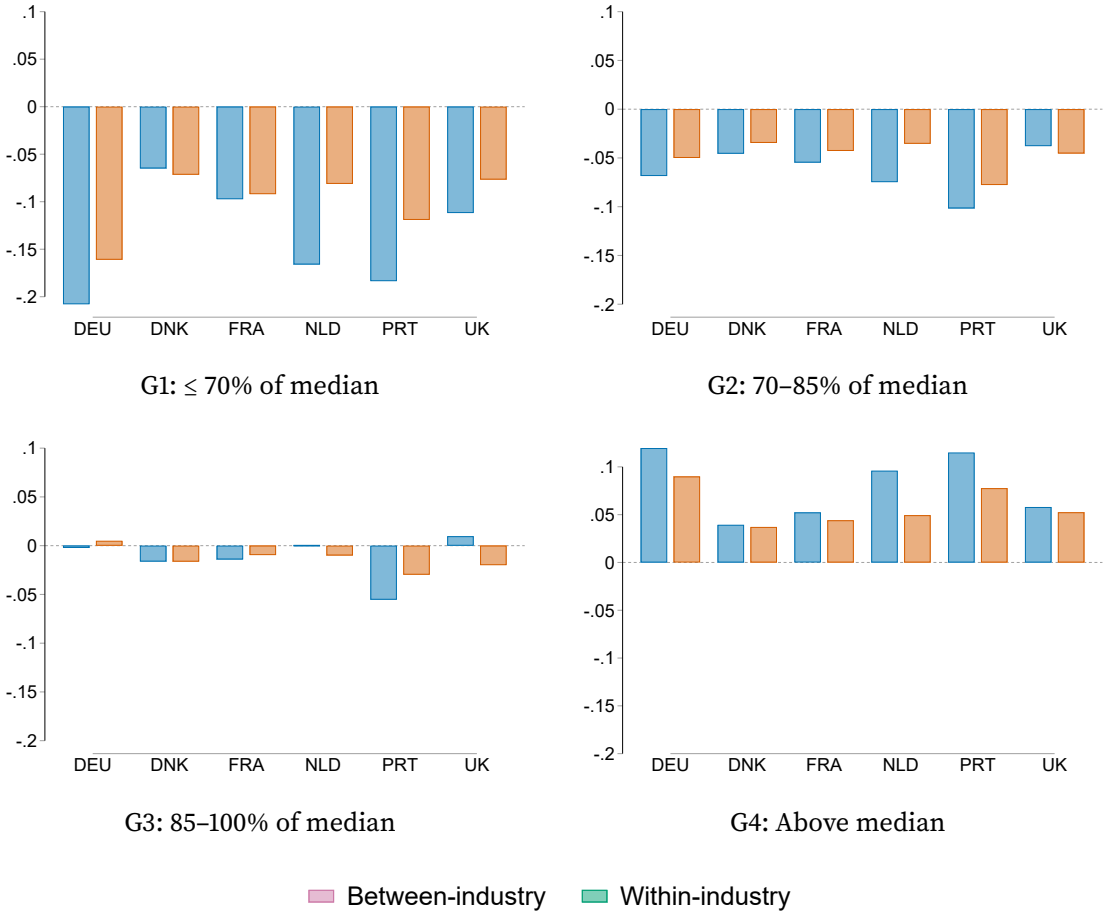


FIGURE A1. One-way decomposition of wage differentials (continued)

**Robustness: Full-time workers**

Figures A2, A3 and A4 replicates Figures 5, 6 and 7 restricting the sample to full-time workers across all countries.

