Firms' Beliefs About Wage Setting

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Abstract

This paper provides new evidence on why similar workers receive different pay by linking administrative data to a large-scale, representative survey of Danish firms. We find that about 18 percent of firms hold inaccurate beliefs about their position in the wage distribution, with such misperceptions more common in smaller firms. Survey responses reveal that, by far, the primary motive for setting high wages is to retain and attract employees, consistent with wage-posting models. Differences in firm amenities, both positive and negative, also help explain pay variation across firms.

JEL codes: J01; J31; J42; D83; M52

Keywords: Wage dispersion; firm information frictions, biased beliefs

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1. Introduction

Employers offer different wages for similar work. This holds across worker groups, over time, and across countries, making it one of the most important recent findings in labor economics (Kline 2024). Driven by the evidence, recent studies of wage setting reflect the paradigm shift from “markets set wages” to “firms set wages" (Card 2022).

To make progress on the role of firms in wage inequality, the empirical literature has used high-dimensional fixed effects methods.[1] However, this literature does not yet provide solid evidence on whether employers even perceive these differences in wages across firms or their motives for choosing specific wage policies. Understanding whether firms have accurate beliefs about their relative wage levels and their motives for choosing them is important for several reasons. First, firms with inaccurate knowledge about market wages can be a source of wage dispersion (Cullen, Li and Perez-Truglia 2024). Comparing what firms think with their actual position in the wage distribution, i.e., whether firms have accurate beliefs, is one way to measure the extent of information frictions on the *firm side* as a factor contributing to wage inequality. There are reasons to believe that frictions on the firm side can be non-negligible. Indeed, in a labor market without extensive centralized wage bargaining, where it is illegal for firms to share information regarding their workers’ wages and where posted wages on job search platforms are rare, firms may find it difficult to know exactly how their own wages differ from those of their competitors.[2] Second, it is useful to elicit firms’ motives for setting higher or lower wages, as this allows us to determine whether their subjective motivations align with the theoretical frameworks explaining wage dispersion across firms, such as search frictions, compensating differentials, and efficiency wages.

[1] See among others, Lachowska, Mas, Saggio and Woodbury (2022, 2023); Di Addario, Kline, Saggio and Sølvsten (2023); Kline (2024).

[2] Batra, Michaud and Mongey (2023) document that 6 percent of online job posts in the U.S. contain a specific wage. Caldwell, Haegele and Heining (2025a) estimate that it is about 2 percent. Firm-specific wage information on job ads is also very rare in job posts in Denmark.

To our knowledge, this paper provides the first large-scale, representative evidence on how employers perceive their own wages and their reasoning for setting wages above or below those of other firms. We designed and implemented a representative survey of firms, conducted in the summer of 2021, and validated the quality of the data using several tests. The sample includes wage beliefs elicited from approximately 2,900 firms.

The main question that we asked is: *"Do you think this company offers lower or higher wages than competing companies in your industry? Competing companies are other employers that hire people with the same abilities in your region."* Firms respond on a five-point scale (from *"much lower"* to *"much higher"*). Crucially, we link these survey responses to administrative data that allows us to benchmark firms' beliefs against objective measures of their wage policy. Our primary objective wage measure is the firm wage premium estimated using the Abowd-Kramarz-Margolis (AKM) model. This measure captures the firm-specific wage components, isolating the relative premium each firm pays to its workers. However, we also show that our results are robust across multiple measures of firm-level wages. When firms report paying more or less than their competitors, we ask them why. The response options are designed to capture explanations aligned with canonical models in labor economics

The first insight of the paper is that a substantial minority of firms have inaccurate beliefs about their position in the wage distribution. Some firms think they pay higher or lower wages than their competitors, whereas the administrative data show the opposite, and some firms believe they pay about the same as their competitors even though they are positioned in the tails of the wage distribution.

Using our preferred measure of inaccurate beliefs, we estimate that about 18 percent of firms hold inaccurate beliefs about their position in the wage distribution.

When we vary the definition of the relevant labor market to define competitor firms, the choice of objective wage measure from administrative data, or the threshold for classifying beliefs as inaccurate, the percentage of firms with inaccurate wage beliefs

ranges from 16% to 34%. A heterogeneity analysis reveals that the size of firms (number of employees) is a predictor of the extent of inaccurate beliefs, with small firms being more likely to hold inaccurate beliefs.

The second insight of the paper is that the most common motives for paying high wages are in line with theories emphasizing search frictions, and only a minority do so to compensate for negative job characteristics. Specifically, about 90 percent offer high wages to retain employees and to attract the best candidates. Roughly two-thirds pay higher wages to increase morale, reduce the need for monitoring, and share rents. About 20 percent state they pay higher wages to compensate for negative job traits. The most common reason (57 percent agree and 16 percent disagree) that employers give for offering lower wages than other firms is the inability to pay higher wages due to low demand or high competition in the product market. The second most relevant motive (55 percent agree and 18 percent disagree) is the importance of positive job amenities.

1.1. Contribution to the Literature

Building on the literature documenting the importance of firm-specific wage effect to explain wage inequality (see Kline (2024) for a review), a growing literature has examined how worker-side beliefs contribute to labor market outcomes.[3] In contrast, relatively little is known about firm-side beliefs and their role in wage setting and inequality.[4] Recent evidence suggests that such beliefs may matter: most firms retain discretion in setting wages for a large share of their workforce (e.g., Caldwell, Haegele and Heining 2025a; Lachowska, Mas, Saggio and Woodbury 2022). A few empirical studies provide insights into how firms act on wage-related information. Cullen, Li and Perez-Truglia (2024) is closely related to this study, as they show that firms adjust entry

[3]See, for instance, Mueller, Spinnewijn and Topa (2021), Braun and Figueiredo (2025), Menzio (2023), Cullen and Pakzad-Hurson (2023), Miano (2025), Jäger, Roth, Roussille and Schoefer (2024), and Caliendo, Mahlstedt, Schmeiber and Wagner (2024).

[4]This stands in contrast to the price-setting literature, where firms' beliefs have been extensively studied; see, for example, DellaVigna and Gentzkow (2019) and related work on managerial expectations and pricing behavior.

wages when provided with benchmarking data, suggesting that informational frictions influence wage-setting. Relatedly, Dube, Manning and Naidu (2025) provide evidence that firms "misoptimize" wage setting. Consistent with this, Hjort, Li and Sarsons (2025) and Hazell, Patterson, Sarsons and Taska (2025) document that firms often follow stable wage policies with limited responsiveness to local labor market conditions.[5] By focusing on the firm side, we believe this paper complements worker-level studies showing that workers have inaccurate beliefs about the external wage distribution.

Additionally, this paper contributes to the literature on the nature of firm effects. A traditional explanation for firm wage effects emphasizes compensating differentials, i.e., firms offer higher wages to compensate for less desirable job attributes (Rosen 1986). An alternative view, grounded in imperfect competition, posits that similar workers are paid differently across firms due to wage-setting power (Mortensen 2003; Card 2022). Recent work infers the relationship between firm amenities and wages using matched employer-employee data, with or without direct measures of amenities (e.g., Sorkin 2018, Taber and Vejlin 2020, Sockin 2022, Lamadon, Mogstad and Setzler 2022, Lachowska, Mas, Saggio and Woodbury 2025), or from choices over hypothetical offers (e.g., Roussille and Scuderi 2025, Caldwell, Haegele and Heining 2025c). Our paper is particularly closely related to Humlum, Rasmussen and Rose (2025) and Caldwell, Haegele and Heining (2025b), who also design a survey in Denmark and Germany (respectively) but focus on workers' perspectives on firm wage and amenities. By directly asking firms why they pay higher or lower wages, we believe that our study complements this growing literature by providing the firm perspective.

