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Occupations and careers within organizations: Do organizations facilitate unequal wage growth?

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ABSTRACT

Recent research suggests that occupations and organizations intersect during the formation of wage inequality. Using administrative data from the Netherlands, I investigate whether workers who are employed in different occupations experience unequal wage growth when staying in an organization. Results reveal that workers in professional and managerial positions realize larger wage growth than workers who work initially in lower-status occupations. After six years of staying at the same organization, predicted wage growth rates vary between 5.44% for production workers and 10.18% for technical professionals. The findings indicate that occupations compound present and future wage advantages at the organizational level. I test whether occupational sorting across organizations with differing pay quality mediates part of the occupation-based heterogeneity in wage growth. The results show that occupational sorting is marked but that sorting explains only up to around 8% of inequality in firm-internal wage growth between different occupational classes in the Dutch labor market.

1. Introduction

Organizations and their internal structures are important determinants of wage inequality in society (Baron and Bielby, 1980; Card et al., 2013; Tomaskovic-Devey and Avent-Holt, 2018). Where present, firm internal labor markets facilitate the career trajectories of workers by regulating labor allocation and pricing (Althauser and Kalleberg, 1981; Doeringer and Piore, 1971). These internal structures have the potential to mitigate inequality by compressing earnings differentials between workers in different occupations at the organizational level (Kalleberg and Van Buren, 1994). When internal labor markets insulate workers from external market forces, they can provide structurally advantageous employment positions, particularly for workers in lower-paid occupations (Sørensen and Kalleberg, 1981).

However, earlier research documents that career opportunities within organizations have become more polarized due to an increasing marketization of employment relationships since the 1970s (Bidwell et al., 2013; Cappelli, 2001; Hirsch and De Soucey, 2006). First, driven by changing management practices, pay premiums generated by internal labor markets eroded, particularly among workers in lower-paid occupations (Morgan and Cha, 2007; Sørensen, 2001). When wage premiums in larger organizations and better-paying industries decreased, they declined predominantly for the working class (Cobb and Lin, 2017; Hanley, 2011; Hollister, 2004; Morgan and Tang, 2007). At the same time, the firm-level earnings advantage of the managerial and professional workforce consolidated or even expanded (Goldstein, 2012; Morgan and Cha, 2007; Sakamoto and Kim, 2010; Shin, 2014). Second, as large vertically integrated organizations switched to market-based sourcing of intermediate services, workers in lower-paid occupations

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became increasingly sorted into separate firms that provide fewer opportunities for internal career advancement (Handwerker, 2021; Lin, 2016; Weil, 2014; Zwysen, 2023). Therefore, many workers in lower-paid occupations have lost access to advantageous internal labor market structures altogether.

The uneven decline of internal labor markets and the growing sorting of occupations across high- and low-wage organizations suggests that organizations are important for understanding occupational stratification processes (Anteby et al., 2016). Unequal career opportunities within organizations can compound wage inequality from a life course perspective when workers in higher-paying occupations realize steeper wage growth in firm-internal labor markets. Therefore, I address the question of whether workers, who start in different occupational positions, experience unequal wage growth while remaining employed in an organization. Previous longitudinal research on this topic is scarce. A recent study from the U.S. showed that workers in lower-paid occupations gain less from job mobility within organizations relative to external mobility compared to workers in other occupations (Wilmers and Kimball, 2021). In another study, restructuring in a large U.S. firm had more negative consequences for the returns to tenure of production workers than for managers (Dencker and Fang, 2016).

Looking at Europe, we know even less about the intersection between occupations and organizations in generating wage inequality over the working career. Most longitudinal European studies focus on life course patterns of occupational attainment independent of where workers work (Barone and Schizzerotto, 2011; Manzoni et al., 2014). In other words, stratification research frequently assumes that work careers unfold in neutral spaces (Roscigno, 2011). This is unfortunate because occupations are embedded in an actual division of labor within organizations, and these contexts structure the career pathways that are immediately available to workers (Avent-Holt et al., 2019a,b). Drawing on relational inequality theory, I argue that occupations represent more or less privileged employment positions within the existing opportunity structures inside organizations. These positional differences can generate persistent unequal opportunities for individual wage growth by (a) providing better or worse access to higher-paid occupational positions inside the same organization (promotion) and by (b) determining the ability to successfully negotiate wage gains while staying in a functionally similar role (wage raise). Together, these two processes can translate into flatter or steeper individual wage growth depending on a worker's earlier occupational position within the same organization.

I test this argument by analyzing worker careers in the Netherlands. I study wage trajectories within organizations by combining the Dutch labor force survey with wage data from the Dutch tax registers between 2006 and 2019 (Centraal Bureau voor Statistiek, 2022a,b). After identifying 280,293 unique worker-organization pairings sampled in the labor force survey, I reconstruct the longitudinal wage trajectories of these workers while they remain employed in the same organization. This study makes two empirical contributions. First, using fixed-effect growth curve models, I estimate the extent to which wage growth inside organizations differs based on a worker's initial occupational position. Second, I analyze the extent to which this inequality in wage growth is shaped by the differential sorting of occupations across low- and high-wage organizations in the Dutch labor market.

2. Theory

2.1. Occupations as relational positions within organizations

A differentiation of positions is a typical feature of contemporary organizations. With growing size, many organizations adopt pyramid-shaped structures characterized by hierarchical relations and gradually fewer positions at the top (Blau, 1970). The vertical and horizontal differentiation of positions inside an organization is closely related to the extent of earnings inequality within it, thereby constituting the fundamental architecture of an organization's reward system (Dunlop, 1957; Hedström, 1991). This differentiation arises from the need for a division of labor and is usually accomplished by distributing tasks across jobs that perform distinct roles in an interactive labor process (Hasan et al., 2015). Relational inequality theorists argue that these job structures guide social relations within an organization, but at the same time, are themselves a result of ongoing internal negotiations and represent temporarily stable power relations inside a firm (Emirbayer and Johnson, 2008; Roscigno, 2011; Stainback et al., 2010; Tilly, 1998; Tomaskovic-Devey and Avent-Holt, 2018).

Occupations approximate these job structures and are closely tied to the differentiation of positions within organizations. They are an important determinant of task content (Autor and Handel, 2013) and obtain their full meaning as social categories by demarcating the division of labor in workplaces (Abbott, 1988). The sociological literature on occupations considers workplaces as primary arenas in which workers mobilize occupational resources of power during social interaction to secure more privileged positions in the labor process (Anteby et al., 2016; Bechky, 2003; Collins, 1979; Vallas, 2001). These power resources are often cultural, in the form of broadly acknowledged credentials that allow members of an occupation to claim superior expertise in performing a certain task (Avent-Holt and Tomaskovic-Devey, 2023; Parkin, 1979; Weeden, 2002; Zhou, 2005). Accordingly, research finds that jobs, when defined as the intersection between occupations and organizations, best explain wage variance in contemporary labor markets rather than either structure alone (Avent-Holt et al., 2019).

The division of tasks between occupations within organizations legitimizes unequal rewards and vests power in social interaction through a process of relational claims making (Sauer et al., 2021; Tomaskovic-Devey and Avent-Holt, 2018). Workers may claim organizational resources, and these claims are either validated or rejected by other actors with decision-making capacities. I argue that the capacity to make a successful claim is shaped by performative and symbolic inequalities that arise from the occupational job structure within an organization. Put differently, occupations represent more or less privileged employment positions within organizations that structure opportunities to accrue organizational resources, such as in the form of personal wage gains and promotion into higher-level positions.

This organization-level process of occupational inequality has both a performative and a symbolic dimension. First, positional

advantage arises from the content of the tasks to be performed (Gil-Hernández et al., 2023; Kristal, 2020). Economic research demonstrates that the complexity of work tasks is distributed unevenly across occupations, which Garicano and Rossi-Hansberg (2006) term "knowledge hierarchies". Not only are complex tasks more highly remunerated, but they also provide greater opportunities for continued learning and skill development (Bayer and Kuhn, 2019; Stinebrickner et al., 2019). Second, the distribution of tasks and the positional advantage it conveys feeds back into the status beliefs of local actors. Differing initial starting conditions in a given workplace context (i.e., who performs what tasks within an organization) beget increasingly unequal ascriptions of individual competence that are shared among a social group (Gould, 2002; Lynn et al., 2009; Ridgeway, 2014; Ridgeway et al., 1998). As status and quality become decoupled during social interaction, workers in advantaged occupations not only occupy favorable positions in terms of job content, but are increasingly seen as generally more competent and skilled, independent of their actual performance. This social process consolidates the advantage of workers in privileged occupational positions by reinforcing status hierarchies within an organization's local context (Lamont et al., 2014; Magee and Galinsky, 2008; Ridgeway, 2019). On the other hand, tacit knowledge of workers in lower-status occupations often goes unrecognized or is dismissed and thereby remains undervalued during the labor process (Bechky, 2003; Hanley, 2014; Vallas, 2001).