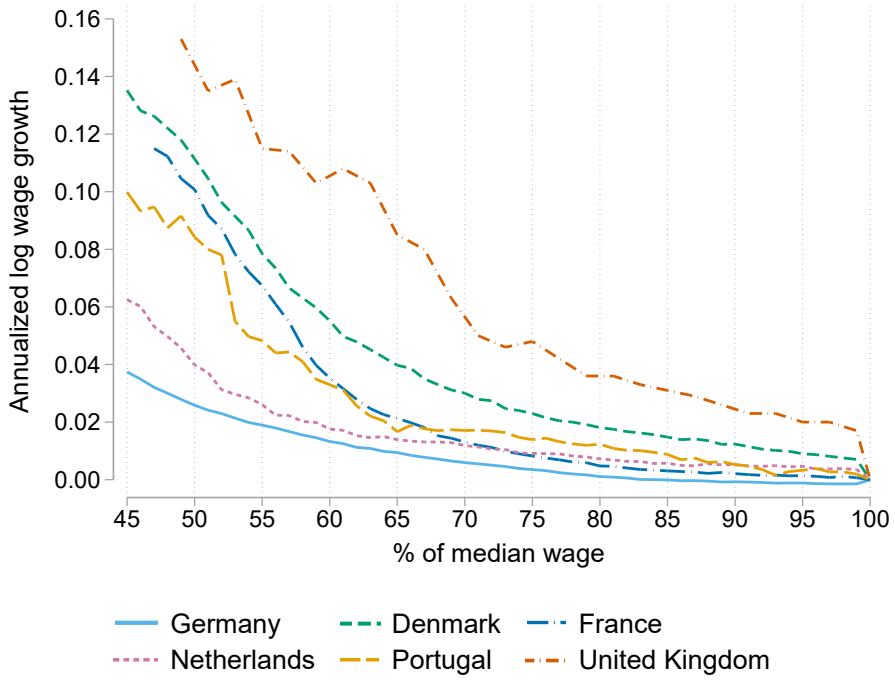


FIGURE A2. Wage growth — full-time workers

*Notes:* The figure replicates Figure 5 restricting the sample to full-time workers. The figure shows annualized log wage growth over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

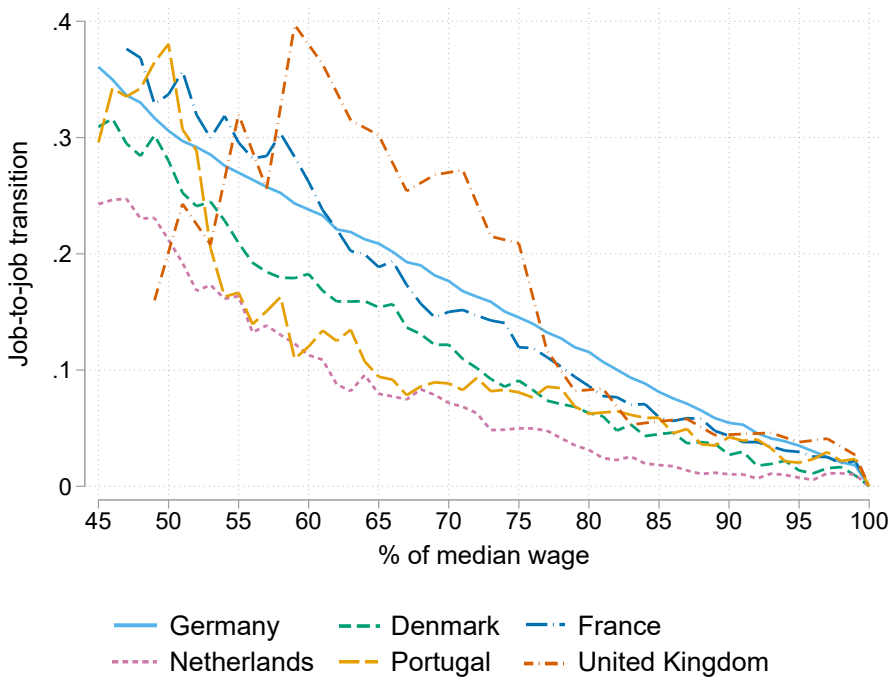


FIGURE A3. Probability of moving to another firm — full-time workers

*Notes:* The figure replicates Figure 6 restricting the sample to full-time workers across all countries. The figure shows the unconditional probability of moving to another firm over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

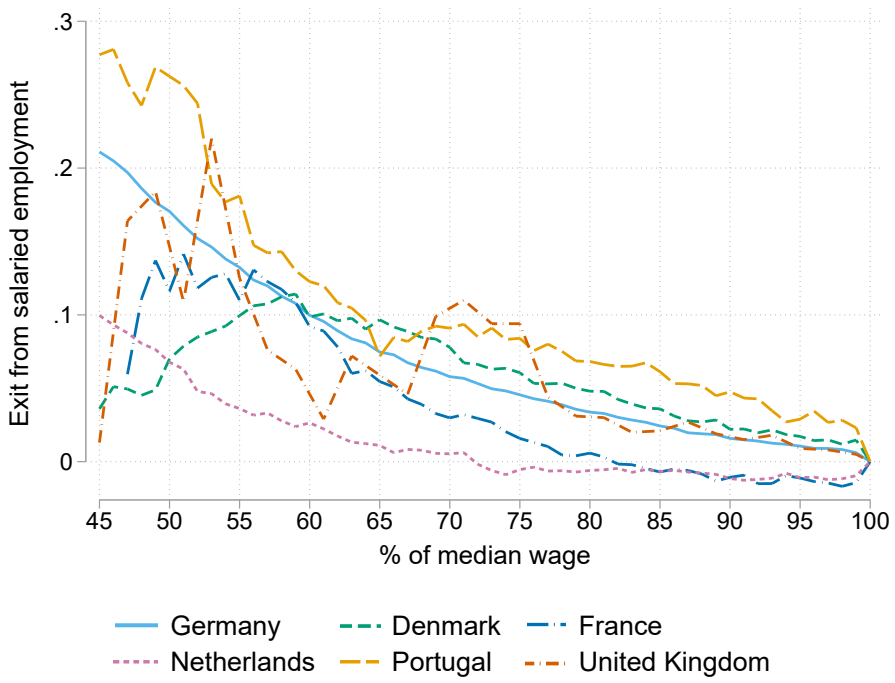


FIGURE A4. Probability of moving out of work — full-time workers

*Notes:* The figure replicates Figure 7 restricting the sample to full-time workers across all countries. The figure shows the unconditional probability of moving out of work over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

**Robustness: One-year horizon**

Figures A5, A6 and A7 replicate Figures 5, 6 and 7 using a one-year horizon instead of five years.