[5] Relatedly, Passaro, Kojima and Pakzad-Hurson (2025), and Friedrich and Zator (2024) also discuss the role of employer-side frictions.

2. A Firm Survey Linked to Administrative Datasets

In this section, we detail the survey data collection process, provide an overview of the administrative datasets we use, and describe the sample used in our analysis. In Denmark, wages are negotiated primarily at the firm level; institutional details are provided in Appendix B.1.

2.1. Measuring Firms' Beliefs about Wage Setting

We now describe our survey, which elicits firms' subjective beliefs about their relative wage levels and the reasons underlying their wage-setting decisions.

The target population consists of private and public limited companies in Denmark (ApS and A/S) that were active in the first quarter of 2021. An international consulting firm conducted the online survey in June 2021 by sending invitations through e-Boks, the official Danish digital mail system. The invitation included a cover letter detailing the survey purpose, response deadline, incentives for participation (an anonymized benchmark report), and assurances regarding data protection compliance.

In addition to the wage-related questions analyzed in this paper, the survey included questions on firms' beliefs about layoffs and hiring constraints. It also gathered information about the respondent's role in the company and familiarity with human resources policies, as well as questions about recent revenue changes. We use this information to ensure that respondents were in a position to answer knowledgeably and to validate their reported revenue changes against administrative records.

2.2. Administrative Datasets

We use the *IDA ansættelser* (IDAN) dataset to measure workers' annual earnings and hours worked,linked to firm identifiers. The data are available at the worker–firm–year level and cover all employees in Denmark. Earnings are defined as pre-tax labor income

subject to labor taxation, and hours worked include all paid hours, both contractual and overtime. Information on each worker's highest attained education is obtained from the UDDA registry. Our analysis is conducted at the firm level (rather than the establishment level), as this corresponds to the survey's sampling unit. We use the *Generel firmastatistik* (FIRM) dataset to measure industry classification, revenue, profits and value added (defined as revenue minus expenditures on intermediate inputs). All administrative registries used are maintained by Statistics Denmark.

2.3. Sample Description

When calculating firm-level wage measures, we apply the following sample restrictions. All earnings are converted to euros and deflated to 2010 prices using the Danish CPI. We restrict the sample to workers aged 20–60 for whom education information is available. We further exclude observations with fewer than 90 days of employment and fewer than 296 hours (corresponding to eight weeks of full-time work) in a given worker-firm-year. Additionally, we drop observations with fewer than 8 or more than 48 working hours per week.[6] We also exclude observations with extreme calculated hourly wages, below 7 EUR or above 1,000 EUR per hour, and jobs in a small number of unusual industries (including the public sector) and self-employed workers.[7] If workers hold multiple jobs in a given year, we keep the job with the highest annual earnings, breaking ties by hours worked and then by days employed. Finally, we restrict the sample to firms for which firm wage effects can be identified following Abowd, Kramarz and Margolis (1999) (AKM). The exact implementation is described in Section 3.1. The estimation sample for firm wage effects covers the period 2015–2021, while adjusted mean wages are calculated using 2021 data only. Basic descriptive statistics for this sample are presented

[6] 48 hours per week is the legal maximum over a four-month period ("48-timers reglen"). Note that we only observe reported hours.

[7] The excluded industries are: Public Sector, Extraction, Energy, Water Supply, Extraterritorial Organizations, and Unknown Industry. Due to the small number of firms in some industries, we combine finance and real estate. We also combine other services with arts, entertainment, and recreation.

in Table A.1.

For the main analysis, we further restrict to firms that employed at least one worker and reported positive sales in each of the years 2019–2021. The column labeled "Population" in Table 1 reports descriptive statistics for this sample. Among these firms, we include only those with survey responses indicating both the respondent's role and their perception of the firm's wages relative to competitors. We additionally require that respondents report being responsible for, or knowledgeable about, pay and hiring practices.[8] Descriptive statistics for this subset are shown in the column labeled "Surveyed" in Table 1. The survey sample appears broadly representative of the target population.[9] Based on the number of observations in Columns 1 and 2, the response rate for firms with linked survey and administrative data is 10.3% (2,889 out of 28,177), which is relatively high for a voluntary survey.

Despite the high representativeness of the survey sample, we use an entropy-balancing estimator (Hainmueller and Xu 2013) to reweight observations such that key firm characteristics better match those of the overall firm population. The balancing variables include firm size (number of employees), firm age, sector (manufacturing, services, or other), average hourly wage, AKM firm wage premium, and an indicator for being located in Copenhagen. The column labeled "Surveyed (Weighted)" in Table 1 reports summary statistics for the reweighted sample. The reweighting improves the sample's representativeness, and we apply these sampling weights in all subsequent analyses.[10]

[8] In Figure A.1, we validate that respondents are knowledgeable about their firms' internal affairs by comparing their reported revenue changes to administrative records.

[9] Differences between the population and survey samples are relatively small—especially for a non-mandatory firm survey. See, for example, Caldwell et al. (2025a) and Dutz et al. (2025) for comparable analyses using survey and administrative data.

[10] Appendix Table A.2 shows firm characteristics by their response to the main wage question.

TABLE 1. Characteristics of the Target Population and Surveyed Firms

	Population	Surveyed	Surveyed (Weighted)
Number of Employees (%)			
1-10	36.4	30.2	33.2
11-50	49.1	51.1	52.0
51-200	11.4	14.5	12.1
201+	3.1	4.3	2.6
Firm Age (%)			
1-10	33.9	26.0	33.2
11+	66.1	74.0	66.8
Industry (%)			
Agriculture	2.1	1.7	2.5
Manufacturing	12.8	16.4	12.8
Construction	17.4	13.8	17.0
Trade	24.1	24.7	23.4
Transportation	4.9	5.2	5.0
Accomodation and Food Services	7.3	4.0	5.8
Information Services	7.0	8.1	7.7
Finance and Real Estate	3.6	3.5	3.1
Professional Services	8.7	11.4	10.3
Administration Services	5.7	6.2	6.6
Healthcare	3.5	2.8	3.0
Other Services	3.0	2.3	2.7
Other Firm Characteristics			
Log Wages	3.3	3.4	3.3
Value Added Reported (%)	90.2	91.9	90.7
Value Added per FTE (in Th. EUR)	102.7	110.0	102.3
Copenhagen area (%)	27.6	26.3	27.6
From Our Survey (%)			
Manager respondent		83.4	84.1
Lower wage		8.3	8.5
About the same		75.0	75.1
Higher wage		16.6	16.3
Observations	28,177	2,889	2,889

Note: This table reports the mean characteristics of surveyed firms and the population of firms considered. Column 1: The eligible study population of firms consists of all Danish limited liability companies in the industries listed in the table. Column 2: Firms that responded to our survey linked to administrative employer-employee data. Column 3: Weighted sample. See text for details.

3. Firms Knowledge about Their Position in the Wage Distribution

In this section, we compare firms' subjective beliefs about their wages to objective benchmarks and assess their accuracy. We also document the predictors of inaccurate beliefs. We begin by describing the subjective and objective firm wage measures.

3.1. Subjective and Objective Measures of Firm Wage Levels

The survey elicits firms' beliefs about their position in the wage distribution through the following question: *"Do you think this firm offers lower or higher wages than competing companies in your industry? Competing companies are other employers that hire people with the same abilities in your region."* Respondents choose from five options: *"much lower," "lower," "about the same," "higher,"* and *"much higher."* The original Danish version of the questionnaire is provided in Appendix E. This wording is designed to isolate a specific belief, specifically firms' perceived relative wage position, while holding other factors constant. In particular, the question explicitly frames comparisons within the same industry and defines competitors as employers hiring similar workers in the same region. This framing facilitates a direct comparison between subjective responses and administrative measures.

