Workplace Amenities and the Gender Pay Gap*

Nabanita Datta Gupta   Yana Gallen
Kristian Stamp Hedeager   Kerstin Holzheu

December 2025

Abstract

Despite decades of rising female human-capital investment, a sizable gender pay gap remains. We ask how much accounting for the value of job amenities—especially temporal and spatial flexibility—reduces the gender gap in compensation in Denmark. We merge a new survey that measures on-call duties, evening work, schedule rigidity, and hours with matched employer- employee administrative records. Around childbirth, mothers switch to jobs with set schedules, shorter hours, and no on-call or evening requirements, moving toward lower-pay firms and firms less preferred by men according to revealed-preference firm rankings. Controlling for these amenities explains almost all post-birth firm sorting. To causally estimate the value of amenities to workers, we run an incentivized discrete-choice experiment: around 1,000 workers choose between hypothetical jobs that trade off wages against the same amenities. We find that women demand wage premia twice as large as men for avoiding on-call work and the ability to vary work time for family reasons. Women also place substantially more value on working near home and from home and on avoiding evening work and time pressure. Adding these valuations to monetary earnings shrinks the gender gap in total compensation to 13 percentage points, almost forty percent smaller than the baseline earnings gap.

Keywords: Amenities, gender, sorting
JEL codes: J31, J16, J22

1 Introduction

Despite decades of gains in women's labor-force participation and education, a stubborn gender wage gap remains. Recent research shows that women place higher value on job amenities such as flexible hours, predictable schedules, and working close to home (Mas and Pallais (2017), Wiswall and Zafar (2017), and Le Barbanchon et al. (2020)). However, we know less about how these amenities are distributed across jobs and how they contribute to gender differences in compensation. In this paper, we link firm-level data from Denmark on specific amenity offerings with incentive-compatible elicitations of Danish workers' willingness to pay for those amenities. This allows us to decompose gender gaps in total compensation into wage and non-wage components.

This paper first documents gender differences in amenities related to temporal and spacial flexibility using rich survey data from the Labor Force Survey (henceforth, LFS) in Denmark linked with administrative data on job earnings and location. Next, we document the evolution of these differences around parenthood, using administrative data on the date of first childbirth for all survey respondents. As noted by Goldin (2014), the time demands of children may be incompatible with some work arrangements. Compensating differentials may create a wedge between the pay of women and men if women trade off monetary compensation for valuable amenities that increase their non-market productivity, such as a short commute to work or a flexible work schedule (Bütikofer et al. (2023); Le Barbanchon et al. (2020); Borghorst et al. (2024)). We find that in addition to an expansion of the wage gap around parenthood, there is a reduction in women's propensity to work long hours, do evening work and on-call work, to work in jobs with variable schedules, and an expansion in women's propensity to work close to home.[1] For men, changes in these characteristics around parenthood are muted and in some cases, opposite signed.

Next, we turn to understanding how these amenities affect relative wages. As the Rosen (1986) model of compensating differentials would predict, women may seek firms that offer these amenities, but perhaps offer lower pay. We first quantify "low-pay" firms using the Abowd et al. (1999) decomposition (hereafter AKM). This method estimates firm-fixed effects in a regression of wages on firm and individual fixed effects, isolating the relative improvement in wages a person with a given skill set can expect by moving to a particular firm.[2] When controlling for amenities in our survey data, the fall in firm pay premia upon

---

[1]We also see that women are *less* likely to work at home after having children, but we note that this data is pre-Covid and the rate of home-work as well as the type of work done at home has changed substantially since 2019, the last year of our survey data on work amenities.

[2]We also include in the regressions select time-varying controls such as age.

motherhood is reduced almost to zero, suggesting that a substantial part of the decline in average pay at firms where women work after motherhood is explained by the value these firms provide to women on other dimensions. Second, we study the evolution of the Sorkin (2018a) revealed preference metric of firm type, called pagerank. When using a pagerank ranking of firms according to the movements of men, we see that women sort away from highly preferred firms around motherhood. However, this relationship completely disappears when we control for firm-level amenities.

Unobservable factors affect worker flows, meaning that we cannot infer the value of amenities to workers or the role of amenities in total compensation from observed worker movements without additional structural assumptions. To answer the question motivating this paper—what is the role of amenities in explaining the gender wage gap—we conduct an incentivized hypothetical choice preference elicitation survey. Using a nationally representative pool of nearly one thousand participants, we estimate how much individuals are willing to trade-off in earnings in order to access additional amenities. Participants are incentivized to truthfully reveal their preferences because they are told that they will receive links to jobs that fit their preferences based on their responses to 30 hypothetical job comparison vignettes.

Our preference elicitation survey reveals that compared to men, women have strong distaste for jobs requiring on-call or evening work, a strong preference for jobs which allow them to vary work time for family reasons, and a strong preference for working near home. We do not find any evidence that, relative to men, women prefer to choose their working hours, avoid irregular hours, or have variable start and end times. We also do not find significant differences by gender in preferences concerning jobs with long hours. These results suggest that some workplace amenities that appear valuable to women based on workplace flows (for example, avoiding variable start and end times of work), may simply be correlated on the supply side with the requirement for on-call and evening work.[3] When we account for the value of amenities to those workers who have these amenities at their jobs, we find that the gender compensation gap (inclusive of these amenities) is 13%. The gender gap in earnings is 21%. This means that the gender gap in compensation is 38% smaller when we include the value to workers of amenities related to temporal and spacial flexibility, relative to when we only measure monetary earnings.

Our paper contributes to the recently expanding literature on the role of amenities in

---

[3]Another possible explanation for the difference in WTP and worker flow estimates is that firms that offer certain amenities also discriminate against women in the hiring process. We discuss these possibilities explicitly when describing the methodology and motivation for eliciting worker preferences through a hypothetical choice survey.

attracting workers to particular jobs. Much of this literature has taken a structural approach, including Taber and Vejlin (2020), Morchio and Moser (2024), Lavetti and Schmutte (2018), Berger et al. (2023), Bonhomme and Jolivet (2009), Lehmann (2023), Lamadon et al. (2022), Sorkin (2018a), among others. Most relevant to our own work is Morchio and Moser (2024), which focuses on job attributes and the gender wage gap in the formal sector in Brazil using administrative data. The administrative data includes the amenities part-time work, whether a worker reports being fired for unjust reasons, parental leave length, and the risk of dying in work accidents. Morchio and Moser (2024) document some sorting around these specific attributes, but most of their focus is on inferring the role of compensating differentials using the structure of worker sorting and firms pay. Our focus differs both in the types of amenities studied—our data include measures of amenities that are hypothesized to be especially important for women with children—and in how we estimate the value of specific workplace attributes to derive a compensation measure that includes these amenities. In contrast, Morchio and Moser (2024) infer compensating differentials associated with amenities based on worker sorting, finding that these differentials explain about half of the gender pay gap. Our results are consistent with this—for the specific amenities we are able to measure, women have substantially higher willingness to pay. Accounting for the value of these amenities leads to a 38% smaller gap in compensation by gender, relative to the gender wage gap.

Contemporaneous and non-structural work on the importance of compensating differentials in the labor market includes Humlum et al. (2025) and Caldwell et al. (2025). These papers use surveys to explicitly estimate the relationship between worker's expectations of amenities and pay at various firms and their preferences for amenities at those firms in Denmark and Germany, respectively. The papers come to different conclusions. Humlum et al. (2025) finds strong evidence of compensating differentials, and that variation in pay across firms for the same worker overstates the variation in utility of that worker by 50%.[4] This is consistent with our results in the same country. In contrast, Caldwell et al. (2025) finds a weak relationship between amenities and pay and finds no evidence of compensating differentials. Finally, Audoly et al. (2024) uses vacancy data from Norway to quantify the pay and non-pay content of job ads and finds that non-pay attributes explain a substantial portion of employer attractiveness to potential applicants. This complements the work of Fluchtmann et al. (2024) who find gender differences in searching for jobs with shorter hours, a short commute, and which are family friendly. Our paper focuses on which specific amenities women value relative to men, and links this to data on the dis-

---

[4]In related work, Fredriksson et al. (2025) study how exogenous shocks to outside options affect a worker's mobility and their ability to bargain for a wage increase at their present firm.

tribution of these amenities in the labor market, which may be driven by the production technology rather than worker preferences.

We also contribute to the literature estimating worker preferences using hypothetical choices (or "vignettes").[5] In a large, US-based study, Maestas et al. (2023) document worker preferences for job amenities using a hypothetical choices study similar to our setting. Maestas et al. (2023) find a small overall role for amenities they measure in explaining the gender gap in compensation. However, the amenities they study do not include those which we find are especially valuable to women (avoiding on-call work and evening work in particular, as well as the ability to vary work time for family reasons).[6] Before this larger work in the US, Eriksson and Kristensen (2014) use this vignette method in Denmark and provide a summary of its history in the marketing literature. Eriksson and Kristensen (2014) include health insurance, a home pc with internet, job training, and flexible hours in their vignettes, but do not focus on gender differences in the preference for flexibility or on the link between trends in the administrative data in terms of worker-firm sorting and the amenities offered at the firm. While many hypothetical job choice studies are unincentivized, our setting incentivizes truthful reporting of preferences in a methodology similar to Kessler et al. (2019)—participants are giving information about job vacancies aligned with their preferences based on their choices in the study. Our results echo the results of Mas and Pallais (2017), who focus specifically on the preferences of workers for avoiding employer-induced hours irregularity/unpredictability in a field study with workers applying to telemarketing jobs. Using worker flows across jobs in Swedish administrative data linked to the characteristics of jobs measured at the occupation level, Hotz et al. (2017) also emphasize the importance of predictability to women around the time that they become mothers.[7] Finally, our results complement work using vignette studies focused on other important aspects of women's preferences for workplace attributes, including Schuh

---

[5]Notable alternative approaches include structural methods, discussed below, and the approach by Anelli and Koenig (2021), which uses bunching around thresholds for workplace injury compensation.

[6]Their attributes do include "setting one's schedule" but we find that this attribute does not seem to be differentially important to men and women, despite its apparent correlation with the attributes that we find to be important. One reason for this may be that women do not especially value being able to set their own schedule, beyond being able to adjust work time as needed. Our research highlights the importance of stating amenities in ways that are interpreted similarly by workers/study participants and researchers.

[7]Other notable work on the value of workplace flexibility to employees includes He et al. (2021) and Wiswall and Zafar (2017). Using a field experiment in Chinese job ads, He et al. (2021) find evidence that workers value workplace flexibility. In a hypothetical choice experiment using US college students, Wiswall and Zafar (2017) find that female students have a higher willingness to pay for job stability and flexibility compared to male students. Our setting narrows the jobs attributes most important to workers and we connect these attributes to firms in a matched administrative data setting to understand how these relate to other measures of firm preferences and sorting around motherhood.

(2024), Nagler et al. (2023), and Folke and Rickne (2023), who emphasize workplace composition, performance pressure, and avoiding jobs with workplace environments hostile to women. Based on Folke and Rickne (2023), Hampole et al. (2024), and Humlum et al. (2025), the work environment is an important dis-amenity, but unfortunately we do not have data on this job characteristic in the LFS. Based on this literature, incorporating some measure of workplace culture into our calculations would likely further reduce the gender gap in total compensation.

Finally, our results also contribute to the literature on the role of firms in explaining gender differences in pay. Card et al. (2015) document the role of firms in explaining the gender pay gap through the lens of a Oaxaca-Blinder decomposition. Tannenbaum et al. (2025) later does this in the US and with a focus on motherhood. Both papers find that women sort into lower pay firms and that women at a given firm are paid less than men, conditional on their own skill as measured by an AKM wage decomposition. Our results suggest that firm quality is multi-dimensional, and that high pay does not always signal high productivity, desirable firms. Indeed, we see that women and men's preference for firm types begin to differ, especially after childbirth, such that women begin sorting away from high paying firms that have measurably worse amenities on several dimensions. Thus, our results contribute to the pay premium literature by broadening the definition of firm quality.

The paper proceeds as follows. In section 2, we provide an overview of the institutional setting. We then detail our data sources in section 3 and methodology in section 4. Section 5 shows our results and section 6 concludes.