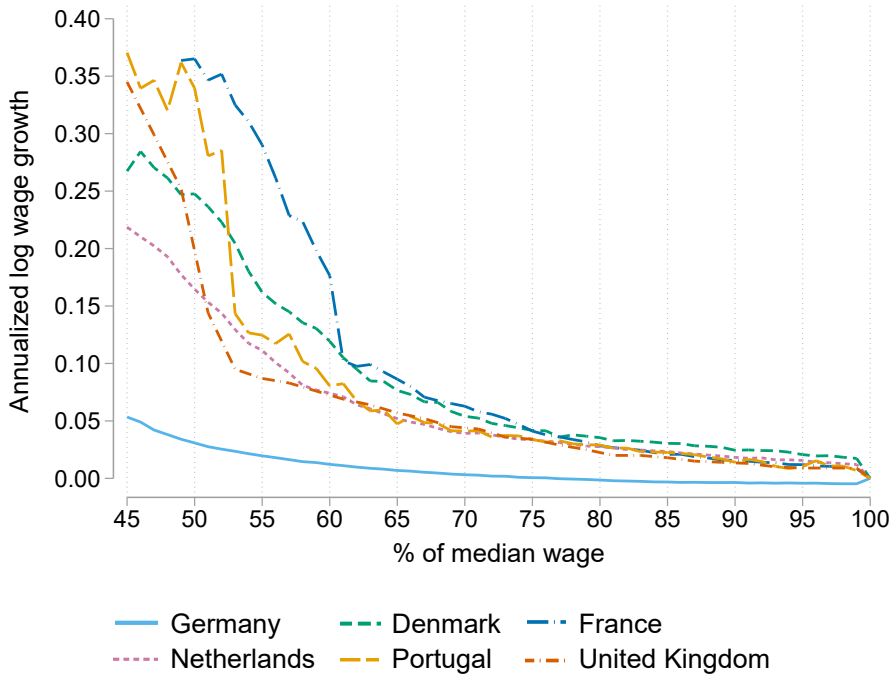


FIGURE A5. Wage growth — one-year horizon

*Notes:* The figure replicates Figure 5 using a one-year horizon. The figure shows annualized log wage growth over a one-year horizon by initial wage position, measured relative to the country-year median hourly wage.

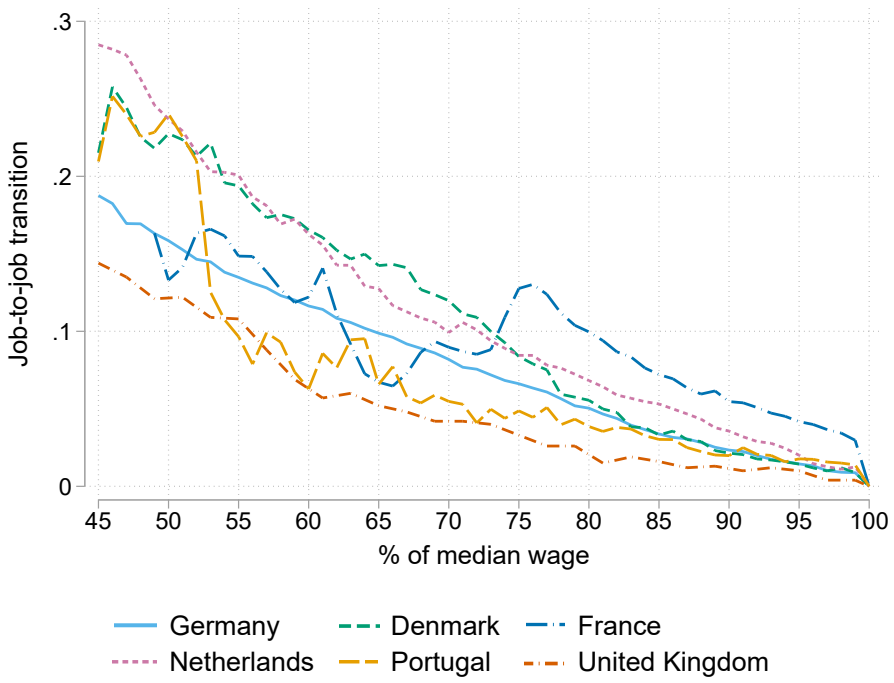


FIGURE A6. Probability of moving to another firm — one-year horizon

*Notes:* The figure replicates Figure 6 using a one-year horizon. The figure shows the unconditional probability of moving to another firm over a one-year horizon by initial wage position, measured relative to the country-year median hourly wage.