The outlined argument puts forth that it is the relationships between structured positions that shape earnings inequality within organizations. Unequal rewards are primarily attached to occupational positions within local relational structures, and not to the personal capabilities of individuals that occupy these positions.[1] For example, personal skill development in the workplace is not merely an individual investment choice but rather constrained by possibilities for learning that are based on a worker's job and its negotiated task content (Tomaskovic-Devey et al., 2005). This perspective does not imply that a worker's capabilities are irrelevant.[2] Educational credentials are acquired temporarily before fully entering the labor market and convey advantages in the process of attaining more privileged occupational positions. Moreover, individual skills are arguably decisive in the performance of work tasks. However, the argument developed here stresses that the link between individual capabilities and organizational rewards is not direct, but socially mediated via the relational job structure existing within workplaces (Avent-Holt and Tomaskovic-Devey, 2023; Hanley, 2014).

2.2. Careers within organizations as position dependent

Careers within organizations are commonly described as ladders or pathways (Barnett et al., 2000). These metaphors capture the notion that individual tenure in an organization is patterned, and that a successful career is characterized by individual advancement, such as in the form of wage growth.[3] The sociological literature on careers suggests two mechanisms that can generate individual wage growth within organizations (Kalleberg and Mouw, 2018; Rosenfeld, 1992). On the one hand, a worker might be promoted to a higher-paid occupational position. In this case, wage growth is accompanied by a marked shift in tasks and responsibilities. Alternatively, a worker might be able to negotiate a wage increase while staying in the same job position.

I argue that both forms of wage growth within organizations are contingent on the occupational position of a worker. The differential relational advantage that flows from the occupational job structure may not only translate into static inequalities in the form of differing wage levels that are visible in the cross-section, but may also lead to unequal wage growth over the career. While some occupational positions are career escalators that offer greater opportunities for promotion and increase the ability to negotiate a wage increase in the same job, others are career ceilings that do not provide access to promotion and allow for only limited wage gains in the same position.

First, unequal promotion opportunities within organizations indicate processes of social closure and are determined by differential access to vacancy chains. Vacancy chains are interconnected moves of persons between jobs that are triggered once a given position becomes vacant (Rosenfeld, 1992; Sørensen, 1977; White, 1970). Vacancies can create promotion opportunities for workers in lower-ranked positions in the same organization. However, previous research on firm-internal worker mobility between jobs demonstrates that pathways to higher-paid positions do not extend to all workers within the same organization (McDonald and Benton, 2017; Wilcox et al., 2022). Specifically, in workplaces with high earnings inequality, only a restricted set of jobs provides access to high-wage positions, whereas lower-paid jobs more often represent a dead end. Kanter (1977) provides a classic description of an internal promotion system explicitly stratified by occupational positions. In her case study, she identified blue-collar and clerical jobs as "low-ceiling occupations" which did not allow for meaningful career progression within a large corporation.

Ongoing organizational restructuring has likely heightened the extent of unequal access to promotion to the detriment of workers in lower-status positions. Organizations increasingly rely on external hiring when staffing internal positions (Bidwell, 2011; Cappelli, 2001) and the prevalence of internal promotion increases only within the highest strata of the job hierarchy (DeVaro et al., 2019). When mid-to higher-ranked positions are filled by externally hired employees, workers in lower-ranked occupational positions are unable to move into those jobs, and their career opportunities are stymied (Glenn and Feldberg, 1977). Recent research supports this

[1] See Hedström (1991), Emirbayer and Johnson (2008), and Sauer et al. (2021) for a similar argument.

[2] Consider the following thought experiment as illustration. It is plausible to assume that the same person experiences differential wage growth when working in two different occupations (positional effect). However, in reality, not the same person but different people occupy these job positions.

[3] This is a narrow, exclusively materialistic, view on careers. Inequality in other outcomes such as who has workplace autonomy or who is being treated with respect are career aspects that are at least equally important. Given the scope of this article, I focus only on wages and narrow the definition of what a good career entails by necessity.

argument by indicating that occupations have become larger barriers to career mobility over time (Alabdulkareem et al., 2018; Cheng and Park, 2020; Lin and Hung, 2022). While these findings are based on worker movement within the overarching labor market, it is plausible that worker mobility between lower- and higher-ranked occupations has likewise stalled inside organizations, given the finding of smaller returns to job mobility within organizations relative to external mobility for workers in lower-paid occupations (Wilmers and Kimball, 2021).

A second mechanism of wage growth inside organizations is based on the successful negotiation of wage gains, independent of promotion. The performative and symbolic inequality inherent in the occupational job structure should heighten the capacity to claim a wage increase for some workers and decrease it for others (Tomaskovic-Devey and Avent-Holt, 2018). For example, workers in lower-status occupations often have more limited opportunities to initiate wage negotiations in the first place (Sauer et al., 2021). Previous research provides evidence for this argument by highlighting an increasing polarization of wage outcomes within organizations. While wage premiums for blue-collar workers in traditional high-wage organizations have generally eroded, they have remained stable and have even expanded in specific industries for professionals and managers (Cobb and Lin, 2017; Goldstein, 2012; Wilmers and Aeppli, 2021). Previous research shows that these shifts are better explained by changes in the relative power of workers to claim organizational resources rather than shifts in relative productivity (Sakamoto and Kim, 2010). One particular organizational resource that predominantly accrues to workers with greater bargaining power are wage bonuses on top of regular pay (Schweiker and Groβ, 2017).

Together, these two mechanisms may result in unequal wage growth contingent on a worker's earlier occupational position within the same organization, leading to the following hypothesis: *workers in higher-status occupations have larger relative wage growth than workers in lower-status occupations while remaining employed within an organization*.

2.3. Careers and occupational sorting across organizations

One major contemporary labor market transformation is the changing allocation of occupations across organizations with differing pay quality. Workers in low-paying occupations work increasingly isolated in low-wage organizations, whereas workers in high-paying occupations remain in high-wage organizations. This trend is shaped by the growth of a polarized service sector (Tomaskovic-Devey and Melzer, 2020; Wilmers and Aeppli, 2021), in tandem with the 'de-diversification' of high-wage establishments that externalize parts of their labor force through cost-cutting strategies such as domestic outsourcing (Godechot et al., 2020; Goldschmidt and Schmieder, 2017; Lin, 2016; Weil, 2014; Zwysen, 2023). The resulting occupational sorting has been documented in various countries, such as the U.S. (Handwerker, 2021; Song et al., 2019), France (Babet et al., 2022), Germany (Card et al., 2013), and the Netherlands (Janietz and Bol, 2020) and contributes to the widespread increase in inequality between workplaces (Tomaskovic-Devey et al., 2020).

From a relational inequality perspective, this process reflects a reconfiguration of organizational boundaries that limits the capacity of externalized workers to claim available resources within affluent firms (Tomaskovic-Devey and Avent-Holt, 2018). While many workers such as cleaners, janitors, and caterers perform work tasks in high-wage workplaces such as banks, universities, and tech companies, they are increasingly not formal employees of these organizations. Occupational externalization can be pervasive, as demonstrated by the example of tram drivers. Although their work tasks are an integral part of the core services of local public transport organizations, they may instead be employed by intermediary firms. This process allows affluent organizations to have both ways: they can shed obligations that would otherwise come with directly employing externalized workers, while at the same time ensuring that work tasks will be carried out under strict compliance (Weil, 2014).

Occupational sorting and employment externalization may shape unequal wage growth by determining locally available career opportunities (Wilmers and Kimball, 2021). Consider two typical examples of low- and high-wage organizations. A worker employed by a small service provider that operates under tight profit margins in deregulated competitive markets will likely have different internal career options at their disposal than a worker at a vertically integrated market leader who employs high-road employment strategies, such as investments in continued skill development of its directly employed workforce. In other words, occupational sorting processes may structurally remove workers in lower-paid occupations from promotion pathways and put them in a workplace context where disposable organizational resources are more scarce and contested.

This process leads to the hypothesis that *unequal wage growth within organizations between workers in higher- and lower-status occupations is mediated by the sorting of occupational positions across low- and high-wage organizations.*

3. Data and method

3.1. Sample

I use the Dutch labor force survey (Enquete Beroepsbevolking, (EBB)) in combination with Dutch wage register data from 2006 to 2019 in the analysis (Centraal Bureau voor Statistiek, 2022a,b). The EBB is a rotating panel. Upon entry, respondents are interviewed five times over twelve months before transitioning out of the sample. The interviews contain questions about a person's current employment status, occupation, and demographic characteristics. I select the first observation in the EBB of each person who was interviewed between 2006 and 2013, dependent employed, as well as between ages 21 and 58 at the time of the survey.

I reconstruct the longitudinal careers of these workers within organizations by merging information on wages, working hours, and employer IDs from the Dutch tax registers to the initial EBB sample. In a first step, I identify the unique worker-organization pairings that exist at the time of the EBB interview. I focus on the main job of a worker, which is defined as the job with the most working hours in accordance with the EBB survey design. In cases of employment at multiple organizations at the time of the EBB interview, I use this

criterion to identify one main job. In a second step, I use these established worker-organization pairings to follow workers over time beyond the initial EBB observation, while they remain employed at the same organization. I aggregate wages and working hours at the level of calendar years, which define the time unit during the analysis. Moreover, I limit the analysis to workers employed in organizations with at least 20 employees.