2   Institutional Setting

The study focuses on the labor market in Denmark, a country with high female labor force participation and relatively small employment losses around childbirth. Over our sample period (2008–2019), the average labor force participation rate for Danish mothers with children at home was 79%, compared to 84% for fathers in the same situation.[8][9] Our empirical strategy relies on survey information about job attributes that is only observed for employed individuals. The high employment rates for both genders, and

---

[8]Statistics Denmark, Statistikbanken, https://www.dst.dk/da/Statistik/emner/arbejde-og-indkomst.

[9]Although 2008 marks the beginning of the financial crisis and a temporary rise in unemployment, the labor market recovered from around 2011 onward. Unemployment rates stabilized and began to decline from mid-2011. To absorb residual business-cycle variation, all specifications include year fixed effects.

the comparatively small decline in female employment around motherhood, suggest that selection into employment is less severe than in many other OECD countries.[10]

During the period we study, the statutory parental leave system is stable. The most recent reform before our period took place on March 27, 2002, extending parental leave to 52 weeks. Of this, 4 weeks before birth and 14 weeks after birth are earmarked for the mother, while 2 weeks (within the first 14 weeks after birth) are reserved for the father. The remaining 32 weeks, offered at a reduced benefit rate, can in principle be shared between parents but are predominantly taken by mothers; Lassen (2023) report that mothers extended their leave by about 5 weeks following this reform. The parental leave scheme then remains unchanged until July 1, 2022, when a reform equalizes earmarked leave to 2+9 weeks for each parent. Firms may top up statutory benefits, and many private-sector employers do so while drawing reimbursements from centralized parental leave funds. Some firms offer even more generous arrangements to highly productive employees.

Despite high employment, gender differences remain on the intensive margin. Women work approximately four hours fewer per week than men on average and are more likely to work part time: 27% of women work part time compared to 9% of men.[11] Danish labor markets also display substantial gender-based sorting across industries, occupations, and firms. Gallen et al. (2019) document that although the gender pay gap has narrowed over the past 30 years, a gap of around 20% remains among recent cohorts, roughly half of which cannot be explained by hours, occupation, or education/field of study and is instead attributed to differential impacts of parenthood on men and women.

Workplaces in Scandinavia are often characterized by high levels of trust and autonomy, relatively flat organizational structures, and a strong emphasis on work–life balance.[12] These features reflect, in part, the historical expansion of the female workforce. Women in Denmark entered the labor market in large numbers in the 1970s, coinciding with the rapid expansion of the public sector (Rosen, 1997). Denmark now ranks high on work–life balance indicators, with a negotiated 37-hour workweek, five weeks of paid holiday

---

[10]Employment around motherhood is plotted in Appendix Figure A1. As discussed by Kleven et al. (2024), there is about a 13 percent employment "motherhood penalty" in Denmark in slightly earlier cohorts, a pattern we replicate in our data. For comparison, Kleven et al. (2024) report employment motherhood penalties of 50% in South Korea, 25% in the United States, and almost 40% in Austria.

[11]Statistics Denmark, AKU, https://www.dst.dk/da/Statistik/dokumentation/metode/aku-arbejdskraftsundersoegelsen.

[12]Earlier research shows that such organizational practices do not necessarily reduce gender wage gaps; see Datta Gupta and Eriksson (2012) and Zimmermann (2021).

per year, and relatively high leisure time for working individuals.[13] At the same time, Danish employed women still perform the majority of housework and childcare at home (Bonke and Christensen, 2018), suggesting that they may particularly value amenities that facilitate combining paid work and family responsibilities.

3 Data

We combine administrative matched employer–employee registers, repeated cross-sectional Labor Force Survey (LFS) data, and a separate preference elicitation survey. The registers provide near-universe coverage of employment relationships and firm identifiers, the LFS supplies detailed information on job amenities, and the survey experiment is used to estimate workers' willingness to pay (WTP) for these amenities. We now describe each data source in turn.

3.1 Matched Employer–Employee Data

The administrative data are drawn from the eIncome Register of Statistics Denmark, combined with the Business Register and the Population Register. The eIncome Register is based on information reported to the Danish Ministry of Taxation and covers all in Denmark aged 16–65 between 2008 and 2019. It contains, for each employment spell, monthly contractual hours worked, employment duration, firm and establishment identifiers, and exact start and end dates of employment.

Using a unique person identifier harmonized across all registers, we link these data to information on the distance between workers' home and workplace, age, gender, date of birth of the first child, occupation (from union records), and education. The administrative data further allow us to construct firm-level measures of wage premia and worker mobility patterns, from which we derive firm rankings as described in Section 4.

Similar administrative registers have been used extensively in recent work on the Danish gender pay gap (e.g., Kleven et al., 2019; Gallen et al., 2019; Gallen, 2023; Borghorst et al., 2024). Our contribution is to link these administrative records, via the unique person identifier, to the amenities information reported in the Danish LFS.

---

[13]OECD Better Life Index, https://www.oecdbetterlifeindex.org.

3.2 Labor Force Survey

The Labor Force Survey (LFS) is a nationally representative repeated cross-section conducted by Statistics Denmark. We compile all available survey waves from 2008–2019. Each yearly LFS surveys around 50,000 individuals in the 15–74 age range.[14] Respondents enter the sample throughout the year and are interviewed four times on a quarterly basis. In each interview, they report their labor market status and detailed information about their job during a specified reference week.

The core questionnaire includes questions on current employment status, usual and actual hours worked, whether hours are full time or part time, and the timing of work (e.g., evenings, weekends, shifts). It also asks whether work can be performed from home, whether start and end times are fixed, and whether the employer expects workers to be on call. In addition, in some years the LFS fielded ad hoc supplements on topics such as the possibility to vary work time for family reasons, whether the employer or worker decides work hours, whether the worker decides the content of their tasks, and whether work must be performed under time pressure. These supplementary questions are available only in one to three years, depending on the variable, and are asked of a smaller subsample. Given their potential importance for understanding mothers' preferences over amenities, we include them in our analysis wherever possible.

The LFS does not directly identify firms. To link workers to firms, we use a monthly wage register (BFL) that records the employer paying the wage. For each LFS reference week, we identify the month containing that week and assign the firm from which the worker received wages in that month. If wages are received from multiple employers, we select the employer paying the highest wage, consistent with the LFS instructions that questions refer to the main job. If the reference week straddles two calendar months, we assign it to the earlier month. In the rare case that a respondent changes firms during the reference week, we assume that responses refer to the employer at the beginning of the week.

Table 1 reports summary statistics for the key variables in our analysis, combining the LFS with the matched employer–employee registers. Many workplace characteristics captured in the LFS relate to the family-friendliness of the work environment. For example, one variable available in every wave asks whether start and end times are fixed or flexible. About 39.2% of women report variable start and end times, compared to nearly 45% of men. Another measure of irregularity is the absolute difference between usual and actual hours worked, where women exhibit substantially greater regularity than men. Women

---

[14]The minimum number of responses per year is about 46,000 and the maximum is about 53,000.

are also about ten percentage points less likely than men to report being expected to work during their free time. During our (pre-COVID) period, roughly 30% of workers report being able to work from home. The LFS also allows us to identify a "long-hours" indicator—working more than 45 hours per week—that cannot be observed in administrative data due to the contractual cap at 37 hours. We find that about 7% of workers fall into this category, with men almost twice as likely as women to work very long hours. Finally, the combined data show sizable gender differences in commuting distance: men commute on average 28 km to work, while women travel about 19 km.

3.3 Preference Elicitation Survey

To estimate workers' valuation of amenities, we field an incentivized hypothetical choice experiment with a sample of Danish workers drawn via the European survey firm Bilendi. The full questionnaire is reproduced in Appendix C.2. Respondents are initially screened on employment status, since some of the job attributes in the experiment are defined relative to their current wage. Recall from Section ?? that employment rates are very high for both Danish men and women, including mothers and fathers.

In the first part of the survey, we collect background information on respondents' current jobs, including the same amenity dimensions measured in the LFS. Summary statistics for these characteristics are reported in Table 2. Consistent with the patterns in the LFS (Section 3.2), women in the survey sample are less likely than men to have control over their working hours, to work long hours, and to work during their free time, and they are less likely to work far away from home. Table 2 also shows that the sample is broadly representative of Danish workers: education distributions are similar across genders, with women somewhat more likely to hold a Master's degree and less likely to have vocational training than men. Most respondents work in professional occupations, with men more concentrated in managerial positions and women more often in clerical support and service jobs.

In the second part of the survey, we implement the choice experiment. Participants are informed that, based on their responses, we will later generate individualized recommendations for current job vacancies.[15] This feature provides a real, though indirect, incentive

---

[15]Each respondent evaluates 30 job contrasts. For each individual, we identify three vacancies among current Danish job postings in the same occupation that match the worker's preferred attributes, defined as those amenities with estimated coefficients significant at the 10% level in the preference elicitation. If no amenity coefficients are statistically significant, we select three well-paying vacancies in the individual's occupation. Recommendations were sent to respondents approximately three months after the survey. More than 50% of respondents indicated that they wished to receive these recommendations, despite

9

to reveal true preferences even though the choices are hypothetical. Respondents are then shown 30 pairs of job profiles and, for each pair, asked to choose the job (labeled a or b) they would prefer.

Each job profile varies a set of amenities chosen to align closely with the LFS measures. Specifically, we randomize: whether the worker chooses working hours; whether start and end times are variable; whether weekly hours vary; whether the job has long hours (longer than full-time), full-time hours, or part-time hours; whether work time can be varied for family reasons; whether the job includes evening work; whether the worker is expected to be available to work during free time (on call); whether it is possible to work from home; whether the pace of the job involves working under time pressure; whether the workplace is near (< 15 km) or far (> 30 km) from home; whether the worker decides the content of their tasks; and the salary level, expressed as a percentage of current pay. All amenity attributes are randomly drawn for each profile with equal probability over their support, and the wage attribute is randomly drawn between 100% and 120% of the respondent's current wage.

4 Methodology

This section describes the construction of the main variables and the empirical methods. Based on a simple conceptual setting (Section 4.1), we first outline the measurement of firm rankings (Section 4.2) and firm-level amenities (Section 4.3). We then describe the event-study design around childbirth (Section 4.4), and our approaches to measuring willingness to pay (WTP) for amenities (Section 4.5).

4.1 Conceptual Overview

Individual i of gender g derives indirect utility from job j according to

$$V_{ij} = \gamma^g + Z'_{ij}\beta^g + \varepsilon_{ij}, \tag{1}$$

where Z_{ij} collects job characteristics, including wages and amenities, β^g is a gender-specific vector of valuations, and ε_{ij} is an idiosyncratic shock. Specifically,

$$V_{ij} = \gamma^g + \beta^g_w \ln W_{ij} + \beta^{g'}_A A_j + \Omega^g_j + \varepsilon_{ij},$$

---

being currently employed.

where W_{ij} is the wage component, A_j is a vector of observed amenities at firm j, β_w^g and β_A^g are gender-specific valuations of wages and amenities, and Ω_j^g is a continuation value capturing unobserved components of firm j that are common across workers of gender g.

4.2 Firm Rankings

A firm-level valuation index is obtained by averaging individual utility over workers at firm j by gender g:

$$V_j^g \equiv \mathbb{E}_i \left[V_{ij} \mid j, g \right] = \gamma^g + \beta_w^g \ln W_j + \beta_A^{g\,\prime} A_j + \Omega_j^g,$$

To operationalize these objects, three measures are employed. First, the wage premium offered by firm j, conditional on worker composition, is captured using the Abowd et al. (1999)—hereafter AKM—firm fixed effect, ϕ_j, which provides a measure of firms' log pay premia and serves as a proxy for $\ln W_j$. Second, firm popularity from the workers' perspective, V_j^g, is summarized using a PageRank-style index that infers rankings from the direction of worker mobility across firms, following Sorkin (2018a). Finally, as a transparent robustness measure of firm attractiveness V_j^g, the poaching rate of Bagger and Lentz (2018) is constructed as the rate at which firms hire workers from other firms relative to hires from unemployment. Each of these firm rankings is estimated separately for men, for women, and for the mixed-gender sample. We provide more detail on these measures below.

AKM Decomposition To relate observed amenities to firms' pay premia, we estimate an AKM decomposition of worker pay in the matched employer–employee data:

$$w_{it} = \alpha_i + \phi_{J(i,t)} + X_{it}'\beta + \varepsilon_{it},$$

where w_{it} denotes log earnings of worker i in year t. The term α_i is a worker fixed effect capturing time-invariant individual characteristics, $\phi_{J(i,t)}$ is a firm fixed effect for firm $J(i,t)$ employing worker i at time t, and X_{it} is a vector of time-varying covariates. We include as covariates worker age interacted with year and schooling.