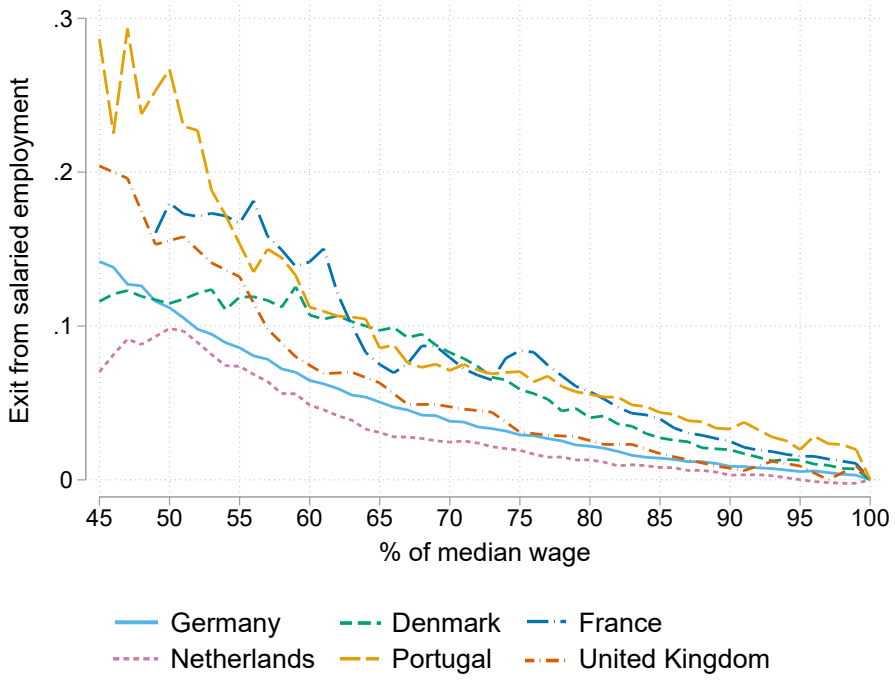


FIGURE A7. Probability of moving out of work — one-year horizon

*Notes:* The figure replicates Figure 7 using a one-year horizon. The figure shows the unconditional probability of moving out of work over a one-year horizon by initial wage position, measured relative to the country-year median hourly wage.

**Robustness: Unbalanced sample**

Figures A8, A9 and A10 replicate Figures 5, 6 and 7 using an unbalanced sample, which means that we include all workers observed in the starting year, regardless of whether they are observed in the ending year.

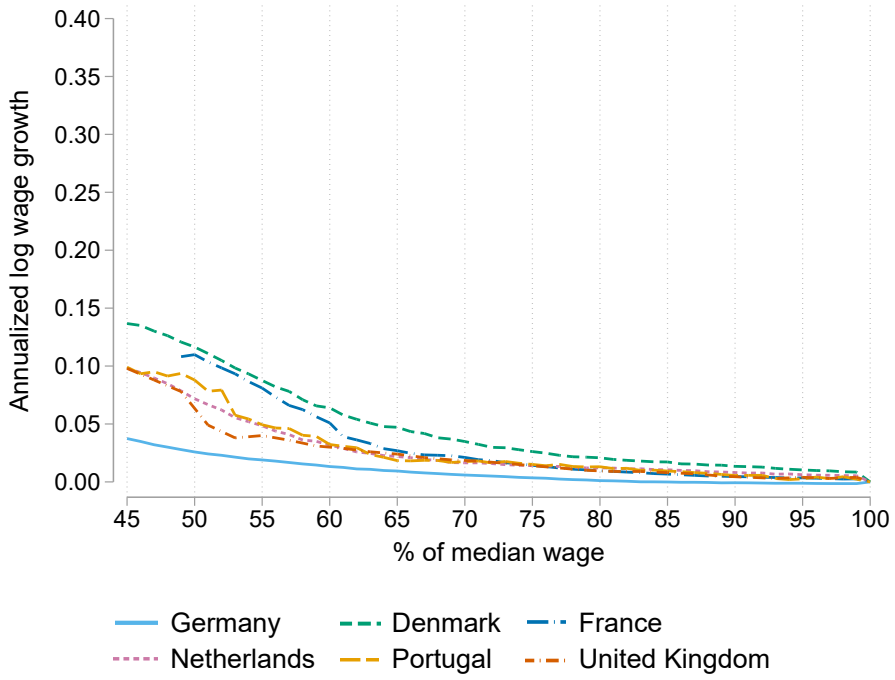


FIGURE A8. Wage growth — one-year horizon

*Notes:* The figure replicates Figure 5 using an unbalanced sample. The figure shows annualized log wage growth over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