Our main objective measure of firm-level wages is the firm wage effect, $\psi_{j(i,t)}$, estimated using the Abowd-Kramarz-Margolis (AKM) model. This firm effect captures a time-invariant, firm-specific relative wage premium. Specifically, we estimate the following equation:

$$Y_{it} = X_{it}'\beta + \alpha_i + \psi_{j(i,t)} + \varepsilon_{it} \tag{1}$$

where Y_{it} denotes the log hourly wage of worker i in year t, and X_{it} includes year fixed effects, as well as quadratic and cubic terms in age, fully interacted with four

education levels.[11] α_i is a worker fixed effect (capturing time-invariant individual wage ability), $\psi_{j(i,t)}$ is a firm fixed effect, and ε_{it} is an idiosyncratic error term that includes time-varying shocks to human capital, match quality, and other unobserved factors. In order to identify the firm wage effects, and to estimate the bias-corrected variance of these effects using the method developed by Kline et al. (2020), the sample is restricted to the largest leave-one-match-out connected set.

In the survey, a competitor firm is defined as a firm operating in the same industry and region. We define regions using five administrative areas (corresponding to major local labor markets), and industries using the 12 categories listed in Table 1.

As shown below, our results are robust to alternative definitions of industry, region, and the objective wage measure.

3.2. Firms' Beliefs about Relative Wages

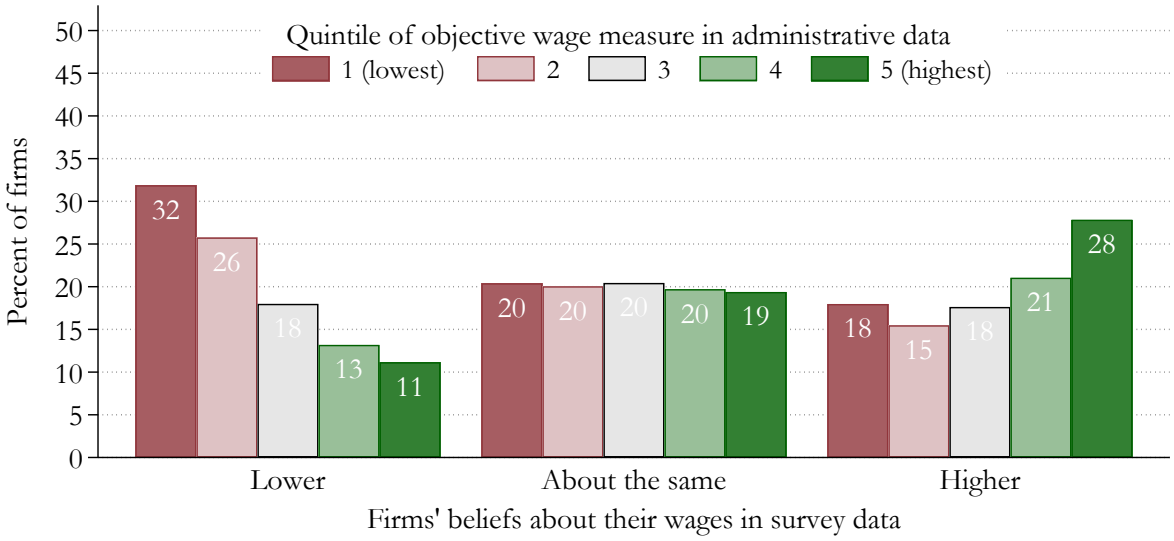
Figure 1 presents the main findings on firms' beliefs about their position in the wage distribution. The x-axis displays survey responses grouped into three categories: *"Lower"*, *"About the same,"* and *"Higher"*. Responses in the extreme categories (*"Much lower"* and *"Much higher"*) are combined with *"Lower"* and *"Higher"*, respectively, due to the small number of observations. The y-axis shows the distribution of firms across industry-region quintiles of the objective wage measure.

Among firms that believe they pay lower wages than other firms (around 8% of respondents), 32% are in the lowest quintile of the objective wage distribution, while only 11% are in the highest quintile. This indicates a strong correspondence between perceived and actual wage rank for this group.

In contrast, firms reporting that they pay about the same as their competitors (around 75% of respondents) exhibit less accurate beliefs. Instead of the expected inverted U-

[11] The four groups are lower secondary; upper secondary and vocational training; bachelor's and short-cycle tertiary education; and Master's, Ph.D., or equivalents.

FIGURE 1. Firms' Beliefs About Their Wages and Objective Wages



Notes: This figure shows the percentage of firms in each quintile of the objective wage measure, calculated from administrative data, grouped by firms' beliefs about their own wages as reported in the survey. The objective wage measure is the firm wage premium estimated from an AKM model (Eq. 1). Quintiles are calculated within industry–region cells. "Lower" refers to firms that believe they pay lower or much lower wages than their competitors, while "Higher" refers to firms that believe they pay higher or much higher wages. The sample is described in "Surveyed (Weighted)" column in Table 1.

shaped pattern, in which such firms would be concentrated near the middle of the distribution, we observe a flat distribution. For instance, 20% of these firms are in the lowest quintile, and 20% are in the third quintile.

Finally, among firms that report paying higher wages (around 17% of respondents), the distribution aligns more closely with objective wage data: 28% are in the highest quintile, and 18% are in the lowest. This suggests that firms claiming to pay higher wages have at least some knowledge of their relative position in the wage distribution.

We conduct a range of robustness tests. Figure A.2 shows the distribution of firms across wage quintiles using three alternative definitions of the objective wage measure: (i) restricting the AKM sample to firms with at least ten movers, (ii) using mean wages adjusted for worker composition, and (iii) using unadjusted mean wages. The restriction on movers follows standard practice in the firm effects literature to improve the credibility of estimated wage premiums. A separate concern is that the AKM firm

effect may differ from average wages, although it arguably better aligns with the survey question (which asks about wages conditional on worker ability). Reassuringly, results are consistent across all three alternative measures.

3.3. Measuring the Accuracy of Firms' Beliefs

When designing the survey, we opted for a qualitative scale because it reduces the burden on respondents and improves the reliability of their answers. Firms are more likely to provide assessments when not required to report precise numerical differences. Qualitative categories capture their broad perceptions without forcing respondents to quantify information they may not know precisely. A downside of this approach is that it makes it less straightforward to assess the exact extent of inaccuracies in beliefs. Nonetheless, the linked survey–administrative data allow us to assess the extent of inaccurate beliefs under specific assumptions about when divergence between subjective and objective measures constitutes an inaccuracy. In our main definition, a firm is classified as overestimating (underestimating) if it reports paying *"higher"* (*"lower"*) wages but is in the bottom (top) industry-region quintile of the objective wage measure distribution in the administrative data. Firms reporting *"about the same"* are classified as overestimating (underestimating) if they fall in the bottom (top) industry–region decile of the objective wage measure distribution. We use two measures of objective wages: firm wage effects and average hourly wage in 2021 adjusted for the share of college educated workers and average age of workers.