This sampling procedure results in 266,044 reconstructed career trajectories within 37,393 organizations.[4] Based on the temporal structure of the sample, wages are observed up to seven years before (i.e. wages in 2006 and EBB interview in 2013) and up to 13 years after survey participation (i.e. wages in 2019 and EBB interview in 2006).[5] I define the calendar year in which the EBB interview took place as t_0 and limit the analysis to the time interval between t_0 to t_6. In other words, the analyzed time interval ranges from the year of the labor force survey interview until six years later. In principle, wages earned in the main job can be observed in all years for all sampled workers during this time window. Therefore, right-censored trajectories identify a termination of the employment relationship during this period.[6]

3.2. Variables

I use multiple wage measures as the dependent variable during the analysis. Two of these wage measures are absolute: the logged real hourly wage, with and without bonus payments.[7] The other wage measures are relational: the wage position of a worker relative to the co-workers inside the same organization (local) and relative to the overall labor market (global).[8] These relational wage measures are derived by standardizing the logged real hourly wage with a mean of 0 and a standard deviation of 1. The relative wage within an organization is constructed by performing the standardization based only on the hourly wages of all workers within the same organization. For example, a value of 0 for this variable indicates that a worker earned exactly the average hourly wage based on what all workers in the organization earned in a given year. A negative value indicates a below-average and a positive value indicates an above-average wage.

Local relational wages are conceptually close to the argument that organizations constitute relational contexts and can reveal unequal career ceilings within organizations. Most importantly, this variable situates occupations in their organizational context by measuring their (average) relative wage (dis)advantage within organizations. Moreover, relative wages are also useful for describing occupational sorting across organizations. The more different occupations become segregated into low- and high-wage organizations, the larger will be the discrepancy between local and global relative wages at the level of occupational classes.

The main independent variable is the occupation of a worker at t_0. In the analysis, I use the occupational class scheme developed by Oesch, which is based on ISCO08 occupation codes (Oesch, 2006). This class scheme differentiates occupational classes hierarchically and horizontally (Table 1). I use the hierarchical dimension to approximate relational advantage in organizations, thereby defining the main axis of occupation-based inequality in this analysis. One unique feature of the Oesch scheme that distinguishes it from other occupational class schemes is its horizontal dimension, which differentiates different work logics such as technical production and service work. These work logics approximate differences in workplace settings and enable a comparison of wage growth rates between hierarchically differentiated occupational classes that are more likely to be embedded in comparable organizational contexts (e.g. technical professionals and production workers). This renders the Oesch scheme particularly useful for analyzing the role of organizations during the process of occupational stratification.

The primary data restriction in the present study is that information on a worker's occupation is available only at t_0. Thus, occupation is treated as a time-constant variable and wage growth rates are estimated based on a worker's initial occupational position within an organization at the start of the observation window. Due to the unavailability of longitudinal data on occupations, I am unable to empirically discern the two mechanisms of wage growth (promotion and wage raise). Instead, the combined effect of both

[4] A detailed overview of all steps during the sample construction can be found in S1 of the supplementary material.

[5] A schematic overview of the temporal structure of the sample design can be found in S2 of the supplementary material.

[6] Trajectories are right-censored when a unique worker-organization pairing disappears in the wage records over time. This indicates the end of an employment relationship for most workers. In 3.03% of cases, trajectories contain 'gaps' (e.g. a missing observation and a subsequent return). I truncate trajectories in the case of gaps of two years or longer, while I treat gaps of one year as part of uninterrupted employment spells at the same organization. In the final sample, 2.01% of workers exhibit a one year gap within their trajectory.

[7] Hourly wages are adjusted for inflation by utilizing the yearly consumer price index with 2015 as the reference point.

[8] The absolute and relational wage variables are analytically distinct. Consider the following example: a service worker might score exactly the same value of 0 as a socio-cultural professional on the relational wage measure. This would indicate that both workers earn the respective average wage at their organization. At the same time, their absolute wages would differ depending on the difference in organization-level wage averages. If the service worker works in a fast food restaurant and the sociocultural professional in a hospital, we would immediately suspect that the absolute wage of the sociocultural professional is larger than the absolute wage of the service worker despite their identical relative wage position within their respective organization.

Table 1
Adapted occupational class scheme based on Oesch (2006) including exemplary occupations.

		Horizontal dimension (work logic)		
		Technical	Organizational	Interpersonal service
Hierarchical dimension	Higher status	Technical (semi-) professionals	(Associate) managers	Socio-cultural (semi-) professionals
		Engineering professionals and technicians	Administration professionals	Teaching professionals
			Officials and managers	Medical professionals
		Database and network professionals	Legal professionals	Social professionals
	Lower status	Production workers	Office workers	Service workers
		Machinery mechanics and repairers	General office clerks	Shop salespersons
		Transport and storage laborers	Material recording and transport clerks	Personal care workers in health services
			Client information workers	Domestic, hotel and office cleaners

(Note: Categories are constructed based on ISCO08 occupation codes using the STATA ado 'iscogen'(Jann, 2020).).

mechanisms underlies estimated wage growth rates.

For the mediation analysis of occupational sorting across organizations and its effect on heterogeneous wage growth, I construct a categorical measure of firm quality. This variable is derived in a data-driven process by estimating a separate two-way fixed effects wage regression on the real hourly wage, with additive person and organization fixed effects (Abowd et al., 1999). The wage regression is based on the full universe of main jobs of workers aged 16 to 65 in organizations with 10 or more employees found in the wage registers between 2006 and 2019.[9] I separate the 172,649 estimated organization fixed effects into five quintiles and use these quintiles as categories to classify organizations as very low-, low-, average-, high-, and very high-wage organizations, net of their workforce composition. I treat these categories as a proxy measure of opportunities for internal career advancement available within these organizations. The central assumption is that an organization's pay quality is indicative of locally available resources and promotion pathways that affect wage growth. For example, a service worker should have better opportunities for wage growth inside a high-wage organization (e.g. a large integrated oil company) than a low-wage organization (e.g. a small fast food chain).

Several additional control variables were used in the analysis. These variables comprise respondents' sex, immigration biography and descendancy, and the presence of children (0–18 years old) in the same household. Educational attainment is used as a control in an additional robustness analysis.

3.3. Methodology

I estimate group-specific growth curves to determine whether staying in an organization affects wage growth of workers in different occupational positions differently. The application of growth curve analysis presents specific methodological challenges (Brüderl et al., 2019). Endogenous selection bias can occur because of the differential attrition of workers depending on their initial occupational position. This form of bias may lead to an underestimation of between-group heterogeneity in wage growth. Workers in lower-status occupations with flatter wage trajectories and those in higher-status occupations with steeper wage trajectories might leave an organization earlier, albeit for different reasons. I estimate growth curve models with worker fixed effects to address this potential source of bias. I focus on group-specific growth rates as captured by the estimated occupation-time interaction effects, given that the main effect is not estimable due to the time-constant occupation measure. The model takes the following form:

$$\ln wage_{it} = a_i + \beta_1 Occ_i * t + \beta_2 Occ_i * t^2 + \gamma' X_i * t + \delta' X_i * t^2 + \varphi_t Year_t + \varepsilon_{it} \quad (1)$$

The occupation-specific growth parameters β_1 and β_2 provide the estimated wage growth rates based on within-person variation. I interpret these coefficients as percent changes relative to the group-specific baseline wages at t_0. φ_t are calendar year fixed effects and X_i is a set of control variables as described in the previous section. I add controls comprising demographic variables (respondents' sex, immigration biography and descendancy, and the presence of children in the household all fully interacted) that affect selection into occupational classes and have an independent effect on wages. All models include panel robust standard errors. In an additional robustness analysis, I control for differential wage growth of workers with different educational credentials. Given the conflation of individual and positional effects, I treat these estimates as lower-bound estimates of the actual positional effect of occupations on wage growth inside organizations.

For the second hypothesis, I propose a simple mediation analysis to quantify the impact of occupational sorting across organizations

[9] I restrict the population to organizations with at least 10 employees when estimating the organization fixed effects in order to compare the organizations in the final sample ($N \geq 20$) to a set of organizations that is as complete as possible. Settling on $N \geq 10$ is a compromise given the well-known issue of limited mobility bias in AKM decompositions that leads to an overestimation of the variance of organization fixed effects among other issues (Babet et al., 2022). The bias is limited by considering only larger organizations and using a longer time series (i.e. 2006–2019) during the estimation. Additional results of the underlying two-way fixed effects wage regression can be found in S3 of the supplementary material. I use the Stata command reghdfe by Correia (2017) to implement the regression model. See S4 and S5 in the supplementary material for more detailed descriptive statistics on the estimated organization fixed effects.

on the between-group variation in (nonlinear) wage growth. In a first step, I estimate a reduced model including the control vector X_i but without the measure of firm quality. Using the estimated growth parameters β_1 and β_2, I calculate the between-occupation variance in wage growth based on the following formula:

$$\sum p_{occ,t}\left(\Delta_{occ,t} - \overline{\Delta_t}\right)^2 \tag{2}$$

where $\Delta_{occ,t}$ represents the estimated relative wage growth for each of the six occupational classes at time t, $p_{occ,t}$ is the sample share of workers in each group at time t, and $\overline{\Delta_t}$ is the overall average wage growth at time t. In a second step, I add the measure of firm quality as a control variable to the model and estimate a second between-group wage growth variance component. Next, I compare the absolute size of both estimated variance components. If the workplace context matters for wage growth and occupational classes are sorted differently across low- and high-wage organizations, then a reduction in the between-occupation variance should result from explicitly controlling for firm quality.