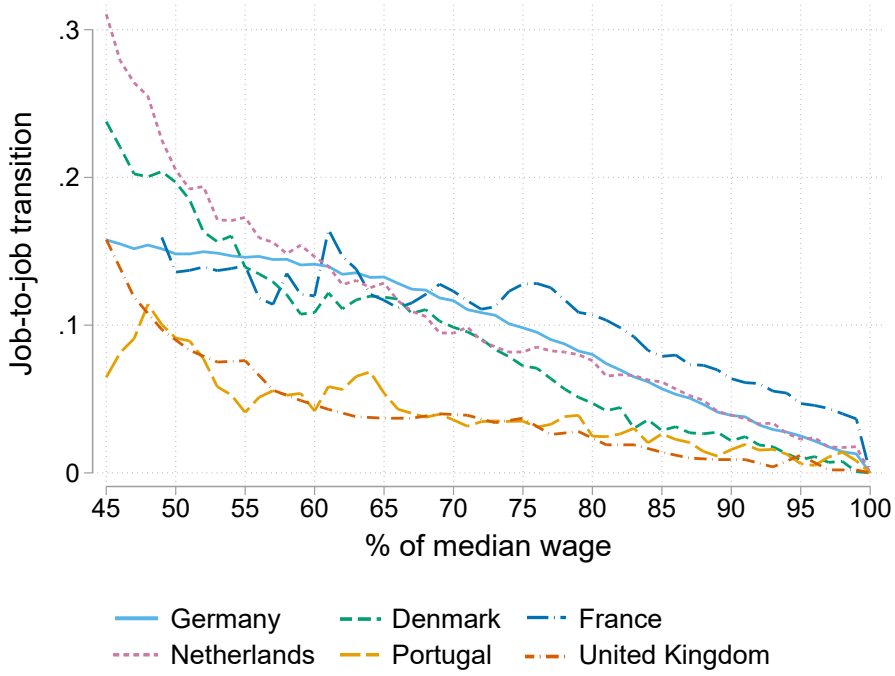


FIGURE A9. Probability of moving to another firm — one-year horizon

*Notes:* The figure replicates Figure 6 using an unbalanced sample. The figure shows the unconditional probability of moving to another firm over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

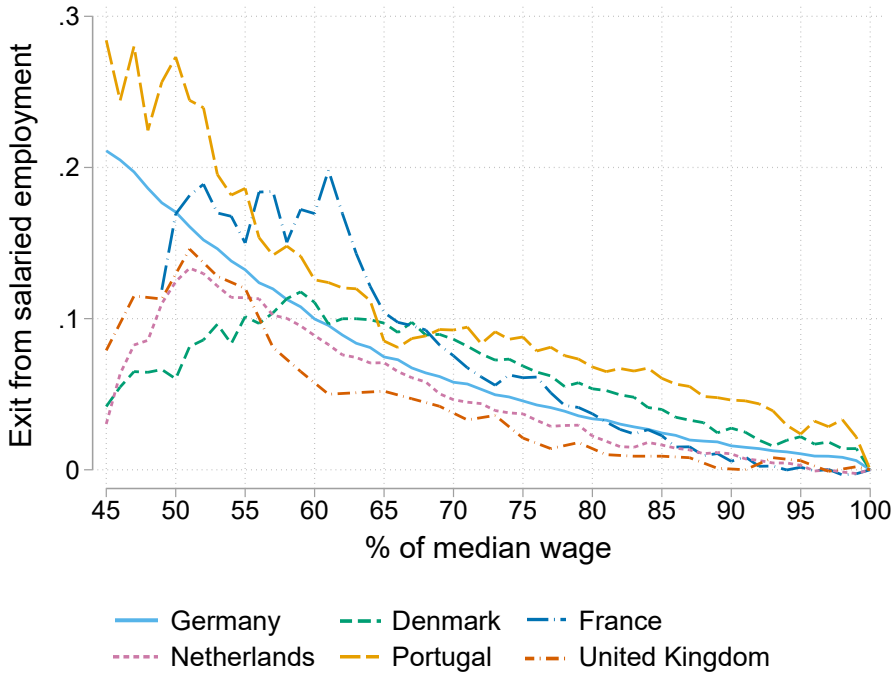


FIGURE A10. Probability of moving out of work — one-year horizon

*Notes:* The figure replicates Figure 7 using an unbalanced sample. The figure shows the unconditional probability of moving out of work over a five-year horizon by initial wage position, measured relative to the country-year median hourly wage.

**G2 and G3 interacted specification**

This section reports the interaction coefficients ($\gamma_Z$) from Equation (3) for wage groups G2 and G3, complementing the G1 results reported in Table 4 in the main text. Table A1 reports results for G2 (70–85% of the median wage), and Table A2 for G3 (85–100% of the median wage). The specification, sample, and reference categories are identical to those described in Table 4.