Table 2 reports the extent of inaccurate beliefs about relative wages. According to our baseline measure, 7.21% of firms underestimate their own wages relative to competitors, while 10.28% overestimate them, resulting in 17.49% of firms holding inaccurate beliefs. Varying the inaccuracy threshold yields a lower bound of 15% and an upper bound of 34%. Column 2 of Table 2 uses the mean wage (adjusted for the share of college educated workers and mean age of workers) as the objective wage measure. The results

TABLE 2. The Extent of Inaccurate Wage Beliefs

	Firm Wage Effects	Mean wage (adjusted)
Baseline		
Underestimate	7.21	6.45
Overestimate	10.28	10.51
Total	17.49	16.96
Alternative 1.		
Underestimate	6.72	5.95
Overestimate	8.74	9.64
Total	15.47	15.59
Alternative 2.		
Underestimate	15.52	13.60
Overestimate	18.26	18.40
Total	33.78	31.99
Observations	2,889	2,889

Note: This table reports the percentage of firms with inaccurate beliefs about how their wages compare to competitors'. In the Baseline row, a firm is classified as overestimating (underestimating) if it reports paying *"higher"* (*"lower"*) wages but is in the bottom (top) industry-region quintile of the objective wage measure distribution in the administrative data. Firms reporting *"about the same"* are classified as overestimating (underestimating) if they fall in the bottom (top) industry–region decile of the objective wage measure distribution. In the column "Firm Wage Effects", the objective wage measure is the estimated AKM firm wage effects (as in Figure 1), and in the column "Mean Wage (adjusted)" the objective wage measure is average hourly wage in 2021 adjusted for the share of college educated workers and average age of workers using OLS. In Alternative 1, top and bottom deciles (rather than quintiles) are used to define inaccuracies for firms reporting *"higher"* or *"lower"* wages; the definition for *"about the same"* remains unchanged. In Alternative 2, the top and bottom quintiles (rather than deciles) are used to define inaccuracies for firms reporting *"about the same"*, with the baseline definition retained for the other categories. The sample is described in "Surveyed (Weighted)" column in Table 1.

are similar.

Overall, the analysis suggests that, regardless of the wage measure, labor market definition, or inaccuracy threshold, the share of firms with inaccurate wage beliefs ranges from 15% to 33%. While most firms appear to have a relatively accurate understanding of their position in the wage distribution, imperfect information on the firm side remains a prominent feature of the data.

A potential concern is that firms may be mislabeled as holding accurate or inaccurate beliefs because we observe noisy estimates of AKM firm effects rather than the true effects. To assess the importance of this issue, we use two approaches. First, we restrict the sample to firms with at least 10 movers, which reduces noise in the estimated firm effects. Figure A.2B shows that the distribution of survey responses across quintiles changes only slightly. Second, we use the bias-correction method of Kline et al. (2020) to estimate the variance of estimation error and simulate its impact on our inaccuracy measures (See Appendix D for details). The results shown in Table A.3 indicate that correcting for noise does not meaningfully change the share of firms classified as having inaccurate beliefs: 18.07% of firms are classified as having inaccurate beliefs, compared to 17.49% in the baseline.

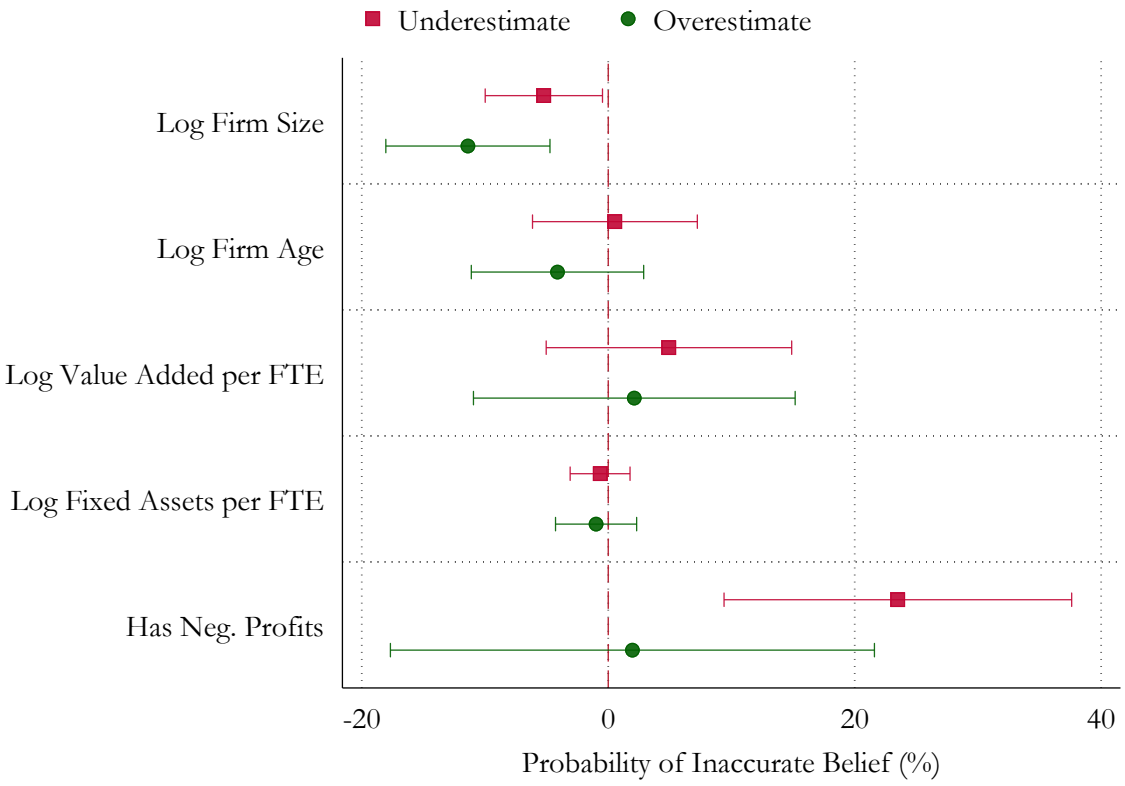
3.4. Predicting Inaccurate Beliefs

Having documented the extent of inaccurate beliefs among firms, we now examine which types of firms are more likely to hold such beliefs. Figure 2 reports OLS coefficients from multivariate regressions of an indicator for whether a firm holds inaccurate beliefs about its wage policies, using the baseline definition of inaccuracy from Table 2. When estimating the coefficients for "Underestimate," only firms in the top quintile are included; conversely, for "Overestimate," only firms in the bottom quintile are included. This restriction ensures that firms which cannot mechanically be classified as holding inaccurate beliefs under our definitions are excluded from the estimation.

As shown in Figure 2, larger firms (measured by the number of employees) are significantly less likely to under- or overestimate how their wages compare to those of their competitors. Several mechanisms could drive this relationship. It may indicate that firms with more accurate beliefs perform better and consequently grow larger. Conversely, more accurate beliefs could also result from larger firms hiring more extensively and thus having better information about the relevant wage distribution. Neither

firm age, labor productivity (measured as value added per worker), nor capital intensity are correlated with having inaccurate beliefs. Interestingly, firms that underestimate their relative pay are about 20% more likely to report negative profits.

FIGURE 2. Predicting Inaccurate Beliefs



Notes: This figure reports OLS coefficients from regressions of an indicator for inaccurate beliefs about firms' own wage policies on the listed explanatory variables. A firm is classified as overestimating (underestimating) its relative wage level if it reports paying high (low) wages but is in the bottom (top) industry–region quintile of the firm-effect distribution. Firms reporting "about the same" are classified as overestimating (underestimating) if they fall in the bottom (top) industry–region decile of the firm-effect distribution. When estimating the coefficients for "Underestimate," only firms in the top quintile are included (N = 510). Similarly, when estimating the coefficients for "Overestimate," only firms in the bottom quintile are included (N = 483). Whiskers indicate heteroskedasticity-robust 95% confidence intervals.

4. Firms' Wage-Setting Motives

In this section, we investigate the motives behind firms' decisions to set wages above or below those of their competitors. While there is compelling evidence that firms set wages (e.g., Lachowska et al. (2022), Kline (2024)), their reasons for choosing a particular policy varies across models.

