Workplace Amenities and the Gender Wage Gap: Evidence from Denmark*

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Abstract

Using individual-level amenity data from Denmark, we find that differences in workplace amenity choices explain 85% of the Danish gender wage gap. Work-schedule amenities that hinder the work-life balance (for example by conflicting with family responsibilities) explain roughly one-third of this amenity-driven wage differential. Gender-specific selection of amenities within narrowly defined occupations is a more important determinant of the gender wage gap than gender-specific selection into occupations.

Keywords: Gender-wage gap, amenity choices, occupations
JEL Classification: J16, J31, J13, J22, J24

*The views stated in this paper are those of the authors and are not necessarily those of Danmarks Nationalbank or the European System of Central Banks.

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1 Introduction

Why do women continue to earn less than men? Goldin (2014) argues that most of the earnings gap arises within occupations, rather than between them: "What happens within each occupation is far more important than the occupations in which women wind up." She highlights the importance of "work-schedule" amenities —workplace characteristics that support the balance between work and family life— and finds that the gender wage gap is larger in occupations where returns to long hours are higher and schedules more demanding.

In this paper, we ask to what extent broader differences in job amenities — not restricted to work-schedule amenities, but any non-pay characteristic that affects a worker's utility from the job— can explain the gender gap in the hourly wage, which unconditionally amounts to 15.1% in our sample. Using a representative Danish survey on working conditions linked to administrative registers, we estimate compensating differentials of a wide set of amenities, exploiting variation both across and within occupations.

We document three main results: First, we find that men are more likely to hold jobs with positively priced (dis)amenities, and that this selection explains approximately 85% of the unconditional (raw) Danish gender wage gap. Second, using individual-level amenity data, we further examine choices within narrowly defined occupations. Gender differences in amenity uptake within occupations explain up to half of the total effect, explaining a larger share of the unconditional gender-pay gap than gender-specific selection into occupations. Third, the relative importance of work-schedule amenities rises within occupations: Gender-differential uptake in work-schedule amenities remains an important determinant of the gender pay gap also within occupations, whereas the importance of the remaining amenities in explaining the gender pay gap falls substantially. All in all, gender differences in uptake of work-schedule amenities account for about one-third of the total gender wage gap.

Despite growing evidence on the importance of amenities, much of the existing literature on the gender-pay gap struggles with unobserved heterogeneity in ability, finding only a limited role of amenities.[1] Yet, structural models such as Morchio and Moser (2024) assign a large explanatory role to unobserved differences in amenities in accounting for the gender gap. In this paper, we apply a method proposed by Bell (2025), which allows us to estimate the price of amenities from observational data. We contribute to the small but rapidly growing literature that uses Bell's approach to estimate compensating differentials for amenities (Burbano, Folke, Meier, and Rickne, 2023; Folke and Rickne, 2022; De Schouwer and Kesternich, 2024; Ferreira, Haase, Santos, Rabaça, Figueiredo, Hemami, and Almeida, 2019). Overall, our results highlight that job amenities play a central role in shaping the gender wage gap in Denmark.

[1] See Mas (2025) for a review of amenities, and Blau and Kahn (2017) and Olivetti and Petrongolo (2016) for a review of gender-pay gap. For the role of individual work-schedule amenities, see also Cha and Weeden (2014), Goldin and Katz (2016), Bertrand, Goldin, and Katz (2010), Mas and Pallais (2017), Wiswall and Zafar (2018), Cortés and Pan (2019), Cortés and Pan (2023), and Kleven, Landais, and Søgaard (2019).

2 Data

We use two data sources. First, we extract amenities out of the 2021 wave of NOA-L (National Overvågning af Arbejdsmiljøet blandt Lønmodtagere), a national and representative survey of the work environment performed by Arbjedstilsynet (The Danish Working Environment Authority). Second, we enrich our data with information from administrative registers based on individual wage payments, specifically BFL (Beskæftigelse For Lønmodtagere).