4. Results

Table 2 presents descriptive results. The data confirms a wage advantage for professional and managerial occupations in the cross section. Baseline wages at t_0 of technical professionals (23.27 €/h), managers (26.51 €/h), and socio-cultural professionals (21.82 €/h) are on average higher than the baseline wages of production workers (16.19 €/h), office workers (16.76 €/h), and service workers (14.87 €/h). These wage differences between occupational classes are further reinforced by bonus payments that, on average, have a higher absolute value in professional and managerial jobs. Wage inequality is also observable when looking at the relative wage position of workers inside their respective organizations, and indicate that organization-level wage inequality is structured around occupations. In general, technical professionals (0.12), socio-cultural professionals (0.21) and managers (0.58) earn an above-average wage within their organization, while production workers (−0.26), office workers (−0.32), and service workers (−0.22) earn an below-average wage. In other words, workers in managerial and professional jobs occupy more advantageous positions in the local division of labor.

The relational wage measures indicate distinct patterns of occupational sorting across organizations. For example, service workers have a smaller wage disadvantage relative to their co-workers than compared to all workers in the labor market and are over-represented in very low- (12.33%) and low-wage (18.90%) organizations. This is in line with previous research that shows that service workers are most at risk to be sorted into low-wage organizations. A different pattern is found among workers in professional and managerial occupations. Workers in these class categories tend to earn a higher relative wage compared to the overall labor market than compared to their co-workers and are over-represented in high-wage organizations. In contrast, managers are more commonly found in low-wage organizations, indicating a more universal presence of managerial roles across different types of organizations. In general, better paying organizations tend to be larger organizations ($N \geq 20$) as visible in the skewed marginal distribution of workers across the categories of organizational pay quality.

Fig. 1 presents descriptive statistics on the staying durations of workers in organizations. Overall, less than half of all workers (45.74%) remain employed at the same organization six years after being sampled in the Dutch labor force survey. These staying rates differ by occupational class but are not hierarchically patterned. After six years, service workers (39.22%) exhibit the lowest staying rate followed by managers (43.93%). In other words, the, on average, lowest and highest paid occupational classes exhibit the highest attrition. The lowest attrition is found among the socio-cultural professionals with 53.00%. This variation suggests that a worker's occupational position is related to the likelihood of organizational exit and substantiates the use of a fixed effect design.

Overall, the descriptive results suggest that staying in the same organization leads to wage growth and an improving relative wage in all six occupational classes, albeit with more modest gains among production workers and office workers. Fig. 2 shows the distribution of relative wages among workers who remain employed at the same organization for six years after survey participation. The direct comparison of the wage density curves at t_0 and t_6 indicate improving relative wages over time in all occupational classes. A shrinking left-tail and an expanding right-tail show that workers' wages improve relative to their co-workers' after six years of staying at the same organization. However, the density curves also reveal clear wage ceilings and more modest improvements among workers who start out in lower-status occupations. Few of these workers earn more than one standard deviation above the average wage in their organization six years later. Such high-wage outcomes are more likely for workers who start the observation period in professional and managerial positions.

4.1. Occupations and unequal wage growth within organizations

The first hypothesis of this article states that wage growth inside organizations differs based on the initial occupational position of a worker. I apply fixed effects growth curve modelling as outlined in the methodology section to formally test this hypothesis (Table 3). Fig. 3 plots predicted wage growth profiles by occupational class between t_0 and t_6. The results confirm the hypothesis that wage growth within organizations is unequal. Moreover, this inequality is hierarchically patterned by occupational class. When looking at real hourly wages, workers that start in the technical professions (+10.18%) or in a managerial position (+10.06%) have the largest predicted wage growth after six years in the same organization. Workers starting in the socio-cultural professions follow with an estimated wage growth of 9.18%. An intermediate rank is taken by workers that start in office worker (+7.26%) and service worker (+7.10%) jobs, while production workers exhibit the lowest growth rates of all six occupational classes (+5.44%). These patterns of cumulative inequality are further reinforced when taking bonus payments into account (Fig. 3). The wage growth rates of socio-

Table 2
Descriptive statistics.

	All		Technical (semi-) professionals		(Associate) managers		Socio-cultural (semi-) professionals		Production workers		Office workers		Service workers	
	t = 0	t = 6	t = 0	t = 6	t = 0	t = 6	t = 0	t = 6	t = 0	t = 6	t = 0	t = 6	t = 0	t = 6
Real hourly wage	20.23	22.21	23.27	25.38	26.51	28.86	21.82	24.02	16.19	17.27	16.76	18.26	14.87	16.35
Real hourly wage + bonus	23.40	26.01	26.92	29.76	31.64	34.92	25.00	27.95	18.09	19.48	19.31	21.15	16.80	18.76
Relative wage (within organization)	0.06	0.25	0.12	0.32	0.58	0.76	0.21	0.47	−0.26	−0.18	−0.32	−0.20	−0.22	−0.03
Relative wage (overall labor market)	0.11	0.37	0.48	0.72	0.71	0.94	0.37	0.61	−0.30	−0.11	−0.23	−0.01	−0.51	−0.24
Organizational pay quality														
Very low-paying (1st Quintile)	6.13%	5.29%	2.23%	1.92%	4.90%	4.80%	1.34%	0.96%	5.26%	4.72%	10.37%	10.54%	12.33%	10.26%
Low-paying (2nd Quintile)	10.73%	9.09%	6.23%	5.77%	9.31%	8.69%	3.80%	2.38%	14.40%	13.97%	11.32%	9.80%	18.90%	16.07%
Average-paying (3rd Quintile)	21.44%	19.87%	18.75%	17.01%	20.03%	18.39%	18.81%	17.12%	24.08%	23.77%	21.64%	19.15%	25.26%	24.85%
High-paying (4th Quintile)	34.53%	37.50%	32.22%	33.54%	27.81%	28.72%	56.05%	57.88%	27.02%	28.53%	27.79%	31.09%	34.14%	39.48%
Very high-paying (5th Quintile)	27.17%	28.25%	40.57%	41.76%	37.95%	39.40%	20.00%	21.67%	29.25%	29.01%	28.88%	29.42%	9.37%	9.35%
Average tenure (in years)	9.73	17.33	10.40	17.84	9.70	17.53	9.61	16.73	10.76	18.71	10.23	17.72	8.24	15.79
Age	40.89	48.16	40.64	47.66	41.26	48.64	40.79	47.56	40.91	48.19	41.28	48.76	40.38	47.73
ISCED 0–2	18.35%	17.83%	8.45%	8.62%	5.47%	5.69%	2.50%	2.33%	45.41%	45.53%	23.30%	24.17%	30.91%	30.79%
ISCED 3–5	45.86%	46.00%	44.91%	46.57%	35.50%	37.42%	30.50%	29.45%	50.74%	50.93%	59.42%	60.41%	60.04%	61.89%
ISCED 6–8	35.79%	36.17%	46.64%	44.82%	59.03%	56.88%	67.00%	68.22%	3.84%	3.54%	17.29%	15.42%	9.05%	7.31%
Woman	48.13%	48.13%	17.77%	18.10%	41.03%	40.45%	72.11%	72.19%	10.01%	8.85%	66.41%	67.13%	69.14%	69.84%
Immigrant (1st generation)	9.98%	8.94%	9.09%	8.47%	6.45%	5.84%	6.27%	5.80%	15.58%	14.30%	9.53%	8.68%	14.43%	12.94%
Immigrant (2nd generation)	7.50%	6.60%	7.35%	6.43%	8.43%	7.64%	6.90%	6.42%	5.77%	4.88%	8.86%	7.59%	7.39%	6.26%
Child (0–18 years old) in household	46.81%	50.81%	46.43%	50.21%	49.69%	53.33%	47.62%	51.69%	44.35%	47.75%	46.14%	50.62%	45.20%	49.68%
Overall share			11.95%	12.46%	22.54%	21.59%	18.25%	21.16%	14.69%	14.80%	14.20%	14.21%	18.36%	15.77%

(Note: Survey weights applied.).

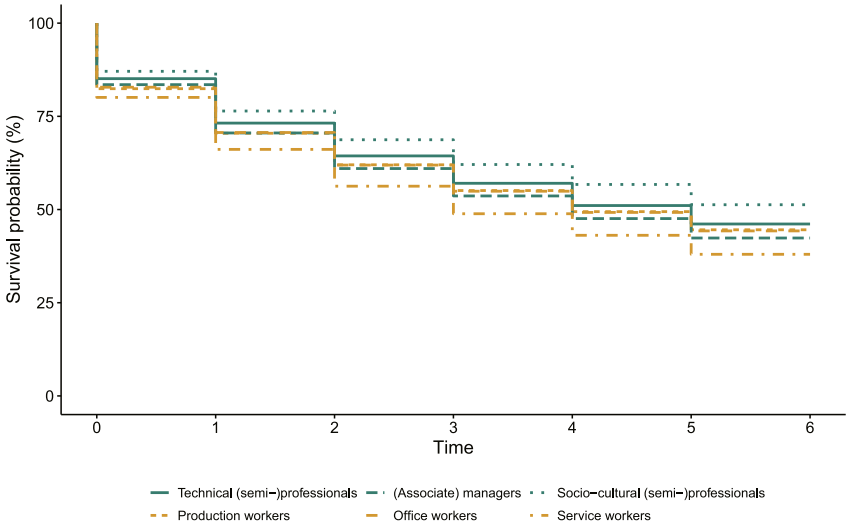

Fig. 1. Kaplan-Meier plot of staying in organization by occupational class.
(Note: Time indicates calendar years since being observed in the EBB at t_0. Exit from organization is identified as no observed wage record for the unique worker-organization pair after t_0. Survey weights applied.)