TABLE A1. Interaction coefficients by country, G2 (70–85% of median)

| | DEU | DNK | FRA | NLD | PRT | UK |
|---|---|---|---|---|---|---|
| *Panel A: Job-to-job transition ($\gamma_Z$× G2)* | | | | | | |
| Young (20–29) | 0.122*** | 0.152*** | 0.204*** | 0.157*** | 0.113*** | 0.156*** |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.004) |
| Old (50–64) | -0.114*** | -0.113*** | -0.115*** | -0.090*** | -0.098*** | -0.079*** |
| | ( 0.001) | ( 0.003) | ( 0.002) | ( 0.002) | ( 0.002) | ( 0.004) |
| Female | -0.071*** | -0.028*** | -0.035*** | -0.044*** | -0.044*** | -0.013*** |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.004) |
| Foreign-born | -0.024*** | -0.024*** | 0.007*** | 0.007*** | 0.059*** | — |
| | ( 0.001) | ( 0.003) | ( 0.003) | ( 0.002) | ( 0.005) | |
| Part-time | — | 0.170*** | 0.097*** | 0.074*** | 0.133*** | -0.036*** |
| | | ( 0.002) | ( 0.001) | ( 0.001) | ( 0.005) | ( 0.004) |
| *Panel B: Exit from salaried employment ($\gamma_Z$× G2)* | | | | | | |
| Young (20–29) | 0.021*** | 0.018*** | 0.032*** | -0.027*** | 0.015*** | 0.070*** |
| | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.002) | ( 0.003) |
| Old (50–64) | 0.210*** | 0.303*** | 0.252*** | 0.225*** | 0.206*** | 0.202*** |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.003) |
| Female | 0.105*** | -0.026*** | -0.007*** | -0.034*** | -0.007*** | -0.052*** |
| | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.002) | ( 0.003) |
| Foreign-born | 0.057*** | 0.094*** | 0.061*** | 0.106*** | 0.203*** | — |
| | ( 0.001) | ( 0.003) | ( 0.002) | ( 0.001) | ( 0.003) | |
| Part-time | — | 0.105*** | 0.085*** | 0.071*** | 0.077*** | -0.061*** |
| | | ( 0.002) | ( 0.001) | ( 0.001) | ( 0.003) | ( 0.003) |

*Notes:* Coefficients from Equation (3) (interacted specification). Panel A reports interaction coefficients ($\gamma_Z$) for job-to-job transitions and Panel B for exits from salaried employment, both for workers in G2. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference group. Outcomes are measured over a five-year horizon. Reference categories: age 30–49, male, native-born, full-time. Region (NUTS 2) and industry (NACE 2-digit) interactions are estimated but not reported. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

TABLE A2. Interaction coefficients by country, G3 (85–100% of median)

| | DEU | DNK | FRA | NLD | PRT | UK |
|---|---|---|---|---|---|---|
| *Panel A: Job-to-job transition ($\gamma_Z$× G3)* | | | | | | |
| Young (20–29) | 0.117*** | 0.143*** | 0.180*** | 0.158*** | 0.124*** | 0.132*** |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.005) |
| Old (50–64) | -0.096*** | -0.114*** | -0.096*** | -0.089*** | -0.098*** | -0.067*** |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.002) | ( 0.002) | ( 0.005) |
| Female | -0.035*** | -0.016*** | -0.024*** | -0.035*** | -0.042*** | 0.003 |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.002) | ( 0.002) | ( 0.005) |
| Foreign-born | -0.023*** | -0.014*** | 0.013*** | 0.015*** | 0.067*** | — |
| | ( 0.001) | ( 0.003) | ( 0.003) | ( 0.002) | ( 0.006) | |
| Part-time | — | 0.160*** | 0.081*** | 0.067*** | 0.121*** | -0.025*** |
| | | ( 0.003) | ( 0.002) | ( 0.001) | ( 0.005) | ( 0.005) |
| *Panel B: Exit from salaried employment ($\gamma_Z$× G3)* | | | | | | |
| Young (20–29) | 0.038*** | 0.018*** | 0.033*** | -0.007*** | 0.015*** | 0.062*** |
| | ( 0.000) | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.002) | ( 0.003) |
| Old (50–64) | 0.234*** | 0.285*** | 0.296*** | 0.226*** | 0.232*** | 0.215*** |
| | ( 0.001) | ( 0.001) | ( 0.002) | ( 0.001) | ( 0.002) | ( 0.004) |
| Female | 0.112*** | -0.018*** | -0.011*** | -0.032*** | -0.009*** | -0.033*** |
| | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.001) | ( 0.002) | ( 0.003) |
| Foreign-born | 0.050*** | 0.090*** | 0.049*** | 0.100*** | 0.217*** | — |
| | ( 0.001) | ( 0.002) | ( 0.002) | ( 0.001) | ( 0.004) | |
| Part-time | — | 0.134*** | 0.076*** | 0.064*** | 0.089*** | -0.063*** |
| | | ( 0.002) | ( 0.001) | ( 0.001) | ( 0.004) | ( 0.004) |