Amenity measure. NOA-L covers the responses of 25,520 employed respondents (for more information, see Arbejdstilsynet, 2024) and fields a wide range of questions related to working conditions and general physical/mental health. We follow Darougheh, Dietrich, and Olsson (2025) in constructing 25 standardized workplace amenities covering schedule flexibility, physical demands, and work environment from 51 NOA-L survey questions. These include night work, overtime requirements, noise exposure, job autonomy, and collegial environment. Most amenities directly correspond to a single question, whereas some are generated from clusters of closely related questions, grouped with principal component analysis.[2] We also add commuting distance computed from home and workplace municipality codes. All amenity measures are subsequently standardized. Table 1 lists the amenities and the gender-difference in uptake.

Wages. We use the BFL to create a measure of the gross hourly wage using monthly earnings and monthly hours worked.[3] The survey was performed between February and June 2021, and we exclude individuals with more than one job during that time period.

We restrict the sample for our analysis to workers aged 18-65 with data on occupations. After merging our two datasets and excluding workers with missing responses on any of the amenity questions, we are left with 13,071 observations.[4]

3 Methodology and Results

Estimating prices for amenities. We use the method described in Bell (2025) for measuring compensating differentials in observational data. The underlying motivation is that more productive individuals can choose between jobs that offer more attractive packages of wages and amenities. This creates a spurious correlation between amenities and wages, making it difficult to capture compensating pay using standard wage regressions that attempt to control for (partially unobserved) ability.

[2]We exclude questions about past but infrequent events (for instance: whether one was bullied) as irrelevant, since they are unlikely to be reflected in compensating differentials (see also Folke and Rickne, 2022). For further details on amenity construction see Darougheh, Dietrich, and Olsson (2025).

[3]Our results are robust to using the median of the monthly hourly wage across (i) the entire job spell or (ii) the calendar year 2021.

[4]Non-response rates for individual questions are below 10%.

To address this problem, Bell (2025) proposes to create a proxy that captures the total compensation that workers receive, including both wages and amenities. To create said proxy, we regress an observed but imperfect measure of ability on wages and amenities. Similar to Bell (2025), Folke and Rickne (2022), and Burbano, Folke, Meier, and Rickne (2023), we use years of education, assuming that workers with higher education can choose among jobs with higher total compensation, and estimate for each worker i

$$\text{education}_i = \alpha + \delta w_i + \sum_j \pi_j a_i^j + \epsilon_i, \tag{1}$$

where w_i is log hourly wage, education_i denotes years of education, and a_i^j denotes the j^{th} amenity, $j \in \{1, ..., 25\}$.

This first-stage regression can be used to impute the price for amenity j as $p_j = -\hat{\pi}_j / \hat{\delta}$.[5] The resulting prices are plausible: workers receive compensating differentials for jobs with long or unpredictable hours, night work, physical demands, noise, vibrations, or long commutes, while they accept lower pay for jobs involving emotional involvement, voluntary work on days off, or a strong health-safety commitment. Figure 1 shows the price of each amenity against the difference in takeup between men and women. As the figure shows, there are clear gender differences. Most of the negative amenities (i.e., those that workers are compensated for) have a higher uptake among men. For example, the (dis)amenity "Vibration" (indicating the extent to which the worker is exposed to vibrations from machines or tools) is primarily found among construction workers and in manufacturing, where men are overrepresented.

The largest negative compensating differential is for "Emotional involvement": a one-standard-deviation increase is associated with an 8.8 percent lower wage. For comparison, Burbano, Folke, Meier, and Rickne (2023) show that women disproportionately select into "meaningful work", where a one–standard deviation increase corresponds to a 4–5% wage penalty. Although measured slightly differently, "emotional involvement" likely captures the same notion—workers give up pay for jobs they find meaningful and important.

Figure 1 colors in red the work-schedule related amenities, and in blue the remaining ("non-schedule") amenities. As the figure shows, men are more likely to take up most of the work-schedule related (dis)amenities. The only exception is shift work (excluding night shifts) which is slightly more common among women. We notably exclude "work on days off" from the group of work-schedule amenities, since this question primarily captures voluntary work on days off, not necessarily due to employer demand.[6]

[5] We estimate the price of all amenities jointly to make the estimated prices less susceptible to cross-amenity correlations. Omitted amenities might correlate with the listed amenities and thus bias their "price estimates" — this is less likely here due to our large set of included amenities.