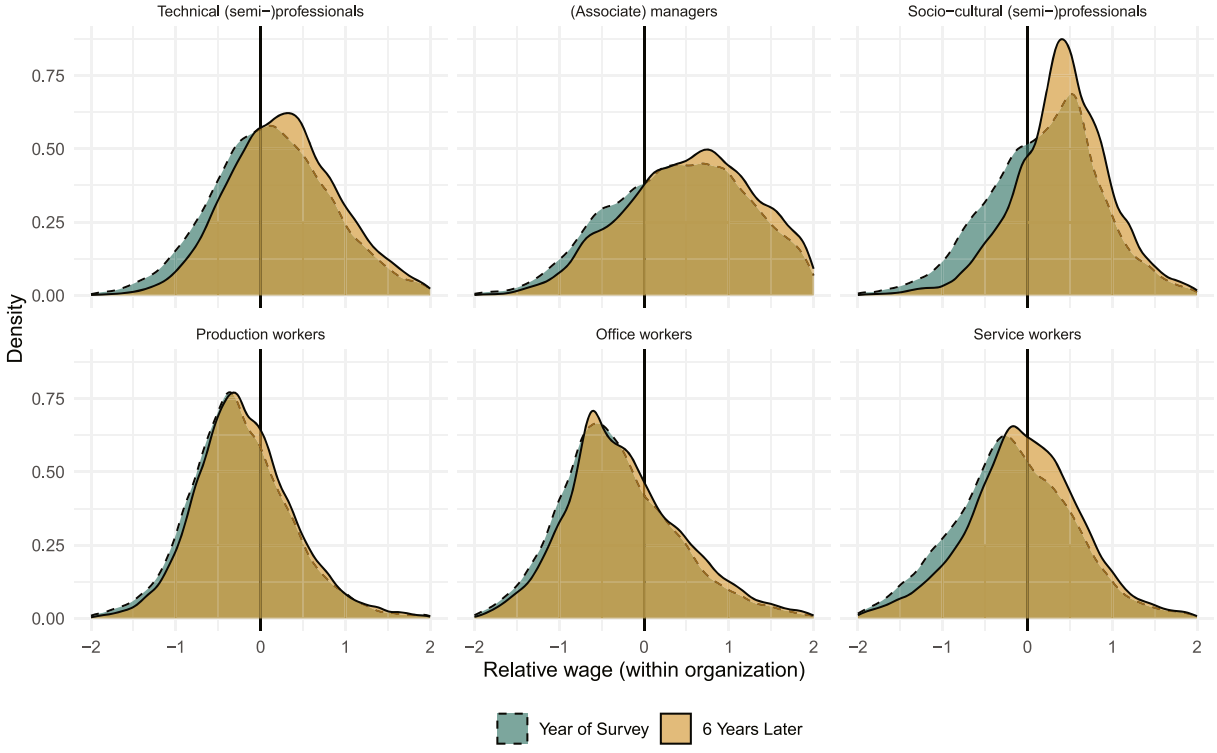

Fig. 2. Density plots of change in relative wage within organizations by occupational class.
(Note: Distributions are based on workers who are observed at t_0 and t_6 in the same organization. Relative wage positions within organizations are log hourly wages standardized at the level of organizations. 0 indicates an average wage in the respective organization; 1 indicates a wage that is one standard deviation larger than the average wage based on the organization-level wage distribution. Survey weights applied.)

cultural professionals (+10.69%) become more similar to the growth rates of technical professionals (+11.01%) and managers (+11.24%). At the same time, the difference in wage growth is further entrenched with lower rates for office (+7.93%), service (+7.82%) and production workers (+5.64%).

Table 3
Wage growth within organizations by occupational class.

	Log real hourly wage	Log real hourly wage (+bonus)	Local relative wage position (within organization)	Global relative wage position (overall labor market)
t	0.0222*** (0.000735)	0.0257*** (0.000763)	0.0499*** (0.00186)	0.0459*** (0.00167)
t^2	−0.000877*** (0.000115)	−0.00123*** (0.000120)	−0.00286*** (0.000286)	−0.00195*** (0.000261)
(Associate) managers * t	0.00111 (0.000789)	0.00160 (0.000825)	0.00481* (0.00200)	0.00150 (0.00179)
(Associate) managers * t^2	−0.000215 (0.000123)	−0.000203 (0.000130)	−0.000217 (0.000312)	−0.000390 (0.000280)
Socio-cultural (semi-) professionals * t	−0.00161* (0.000804)	−0.000111 (0.000819)	0.00694*** (0.00207)	−0.00393* (0.00182)
Socio-cultural (semi-) professionals * t^2	−0.00000563 (0.000128)	−0.0000709 (0.000130)	0.000488 (0.000322)	0.0000174 (0.000291)
Production workers * t	−0.0117*** (0.000852)	−0.0133*** (0.000868)	−0.0242*** (0.00219)	−0.0241*** (0.00194)
Production workers * t^2	0.000635*** (0.000131)	0.000729*** (0.000136)	0.00123*** (0.000335)	0.00131*** (0.000299)
Office workers * t	−0.00622*** (0.000879)	−0.00704*** (0.000890)	−0.00984*** (0.00223)	−0.0124*** (0.00200)
Office workers * t^2	0.000226 (0.000135)	0.000316* (0.000139)	0.000153 (0.000339)	0.000408 (0.000306)
Service workers * t	−0.00281** (0.000889)	−0.00383*** (0.000913)	0.00229 (0.00235)	−0.00390 (0.00202)
Service workers * t^2	−0.000385** (0.000140)	−0.000250 (0.000145)	−0.000989** (0.000363)	−0.00102** (0.000319)
Constant	2.934*** (0.000888)	3.065*** (0.000900)	0.0892*** (0.00232)	0.198*** (0.00202)
Controls: sex, child in hh (0–18), immigration biography	x	x	x	x
Year fixed effects	x	x	x	x
Worker fixed effects	x	x	x	x
Nr. of observations	1,111,473	1,111,473	1,103,483	1,103,483

(Note: Outcomes are the absolute and relative wage measures. Observations of relative wage measures are set as missing when the size of the sampled organizations drop below 20 employees in a given year. Controls as listed in the table. Technical professionals is the reference category for occupational classes. Survey weights applied. Standard errors in parentheses. Estimation based on panel robust standard errors; *p < 0.05 **p < 0.01 ***p < 0.001).

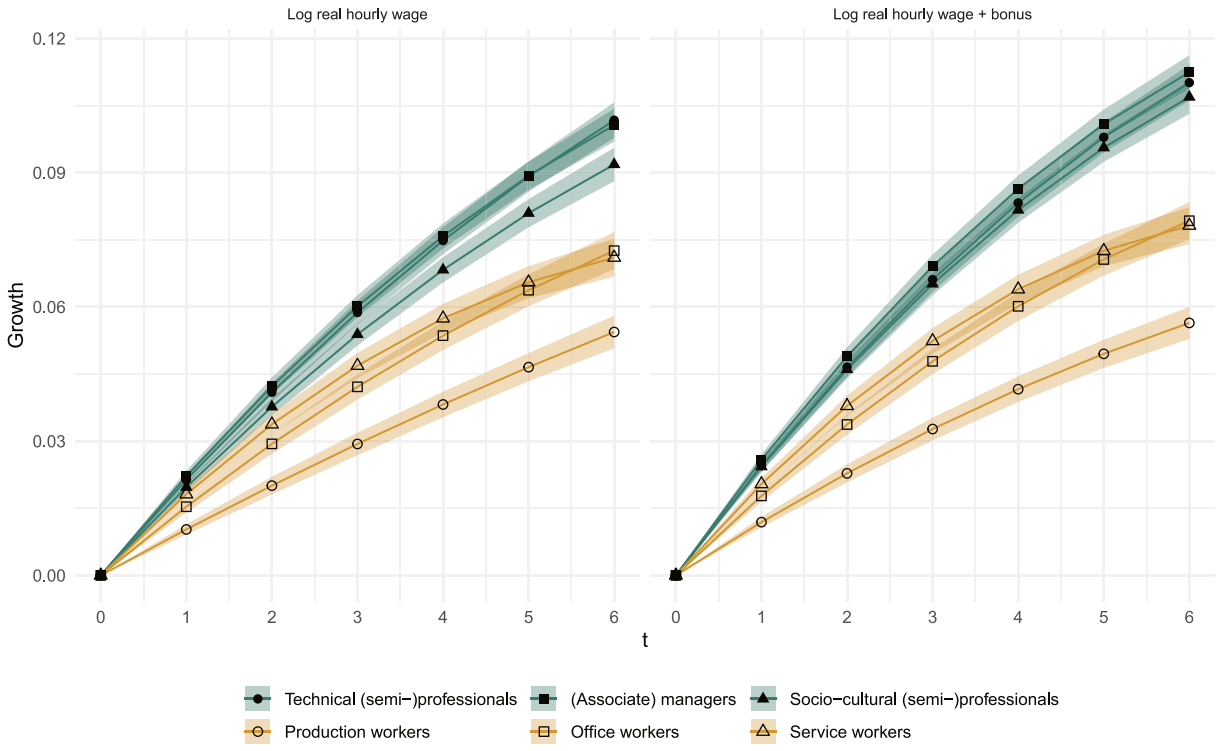

Fig. 3. Wage growth profiles within organizations by occupational class.
(Note: Estimates are based on fixed effects growth curve models with additional controls for differential wage growth by sex, immigration biography, and the presence of a child in the household fully interacted. Models further include calendar year fixed effects. Survey weights applied. Plotted growth rates are based on the estimated coefficients by holding control variables at their reference value.)