Efficiency wage models (e.g., Katz (1986)) posit that firms deliberately set wages based on the assumption that worker productivity is positively correlated with compensation. Firms offer higher wages to enhance employee motivation or minimize monitoring costs. In wage-posting models (e.g., Burdett and Mortensen (1998)), firms use their wage policy to attract new workers and dissuade incumbent workers from leaving for competitors in a frictional labor market. In the Diamond-Mortensen-Pissarides framework (e.g., Pissarides (2000)), wages are determined through bargaining between employers and employees. The negotiated wage depends on the worker's outside options and the firm's surplus (proxied by productivity). Consequently, wage variation across firms is closely linked to differences in surplus. Wage differentials may also reflect compensating wage differentials for negative, unobservable job characteristics (e.g., Rosen (1986)).

4.1. Characterizing Motives for Wage-Setting Strategies

Following the assessment of firms' positions within the wage distribution, we surveyed those firms that reported paying *"higher"* or *"much higher"* wages than their competitors to determine the motives behind these wage policies. Respondents were asked to indicate their level of agreement with the following statements: *"We want to compensate for negative aspects of the job (job insecurity, working conditions, etc.)", "We want to attract the best candidates", "We want to hire quickly", "We want to ensure reliable employees who do not change jobs often", "We want to increase employee morale", "We want to reduce the need to control and monitor employees", "We want to share the high earnings we generate with the*

employees".

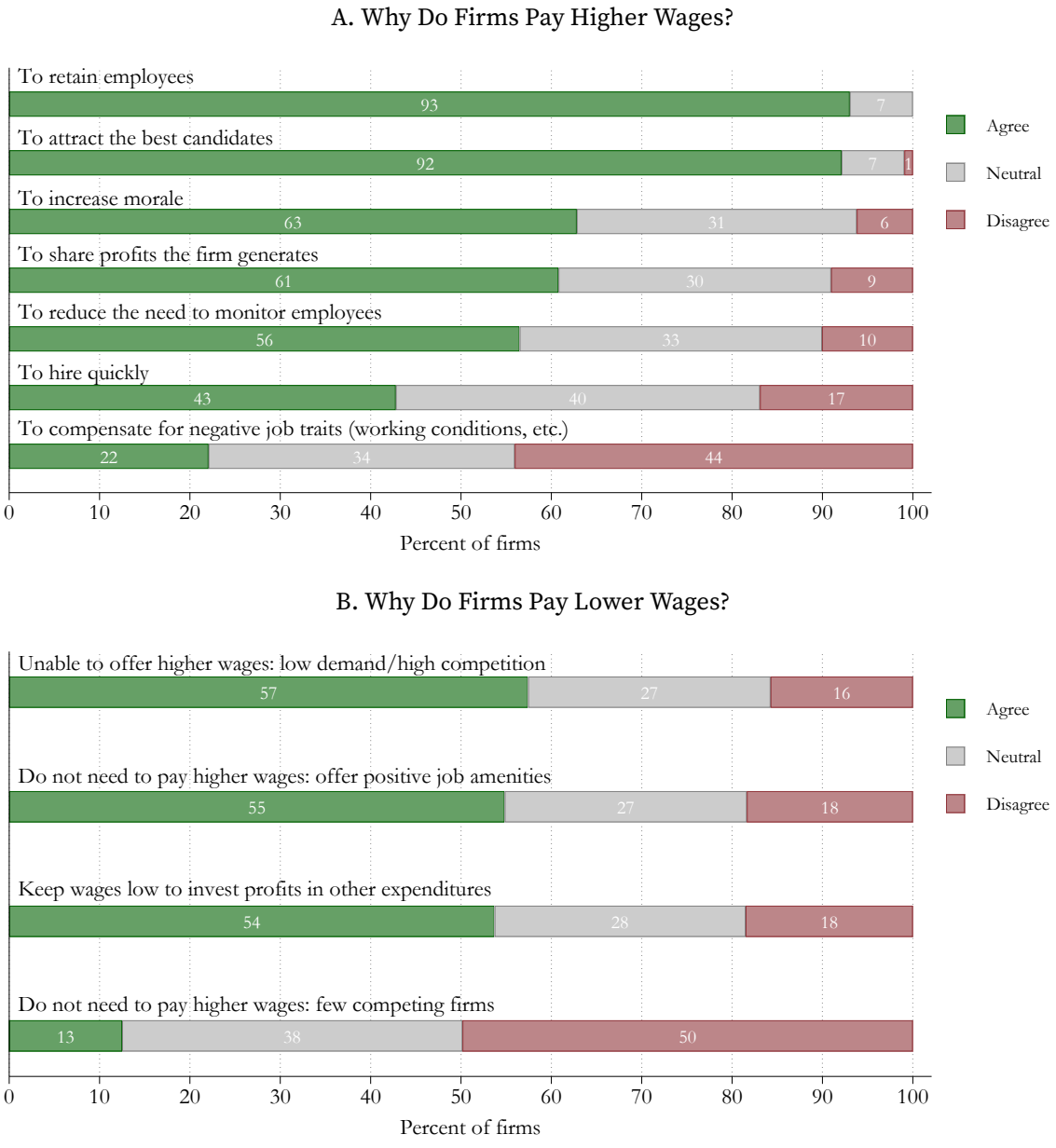
The responses are shown in Figure 3. Over 90 percent of firms reporting higher wages attribute this to their efforts to retain employees and attract candidates, suggesting that they recognize the influence of wages on workers' job search behavior. Almost no firms disagree with those statements. This finding aligns with wage-posting models (Burdett and Mortensen 1998), where firms actively use their wage policies to attract new candidates. Also related to workers' job search behavior, 40 percent of firms report offering higher wages to hire quickly, and close to 20 percent disagree with this statement. This relatively smaller proportion is consistent with the empirical evidence of Mueller et al. (2023) and contrasts with directed search models where hiring speed is a key determinant of wage policy.

Roughly two-thirds of firms indicate that they pay higher wages to boost employee morale and reduce the need for monitoring, in line with efficiency wage theories (e.g., Katz 1986). Moreover, 60 percent of firms cite a desire to share high profits with their employees as a motivation for higher wages, and about 10 percent disagree. Overall, the evidence is consistent with the differentiated demand model (Card et al. 2018) and the DMP framework, where a firm's wage is directly related to its productivity level.

Similarly, firms that reported paying *"lower"* or *"much lower"* wages than their competitors were asked to explain their wage policies. They were asked whether they agreed, were neutral, or disagreed with the following statements: *"We cannot pay higher wages (low demand for our products/services or high level of competition)," "We do not need to pay high wages as there are few competing employers," "We do not have to pay high wages as we can offer a lot of valuable facilities that compensate for higher wages (job security, work environment, etc),"* and *"We need to keep wages low to invest the profit we generate in other strategic priorities (e.g. research and development, marketing).*".

Overall, there is less clear agreement among firms that declare that they pay lower wages than their competitors.

FIGURE 3. Motives for Offering Higher or Lower Wages



Notes: Panel A shows responses to the question *"Why do you offer higher wages than others in your industry? Please state your position on the following statement."* (shown to firms reporting higher wages than competitors; see Figure 1). Nonresponses are coded as "Neutral" (N = 481). "Disagree" was merged with "Neutral" for the item "To retain employees" to comply with Statistics Denmark's disclosure rules. Panel B shows the analogous question for firms reporting lower wages (N = 241).

Over 50 percent of low-wage-paying firms report being unable to offer higher wages due to low product demand or intense market competition. Only, close to 15 percent of firms disagree with this statement. Conversely, fewer than 15 percent of these firms state that they do not need to raise wages because competition from other employers is limited. More than half of the firms that say they pay lower wages think that paying high wages is unnecessary because they offer positive job amenities. This is consistent with recent work on amenities and firm wage premiums (e.g., Humlum et al. (2025)).

5. Conclusion

While a large body of literature demonstrates that firms have some degree of wage-setting power, the empirical evidence on how this power operates in practice remains limited. As Card (2022) notes:

> "Once we accept that firms set wages, the analysis of wage setting becomes a part of labor economics, just like the analysis of price setting is a part of IO. Right now, much of the practical discussion of wage setting is done by noneconomists."