[6] We understand this amenity to indicate an intrinsic preference towards the job one does — for example academic research.

Gender wage gap. Figure 1 suggests that differences in amenity uptake may play an important role in the gender wage gap. We now capture these effects in a wage regression. Empirically, the challenge is separating the effect of amenities from differences in the offer sets that men and women face (e.g. due to ability differences or discrimination). Following Bell (2025), we estimate

$$w_i = \rho + \beta \text{female}_i + \gamma \widehat{\text{TC}}_i + \epsilon_i, \tag{2}$$

where $\widehat{\text{TC}}_i$ denotes the proxy for total compensation, for which we use the predicted values from equation (1). Once controlling for total compensation, the remaining relationship between wage and gender captures compensating pay for gender-differences in amenity selection (for details, see Bell, 2025).

Table 2 summarizes our results. We find that unconditionally, women earn 15.1% lower wages than men (column 1). In column (2) we control for total compensation, effectively comparing men and women that receive offers with similar total compensation. We find that women earn 12.8% lower wages than men with similar total compensation. Since these are men and women with jobs that offer similar total compensation, these 12.8% lower wages must be caused by women sorting into jobs that offer more amenities, but lower wages.

The role of occupations. Figure 2 shows the share of variance in different amenities explained by differences between occupations. As the figure shows, relocation risk and stress can be found in virtually all occupations, while noise, vibrations, and physical demands are more occupation specific (primarily among workers in construction and manufacturing). Likewise, for the amenities related to scheduling and time constraints (shown in red), long commutes are relatively spread out across occupations, while night work is more occupation specific.

We now turn back to our wage regressions and further decompose the gender-wage gap into within-occupation amenity choices by including occupation fixed-effects in the second-stage regression (2). Columns (3)-(6) in Table 2 include occupation-fixed effects at the two-digits and three-digits aggregation.

We find a similar β-coefficient in columns (3) and (1): gender-specific selection into the 48 major occupations only contributes two percentage points to the gender wage gap. Column (4) indicates that women still earn 8.3% lower wages than men with the same total compensation and the same occupation: within-occupation differences in amenity choice significantly contribute to the gender-wage gap.

Columns (5) and (6) repeat the previous exercise within 448 narrowly defined occupations. Within these narrowly defined occupations, we still find that gender differences in amenity choices lead to women earning 6.4% percent less than men of similar total compensation — a magnitude comparable to the importance of gender-specific selection into these narrowly defined occupations (15.1%-9.2% = 5.9%).

We conclude the analysis by comparing the role of work-schedule and non-schedule amenities. Figure 3 approximates the importance of each amenity bundle in explaining the gender-wage gap by summing the amenity prices within each bundle, weighted by the gender difference in exposure to that amenity. We find that work-schedule amenities make up approximately one-third of the total effect of amenity choices on the gender-wage gap. Once computing gender-differential exposure within occupations, the importance of non-schedule amenities shrinks, whereas the importance of work-schedule remains: occupations are mostly characterized by their non-schedule amenities, whereas each occupation allows workers to choose between jobs with high and low work-schedule amenities. Work-schedule amenities make up almost two-thirds of total amenity contribution to the gender-pay gap within narrowly defined occupations.

4 Conclusion

We find that amenity choices – across and within occupations – explain a majority of the gender pay gap. A substantial share of this effect is driven by work-schedule (dis)amenities, which make it more difficult to balance work and family responsibilities. While women are more likely to select jobs compatible with family responsibilities, it remains unclear whether this reflects preferences, constraints, or other mechanisms—an important question for future research.