The fixed effects are estimated relative to an omitted baseline, and the model is identified from wage changes of job movers. The worker effect α_i is often interpreted as a measure of ability rewarded similarly across firms, while the firm effect ϕ_j captures the wage premium that all at firm j receive. AKM firm fixed effects are identified for the connected set of

firms, and we focus on the largest connected set.[16]

PageRank   We construct a mobility-based firm ranking following Sorkin (2018a). Let M^0 denote the matrix of worker mobility across firms, where rows index destination firms and columns index origin firms. The element M^0_{kj} is the number of workers moving from firm j to firm k and M^0_{jk} is the number of workers moving from firm k to firm j. Define S^0 as a diagonal matrix with entries $S^0_{kk} = \sum_j M^0_{jk}$, the total number of moves out of firm k.

Let V^g_k denote the common value workers of gender g attach to firm k, encompassing both monetary and non-monetary aspects. When choosing a destination firm, workers consider V^g_k plus an idiosyncratic component ι, distributed type I extreme value with scale parameter 1. The total utility of a worker at firm k is therefore $V^g_k + \iota$. The probability of choosing firm k over another firm j is then

$$\frac{\exp\{V^g_k\}}{\exp\{V^g_k\} + \exp\{V^g_j\}}.$$

Using observed cross-firm mobility flows, aggregation, and vector notation, the equilibrium condition linking worker mobility to firm valuations can be written as

$$S^{0^{-1}} M^0 \exp(V^g) = \exp(V^g),$$

where V^g is the vector with kth element V^g_k. We compute the PageRank-style measure $\exp(V^g_k)$ as the fixed point of this equation, and interpret it as a proxy for the firm valuation index V^g_j introduced above. The PageRank index is identified within the strongly connected set of firms, which requires that each firm in the set has both inflows and outflows of workers. We construct these rankings separately for men, women, and the pooled sample.

Poaching Rate   We follow Bagger and Lentz (2018) to construct the poaching rate, defined as the fraction of total new hires who are hired from other firms. For firm j, let N^{EE}_j denote the number of new hires drawn from other firms and N^{UE}_j the number of hires from unemployment. The poaching rate at firm j, π_j, is

$$\pi_j = \frac{N^{EE}_j}{N^{UE}_j + N^{EE}_j}.$$

---

[16] As is standard, the largest connected set covers nearly all and firms; see Gallen et al. (2019).

For each firm in our analysis sample, we compute the share of all hires across all years that come directly from other firms. We classify a hire as coming from unemployment if the worker did not hold a job within two weeks of the start of the new employment relationship. Following Bagger and Lentz (2018), we recode unemployment spells shorter than 13 weeks followed by a return to the same employer as part of the original employment spell. We treat all non-employment spells as unemployment, regardless of whether the worker applies for or receives unemployment benefits.

4.3 Amenities at the Firm Level

In addition to using workers' individual responses to survey questions, we aggregate survey responses at the firm level over time and workers to construct measures of average amenities, A_j. We use these firm-level aggregates as regressors when firm rankings are the outcome variables of interest. For survey-based characteristics from the LFS, we average employee responses within firm and across years to obtain firm-level amenity measures. For example, if 20 employees of a given firm appear in the LFS and 5 report working from home, we assign that firm a work-from-home rate of 25 percent for all employees, including those who were never surveyed. We interpret these aggregates as proxies for the underlying firm policies and practices, which are not directly observed.

4.4 Event Studies

We measure the evolution of men's and women's outcomes around the birth of their first child using the event-study approach of Kleven et al. (2019). For an outcome y_{it} of individual i in calendar year t, we estimate

$$y_{it} = \sum_{s=-5}^{10} \delta_s \mathbf{1}\{s = t - M_i\} + \sum_a \alpha_a \mathbf{1}\{a_{it} = a\} + \gamma_t + X'_{it}\beta + \varepsilon_{it}, \qquad (2)$$

where M_i is the year in which individual i has their first child, a_{it} denotes age, γ_t are calendar-year fixed effects, and X_{it} is a vector of additional controls. The coefficients of interest are the event-time coefficients δ_s, which capture the average difference in outcomes between individuals whose first child was born s years ago and individuals who have not yet had a child, net of age, year and control effects. For robustness regarding inference, we consider a simulation approach to address first-stage uncertainty in y_{it} and their effect on standard errors for δ_s. Appendix B.3 outlines this approach.

4.5   Measuring Willingness to Pay (WTP)

We quantify the monetary value workers place on specific amenities using an incentivized survey experiment that elicits preferences over hypothetical jobs with varying characteristics. To put these estimates in perspective, we also construct WTP measures from the administrative data, interpreting revealed preferences from mobility patterns and firm rankings. The two approaches are described in turn.

Survey Experiment   Given the indirect utility specification in equation (1), the difference in utility between job a and job b in choice c for an individual of gender g can be written as

$$V_{iac} - V_{ibc} = (Z_{iac} - Z_{ibc})' \beta^g + \varepsilon_{ic},$$

where Z_{iac} and Z_{ibc} denote the job attributes observed by the participant, and β^g is a gender-specific vector of utility weights on these attributes. We estimate β^g using a linear probability model of the form

$$C_{ic} = \alpha^g + (Z_{iac} - Z_{ibc})' \beta^g + \varepsilon_{ic},$$

where the dependent variable C_{ic} is an indicator equal to one if the individual chooses job a over job b in choice c, and zero otherwise. The constant term α^g captures the average propensity to select job a that is not explained by observed characteristics.

WTP is computed in terms of a percentage of current wages by taking the ratio of the coefficient on an amenity of interest to the coefficient on the salary variable.

The vector of characteristics Z_{ij} includes all amenity attributes observable to the survey participants: whether the worker chooses their working hours; whether start and end times are variable; whether hours vary each week; whether the job has long hours (above full-time), full-time hours, or part-time hours; whether work time can be adjusted for family reasons; whether the job includes evening work; whether the worker is expected to be available to work during free time (on call); whether it is possible to work from home; whether the job involves working under time pressure; whether the workplace is near or far from home; whether the worker decides the content of their tasks; and the wage level as a percentage of current salary. As emphasized by Adams et al. (2025), it is important to distinguish between "employer-led" and "employee-led" flexibility. This distinction is incorporated by including interaction terms that allow the value of hours flexibility to differ depending on whether the employer or the worker sets the schedule.

Administrative Data We also examine how closely the WTP estimates align when using administrative data, assuming that these data capture all relevant amenities. In this case, workers' utility at the firm level, V_j^g, are regressed on job pay and amenity attributes in a way that mirrors the indirect utility specification in equation (1). Let ϕ_j denote the AKM firm fixed effect at firm j, and let A_j be a vector of firm-level amenity indicators for k distinct amenities. The estimating equation is

$$V_j^g = \beta_0^g + \beta_w^g \phi_j + A_j' \beta_A^g + \varepsilon_j^g,$$

where R_j^g denotes the ranking of firm j for gender g, β_w^g and β_A^g are the gender-specific weights on wages and amenities (consistent with those that enter V_{ij}^g), and ε_j^g is an idiosyncratic error term. We interpret ϕ_j as a log pay premium, so changes in ϕ_j correspond to proportional changes in wages. From these estimates, we infer WTP by equating the value of a job with and without a given amenity:

$$\beta_w^g \phi_1 + I_{x_{ijt}} \beta_a^g = \beta_w^g \phi_2,$$

which implies

$$WTP^g = \frac{\phi_2 - \phi_1}{\phi_2} = 1 - e^{-\frac{\beta_a^g}{\beta_w^g}}.$$

We compute standard errors using the Delta method, including for gender-specific differences (see details provided in Appendix B.1). For robustness, we also compute a specification where we back out flow utility ($u_j = \gamma^g + \beta_w^g \ln W_{ij} + \beta_A^{g'} A_j$), following (Sorkin, 2018b; Audoly et al., 2024) and obtain WTP using u_j instead of V_j. Appendix B.2 outlines how we estimate u_j.

5 Results

In the following, we describe our empirical results. First, in Section 5.1 we analyze how the amenity differences described above vary around the event of parenthood. Next, in Section 5.2, we describe the changes in the types of firms women work in around motherhood, and how our conclusions change when we control for the amenities at those firms. These results are consistent with a role for compensating differentials in explaining some of the gender pay gap, but are ultimately correlations which may arise from other models of worker and firm matching as well. In order to quantify the importance of compensating differentials, Section 5.3 assesses the monetary value of these amenities using our preference elicitation survey, and combines these estimates with the administrative data

on worker employment patterns.

5.1 Amenities and Parenthood

Figures 1 and 2 present event studies showing how amenities evolve around the birth of a woman's first child. We will begin by discussing schedule-related variables. While there are no trends in the years leading up to birth in whether start and end-times of work are variable (1b), in the irregularity of hours (1c), in working long hours (1d), and in working in the evening (1f), all of these become substantially less likely upon motherhood. We see smaller effects in the dimension of worker autonomy. Figures 1a, 1e, 2a, and 2e show no trends around motherhood in control over working hours, ability to adjust work-time for family reasons, being on call, and deciding content of tasks, respectively.[17] We also do not see effects on the propensity to work under time-pressure (Figure 2c). Together, these results suggest that new mothers transition to jobs with predictable start and end times, avoid long and irregular hours, and evening work, but do not necessarily do this by getting access to jobs with flexible scheduling, consistent with the interpretation in Hotz et al. (2017).

We corroborate in our data the trends well established in the literature concerning distance to work and earnings impacts of motherhood. We find that women tend to work closer to home after motherhood (Figure 2d): in the population overall, the mean distance between work and home is 23,101 meters (see Table 1), by 10 years after motherhood, women work 4,000 meters closer to home than in the year before motherhood. There is evidence of a pre-birth trend in this distance, but the trend is in the opposite direction (so women get increasingly farther from work as they get closer to having children in the pre-period, but this difference is small relative to post-birth). We also corroborate in our sample a large impact of children on women's labor market earnings. Our estimates of the earnings impacts of motherhood are similar to estimates in Kleven et al. (2019): motherhood is associated with a long term reduction in yearly earnings of about 70,000 DKK, about 20% of counterfactual earnings.

Unlike Kleven et al. (2019), we cannot restrict the sample to be balanced. We might be concerned that there is differential selection of women into the labor force around motherhood. Appendix Figure A1 shows that there is an exit of about 10% of women following motherhood from the labor force. Partly this seems to be reflecting differential non-employment of various cohorts of women, since in the balanced panel this effect is

---

[17]Unfortunately, some of our information on amenities comes from questions which are asked only in one supplement to the LFS in 2019, making it possible to observe women 2 years pre-birth but not more.

reduced to about 7%. To also study whether amenities before child birth correlate with labor force participation after birth, we examine the characteristics of the workplaces of mothers-to-be. Appendix Figure A2b shows that women who do not continue working after birth are on average working at firms with less temporal and spacial flexibility at the job. Conditional on working, there are not composition concerns with the event studies we present: a balanced panel gives the same estimate of the impact on earnings conditional on working as our less-restricted data, as in Appendix Figure A3.

Figures 1 and 2 also present the evolution of amenities around the event of becoming a father for the first time. Where we saw large effects for women—the timing of work, we see muted and shorter-term effects for men. By about five years after becoming fathers, men revert to pre-fatherhood levels of irregular hours, long hours, and evening work, and have only a five percentage point lower probability of working in a job with variable start and end times. There is some evidence that fathers reduce their rate of being on call and their rate of choosing their hours in the short term. In general, there is little impact of parenthood on men's amenities or on their labor market earnings.

5.2 Parenthood and Firms

We next present evidence that controlling for amenities accounts for more than half of the movement of women into lower-pay firms around motherhood, and largely accounts for the sorting upon motherhood away from male-preferred firms.[18] Figures 3 and 6 display the result of estimating equation (2) on pay, firm pay premia, and pagerank. The black line in these figures represents estimates without accounting for firm-level amenities, whereas the blue line incorporates controls for the amenities available at the firm level.