To advance our understanding of why similar workers are paid differently, this paper provides the first large-scale, representative evidence on how employers perceive their wage-setting behavior and the motives behind offering higher or lower wages relative to other firms. We achieve this by designing and implementing a representative survey of firms.

Our findings yield several insights that are valuable to both theoretical and empirical research on wage determination. First, we find that a significant minority of firms misperceive their position in the wage distribution: using our preferred measure, 18 percent hold inaccurate beliefs about their wages relative to other firms. Second, we identify the primary motivation for paying higher wages as the desire to attract new

candidates and retain incumbent employees. In addition, firms report that variation in positive or negative amenities also matters for explaining wage differences.

Beyond their academic relevance, our results may be informative for policymakers. By reducing information frictions on the employer side, the forthcoming EU Pay Transparency Directive may affect both wage-setting behavior and wage inequality.

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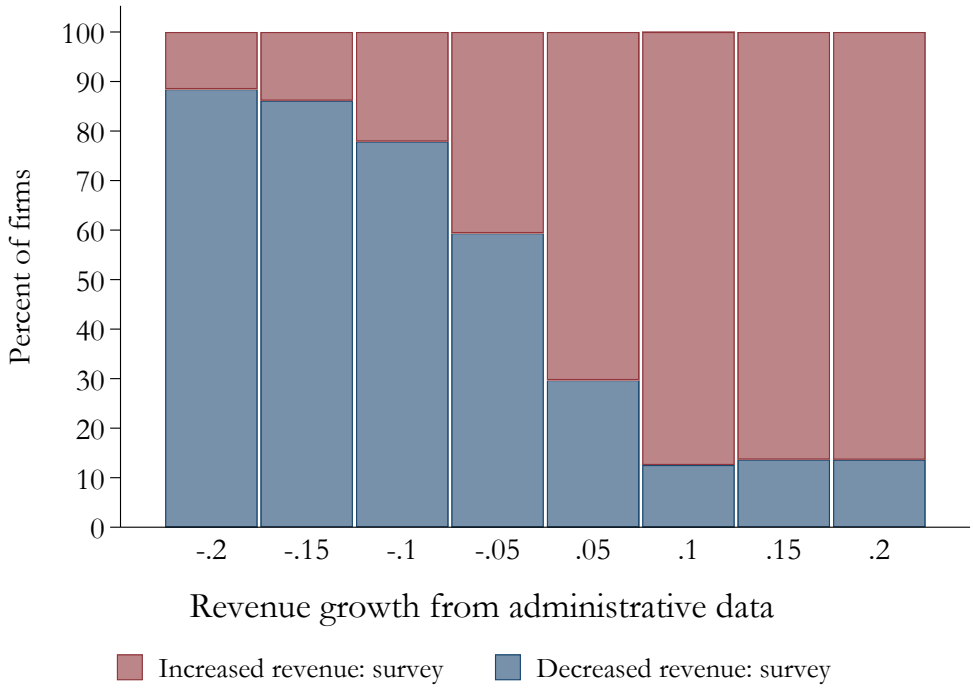
Appendix

A. Additional Figures and Tables

A.1. Figures

FIGURE A.1. Validating Survey: Revenue Change in the Survey and Administrative Data



Notes: This figure shows the percentage of firms that, in the survey, reported revenue increases or decreases between 2019 and 2020, grouped into bins defined by revenue changes in administrative firm-level data (FIRM). All firms with sales growth above 20% or below -20% are grouped into the most extreme bins. Firms in the top percentile of the 2021 revenue distribution have been removed to comply with Statistics Denmark's disclosure rules. The sample includes only firms that reported revenue increases or decreases (N = 2,140).

FIGURE A.2. Alternative Measures of Objective Wages

Notes: The panels show the percentage of firms in each quintile of an objective wage measure, calculated from administrative data, grouped by firms' beliefs about their own wages as reported in the survey. Panel A uses firm wage effects, as in Figure 1. Panel B restricts the sample to firms with at least ten movers to assess potential noise in the AKM estimates. Panel C uses mean hourly wages in 2021 adjusted for workforce education and age, while Panel D uses unadjusted mean wages. Quintiles are calculated within industry–region cells. The sample is described in "Surveyed (Weighted)" column in Table 1. See text for further details.

A.2. Tables

TABLE A.1. AKM Variance Decomposition of Log Hourly Wages

	Baseline Sample	10 Movers Sample
Number of Observations	10,032,967	9,473,497
Number of Firms	115,909	62,516
Number of Workers	2,223,471	2,128,334
Firm Switchers (pct.)	41.46	39.24
Avg. number of firms	1.60	1.55
Log Hourly Wage Distribution		
Std. Dev.	0.384	0.383
Std. Dev. (Residual)	0.359	0.357
Std. Dev. of Firm Effects	0.112	0.101
Std. Dev. of Firm Effects (Bias-Corrected)	0.097	0.091
Std. Dev. of Worker Effects	0.207	0.215
Share of Variance Explained by Firm Effects	0.063	0.056

Notes: This table reports the estimated variance components after fitting the AKM model in Equation 1 to log hourly wages. Variance components are corrected using the leave-match-out bias correction of Kline et al. (2020). The model includes controls for a cubic polynomial in age interacted with education dummies, as well as education-by-calendar-year dummies. "Firm Switchers (pct.)" indicates the percentage of workers who switch to another firm at some point during the sample period. "Avg. Number of Firms" indicates the average number of firms at which a worker is employed during the sample period. "Baseline Sample" refers to the decomposition based on the sample used throughout the analysis, as described in Table 1. "10 Mover Sample" refers to a sample additionally restricted to firms that have at least 10 movers (either in or out) during the sample period.

TABLE A.2. Firms' Characteristics Across Survey Responses

	"Lower"	"About the same"	"Higher"	Total
Number of Employees (%)				
1-10	38.9	33.6	28.5	33.2
11-50	47.3	51.1	58.8	52.0
51+	13.8	15.3	12.7	14.7
Other Firm Characteristics				
Log Wages	3.3	3.3	3.4	3.3
AKM Wage Effecs (Q4)	14.9	24.4	33.5	25.1
Manufacturing (%)	14.7	13.3	9.7	12.8
Services(%)	73.2	65.5	75.0	67.7
Other sectors (%)	12.1	21.2	15.3	19.5
Copenhagen area (%)	41.3	25.6	29.2	27.6
Observations	241	2,167	481	2,889

Notes: This table reports the mean of firm characteristics by survey response. the means are based on the sample described in the column "Surveyed (Weighted)" in Table 1.

B. Further Information on Institutional Setting, Data and Methods

B.1. Wage Setting in the Danish Labor Market

Before presenting our data, we describe the Danish labor market, including the Danish wage bargaining framework, salary benchmarking and transparency practices, and the importance of firm wage effects on wage inequality.

Minimum wage and collective bargaining. There is no national minimum wage in Denmark. Sectoral collective agreements covered 87% of private sector employees in 2017 (DA 2020). This coverage rate is comparable to that in other Scandinavian countries and approximately ten percentage points higher than in continental Europe (Bhuller, Moene, Mogstad and Vestad 2022). However, for 80% of covered employees, collective agreements establish only centrally bargained wage floors, which tend to be nonbinding or provide no specific wage guidelines at all. Evidence collected by Jäger, Naidu and Schoefer (2024) suggests that centrally bargained wage floors tend to be nonbinding in Europe. These wage-setting practices are referred to in Danish as "minimallønssystemet," "mindstebetalingssystemet," and "uden lønsats." [12] For the remaining 20% of workers, the sectoral level agreements set out all the main terms, including wages ("*normallønssystemet*"). Therefore, as summarized in (Mortensen 2003, page 83), Dahl, Le Maire and Munch (2013) and Labanca and Pozzoli (2022), wages are negotiated mainly at the firm level in Denmark.