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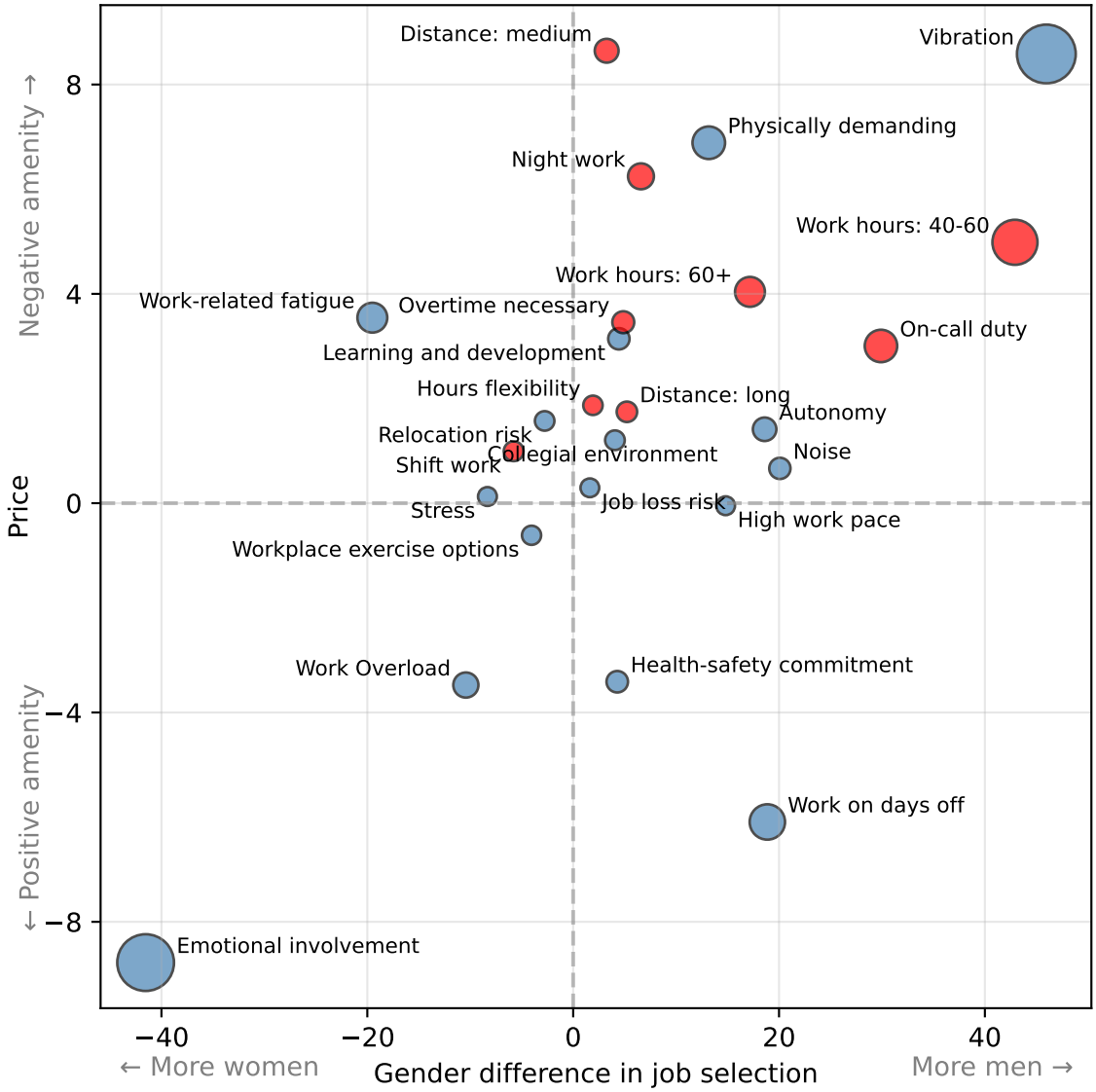
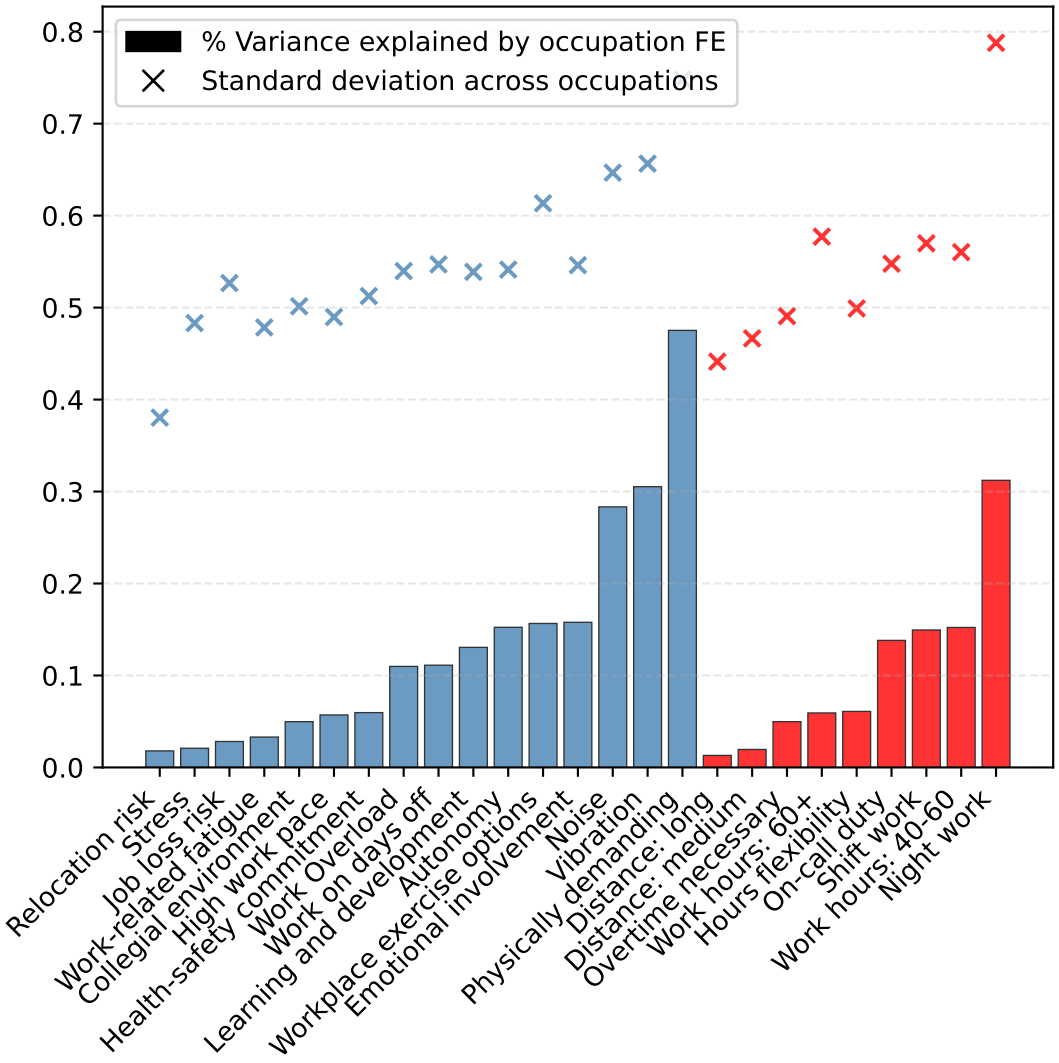
A Figures