While these differences in growth rates appear negligible at face-value, they translate to substantive earnings differentials. As an example, consider the predicted wage growth of a manager and a production worker. Based on the average group-level real wage at t_0, the predicted group-specific real wage growth by t_6, and assuming a work month of 160 h, the inflation adjusted monthly wage of the two exemplary workers would diverge, on average, by 290.87€ after six years of staying at the same organization.

The growth rates of relational wages reveal similar inequalities between the six occupational classes (Table 3). Workers who start in professional and managerial jobs are more successful in improving their relative wage position over time. Importantly, service workers have a markedly larger improvement in their relative wage compared to office and production workers within organizations. This must again be interpreted through the lens of occupational sorting. The fact that service workers are overrepresented in low-wage establishments increases their structural opportunities to make larger jumps within the firm-internal wage distribution.

Overall, the findings support the argument that occupational positions are not static structures, but instead endow their incumbents with unequal opportunities for continued wage growth. The findings indicate that workers starting in higher-paying occupational classes also have larger wage growth, thereby compounding wage inequality over the career. Importantly, this process of cumulative advantage unfolds within organizations.

4.2. Occupational sorting and unequal wage growth

The second hypothesis of this article is that unequal wage growth by occupational class is driven by sorting of occupations across organizations with differing pay quality. I test this explanation by including the measure of organizational pay quality as an additional predictor in the fixed effect growth curve models (Table 4). The effect estimates do not indicate strong heterogeneity in wage growth across organizations with differing pay quality. However, small reductions of the effect size are noticeable for service workers and the socio-cultural professionals. The latter group is predominantly located in the organizational pay quality category 'high' that has the flattest predicted growth rate. One interpretation is that organizations in this fourth quintile are predominantly located in the healthcare and education sector that have relative high wage levels but provide relatively low returns to tenure.

I implement the mediation analysis as outlined in the methodology section in order to better grasp the mediating effect of occupational sorting on variance in non-linear wage growth (Fig. 4). Results indicate a reduction of the between-group wage growth variance after controlling for organizational pay quality. The reduction is more pronounced in the latter years of the observation window and reaches 7.8% at t_6. The mediating effect of occupational sorting across organizations is slightly stronger when including bonus payments in the outcome measure. In this case, the reduction of the between-group variance reaches 8.3% at t_6. In other words,

Table 4
Wage growth within organizations by occupational class including controls for organizational pay quality.

	Baseline	Organizational pay quality control	Baseline	Organizational pay quality control
	Log real hourly wage	Log real hourly wage	Log real hourly wage (+bonus)	Log real hourly wage (+bonus)
t	0.0222*** (0.000735)	0.0226*** (0.000840)	0.0257*** (0.000763)	0.0263*** (0.000867)
t^2	−0.000877*** (0.000115)	−0.000945*** (0.000133)	−0.00123*** (0.000120)	−0.00129*** (0.000136)
(Associate) managers * t	0.00111 (0.000789)	0.00102 (0.000793)	0.00160 (0.000825)	0.00159 (0.000828)
(Associate) managers * t^2	−0.000215 (0.000123)	−0.000186 (0.000124)	−0.000203 (0.000130)	−0.000176 (0.000130)
Socio-cultural (semi-) professionals * t	−0.00161* (0.000804)	−0.00138 (0.000807)	−0.000111 (0.000819)	0.0000424 (0.000820)
Socio-cultural (semi-) professionals * t^2	−0.00000563 (0.000128)	−0.0000310 (0.000129)	−0.0000709 (0.000130)	−0.0000814 (0.000130)
Production workers * t	−0.0117*** (0.000852)	−0.0117*** (0.000859)	−0.0133*** (0.000868)	−0.0134*** (0.000873)
Production workers * t^2	0.000635*** (0.000131)	0.000681*** (0.000132)	0.000729*** (0.000136)	0.000794*** (0.000136)
Office workers * t	−0.00622*** (0.000879)	−0.00640*** (0.000892)	−0.00704*** (0.000890)	−0.00701*** (0.000902)
Office workers * t^2	0.000226 (0.000135)	0.000301* (0.000136)	0.000316* (0.000139)	0.000385** (0.000141)
Service workers * t	−0.00281** (0.000889)	−0.00282** (0.000926)	−0.00383*** (0.000913)	−0.00380*** (0.000936)
Service workers * t^2	−0.000385** (0.000140)	−0.000300* (0.000145)	−0.000250 (0.000145)	−0.000141 (0.000148)
Very low-paying org. (1st Quintile) *t		0.00182 (0.00167)		−0.00174 (0.00143)
Very low-paying org. (1st Quintile) *t^2		−0.000648* (0.000259)		−0.000458* (0.000226)
Low-paying org. (2nd Quintile) *t		−0.000951 (0.000845)		0.000328 (0.000860)
Low-paying org. (2nd Quintile) *t^2		−0.0000835 (0.000127)		−0.000349** (0.000131)
High-paying org. (4th Quintile) *t		−0.00115* (0.000533)		−0.00106 (0.000556)
High-paying org. (4th Quintile) *t^2		0.000140 (0.0000824)		0.0000658 (0.0000854)
Very high-paying org. (5th Quintile) *t		0.0000253 (0.000646)		−0.000489 (0.000670)
Very high-paying org. (5th Quintile) *t^2		0.0000970 (0.000102)		0.000149 (0.000104)
Constant	2.934*** (0.000888)	2.934*** (0.000891)	3.065*** (0.000900)	3.065*** (0.000900)
Controls: sex, child in household (0–18 years), immigration biography	x	x	x	x
Year fixed effects	x	x	x	x
Worker fixed effects	x	x	x	x
Nr. of observations	1,111,473	1,111,473	1,111,473	1,111,473

(Note: Controls as listed in the table. Technical professionals and average paying organization are the reference categories. Survey weights applied. Standard errors in parentheses. Estimation based on panel robust standard errors; *p < 0.05 **p < 0.01 ***p < 0.001).

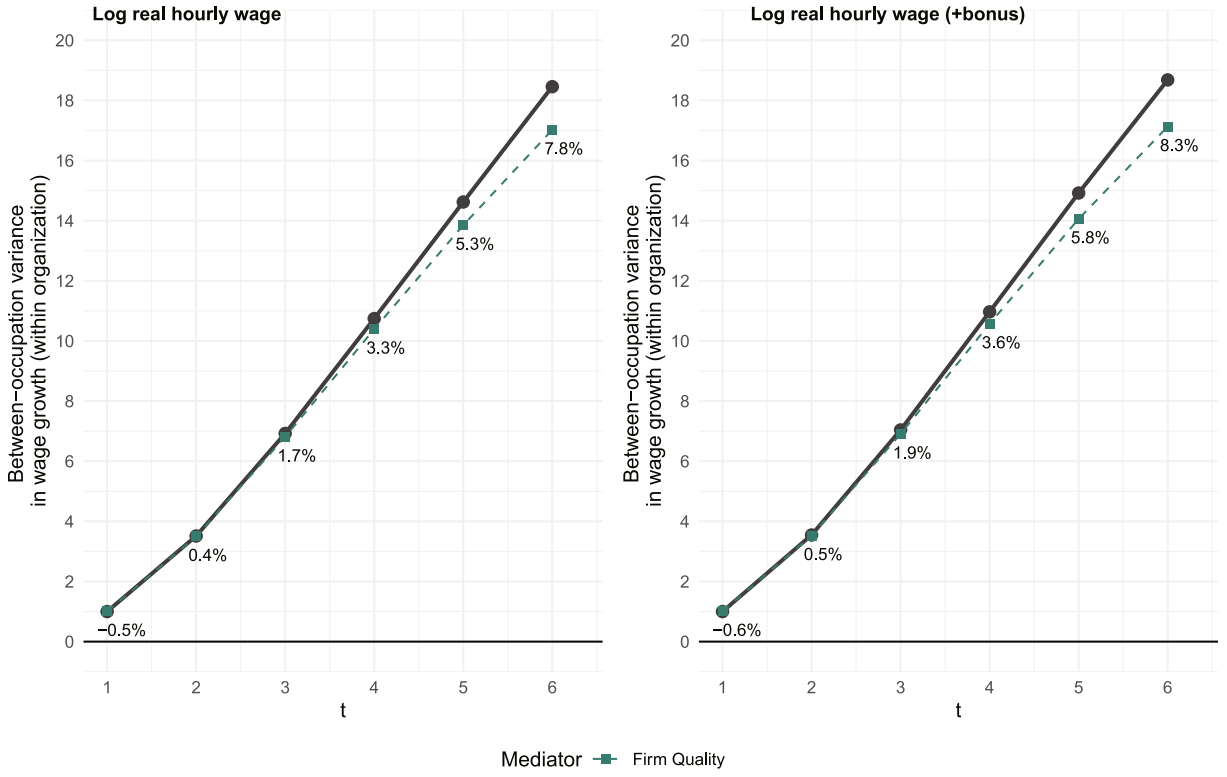

Fig. 4. Mediation analysis of organizational pay quality on between occupational class wage growth variance.
(Note: Between occupational class variance is standardized with the estimated between-component of the reduced model at t_1 equalling 1. Counterfactual between occupational class variance components (green dashed lines) are based on full models that include the mediating variable as an additional predictor. Percentage values indicate the change in the estimated between occupational class variance component based on the full model relative to the reduced model.). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

occupational sorting is slightly more consequential for heterogeneity in wage growth when considering access to bonus payments.