There are several econometric challenges we face when implementing these regressions, and we discuss each in turn before turning to the results. First, these regressions are subject to potential omitted variable bias. When we include amenity controls, we do not interpret the coefficients as identifying the causal effect of amenities on pay premia or firm-rank measures. Rather, we view these results as an accounting exercise that compares firms with identical observable amenities - which may also share similar unobservable amenities - and examines how these restricted comparisons differ from unconditional comparisons across all firms. If we observe that including amenity controls attenuates the relationship

---

[18]In order to eliminate concerns that differences in firm-quality measures are driven by the sets of firms identifying these measures, we present results only for the largest common set of firms across measures and amenities. In particular, this is the set of firms with at least 10 movers in the largest connected set. Differences in the sets for the measures of firm quality are represented in table 3. Our firm measures correlate positively, in a weighted and unweighted sample as shown in table 4 and 5, respectively.

between outcomes and event time, it is reasonable to expect this attenuation to be even greater under perfect measurement of amenities.[19] Second, amenities are measured with error since we construct firm-level averages from survey responses. These survey responses represent a random sample of the population, leading us to assume that measurement error is classical.[20] Additionally, we employ amenity measures as control variables rather than variables of primary interest, so we do not focus on the estimated coefficients on amenities themselves. Consequently, the standard result that measurement error in independent variables causes attenuation bias is not a concern in our analysis. Third, pagerank and firm pay premia are generated outcome variables, requiring adjustment of standard errors for the event time coefficients.[21] We obtain valid second-stage standard errors through simulation-based variance estimation using firm-level estimates of the variance of firm rank measures. For the latter, we follow Kline et al. (2020)'s leave-one-out approach for firm pay premia. We employ a novel method to construct standard errors for the network statistic pagerank based on MLE estimation techniques. This method exploits the fact that the MLE estimate for pagerank is identical to the solution obtained in Sorkin (2017), enabling derivation of standard errors through classical MLE-based methods. Additional details are provided in Appendix section B.3.

Figure 3 displays the result of an event study using in earnings in the top row, and an event study in the average pay premium of the firms where women work in the bottom row. First, the earnings impact of children is attenuated when controlling for the amenities women have access to. Second, the portion of pay associated with the firm in which women work—the firm fixed effects in an AKM decomposition—is largely attenuated when accounting for the amenities women have access to. Accounting for amenities reduces the drop in wage premia around child birth by one-half to two-thirds. The black line presents event study regressions including only event-year, age, and year fixed effects. The blue line presents event study regressions in the same sample of women, but adding the average firm-level responses to LFS questions on amenities, as well as own commuting distance.[22]

---

[19]See Bound et al. (2001) for the discussion of the effect of measurement error in covariates.

[20]In our setting, this assumption is particularly plausible for larger firms with more survey respondents.

[21]In our setting, the underestimated standard errors from using generated firm-level dependent variables present greater complexity than typical two-stage regressions. This relates to the well-studied problem of "limited mobility bias" when estimating firm pay premia effects on total wage variation (see, for example, Bonhomme et al. (2023); Kline et al. (2020); Andrews et al. (2008) and Kline (2024) for a review) and estimation error from finite-sample network statistics with potentially sparse data for pagerank and poaching rank (see, for example, Nowakowicz (2024)).

[22]For each LFS question used in our study: choosing working hours, variability of start and end times, usual vs. actual hours, long hours, possibility of varying work time for family reasons, evening work, on-call duty, working at home, working under time pressure, and choosing the content of tasks, we compute a firm-level average across all years of employee responses. We use these firm-level averages, plus a worker's

In the left-hand-side, we use all amenities, but only include those firms which are present in each year of the administrative data to avoid changes in the composition of firms around the event, since some survey questions are asked only in 2019 and thus skew the sample toward firms present in the year 2019.[23] In the right-hand-side of Figure 3, we present estimates of the same two event studies, but in the sample of firms for which we have data only on the amenities which are asked about in every survey year. The questions asked in every survey year concern hours, irregularity in hours, work from home, evening work and we also control for commuting distance at the individual level. Table 6 summarizes the differences in the samples across these specifications. The event studies depicted in blue and black lines do not have different samples—both include only firms with information on amenities. We note that the black lines are similar across regressions, meaning that the sample of firms for which we see responses to more amenities is not selected in a way related to motherhood.

We find that accounting for amenities attenuates the motherhood penalty as well as the declining relationship between firm pay premium and years since motherhood. Compared to the year before having the child, a women whose oldest child is five years old works at a firm with a more than two percentage point lower pay premium (Figures ?? and ??). Controlling for the amenities at her firm, this difference is reduced to less than one percentage point. This suggests that part of the movement to lower pay firms is explained by the fact that these firms have different types of amenities concerning temporal and spacial flexibility, which are particularly important for women around the time they have children.

When considering measures of revealed preference, it is empirically important in our setting to distinguish between firms popular among women and those popular among men. We see in the black lines of Figure 6 that, around motherhood, women shift to firms preferred by women and away from firms preferred by men. Using the all, as in the top row, masks substantial re-sorting around motherhood. We see a similar pattern—

___

own commuting distance, as controls in the event study regressions depicted in blue in Figures ??, ??, A2a, ??, and ??. Some of these amenities are measured only in 2019, so without further adjustments firms would be disproportionately represented if they are in the data in 2019. To avoid composition problems, we restrict to those firms which are present in the administrative data in ever year of the sample. Small firms are less likely to be in this sample, but firm size does not drive the effects we see. This can be seen in Figure 4 where we additionally control for firmsize. In Figures ??, ??, ??, ??, and ?? we do not require a firm to be present in each year and we use the firm-level average of answers to LFS survey questions on usual vs. actual hours, long hours, working from home, evening work, as well as each individuals' commute distance as controls in the blue event study regressions.

[23]Composition does become a concern if we do not make this adjustment—Appendix Figure A5 presents the results without this restriction. In this sample, the black line which does not include amenity controls follows a different pattern around motherhood than the pattern we see among firms overall.

motherhood is associated with a shift away from firms preferred by men and towards firms preferred by women—using the poaching measure of preferences, which simply uses the ratio of hires from other jobs vs. unemployment as a measure of whether the firm is a high-type or low-type. The poaching rate effects are displayed in Appendix Figure A4. For women, the poaching rate may be a more reliable way to measure preferences as an outcome in an event study since firms popular among mothers will be measured as preferred by women overall in pagerank.

When we control for our proxies for amenities in these figures (the blue lines), we see that the negative relationship between years since event and the firms preferred by men completely disappears, suggesting that the reason women avoid these firms is that they do not have the types of amenities women value around motherhood. Controlling for amenities does not significantly impact how workplaces evolve around motherhood according to the ranking inferred by the movements of women across firms. Again, this relationship is somewhat mechanical, since those places that mothers move to are measured exactly as those places preferred by women in the pagerank metric.

5.3   The Monetary Value of Amenities

We next turn to estimating the value of amenities to those who receive them. We see in Table 1 that women are substantially more likely than men to work in jobs with set, predictable schedules, jobs which are near home, and to avoid evening work and long hours. Many of these differences are exacerbated around parenthood, as in Figure 1. These patterns are consistent with sorting by women into jobs and firms which offer predictability and time with children. However, it may also be the case that women would like to work in higher paying, longer hours jobs, but they are not hired for these positions. In addition, amenities may come bundled in jobs due to the technology of production. If we see that women are less likely to work in jobs requiring them to be on call, and also less likely to work in jobs with variable schedules, it may be that women do not object to variability in scheduling so long as it is done with advance notice.

Table 7 presents what we would infer as worker's willingness to pay for amenities if we ignored omitted variable bias and assumed that worker job changes reflected their preferences over amenities. We see valuations of avoiding evening work of 40% for women, 60% for avoiding long hours, and 46% for working from home. We do not take these estimates seriously, but they do highlight the likely magnitude of omitted variable bias in these regressions and why it is important to move beyond observational data to learn about the value of job characteristics to workers.

In order to estimate the value of amenities to women, we implement the incentivized hypothetical choice preference elicitation survey described in section 3.3. By presenting subjects with paired job vignettes, we measure the tradeoff made in wages and job characteristics by respondents. Figure 7 gives an example of the job contrasts that subjects see in our survey.

Table 8 presents the results of the coefficients in regression equation (4.5) separately for the male and female sample. We observe that men and women generally value job attributes in similar ways. The last column of the table gives the p-value of a test for whether the ratio of the coefficient of interest and the coefficient on wages is significantly different for men and women. We find statistically significant and economically meaningful differences in preferences concerning the ability to vary work time for family reasons, to avoid evening work, to being on call ("Expected to be available for work in free time"), to being able to work from home, avoid time pressure, and to work near home. All other attributes are similarly traded off against wages by men and women.

Turning to average differences in the preferences of mothers compared to women without children, we want the sample of women who are mothers to be similar in other characteristics to the set of non-mothers. We focus on survey respondents who are 27 to 42, in order to obtain a sample similar to what is in event study estimates in Section 5.1.[24]

Table 9 finds significant differences in mothers' WTP for the ability to choose their own working hours, to be able to vary work time for family reasons, to avoid evening work and on-call work, as well as a positive preference for being able to decide the content of their tasks among non-mothers. Among men, in Table 10, we only see significant differences in fathers' preference for (vs non-fathers' aversion to) long hours.[25] Overall, the vignette survey reveals a difference between mothers and non-mothers in measures of control over their work time. These same measures did not evolve around parenthood in the observational data. Consistent with the observational data, we see that mothers prefer to avoid evening work and among men, childless men have similar preferences to fathers. We hesitate to over-interpret these differences between parents and non-parents in our vignette survey. Since our vignette survey is only conducted on one cross-section of Danes in 2024, it is not possible to conduct an event study around the arrival of the first child

---

[24]The average age at which women give birth is 31.5 in 2023. Similar to event study, we include 5 years before and 10 years after this age. The results are similar with other cutoffs, and Appendix Table A1 gives the results using the full sample. In principle one would be concerned that women over 45 are 35% of the non-mother sample and these women do not identify the effect of motherhood in the event studies presented in the previous section. We do the same cutoff for men.

[25]When we expand to including all ages, we see suggestive differences in the value of variable start and end times to fathers and the ability to vary work time for family reasons.

(we do not know years until children for childless women and men and do not ask about the age of children for mothers and fathers). There are likely some differences between parents and non-parents—beyond whether they have children—driving the patterns we report.

To better understand the gender pay gap, we next ask, how do differences in WTP for various job characteristics affect our interpretation of the gender pay gap? The data reveal heterogeneity in the value of these amenities to workers which is correlated with their job choices. When we survey employed individuals, we also ask about the attributes they have access to in their own current job. For all attributes, we see in Figure 8 that workers with those attributes in their current job are more likely to select jobs with these attributes. These differences are highly significant for the ability to choose working hours, work long hours, vary work time for family reasons, work evenings, and work near home.[26]

In order to compute the gender gap in total compensation, we assign to each attribute the worker's WTP for this attribute among workers with similar characteristics (gender) and with access to this characteristic in their own current job, based on our larger LFS survey sample in the year 2019. For each worker i, we multiply an indicator of whether they report access to amenity a by our estimate of the average worker's WTP for this amenity, according to our survey, sum over amenities, add this to that worker's earnings, as below:

$$Compensation_i = I_i + \sum_{a \in A} WTP_a \mathbf{1}\{a_i\} \tag{3}$$

Our calculations are relative to a "default" job in which workers have set schedules set by their employer, without on-call work, evening work, or time-pressure. Workers are expected to be in the office, and do not work within 15 km of home. We present the gender gap in compensation using two different measures of the WTP for amenities. First, we use the overall average level in the survey population. Next, we calculate the WTP for each amenity separately for workers with access to that amenity and those without. We refer to this as an estimate which incorporates sorting.

We find that incorporating the value of amenities into our estimate of workplace compensation narrows the gender gap. Figure 9 presents compensation by gender using three definitions of compensation: earnings, earnings plus the value of amenities on average by gender, as described in equation (3), and earnings plus the value of amenities on average

---

[26]Due to constraints on the number of background questions we could ask in the survey, we did not ask about whether a worker experiences time-pressure on the job or whether they decide the content of their tasks.

by gender for those with access to those amenities. The gender earnings gap conditional on working is 21 percentage points. The gender gap in compensation is 18 percentage points when we use average WTP measures from our survey. This modest reduction in the gender gap is due to a relative rise in female compensation when incorporating the value of amenities and a decline in male compensation when incorporating the value of amenities. When accounting for the fact that workers with access to particular amenities (or who work in jobs with what is considered by most to be a disamenity) tend to have higher valuations of those amenities, as modeled in Rosen (1986) and true in our survey (see Figure 8), we estimate a substantial reduction of the total compensation gender gap to 13 percentage points. This 38 percent reduction in the gender gap in compensation is due primarily to a substantial rise in the compensation of women when we incorporate their value of amenities.