Salary benchmarking and salary transparency. As in the US (Cullen 2024), firms are prohibited from sharing information regarding their workers' wages with other firms

[12] This contrasts with some European countries. For instance, Gautier (2017) documents roughly 3,000 collective wage agreements in France. *The General Agreement* sets the framework for collective agreements. The General Agreement is signed by the Danish Confederation of Trade Unions (LO, since 2019 called the Danish Trade Union Confederation "*FH*") and the Danish Employer Confederation (DA). The General Agreement established the rules for issues the labor code would regulate in many other countries.

(Datatilsynet 2023). The employer association Dansk Arbejdsgiverforening (henceforth DA) provides the main salary benchmarking tool based on detailed wage information submitted by its members. Based on discussions with employees at DA, we learned that only a small minority of DA members use the salary benchmarking tool. To our knowledge, DA is the only provider of large-scale salary benchmarking surveys in Denmark.[13] Firms in Denmark must prepare wage statistics and share them with their employees.

However, there is no such transparency at the job application level. For instance, it is difficult to find a posted wage in the two most relevant job search platforms in Denmark (Jobindex and Jobnet). Hence, employers cannot learn about the wage policy of their competitors through mandatory wage range posting like, for instance, in Austria (e.g., Frimmel, Schmidpeter, Wiesinger and Winter-Ebmer (2024)).

Wage inequality and firm wage effects. Table A.1 reports that about 6 percent of the variance of wages in Denmark between 2015 and 2021 is explained by firm wage effects, when variance components are estimated using the method developed by Kline et al. (2020). Our estimates are in line with previous estimates in Denmark.[14]

C. Data construction

Our dataset is comprehensive, as we precisely measure a firm's wage policy with labor market data, firms' output with value-added data, and firms' workforce characteristics using the worker characteristics. For example, all paid hours are recorded, and earnings and hours are not top-coded. We measure labor productivity using value-added per full-time equivalent workers and not sales.

[13] The largest companies in Denmark conduct their own surveys, similarly to what has been documented in the US by Bewley (page 92).

[14] For instance, see Morin (2023) and Humlum et al. (2025).

Survey design. When designing the survey, we followed the guidelines recommended by Stantcheva (2023). The target population is private and public limited companies (ApS, *Anpartsselskab* and A/S, *Aktieselskab*) in Denmark that were active in the first quarter of 2021.

The international consulting company Ramboll conducted the online survey by sending invitations to companies in June 2021, through the official Danish email system *"e-boks"*. Online surveys give respondents more flexibility to complete the survey and are less subject to social desirability bias. The international consulting company Ramboll conducted the online survey by sending invitations to companies in June 2021, through the official Danish email system *"e-boks"*. Online surveys give respondents more flexibility to complete the survey and are less subject to social desirability bias. The coverage error, i.e., the difference between the potential pool of respondents and the target population, should be zero, as firms must be able to receive digital mail from the authorities (e.g., the tax authority). Firms' email addresses (via e-boks) are publicly available at datacvr.dk. As all firms are sampled, the planned sample corresponds to the potential pool of respondents.[15] The survey closed at the beginning of August 2021, and a couple of (non-randomized) reminders were sent in July 2021 to increase the response rate.

The email included an invitation letter with details about the survey, such as the completion deadline, the incentives for respondents (i.e., receiving an anonymized benchmark report), and compliance with data protection rules. The letter was designed to recruit as many respondents as possible, minimize selection bias, and appear legitimate and trustworthy. For these reasons, the actual topic of the survey was kept vague, and simple language was used to minimize selection bias. The University of Copenhagen logo was visible, and we explained that all data generated would be handled in

[15]The only variation between the target population and the actual sample is a non-response error. Non-response errors come from respondents ignoring the invitation or answering that they did not want to participate.

compliance with data protection rules.

In addition to the questions considered in this paper, the survey also contained questions on firms' beliefs about layoffs, wage cuts, and hiring constraints. The answers to these questions are analyzed in Bertheau, Kudlyak, Larsen and Bennedsen (2025) and Bertheau, Larsen and Zhao (2023).

Administrative data. The data provider is Statistics Denmark. We link the survey to administrative datasets using the firm-level identifier, the CVR number. This allows us to construct objective counterparts to the beliefs elicited in the survey. Worker characteristics are obtained from several registers (IDAP, UDDA). We measure workforce characteristics by aggregating worker-level information at the firm level.

D. Estimation Error and Inaccuracies

A potential concern in assessing whether firms hold inaccurate beliefs is that we do not observe the true wage policy of the firm, i.e. the true AKM firm effect, but only noisy OLS estimates based on our sample. Even if we take the definitions of inaccuracies in Section 3.3 as given, firms may be mislabeled as having accurate or inaccurate beliefs due to estimation error.

To asses the importance of this issue, we use two approaches. First, we reproduce Figure 1 restricting the sample to firms with at least 10 movers, i.e. workers who switch between firms. Since identification of AKM firm effects relies on movers, this restriction limits the sample to firms for which effects are estimated with less noise.[16] The results, shown in Figure A.2B, indicate that the share of respondents in each firm-effect quintile changes only slightly across survey answers.

The second method uses the fact that we can estimate the magnitude of estimation error in firm effects. Table A.1 reports the variance of firm effects computed both in

[16] For a detailed description of identification in the AKM model, see Kline (2024).

the standard way and using the bias-correction method of Kline et al. (2020), which accounts for estimation error. Assuming that estimation errors are i.i.d., the difference between the two variances provides an estimate of the variance of the estimation error. To assess whether these errors are large enough to affect our conclusions on inaccurace beliefs, we conduct the following exercise.

Let $\hat{\sigma}^2_{PI}$ and $\hat{\sigma}^2_{HE}$ denote the standard and bias-corrected variance estimates of firm effects, respectively, and let $\hat{\tilde{\sigma}}^2_m$ denote the variance of firm effects calculated within market m (industry–region cell) the standard way. For each market, we simulate 100,000 firms by drawing firm effects from a normal distribution with mean zero and variance $\hat{\tilde{\sigma}}^2_m \frac{\hat{\sigma}^2_{HE}}{\hat{\sigma}^2_{PI}}$. For each simulated firm, we then draw an estimation error from a normal distribution with mean zero and variance $\hat{\sigma}^2_{PI} - \hat{\sigma}^2_{HE}$, and define the observed firm effect estimate as the sum of the true effect and the error. The scaling factor $\frac{\hat{\sigma}^2_{HE}}{\hat{\sigma}^2_{PI}}$ ensures that the variances of observed estimates and true effects are $\hat{\sigma}^2_{PI}$ and $\hat{\sigma}^2_{HE}$, respectively, when markets are weighted correctly. We then calculate deciles of true and observed firm effects for each market, which yields the probability $\pi^m_{j,k}$ that a firm's observed effect lies in decile k while its true effect lies in decile j.

We assign each real firm the probabilities $\pi^m_{j,k}$ corresponding to its market m and observed decile k, which gives the probability that its true effect lies in decile j. Using our definitions of inaccurate beliefs, we then compute the probability that a given firm holds inaccurate beliefs. Table A.3 reports the resulting average probability, along with the baseline shares from Table 2. Correcting for estimation noise in this way does not meaningfully change the shares of inaccurate beliefs: 18.07% of firms are classified as having inaccurate beliefs, compared to 17.49% in the baseline.. Note, that this is not because firms labeled as inaccurate are always correctly classified, but because the shifting of firms from "inaccurate" to "accurate" is roughly offset by the mass shifting in the opposite direction.