Overall, the results provide only modest support for the hypothesis that occupational sorting contributes to inequality in wage growth between occupational classes. While there is clear evidence for occupational sorting across organizations, this does not translate into substantive differences in wage growth at least as captured by the measure of organizational pay quality in this study.

4.3. Robustness analyses

I conduct several robustness analyses. First, I add a control for educational attainment when estimating wage growth inside organizations.[10] The rationale is to account for the alternative explanation that wage growth is not driven by positional inequalities but instead by individual capabilities of workers as captured by educational attainment. Results indicate that educational attainment is a strong predictor of wage growth within organizations. Controlling for education reduces the estimated growth penalty among production workers, office workers, and service workers by around one-third. This is a combined outcome of the strong sorting of higher-educated workers into higher-status occupations together with the significant effect of education on wage growth inside organizations that is at least partially driven by the differential advantage inherent in the occupational positions. In contrast, education has an offsetting effect when looking at socio-cultural professionals. Workers in this occupational class have the highest level of educational attainment among the six class categories but do not experience the highest wage growth. Overall, substantial inequality in wage growth between occupational classes remains unexplained after controlling for educational attainment.

Second, I inspect whether the occupational class categories exhibit internal variation in wage growth rates at the level of detailed occupations (Fig. 5). The results indicate that intra-class heterogeneity in wage growth is substantive. While the hierarchical dimension of the Oesch classification picks up important variation in wage growth, it also masks more fine-grained inequality. For example, the predicted firm-internal wage growth rate at t_6 is with 15.92% exceptionally higher for locomotive drivers (ISCO08 code 831), an occupation that is situated at the control lever of important national infrastructure, compared to the estimated average growth of 5.44% in the overarching class of production workers. In another example, substantive variation exists within the class of socio-

[10] See S6 in the supplementary material.

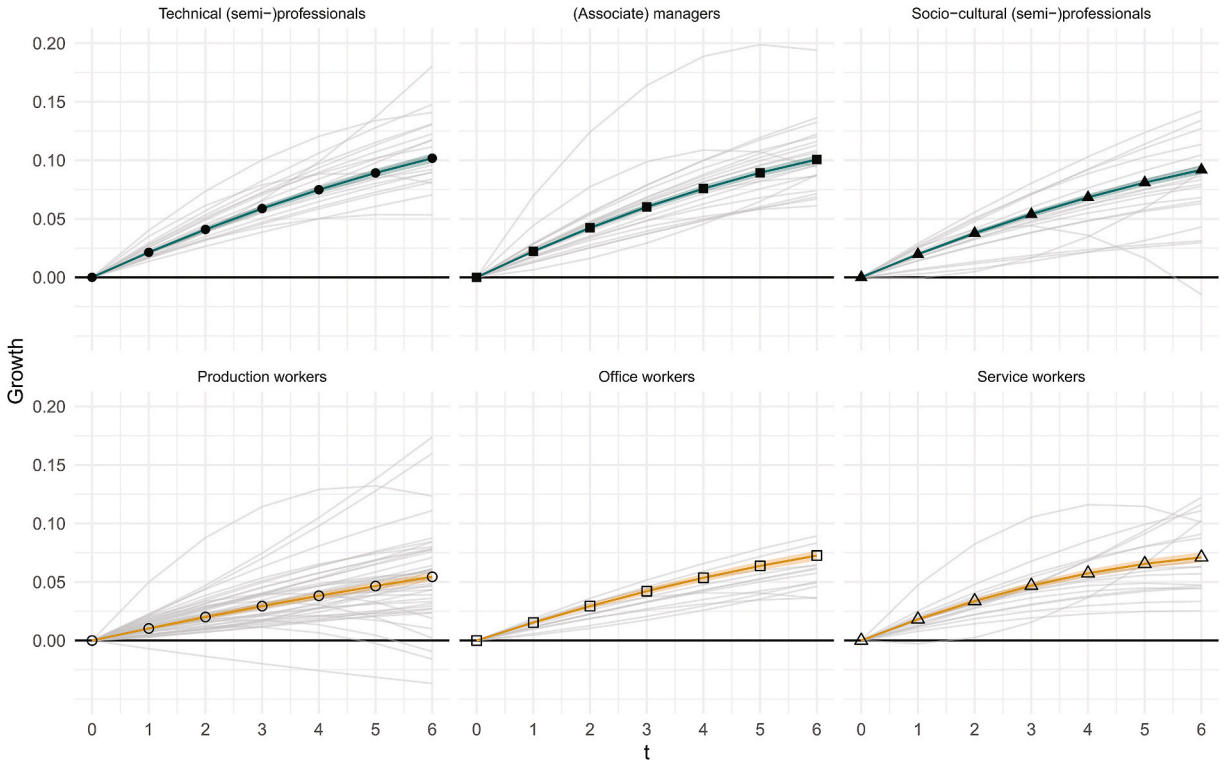

Fig. 5. Wage growth rates within organizations by detailed occupations.
(Note: Outcome measure is the log real hourly wage. Grey lines represent growth curves of detailed occupations based on the 3rd digit of ISCO08 with at least ten cases. Occupation-specific growth curves are only estimated for detailed occupations with at least ten workers in the sample. Superimposed lines are the estimated growth curves by occupational class. Survey weights applied.)

cultural professionals among occupations that typically share the same workplace. The predicted wage growth rate is substantively higher for medical doctors (14.22%; code 221) than nursing professionals (6.52%; code 222). Both examples illustrate how task content and its division between occupational positions at the workplace can create differing opportunities to claim organizational resources. These inequalities are not always neatly captured by the aggregate class scheme and merit future research. Additional analyses also reveal a substantive positive correlation between the baseline relative wage position inside organizations at t_0 and the predicted wage growth at t_6 at the level of detailed occupations.[11] These patterns confirm a process of compounding inequality at the more fine-grained level of detailed occupations.

Third, I use the sample of workers of the main analysis to predict wage growth rates independent of a worker's organizational affiliation (Fig. 6).[12] These unrestricted wage growth rates are a combined outcome of wage growth within organizations, job mobility between organizations, and spells of unemployment or inactivity. Comparing unrestricted wage growth with strictly firm-internal wage growth puts the stratifying effect of organizations in broader perspective. Two central findings emerge from this analysis. First, workers who start in higher-status occupations can optimize wage growth by switching jobs between organizations. The predicted unrestricted wage growth at t_6 is around 20% (managers) and around 29% (socio-cultural professionals) larger than the firm-internal wage growth. Second, the same holds true for workers who start in office worker (around 33%) and service worker (around 44%) positions. These workers similarly accrue larger wage growth when moving between organizations over time. Only among production workers are the unrestricted and firm-internal wage growth rates comparable. This finding casts doubt on the notion that organizations shelter workers in lower-paid occupations from external market forces by providing better prospects for wage growth. One interpretation is that workers in lower-status positions reach career ceilings within organizations, thereby turning organizational exit into a viable strategy to improve wages.

Fourth, I consider whether the heterogeneity in the estimated wage growth rates depends on the size of organizations.[13] In particular, very large organizations whose workers constitute a greater share in the sample might drive the estimated results. As a first check, I decrease the threshold of organization size to 10 employees. This approach results in a larger sample by including workers in smaller organizations (i.e. 10 to 19 employees). As a second check, I reweight the sample by dividing the survey weights of workers by

[11] See S11 and S12 in the supplementary material.
[12] See S7 in the supplementary material.
[13] See S8 and S9 in the supplementary material.