*Notes:* Coefficients from Equation (3) (interacted specification). Panel A reports interaction coefficients ($\gamma_Z$) for job-to-job transitions and Panel B for exits from salaried employment, both for workers in G3. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference group. Outcomes are measured over a five-year horizon. Reference categories: age 30–49, male, native-born, full-time. Region (NUTS 2) and industry (NACE 2-digit) interactions are estimated but not reported. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

**Robustness: Additive specification**

As a robustness check, we re-estimate the conditional wage growth and mobility regressions using the additive specification of Dustmann et al. (2022), in which worker characteristics (age group, gender, foreign-born status, full-time/part-time status, region, and industry) enter as additive fixed effects rather than being interacted with wage group. Table A3 reports the resulting group-specific coefficients ($\gamma_g$) for log wage growth, and Table A4 reports the resulting group-specific coefficients for job-to-job transitions and exits from salaried employment. As in the main specification, coefficients are measured relative to G4 (>100% of the median wage), over a five-year horizon, using the balanced sample.

TABLE A3. Additive specification: wage growth

| | G1 (≤70%) | G2 (70–85%) | G3 (85–100%) |
|---|---|---|---|
| Germany | 0.025*** | 0.005*** | 0.002*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| Denmark | 0.104*** | 0.033*** | 0.019*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| France | 0.043*** | 0.021*** | 0.011*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| Netherlands | 0.057*** | 0.021*** | 0.012*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| Portugal | 0.042*** | 0.024*** | 0.013*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| United Kingdom | 0.046 | 0.021 | 0.011 |
| | ( 0.000) | ( 0.000) | ( 0.000) |

*Notes:* Coefficients ($\gamma_g$) on annualized log wage growth from the additive specification following Dustmann et al. (2022), in which worker characteristics (age group, gender, foreign-born status, full-time/part-time status, region, and industry) enter as additive fixed effects rather than being interacted with wage group, as in Equation (3). Outcomes are measured over a five-year horizon. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference category. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

TABLE A4. Additive specification: Mobility

| | G1 (≤70%) | G2 (70–85%) | G3 (85–100%) |
|---|---|---|---|
| *Panel A: Job-to-job transition* | | | |
| Germany | 0.167*** | 0.081*** | 0.021*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| Denmark | 0.118*** | 0.059*** | 0.019*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| France | 0.138*** | 0.068*** | 0.023*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| Netherlands | 0.087*** | 0.017*** | -0.008*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| Portugal | 0.107*** | 0.065*** | 0.026*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| United Kingdom | 0.072*** | 0.024*** | -0.001 |
| | ( 0.002) | ( 0.002) | ( 0.002) |
| *Panel B: Exit from salaried employment* | | | |
| Germany | 0.151*** | 0.042*** | 0.015*** |
| | ( 0.000) | ( 0.000) | ( 0.000) |
| Denmark | 0.108*** | 0.065*** | 0.029*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| France | 0.105*** | 0.043*** | 0.010*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| Netherlands | 0.072*** | 0.026*** | 0.004*** |
| | ( 0.001) | ( 0.001) | ( 0.000) |
| Portugal | 0.103*** | 0.065*** | 0.032*** |
| | ( 0.001) | ( 0.001) | ( 0.001) |
| United Kingdom | 0.031*** | -0.006*** | -0.016*** |
| | ( 0.002) | ( 0.002) | ( 0.002) |

*Notes:* Coefficients ($\gamma_g$) on job-to-job transitions (Panel A) and exits from salaried employment (Panel B) from the additive specification following Dustmann et al. (2022), in which worker characteristics (age group, gender, foreign-born status, full-time/part-time status, region, and industry) enter as additive fixed effects rather than being interacted with wage group, as in Equation (3). Outcomes are measured over a five-year horizon. Groups are defined relative to the country-year median hourly wage. G4 (>100%) is the reference category. Standard errors clustered at the worker level in parentheses. For Germany, only full-time workers are included due to data constraints. *** p<0.01, ** p<0.05, * p<0.10.

**Robustness: Minimum wage and labour market outcomes**

Table A5 reports the results of running regression (4) without year fixed effects. The negative association between the minimum wage and the share of workers in G1 remains statistically significant, though smaller in magnitude. The coefficient for wage growth remains statistically insignificant. For job-to-job transitions, the coefficient becomes statistically significant, though the sign remains positive as in the main specification.