6   Conclusion

This paper explores the relationship between job amenities and gender differences in pay arising due to childbirth. It also explores how amenities affect firm preferences of women and men. Firm preference is measured either by the AKM firm pay premium or by worker-mobility based measures of firm quality based on revealed preference such as the pagerank or the poaching rate. The motivation is to uncover whether a preference for amenities drives differing firm choices of men and women after birth, and how this preference relates to the motherhood penalty. Do mothers accept lower pay after childbirth in return for more family-friendly amenities which enable them to better balance family life and a career? To answer this question, we merge unique survey data on temporal and spatial job flexibility measures to the matched employer-employee administrative data and explore how amenities evolve around the birth of a woman's first child.

We find that impact of children on mothers' earnings is attenuated when controlling for amenities. Second, we find that amenities attenuates the firm pay premium decline after childbirth. Amenities also explain why women avoid firms that do not have the types of amenities that women value after becoming mothers. While these movements are potentially indicative of compensating differentials, they do not necessarily imply that women value these amenities in particular—amenities may be bundled and various forces, including discrimination, may constrain the ability of women to sort into those jobs that they prefer. In order to estimate the value of amenities to workers, we measure the tradeoff workers are willing to make between job characteristics and wages using an incentivized

hypothetical preference elicitation survey. Women are found to prefer jobs in which they do not have to be on call or work evening hours, but there does not seem to be a strong preference for avoiding hours variability *per se*. Accounting for the amenities we measure in the data, the gender gap in compensation is reduced by 38%, to 13 percentage points.

References

Abowd, John M., Francis Kramarz, and David N. Margolis, "High Wage Workers and High Wage Firms," *Econometrica*, 1999, *67* (2), 251–333.

Adams, Abi, Mathias Fjællegaard Jensen, and Barbara Petrongolo, "The Contribution of Employee-Led and Employer-Led Work Flexibility to the Motherhood Wage Gap," *AEA Papers and Proceedings*, May 2025, *115*, 243–47.

Andrews, M. J., L. Gill, T. Schank, and R. Upward, "High wage workers and low wage firms: negative assortative matching or limited mobility bias?," *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 2008, *171* (3), 673–697.

Anelli, Massimo and Felix Koenig, "Willingness to Pay for Workplace Safety," Working Paper 9469, CESifo 2021. Also available as IZA Discussion Paper No. 14919.

Audoly, Richard, Manudeep Bhuller, and Tore Adam Reiremo, "The Pay and Non-Pay Content of Job Ads," Staff Report 1124, Federal Reserve Bank of New York September 2024. Available at SSRN: https://ssrn.com/abstract=4972187.

Bagger, Jesper and Rasmus Lentz, "An Empirical Model of Wage Dispersion with Sorting," *The Review of Economic Studies*, 05 2018, *86* (1), 153–190.

Barbanchon, Thomas Le, Roland Rathelot, and Alexandra Roulet, "Gender Differences in Job Search: Trading off Commute against Wage," *The Quarterly Journal of Economics*, 10 2020, *136* (1), 381–426.

Berger, David W, Kyle F Herkenhoff, Andreas R Kostøl, and Simon Mongey, "An Anatomy of Monopsony: Search Frictions, Amenities and Bargaining in Concentrated Markets," Working Paper 31149, National Bureau of Economic Research April 2023.

Bonhomme, Stéphane and Gégory Jolivet, "The Pervasive Absence of Compensating Differentials," *Journal of Applied Econometrics*, 2009, *24* (5), 763–795.

_ , **Kerstin Holzheu, Thibaut Lamadon, Elena Manresa, Magne Mogstad, and Bradley Setzler**, "How Much Should We Trust Estimates of Firm Effects and Worker Sorting?," *Journal of Labor Economics*, 2023, *41* (2), 291–322.

Bonke, Jens and Anders Eiler Wiese Christensen, *Hvordan bruger danskerne tiden?*, Rockwool Fondens Forskningsenhed, 2018.

Borghorst, Malte, Ismir Mulalic, and Jos van Ommeren, "Commuting, gender and children," *Journal of Urban Economics*, 2024, *144*, 103709.

Bound, John, Charles Brown, and Nancy Mathiowetz, "Chapter 59 - Measurement Error in Survey Data," in James J. Heckman and Edward Leamer, eds., *James J. Heckman and Edward Leamer, eds.*, Vol. 5 of *Handbook of Econometrics*, Elsevier, 2001, pp. 3705–3843.

Bütikofer, Aline, René Karadakic, and Alexander Willén, "Parenthood and the Gender Gap in Commuting," Discussion Paper Series in Economics 11/2023, Norwegian School of Economics, Department of Economics May 2023.

Caldwell, Sydnee, Ingrid Haegele, and Jörg Heining, "Firm Pay, Amenities, and Inequality," 2025. Mimeo.

Card, David, Ana Rute Cardoso, and Patrick Kline, "Bargaining, Sorting, and the Gender Wage Gap: Quantifying the Impact of Firms on the Relative Pay of Women," *Quarterly Journal of Economics*, 2015.

Datta Gupta, Nabanita and Tor Eriksson, "HRM Practices and the Within-Firm Gender Wage Gap," *British Journal of Industrial Relations*, 2012, *50* (3), 554–580.

Eriksson, Tor and Nicolai Kristensen, "Wages or Fringes? Some Evidence on Trade-Offs and Sorting," *Journal of Labor Economics*, 2014, *32* (4), 899–928.

Fluchtmann, Jonas, Anita M. Glenny, Nikolaj A. Harmon, and Jonas Maibom, "The Gender Application Gap: Do Men and Women Apply for the Same Jobs?," *American Economic Journal: Economic Policy*, May 2024, *16* (2), 182–219.

Folke, Olle and Johanna Rickne, "Sexual Harassment and Gender Inequality in the Labor Market," *The Quarterly Journal of Economics*, 2023, *137* (4), 2163–2212.

Fredriksson, Peter, Dogan Gülümser, and Lena Hensvik, "Outside Job Opportunities and the Gender Gap in Pay," 2025. Mimeo.

Gallen, Yana, "Motherhood and the Gender Productivity Gap," *Journal of the European Economic Association*, 10 2023, *22* (3), 1055–1096.

_ , **Rune V. Lesner, and Rune Vejlin**, "The labor market gender gap in Denmark: Sorting out the past 30 years," *Labour Economics*, 2019, *56* (C), 58–67.

Goldin, Claudia, "A Grand Gender Convergence: Its Last Chapter," *American Economic Review*, April 2014, *104* (4), 1091–1119.

Hampole, Menaka, Francesca Truffa, and Ashley Wong, "Peer Effects and the Gender Gap in Corporate Leadership: Evidence from MBA Students," CESifo Working Paper 11295, CESifo 2024. Available at SSRN: https://ssrn.com/abstract=4991793.

He, Haoran, David Neumark, and Qian Weng, "Do Workers Value Flexible Jobs? A Field Experiment," *Journal of Labor Economics*, 2021, *39* (3), 709–738.

Hotz, V. Joseph, Per Johansson, and Arizo Karimi, "Parenthood, Family Friendly Workplaces, and the Gender Gaps in Early Work Careers," Working Paper 24173, National Bureau of Economic Research December 2017.

Humlum, Anders, Mette Rasmussen, and Evan K. Rose, "Firm Premia and Match Effects in Pay vs. Amenities," Working Paper 2025-75, University of Chicago, Becker Friedman Institute for Economics June 2025. Available at SSRN: https://ssrn.com/abstract=5285636.

Kessler, Judd B., Corinne Low, and Colin D. Sullivan, "Incentivized Resume Rating: Eliciting Employer Preferences without Deception," *American Economic Review*, November 2019, *109* (11), 3713 – 44.

Kleven, Henrik, Camille Landais, and Gabriel Leite-Mariante, "The Child Penalty Atlas," *The Review of Economic Studies*, 10 2024, p. rdae104.

_ , _ , and Jakob Egholt Søgaard, "Children and Gender Inequality: Evidence from Denmark," *American Economic Journal: Applied Economics*, October 2019, *11* (4), 181–209.

Kline, Patrick M., "Firm Wage Effects," NBER Working Paper 33084, National Bureau of Economic Research October 2024. Revised February 2025.

Kline, Patrick, Raffaele Saggio, and Mikkel Sølvsten, "Leave-Out Estimation of Variance Components," *Econometrica*, 2020, *88* (5), 1859–1898.

Lamadon, Thibaut, Magne Mogstad, and Bradley Setzler, "Imperfect Competition, Compensating Differentials, and Rent Sharing in the US Labor Market," *American Economic Review*, January 2022, *112* (1), 169–212.

Lassen, Anne Sophie, "Gender Norms and Specialization in Household Production: Evidence from a Danish Parental Leave Reform," February 2023. Working paper.

Lavetti, Kurt and Ian M. Schmutte, "Estimating Compensating Wage Differentials with Endogenous Job Mobility," Technical Report, Cornell University, ILR School 2018. Working Paper.

Lehmann, Tobias, "Non-Wage Job Values and Implications for Inequality," Discussion Paper 16663, Institute of Labor Economics (IZA) 2023. Also available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id = 4668593.

Maestas, Nicole, Kathleen J. Mullen, David Powell, Till von Wachter, and Jeffrey B. Wenger, "The Value of Working Conditions in the United States and the Implications for the Structure of Wages," *American Economic Review*, July 2023, *113* (7), 2007–47.

Mas, Alexandre and Amanda Pallais, "Valuing Alternative Work Arrangements," *American Economic Review*, December 2017, *107* (12), 3722–59.

Morchio, Iacopo and Christian Moser, "The Gender Pay Gap: Micro Sources and Macro Consequences," Working Paper 32408, National Bureau of Economic Research May 2024.

Nagler, Markus, Johannes Rincke, and Erwin Winkler, "High-Pressure, High-Paying Jobs?," *The Review of Economics and Statistics*, 07 2023, pp. 1–45.

Nowakowicz, Kamila, "Nonparametric Network Bootstrap," 2024. Unpublished manuscript.

Rosen, Sherwin, "The Theory of Equalizing Differences," in Orley C. Ashenfelter and Richard Layard, eds., *Handbook of Labor Economics, Volume 1*, Amsterdam: North-Holland, 1986, pp. 641–692.

_ , "Public Employment, Taxes, and the Welfare State in Sweden," in Richard B. Freeman, Robert Topel, and Birgitta Swedenborg, eds., *The Welfare State in Transition: Reforming the Swedish Model*, University of Chicago Press, 1997, pp. 79–108.

Rubin, Donald B., *Multiple Imputation for Nonresponse in Surveys*, New York: John Wiley & Sons, 1987.

Schuh, Rachel, "Miss-Allocation: The Value of Workplace Gender Composition and Occupational Segregation," Staff Report 1092, Federal Reserve Bank of New York March 2024.

Sorkin, Isaac, "The Role of Firms in Gender Earnings Inequality: Evidence from the United States," *American Economic Review*, May 2017, *107* (5), 384–87.

—, "Ranking Firms Using Revealed Preference*," *The Quarterly Journal of Economics*, 01 2018, *133* (3), 1331–1393.

—, "Ranking Firms Using Revealed Preference*," *The Quarterly Journal of Economics*, 01 2018, *133* (3), 1331–1393.

Taber, Christopher and Rune Vejlin, "Estimation of a Roy/Search/Compensating Differential Model of the Labor Market," *Econometrica*, 2020, *88* (3), 1031–1069.

Tannenbaum, Daniel, Rebecca Jack, and Brenden Timpe, "The Parenthood Gap: Firms and Earnings Inequality After Kids," 2025. Unpublished manuscript.

Wiswall, Matthew and Basit Zafar, "Preference for the Workplace, Investment in Human Capital, and Gender*," *The Quarterly Journal of Economics*, 08 2017, *133* (1), 457–507.

Zimmermann, Florian, "Managing the Gender Wage Gap: How Female Managers Influence the Gender Wage Gap among Workers," *European Sociological Review*, 10 2021, *38* (3), 355–370.