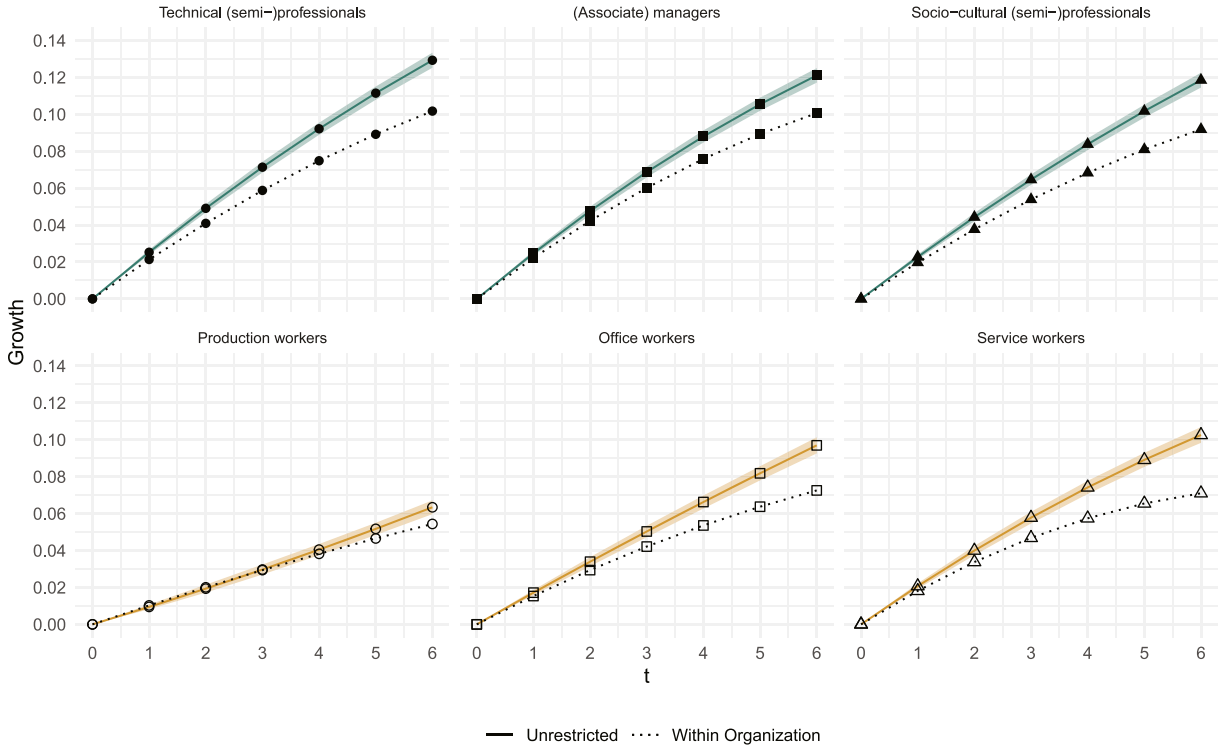

Fig. 6. Unrestricted wage growth compared to wage growth within organizations.
(Note: Outcome measure is the log real hourly wage. Colored lines represent unrestricted wage growth that is estimated by fixed effect growth curve models. Unrestricted wage growth includes job mobility between organizations (also smaller organizations with less than 20 employees) and intermediate spells of unemployment/inactivity. Years without any labor market participation are treated as missing values. Same set of controls applied. Survey weights applied.).

organization size at t_0. This approach uses the same sample as in the main analysis but increases the relative weight of workers in smaller firms. The results of the main analysis remain robust in both cases and confirm that the finding of heterogenous wage growth by occupations is not merely driven by processes within very large organizations.

Fifth, I restrict the sample to 23,449 workers who are observed with 0 years of tenure at t_0.[14] In other words, these employees just started working in their respective organization at the time of the labor force survey. Two central findings emerge from this additional analysis. First, wage growth tends to be larger during the initial years of employment within organizations. For example, the predicted wage growth among technical professionals is with 22.71% at t_6 much higher during the first years than the overall estimated growth rate of 10.18%. Second, the initial wage growth among office workers (17.53%) and service workers (18.99%) can keep up better with the initial wage growth among managers and professionals. In contrast, wage growth among production workers (14.02%) is significantly flatter relative to other occupational classes right at the beginning of organizational careers.

5. Conclusion

This study provides novel insights into occupational stratification processes in contemporary labor markets. Studying career trajectories in the Netherlands, I find that wage growth within larger organizations depends on the initial occupational position of workers. Workers in higher-status occupations, such as professionals and managers, accrue larger wage growth while remaining employed in the same organization compared to workers in lower-status positions. The predicted wage growth rates vary between 5.44% for production workers and 10.18% for technical professionals after six years of staying at the same firm. This inequality in wage growth reinforces existing wage inequality at the baseline and generates a process of compounding advantage that favors workers in managerial and professional occupations while pursuing organizational careers.

I also investigate the extent to which occupational sorting across high- and low-wage organizations contributes to unequal wage growth. I do so by controlling for a measure of organizational pay quality based on estimated organization fixed effects using the universe of main jobs in larger organizations between 2006 and 2019 in the Dutch labor market. I find that occupational sorting across organizations has only a limited impact on structuring unequal wage growth within larger organizations in the Netherlands. While the

[14] See S10 in the supplementary material.

analysis shows clear patterns of occupational segregation across high- and low-wage organizations, these patterns explain only up to approximately 8% of wage growth differentials between occupational classes. This finding is in contrast to recent research that found that occupational sorting across industries accounts for one-third of the variation in payoff to within-firm relative to between-firm job change by origin occupation in the United States. (Wilmers and Kimball, 2021). These diverging results might be explained by the fact that the current study focuses strictly on pay differentials within large organizations and how they develop gradually over time, disregarding how these payoffs compare to the broader opportunities for workers in a given industry.

The finding that wage growth depends on occupational positions speaks to long-standing ideas in social stratification research which consider occupations as providing *continuous* opportunities for earnings (Goldthorpe, 2000; Weber, 1978, p. 140). Not only are occupations important for understanding wage inequality that emerges in the cross-section, but they also endow their incumbents with differential opportunities to accrue further economic resources over their life course. This finding suggests that occupations represent important work structures underpinning processes of cumulative advantage in contemporary labor markets by inducing a positive association between baseline wage levels and wage growth rates (Cheng, 2014). Future research should continue to investigate the extent to which wage differentiation over the life course between social groups, as defined by categorical distinctions such as gender, race, and ethnicity, is linked to unequal career opportunities inherent in the occupational positions of workers (see also Barnett et al. (2000) and Kanter (1977)). Moreover, conceptualizing equality of opportunity as being foremost a matter of equalizing access to education appears shortsighted in the context of lifelong adversities endogenous to the occupational structure itself (Wright, 2013).

The findings in this article also highlight that occupational stratification scholars should pay closer attention to organizations given that occupations intersect with organizational opportunity structures during the generation of wage inequality. Stratification research frequently assumes that occupational mobility unfolds in relatively neutral spaces (Roscigno, 2011). Instead, this study demonstrates that the opportunities for wage growth that are available to workers within organizations are unequal. We can't fully understand the role of occupations in the stratification process if we do not consider their immediate workplace environment (Avent-Holt et al., 2019; Barley, 1986; Stainback et al., 2010; Wilmers and Aeppli, 2021). At the same time, the results also indicate that occupations approximate the career opportunities that exist within organizations because of their instrumental role in structuring internal workplace processes. The increasing availability of administrative data will help to further integrate occupational and organizational perspectives on social stratification. Being able to observe occupation-based inequalities in their immediate workplace environment, for example, as undertaken in the current study by measuring the relative wage positions of workers, will increase our understanding of the structural roots of labor market inequality.

The finding of inequality in wage growth within organizations is particularly striking when considering the present country case. The Netherlands is a country with strongly developed collective bargaining institutions. Collective bargaining often transcends single organizations and externally imposes wage growth rates on many jobs. Collective agreements should mitigate inequality by externally imposing legally binding wage growth rates particularly on jobs characterized as lower-status occupations, thereby neutralizing inequalities that would otherwise originate from firm-internal processes. Moreover, collective agreements at the sectoral level have been shown to limit wage inequality between organizations and are an effective instrument to counteract the effect of occupational sorting on inequality (Zwysen, 2022, 2023). Therefore, the Netherlands represents an important least-likely case from a cross-national perspective. Inequality in wage growth between occupations within organizations is likely larger in countries where collective bargaining is absent or less expansive. Future research should investigate whether such cross-national variation is empirically observable. Unfortunately, the impact of collective bargaining on structuring unequal wage growth within organizations remains unknown in the present study because of the lack of information on the collective agreement status of individual organizations.

The findings also have relevance for policies that aim to alleviate inequality in contemporary labor markets. The results suggest that equalizing wage growth within organizations may be accomplished by levelling the career opportunities of workers, but also by reducing existing status differences between jobs. Specifically, high-road employment strategies, such as greater commitment to continued worker training, the development of firm-internal career ladders, and their extension to a broader range of workers, are promising interventions. For example, previous research suggests that cross-training, systems of work organization that facilitate job rotation, improve the visibility of workers in lower-status jobs (Dobbin and Kalev, 2022). Beyond individual opportunities, cross-functional systems also help to reduce rigid job boundaries and can facilitate a greater appraisal of the productive contributions in otherwise lower-status jobs (Kalev, 2009; Sobering, 2019). However, existing market pressures in contemporary capitalist economies, specifically in low-wage industries, make it likely that employers opt against the adoption of high-road employment practices in the absence of governmental intervention (Osterman, 2018).

This study leaves open questions that should be addressed by further research. First, data restrictions do not allow me to discern between the two outlined mechanism underlying wage growth within organizations. Unequal wage growth within organizations can be driven by differing promotion opportunities, different opportunities to negotiate wage gains while staying in the same job, or both. Establishing the relative importance of each mechanism should be a priority for further research to better understand unequal wage growth within organizations.

Second, this study's conceptual and empirical main focus is unequal wage growth within organizations. However, the findings show that firm internal wage growth constitutes only one, albeit important, part of a worker's career. The findings show that more than half of all sampled workers had left their organization by the sixth year, and the estimated unrestricted wage growth rates diverge considerably from the strictly firm-internal wage growth rates. Future research should further examine the importance of job mobility between organizations and its effect on wage growth relative to firm-internal processes.

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CRediT authorship contribution statement

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Appendix A. Supplementary data

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