TABLE A.3. The Extent of Inaccurate Wage Beliefs: Correcting for Estimation Error

	Baseline AKM (same as Table 2)	Corrected for Estimation Error
Baseline		
Underestimate	7.21	7.81
Overestimate	10.28	10.27
Total	17.49	18.07
Alternative 1.		
Underestimate	6.72	7.31
Overestimate	8.74	8.87
Total	15.47	16.19
Alternative 2.		
Underestimate	15.52	15.32
Overestimate	18.26	17.87
Total	33.78	33.18
Observations	2,889	2,889

Note: This table reports the percentage of firms with inaccurate beliefs about how their wages compare to competitors' using the same definitions as in Table 2. In the Baseline row, a belief is classified as inaccurate if a firm reports paying high (low) wages but is in the bottom (top) industry-region quintile of firm wage effects in the administrative data. Firms reporting "about the same" are considered inaccurate if they fall in the top or bottom decile. In Alternative 1, top and bottom deciles (rather than quintiles) are used to define inaccuracies for firms reporting higher or lower wages; the definition for "about the same" remains unchanged. In Alternative 2, the top and bottom quintiles (rather than deciles) are used to define inaccuracies for firms reporting "about the same," with the baseline definition retained for the other categories. The column labeled "Baseline AKM" uses the within industry-region decile calculated using the estimated AKM firm effects as in Table 2. The column "Corrected for Estimation Error" uses the procedure described in Appendix D.

E. The Survey Questionnaire

This section contains the original Danish survey questions and the corresponding English translations. We include only the questions that are used in this paper.

Questions on the role of respondents

- Danish: *Hvad er din rolle i virksomheden. Vælg det der passer bedst.*
  - *Ejerleder*
  - *Direktør uden ejerskab*
  - *Bestyrelsesmedlem uden ejerskab*
  - *Ejer uden at være bestyrelsesmedlem*
  - *Andet: _____*
- English: *What is your role in the company? Choose the one that fits best.*
  - *Owner manager*
  - *Director without ownership*
  - *Board member without ownership*
  - *Owner without being a board member*
  - *Other: _____*
- Danish: *I de følgende spørgsmål vil vi spørge om løn og ansættelsespraksis i virksomheden. Hvor tæt er du på sådanne beslutninger?*
  - *Jeg har ansvaret for løn og ansættelsesforhold.*
  - *Jeg er ikke ansvarlig men jeg kender til og forstår løn og ansættelsesforhold.*
  - *Jeg kender kun en smule til løn og ansættelsesforhold.*
- English: *In the following questions, we ask about pay and hiring practices. How close are you to such decisions?*[17]
  - *I am responsible for pay and employment conditions*

[17] In Danish, the word løn is usually translated as salary, pay or wages. The definition in the dictionary ordnet.dk is "payment that an employee receives for working".

- *I am not responsible, but I know about pay and employment conditions*
- *I only know a little about pay and employment conditions*

Question on change in revenue

- Danish: *Hvor meget ændrede omsætningen sig i 2020 i forhold til 2019? Note: Hvis du ikke kender den eksakte ændring, giv dit bedste bud.*
  - *Faldet med 100%*
  - *Faldet, angiv med ca. hvor meget: _____%*
  - *0% (Uændret)*
  - *Steget, angiv med ca. hvor meget: _____%*
  - *Steget med 100% eller mere*
- English: *How much did revenue change in 2020 compared to 2019? Note: If you do not know the exact change, give your best estimate.*
  - *Reduced by 100%*
  - *Reduced, indicate approximately how much: _____%*
  - *0% (Unchanged)*
  - *Increased, indicate approximately how much: _____%*
  - *Increased by 100% or more*

Main question about relative wages

Danish: *Tror du, at denne virksomhed tilbyder lavere eller højere lønninger end konkurrerende virksomheder i jeres branche? Konkurrerende virksomheder er andre arbejdsgivere, der ansætter folk med samme evner i jeres region. Hvis du ikker er sikker så kom med et estimat.*
Options: *Meget lavere, Lavere, Cirka det samme, Højere, Meget højere.*

English: *Do you think that this company offers lower or higher wages than competing companies in your industry? Competing companies are other employers that hire people with the*

same abilities in your region. If you are not sure, please come up with an estimate.
Options: *Much lower, Lower, About the same, Higher, Much higher.*

Motives for paying a higher wage

If firms answered *Higher* or *Much Higher*, in the question on the relative wage of the firm, they were asked the following question:

- Danish: *Hvorfor tilbyder I højere lønninger end andre i jeres branche? Angiv venligst din holdning til det følgende udsagn.*
- English: *Why do you offer higher wages than others in your industry? Please state your position on the following statement.*

The statements were as follow:

- Danish: *Vi vil gerne kompenserer for negative aspekter ved jobbet (jobusikkerhed, arbejdsvilkår, etc.)*.
- English: *We want to compensate for negative aspects of the job (job insecurity, working conditions, etc.)*.
- Danish: *Vi vil gerne tiltrække de bedste kandidater.*
- English: *We want to attract the best candidates.*
- Danish: *Vi vil gerne ansætte hurtigt.*
- English: *We want to hire quickly.*
- Danish: *Vi vil gerne sikre stabile medarbejdere der ikke skifter job tit (undgå at medarbejdere går over til konkurrenter.)*
- English: *We want to ensure reliable employees who do not change jobs often (avoid employees switching to competitors).*
- Danish: *Vi vil gerne increase employee morale.*
- English: *We want to increase employee morale.*
- Danish: *Vi vil gerne reducere behovet for kontrolllere og monitorere de ansatte.*

- English: *We want to reduce the need to control and monitor employees.*
- Danish: *Vi vil gerne dele den høje indtjening vi genererer med de ansatte.*
- English: *We want to share the high earnings we generate with the employees.*

For each statement, the firms could choose one of the following responses:

- Danish: *Meget enig, Enig, Hverken enig eller uenig, Uenig, Meget uenig.*
- English: *Strongly agree, Agree, Neither agree nor disagree, Disagree, Strongly disagree.*

Motives for paying a lower wage

If firms answered *Lower* or *Much Lower*, in the question on the relative wage of the firm, they were asked the following question:

- Danish: *Hvorfor tilbyder I lavere lønninger end andre i jeres branche? Angiv venligst din holdning til det følgende udsagn.*
- English: *Why do you offer lower wages than others in your industry? Please state your position on the following statement.*

The statements were as follows:

- Danish: *Vi kan ikke betale højere lønninger (lav efterspørgsel efter vores produkter/service eller høj grad af konkurrence).*
- English: *We cannot pay higher wages (low demand for our products / service or high level of competition).*
- Danish: *Vi har ikke behov for høje lønninger, da der er få konkurrerende arbejdsgivere.*
- English: *We do not need to pay high wages as there are few competing employers.*
- Danish: *Vi behøver ikke at betale for høje lønninger, da vi kan tilbyde en masse værdifulde faciliteter, der kompenserer for højere lønninger (jobsikkerhed, arbejdsmiljø osv.).*
- English: *We do not have to pay high wages as we can offer a lot of valuable facilities that compensate for higher wages (job security, work environment etc).*
- Danish: *Vi er nødt til at holde lønninger lave for at kunne inverstere indtjeningen, som vi*

genererer, i andre strategiske prioriteter (f.eks. forskning og udvikling, marketing).

- English: *We need to keep wages low to invest the profit we generate in other strategic priorities (e.g. research and development, marketing).*

For each statement, the firms could choose one of the following responses:

- Danish: *Meget enig, Enig, Hverken enig eller uenig, Uenig, Meget uenig.*
- English: *Strongly agree, Agree, Neither agree nor disagree Disagree, Strongly disagree.*

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