Figures

Figure 1: Parenthood and Amenities
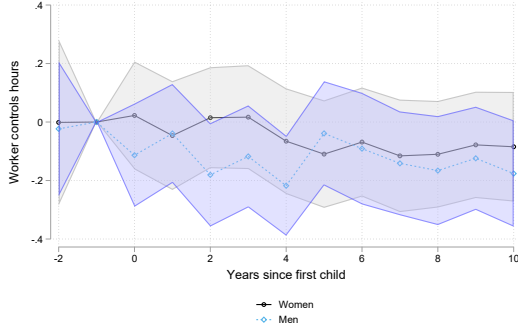
(a) Worker chooses working hours

(b) Start and end times variable
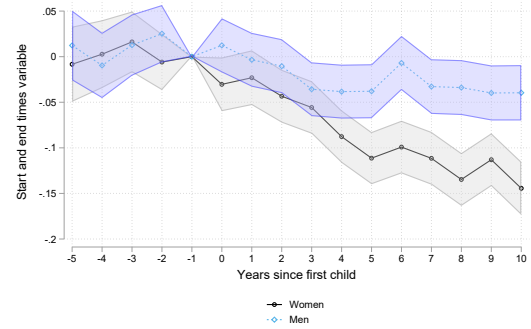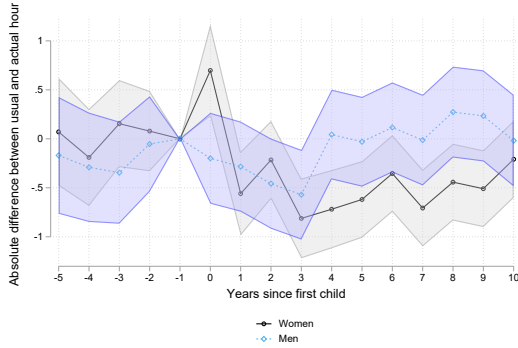

(c) Absolute difference usual/actual hours
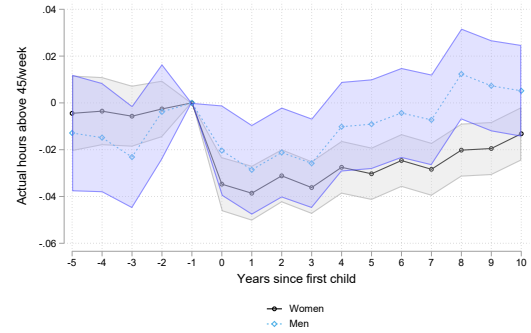
(d) Actual hours above 45/week
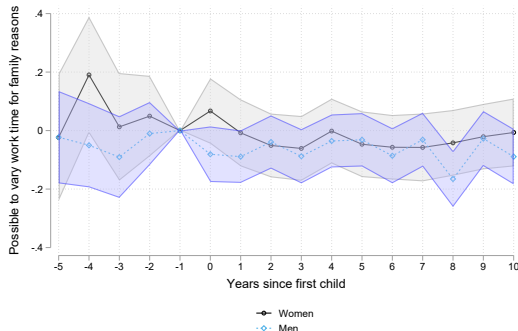
(e) Possible vary work time family reasons
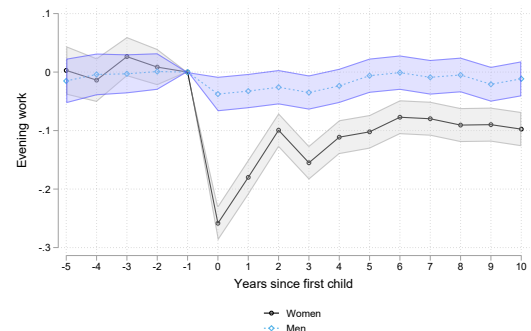
(f) Evening work

Notes: The figure shows the relationship between years since first birth and various workplace amenities, as reported in survey data. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These regressions additionally include fixed effects for individual age and fixed effects for the calendar year.

Figure 2: Parenthood and Amenities (cont)
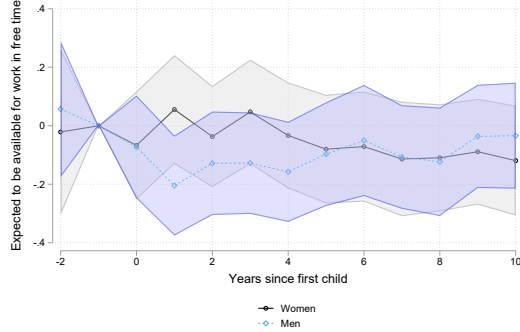
(a) Expected available for work in free time
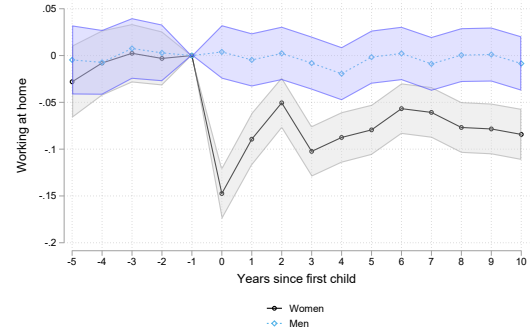
(b) Working at home
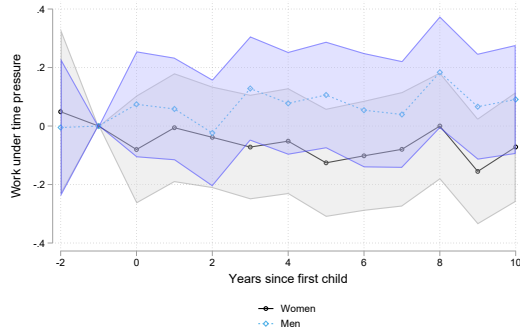
(c) Work under time pressure
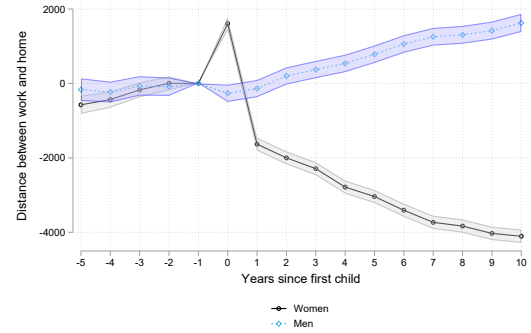
(d) Distance between work and home
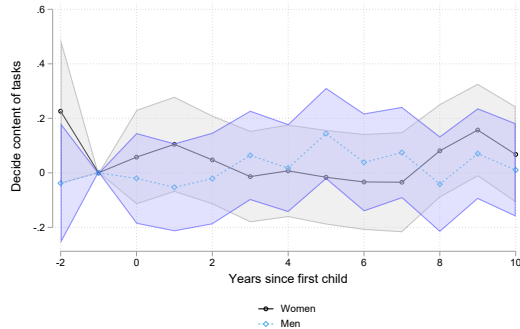
(e) Worker decides content of tasks
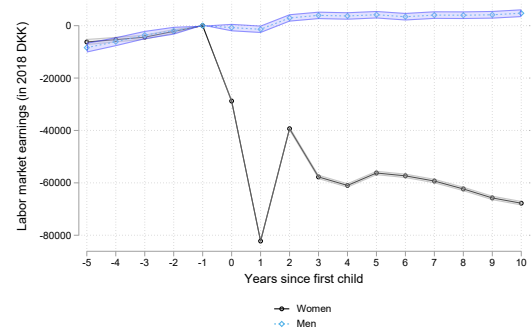
(f) Labor market earnings (in 2018 DKK)

Notes: The figure shows the relationship between years since first birth and various workplace amenities, as reported in survey data. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These regressions additionally include fixed effects for individual age and fixed effects for the calendar year.

Figure 3: Accounting for Firm-Level Amenities—Pay

All amenities   Amenities available in all years

Pay

Firm pay premium

Notes: This figure shows the relationship between years since first birth and measures of pay (first row) and the firm-level pay premium (second row). The solid black line is the result of a regression including only event-year, age, and year fixed effects. The dashed blue line adds to the regression firm averages of the amenities available in the LFS and administrative data. The left-hand-side includes all amenities in these regressions, including those only asked about in one ad-hoc survey. Since some of these questions are asked only in one year, firms present in that year would be differentially selected into the sample and trends may reflect changes in the composition of firms. To alleviate this concern, we restrict to a balanced set of firms which appear in the BFL data in every year in the sample period. The right-hand-side includes a much larger set of firms and a smaller subset of amenities—those measured in every year—in the regressions. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These standard errors are computed taking the measured firm premia as constants.

Figure 4: Accounting for Firm-Level Amenities—Pay Premia accounting for firm size
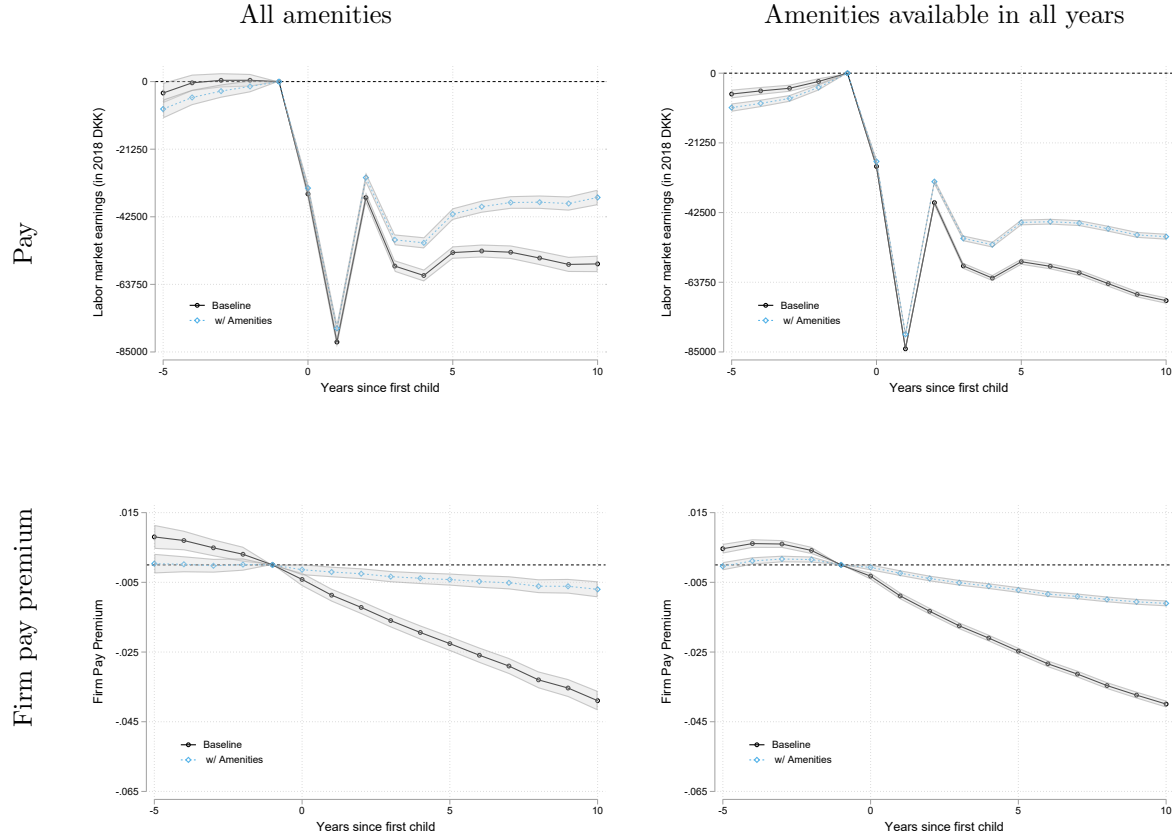
All amenities

Amenities available in all years

Notes: This figure shows the relationship between years since first birth and measures of pay (first row) and the firm-level pay premium (second row). The solid black line is the result of a regression including only event-year, age, firmsize and year fixed effects. The dashed blue line adds to the regression firm averages of the amenities available in the LFS and administrative data. The left-hand-side includes all amenities in these regressions, including those only asked about in one ad-hoc survey. Since some of these questions are asked only in one year, firms present in that year would be differentially selected into the sample and trends may reflect changes in the composition of firms. To alleviate this concern, we restrict to a balanced set of firms which appear in the BFL data in every year in the sample period. The right-hand-side includes a much larger set of firms and a smaller subset of amenities—those measured in every year—in the regressions. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These standard errors are computed taking the measured firm premia as constants.