Figure 1: Gender-specific selection into amenities and market price



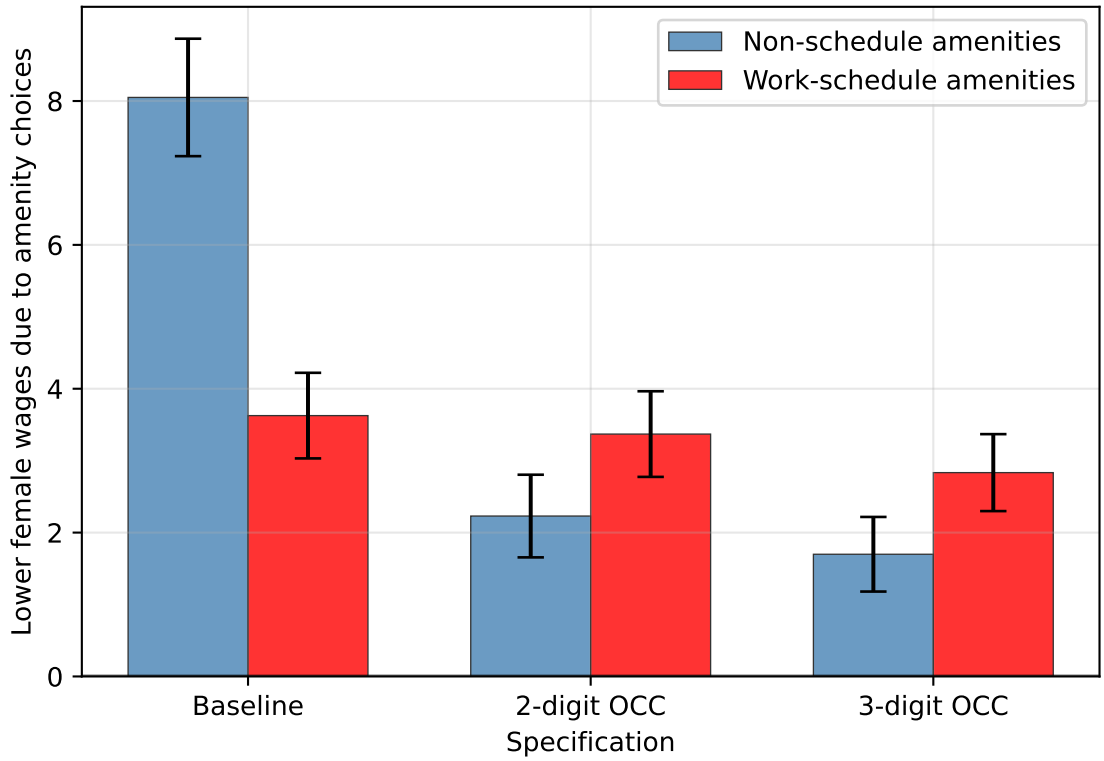
Notes. The price of each amenity is computed as $p_j = -\hat{\pi}/\hat{\delta}_j$ after estimating regression (1). The gender difference is the difference in mean exposure to a given amenity across men and women. Note that the price indicates the price for a standard deviation of the amenity. All amenities are standardized using the sample population. The red color indicates work-schedule amenities.

Figure 2: Amenity variation within and across 448 occupations



Notes. The bars indicate the share of variance explained by differences between occupations (intraclass correlation), computed from a random effects model. The crosses indicate the dispersion of the occupation-average of each amenity across occupations. We use the highest disaggregation of occupations (448 individual occupations). All amenities are standardized using the sample population.

Figure 3: The importance of amenity bundles in the aggregate and within occupations



Notes. We approximate the effect of amenity choices on lower female wages by summing up the amenity prices within each amenity bundle, weighted by the gender-differential exposure to each amenity. The two-digit and three-digit results are computed by using the within-occupation differential exposure.

B Tables

Table 1: List of amenities

Amenity Name	Gender difference
Work-schedule Amenities	
Shift work	−0.06
Hours flexibility	0.02
Distance: medium	0.03
Overtime necessary	0.05
Distance: long	0.05
Night work	0.07
Work hours: 60+	0.17
On-call duty	0.30
Work hours: 40-60	0.43
Non-schedule Amenities	
Emotional involvement	−0.42
Work-related fatigue	−0.20
Work Overload	−0.10
Stress	−0.08
Workplace exercise options	−0.04
Relocation risk	−0.03
Job loss risk	0.02
Collegial environment	0.04
Health-safety commitment	0.04
Learning and development	0.04
Physically demanding	0.13
High work pace	0.15
Autonomy	0.19
Work on days off	0.19
Noise	0.20
Vibration	0.46

Notes. Gender difference: male exposure to the amenity, minus female exposure.

Table 2: Gender Wage Gap: Effect of Amenities

	Baseline		**2-digit OCC**		**3-digit OCC**	
	(1)	(2)	(3)	(4)	(5)	(6)
Female coefficient (β)	-0.151	-0.128	-0.130	-0.083	-0.092	-0.064
	(0.007)	(0.006)	(0.008)	(0.006)	(0.007)	(0.005)
Total compensation included		✓		✓		✓
Occupation controls			48	48	448	448
Observations	13,071	13,071	13,069	13,069	13,007	13,007

Notes. Standard errors constructed by bootstrapping both the first-stage and the second-stage regressions (1)-(2). Columns (3)-(6) include occupation-fixed effects in the second-stage (but not the first-stage) regression. The number of observation falls between the different specifications due to singleton observations in individual occupation cells.