TABLE A5. Minimum wage and labour market outcomes — without year fixed effects

| | (1) G1 share | (2) Wage growth | (3) Job-to-job |
|---|---|---|---|
| MW/Median | -0.5137*** | 0.0448 | 0.6207** |
| | (0.0780) | (0.0896) | (0.2597) |
| Country fixed effects (ref.: France): | | | |
| NLD | 0.0841*** | 0.0106** | 0.1527*** |
| | (0.0045) | (0.0046) | (0.0142) |
| PRT | 0.0524*** | -0.0107*** | -0.1699*** |
| | (0.0038) | (0.0034) | (0.0120) |
| UK | 0.1066*** | -0.0052 | -0.0858*** |
| | (0.0037) | (0.0049) | (0.0145) |
| $N$ | 46 | 46 | 46 |
| $R^2$ | 0.974 | 0.407 | 0.941 |

*Notes:* Coefficients from regression (4) with country fixed effects but without year fixed effects. Robust standard errors in parentheses. The dependent variables are the share of workers in G1, average annualised log wage growth, and the probability of job-to-job transition, all for workers in G1. The minimum wage is expressed relative to the country-year median wage. Denmark is excluded as it does not have a statutory minimum wage. Similarly, Germany is excluded since minimum wage data are only available from 2015 onwards, which does not overlap with the 2002–2014 period covered by the labour market outcomes used here. *** p<0.01, ** p<0.05, * p<0.10.

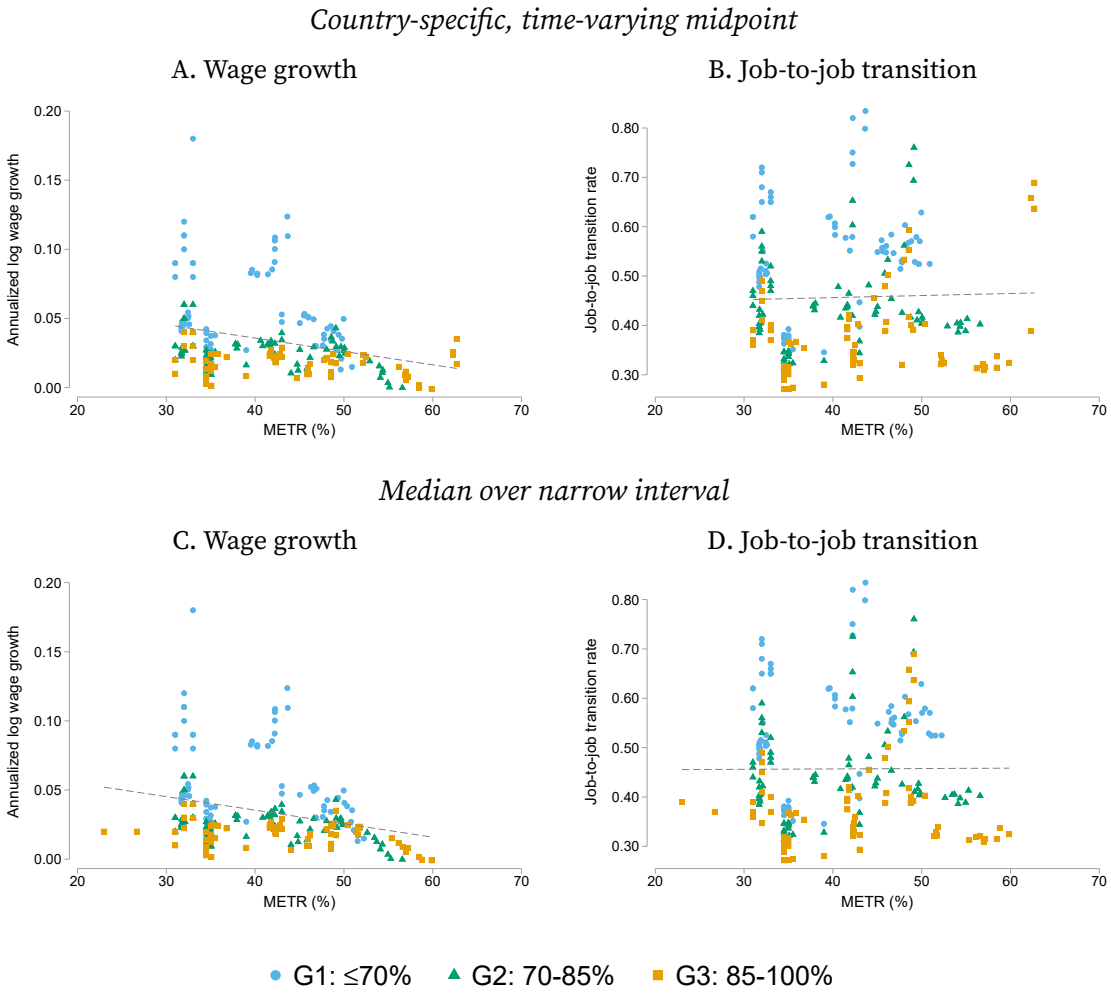


FIGURE A11. METR and labour market outcomes

*Notes:* Each panel shows a scatter plot of the outcome against the METR for wage groups G1–G3, with each observation representing a country-year-group combination. The dashed line shows a linear fit. METRs are from the OECD Tax-Benefit Model (OECD 2024) for single workers without children .working full-time (38 hours), the OECD Tax-Benefit Model's standard full-time definition applied uniformly across all six countries, assigned using a country-specific time-varying point or the median over a narrow interval; see Section 4.3.2 for details.