Figure 5: Accounting for Firm-Level Amenities–Revealed Preference Ranking (Pagerank)

Notes: This figure shows the relationship between years since first birth and measures of which firms are preferred by workers. The first row has pagerank when measured on the subset of women, and the second row has pagerank when measured on the subset of men. The solid black line is the result of a regression including only event-year, age, and year fixed effects. The dashed blue line adds to the regression firm averages of the amenities available in the LFS and administrative data. The left-hand-side includes all amenities in these regressions, including those only asked about in one ad-hoc survey. Since some of these questions are asked only in one year, firms present in that year would be differentially selected into the sample and trends may reflect changes in the composition of firms. To alleviate this concern, we restrict to a balanced set of firms which appear in the BFL data in every year in the sample period. The right-hand-side includes a much larger set of firms and a smaller subset of amenities—those measured in every year—in the regressions. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These standard errors are computed taking the measured firm rankings as constants.

Figure 6: Accounting for Firm-Level Amenities–Revealed Preference Ranking (Pagerank) - Robustness

Notes: This figure shows the relationship between years since first birth and measures of which firms are preferred by workers. The first row has pagerank when measured on the subset of women, and the second row has pagerank when measured on the subset of men. The solid black line is the result of a regression including only event-year, age, and year fixed effects. The dashed blue line adds to the regression firm averages of the amenities available in the LFS and administrative data. The left-hand-side includes all amenities in these regressions, including those only asked about in one ad-hoc survey. Since some of these questions are asked only in one year, firms present in that year would be differentially selected into the sample and trends may reflect changes in the composition of firms. To alleviate this concern, we restrict to a balanced set of firms which appear in the BFL data in every year in the sample period. The right-hand-side includes a much larger set of firms and a smaller subset of amenities—those measured in every year—in the regressions. The gray shaded region is the 95% confidence interval around the point estimate for year since birth. These standard errors are computed using a parametric bootstrap as outlined in section B.3.

Figure 7: Sample Survey Contrasts

	Job A	Job B
Timetal	Deltid - 20 timer om ugen	Fuldtid - 37 timer om ugen
Kontrol over timer	Fastsætter din egen tidsplan	Din arbejdsgiver fastsætter din tidsplan
Arbejde hjemmefra	Ja, medarbejdere kan arbejde hjemme fra nogle dage	Ingen
Mødetid på arbejde	Dine start- / sluttider for arbejdet er variable	Du skal arbejde på bestemte, fastsatte tidspunkter
Brug for at arbejde om aftenen	Aldrig	Ja, ofte
Timetal er regelmæssige	Timerne varierer fra uge til uge	Timerne varierer fra uge til uge
Tempo	Tidspres	Afslappet
Uafhængighed	Dine arbejdsopgaver og arbejdsgange er defineret af din arbejdsgiver	Du vælger selv, hvordan du udfører dit arbejde
Familietid	Det er vanskeligt at tilpasse arbejdstiden af personlige/familiemæssige årsager	Det er vanskeligt at tilpasse arbejdstiden af personlige/familiemæssige årsager
Tilkaldevagt	Du kan blive kontaktet når du har fri for at blive kaldt på arbejde næste dag	Du er ikke på vagt
Afstand	Arbejdspladsen ligger mere end 30 km væk fra din bopæl	Arbejdspladsen ligger inden for 15 km fra din bopæl
Løn	16 % mere end din nuværende månedsløn	14 % mere end din nuværende månedsløn

Hvilket job foretrækker du?

◉ A
○ B

(a) Example of job contrast from survey

	Job A	Job B
Hourly figures	Part-time - 20 hours per week	Full time - 37 hours per week
Control over hours	Set your own schedule	Your employer sets your schedule
Work from home	Yes, employees can work from home from some days	No
Meeting time at work	Your start/end times for work are variable	You must work at specific, fixed times
Need to work on the evening	Never	Yes, often
Hours are regular	Hours vary from week to week	Hours vary from week to week
Pace	Time pressure	Relaxed
Independence	Your work tasks and workflows are defined by your employer	You choose how you do your work
Family time	It is difficult to adjust working hours personal/family reasons You can be	It is difficult to adjust working hours for personal/family reasons
On-call duty	contacted when you are free to be called at work the next day	You are not on duty
Distance	The workplace is more than 30 km away from yours residence	The workplace is within 15 km of your place of residence
Pay	16% more than your current monthly salary	14% more than your current monthly salary

Which job do you prefer?

◉ A
○ B

(b) Example of job contrast from survey: English translation

Notes: The figure presents an example job contrast as shown to survey respondents in the original Danish (top panel), alongside the corresponding English translation obtained using Google Translate (bottom panel).

Figure 8: Coefficient on Interaction between Own Job Characteristic and Valuation of the Characteristic in Survey
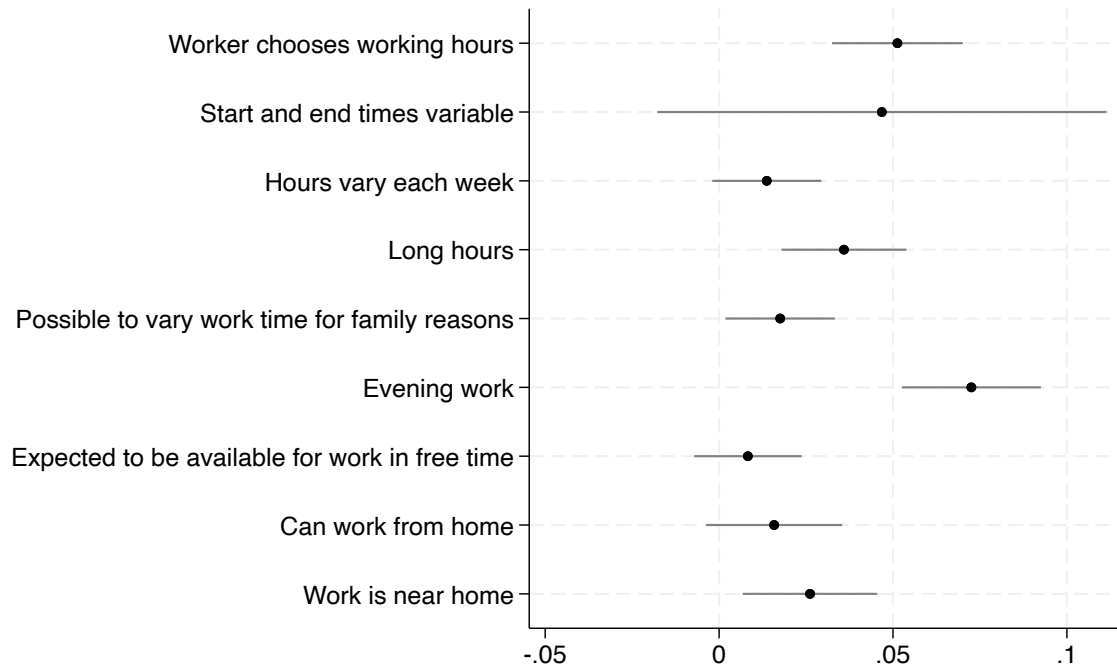
Notes: The figure plots coefficients on interactions between having a given amenity in the respondent's current job (all surveyed individuals are employed) and choosing a job profile with that amenity in the hypothetical choice experiment, as in equation (4.5). All interactions are estimated jointly in a single regression. Gray bars indicate 95% confidence intervals, with standard errors clustered at the individual level.

Figure 9: Gender Pay Gap Accounting for Value of Amenities
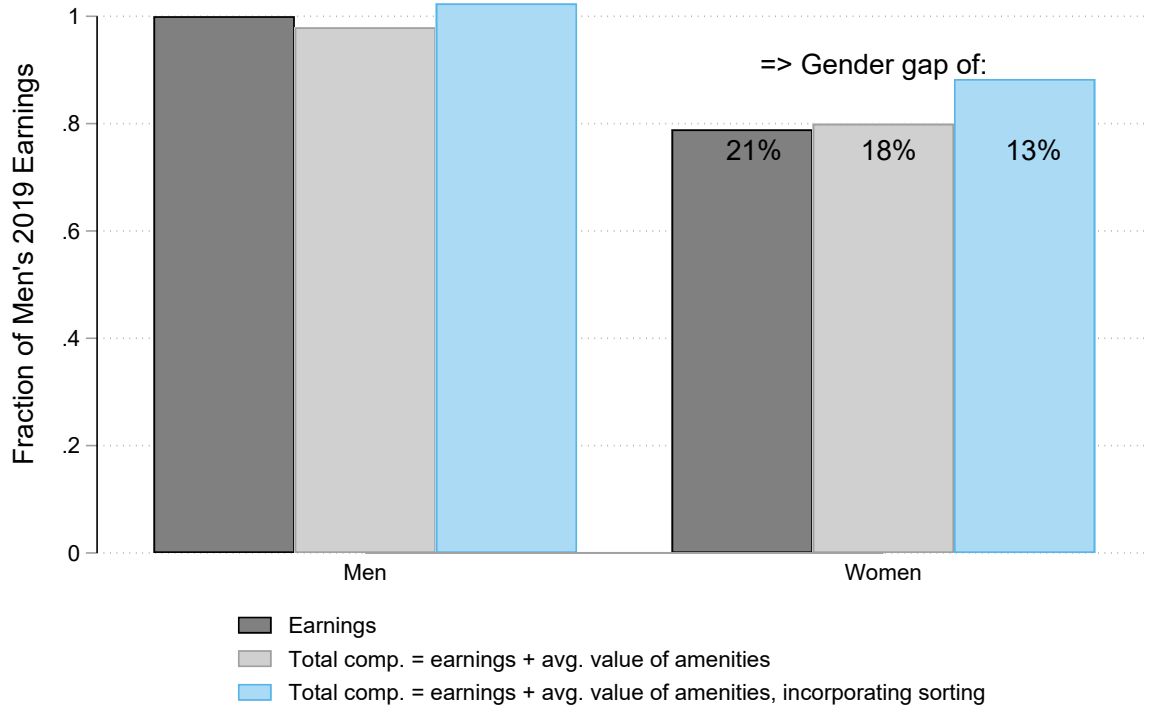
Notes: The figure shows men's and women's average baseline earnings (dark gray bars) and two measures of average compensation that augment earnings with the value of amenities. The first compensation measure (light gray bars) adds amenity values using average willingness-to-pay (WTP) estimates from the survey, allowing heterogeneity in valuations by gender only. The second measure (blue bars) uses WTP estimates based solely on survey respondents who currently hold a job with the amenity in question, again by gender. Labels above the bars for women report the corresponding gender gap in each compensation measure, defined as one minus the ratio of women's to men's compensation, in percent. Earnings and amenity incidences are taken from administrative data for 2019 linked to the 2019 LFS, including the ad hoc module, covering all amenities for which WTP estimates are available from the preference elicitation survey.

Tables

Table 1: Summary Statistics

	All	Women	Men
Age	43.989	44.128	43.837
Worker chooses working hours	0.496	0.448	0.552
Expected to be available for work in free time	0.527	0.483	0.580
Work under time pressure	0.411	0.422	0.398
Possible to vary work time for family reasons	0.624	0.575	0.682
Decide order of tasks	0.808	0.811	0.806
Decide content of tasks	0.652	0.637	0.670
Distance between work and home	23,101	18,920	27,684
Actual hours above 45/week	0.070	0.049	0.094
Absolute difference between usual and actual hours	3.920	3.807	4.048
Working at home	0.302	0.288	0.318
Start and end times variable	0.418	0.392	0.449
Evening work	0.421	0.400	0.445
Labor market earnings (in 2018 DKK)	427,674	375,909	484,152
N	1,793,846	935,977	857,869

Notes: The table reports summary statistics. All observations are at the individual level. Observation counts differ primarily because some questions are not asked in all survey years (see Table 11), and secondarily because some respondents either skip particular questions or are not eligible for them based on prior answers. The sample includes all individuals observed in the LFS in at least one year between 2008 and 2019.

Table 2: Summary Statistics: Vignette Survey

	All	Women	Men
Demographics			
Age	40.461	39.794	41.433
	(0.278)	(0.363)	(0.428)
High school or less	0.104	0.095	0.118
Vocational training	0.256	0.243	0.273
Short or Medium-term higher education	0.434	0.432	0.436
Long-term higher education	0.196	0.220	0.163
PhD	0.010	0.010	0.010
Occupation			
Managers	0.075	0.057	0.101
Professionals	0.370	0.399	0.328
Technicians and Associate Professionals	0.126	0.106	0.155
Clerical Support Workers	0.154	0.184	0.111
Services and Sales Workers	0.137	0.162	0.101
Skilled Agricultural, Forestry and Fishery Workers	0.009	0.010	0.007
Craft and Related Trades Workers	0.039	0.014	0.076
Plant and Machine Operators, and Assemblers	0.023	0.012	0.039
Elementary Occupations	0.061	0.052	0.074
Armed Forces Occupations	0.005	0.003	0.007
Work Characteristics			
Worker chooses working hours	0.409	0.378	0.453
Start and end times variable	0.557	0.554	0.562
Hours vary each week	0.358	0.321	0.411
Full-time	0.786	0.726	0.872
Part-time	0.175	0.240	0.081
Long hours	0.039	0.034	0.047
Possible to vary work time for family reasons	0.717	0.679	0.773
Evening work	0.323	0.304	0.350
Expected to be available for work in free time	0.230	0.186	0.296
Can work from home	0.467	0.446	0.498
Work is near home	0.612	0.655	0.549
Monthly labor market earnings (in 2018 DKK)	42,648	35,423	52,187
	(2,082)	(1,981)	(3,999)
N	998	592	406

Notes: This table presents summary statistics from the Vignette Survey. All entries are sample means. All variables except age and monthly labor market earnings are indicator variables. Sample sizes for the income variable are 703, 400, and 303 for the full sample, women, and men, respectively. For age and monthly labor market earnings, standard errors are reported in parentheses. Monthly earnings are winsorized at the 1st and 99th percentiles.

Table 3: Observations per Firm Measures

	Firm Observations
Pay-Premiums	232111
Pay-Premiums Men	184701
Pay-Premiums Women	139456
Pagerank	129085
Pagerank Men	95831
Pagerank Women	70290
Poaching Rank	220306
Poaching Rank Men	178092
Poaching Rank Women	134510

Notes: The table displays the number of firm rankings per measure.

Table 4: Correlations across Firm Measures

	V^g	ϕ	π	$\log(L)$	$\log(Y/L)$
V^g	1.00				
ϕ	0.43	1.00			
π	0.11	0.16	1.00		
$\log(L)$	0.05	0.19	-0.02	1.00	
$\log(Y/L)$	0.09	0.26	0.03	0.16	1.00

Notes: The table reports weighted correlations across alternative firm-level measures. V^g denotes the PageRank-based firm valuation for gender g, ϕ the AKM firm wage premium, π the poaching rate, $\log(L)$ log firm size, and $\log(Y/L)$ revenue per worker. Estimates are weighted by firm size.

Table 5: Correlations across Firm Measures

	V^g	ϕ	π	$\log(L)$	$\log(Y/L)$
V^g	1.00				
ϕ	0.38	1.00			
π	0.02	0.07	1.00		
$\log(L)$	0.10	0.33	-0.13	1.00	
$\log(Y/L)$	0.14	0.18	0.04	0.09	1.00

Notes: The table reports unweighted correlations across alternative firm-level measures. V^g denotes the PageRank-based firm valuation for gender g, ϕ the AKM firm wage premium, π the poaching rate, $\log(L)$ log firm size, and $\log(Y/L)$ revenue per worker.

Table 6: Observations Included in Firm Event-Study Regressions

	Person-Year Obs.	Unique Workers	Unique Firms
Amenities available in all years	2394796	474424	5870
All amenities	2063334	424309	1859
All amenities, firms present all years	535763	49754	1158

Notes: The table reports person-year observations, unique workers, and unique firms for three samples. The first row corresponds to the broadest sample, which includes all firms that ever employ a worker observed in the LFS (and all such workers). The second sample restricts to firms with at least one worker responding to the LFS ad hoc supplements and for which all amenities discussed in the paper are observed. The third sample further restricts to firms that appear in the data in every year of the sample period, in order to avoid compositional changes in the firm population driven by the limited availability of some amenity questions.

Table 7: Willingness-to-pay estimates - Large amenity set

Amenity	Result	SE	Result	SE	Diff. p-value
Regression on Stayer					
	Women		Men		
Worker chooses working hours	0.11	0.01	0.06	0.00	0.00
No expected flexibility in working times	0.00	0.01	0.03	0.00	0.01
Expected to be available for work in free time	-0.03	0.01	0.01	0.00	0.00
No work under time pressure	-0.04	0.01	0.02	0.00	0.00
Possible to vary work hours for family reasons	-0.30	0.01	-0.12	0.01	0.00
Decide order of tasks	0.11	0.01	0.07	0.01	0.00
Decide content of tasks	0.08	0.01	-0.07	0.01	0.00
Low Distance between work/home	0.09	0.01	0.05	0.00	0.00
Actual hours below 45/week	0.64	0.01	0.60	0.01	0.01
Low absolute difference between usual and actual hours	-0.01	0.01	0.10	0.00	0.00
Working at home	0.46	0.01	-0.05	0.01	0.00
Start and end times not variable	0.40	0.01	0.14	0.01	0.00
No evening work	0.34	0.01	-0.12	0.01	0.00

Notes: The table reports willingness-to-pay estimates obtained from the register data. The underlying regressions relate workers' firm exit rates to firm-level averages of amenities and average coworker wages. Standard errors and p-values are computed using the Delta method, as described in the Appendix. The last column reports p-values for tests of equality of WTP estimates across genders. The specification in this table uses the largest set of amenities available. Appendix Tables A3 and A4 present alternative estimates based on a smaller set of amenities and alternative measures of worker preferences across firms.

Table 8: Vignette Survey: Women vs. Men

	(1) Female	(2) Male	(3) P-value female = WTP$_{male}$
Worker chooses working hours	0.016	0.013	0.344
	(0.005)	(0.006)	
Start and end times variable	0.004	0.013	0.400
	(0.005)	(0.006)	
Hours vary each week	-0.006	-0.005	0.739
	(0.005)	(0.006)	
Long hours	0.064	0.034	0.335
	(0.030)	(0.037)	
Possible to vary work time for family reasons	0.062	0.028	0.000
	(0.006)	(0.007)	
Evening work	-0.099	-0.081	0.000
	(0.007)	(0.008)	
Expected to be available for work in free time	-0.068	-0.040	0.000
	(0.005)	(0.007)	
Can work from home	0.054	0.043	0.007
	(0.006)	(0.008)	
Work under time pressure	-0.074	-0.069	0.011
	(0.006)	(0.008)	
Work is near home	0.104	0.063	0.000
	(0.007)	(0.007)	
Worker decides content of tasks	0.010	0.017	0.777
	(0.005)	(0.006)	
Percentage increase in wage	0.012	0.017	
	(0.001)	(0.001)	
Observations	17760	12180	29940
Number of participants	592	406	998

Notes: The table reports coefficients from regressions of an indicator for choosing the left-hand-side job vignette on the difference in job characteristics between the left- and right-hand-side jobs (left minus right). All characteristics are fully interacted with indicators for women and men. Column 1 reports coefficients for women; column 2 reports coefficients for men. Column 3 reports p-values from tests of equality between the implied willingness-to-pay ratios for women and men, defined as the ratio of the amenity coefficient to the coefficient on the percentage wage increase. Each individual evaluates 30 job contrasts. Standard errors, in parentheses, are clustered at the participant level.

Table 9: Vignette Survey: Mothers vs. Non-mothers

	(1) Mother	(2) Non-mother	(3) P-value $WTP_{mother} = WTP_{nonmother}$
Worker chooses working hours	0.027	0.006	0.053
	(0.009)	(0.009)	
Start and end times variable	0.005	0.018	0.487
	(0.009)	(0.010)	
Hours vary each week	-0.001	0.005	0.653
	(0.009)	(0.009)	
Long hours	0.039	0.127	0.483
	(0.056)	(0.060)	
Possible to vary work time for family reasons	0.070	0.058	0.060
	(0.011)	(0.011)	
Evening work	-0.117	-0.063	0.000
	(0.012)	(0.012)	
Expected to be available for work in free time	-0.065	-0.052	0.043
	(0.010)	(0.010)	
Can work from home	0.049	0.053	0.383
	(0.011)	(0.011)	
Work under time pressure	-0.065	-0.072	0.352
	(0.011)	(0.011)	
Work is near home	0.095	0.102	0.198
	(0.013)	(0.013)	
Worker decides content of tasks	-0.007	0.037	0.004
	(0.009)	(0.009)	
Percentage increase in wage	0.012	0.017	
	(0.001)	(0.001)	
Observations	5190	4590	9780
Number of participants	173	153	326

Notes: The table reports coefficients from regressions of an indicator for choosing the left-hand-side job vignette on the difference in job characteristics between the left- and right-hand-side jobs (left minus right), for the sample of women. All characteristics are fully interacted with indicators for mothers and non-mothers. Column 1 reports coefficients for mothers; column 2 reports coefficients for non-mothers. Column 3 reports *p*-values from tests of equality between the implied willingness-to-pay ratios for mothers and non-mothers, defined as the ratio of the amenity coefficient to the coefficient on the percentage wage increase. The sample is restricted to women aged 27–42, to align more closely with the age range used in the event-study analysis; results for all ages are reported in Appendix Table A1. Each individual evaluates 30 job contrasts. Standard errors, in parentheses, are clustered at the participant level.

Table 10: Vignette Survey: Fathers vs. Nonfathers

	(1)	(2)	(3)
	Father	Non-father	P-value
			$WTP_{father} = WTP_{nonfather}$
Worker chooses working hours	0.013	0.021	0.883
	(0.011)	(0.017)	
Start and end times variable	-0.000	0.029	0.127
	(0.010)	(0.014)	
Hours vary each week	-0.007	0.005	0.516
	(0.009)	(0.017)	
Long hours	0.125	-0.078	0.056
	(0.070)	(0.086)	
Possible to vary work time for family reasons	0.036	0.012	0.136
	(0.013)	(0.016)	
Evening work	-0.053	-0.058	0.637
	(0.012)	(0.016)	
Expected to be available for work in free time	-0.024	-0.043	0.587
	(0.011)	(0.014)	
Can work from home	0.051	0.036	0.233
	(0.013)	(0.017)	
Work under time pressure	-0.046	-0.077	0.546
	(0.012)	(0.019)	
Work is near home	0.046	0.069	0.753
	(0.012)	(0.018)	
Worker decides content of tasks	0.016	0.025	0.871
	(0.010)	(0.015)	
Percentage increase in wage	0.016	0.021	
	(0.002)	(0.002)	
Observations	4200	2040	6240
Number of participants	140	68	208

Notes: The table reports coefficients from regressions of an indicator for choosing the left-hand-side job vignette on the difference in job characteristics between the left- and right-hand-side jobs (left minus right), for the sample of men. All characteristics are fully interacted with indicators for fathers and non-fathers. Column 1 reports coefficients for fathers; column 2 reports coefficients for non-fathers. Column 3 reports p-values from tests of equality between the implied willingness-to-pay ratios for fathers and non-fathers, defined as the ratio of the amenity coefficient to the coefficient on the percentage wage increase. The sample is restricted to men aged 27–42, to align more closely with the age range used in the event-study analysis; results for all ages are reported in Appendix Table A2. Each individual evaluates 30 job contrasts. Standard errors, in parentheses, are clustered at the participant level.

Table 11: Observations Per Variable

	Person-Year Observations	Years in Data
Worker chooses working hours	14698	2
Expected to be available for work in free time	7203	1
Work under time pressure	7220	1
Possible to vary work time for family reasons	17264	3
Decide order of tasks	7200	1
Decide content of tasks	7200	1
Distance between work and home	20910950	12
Actual hours above 45/week	233140	12
Absolute difference between usual and actual hours	217951	12
Working at home	233170	12
Start and end times variable	231198	12
Evening work	233170	12
Labor market earnings (in 2018 DKK)	21020839	12

Notes: This table displays the person-year observations (unique responses) to the questions we use to measure amenities, as well as the number of unique surveys these questions appear in. There are 12 potential years of survey data (2008-2019), but some questions are asked only in an ad hoc supplement. There are up to 3 ad hoc supplements we draw from, with some questions only asked in one of these supplements.

Appendix for:
Gender Differences in Amenities, Wages, and Firms

A   Appendix Figures and Tables

Figure A1: Employment and Motherhood
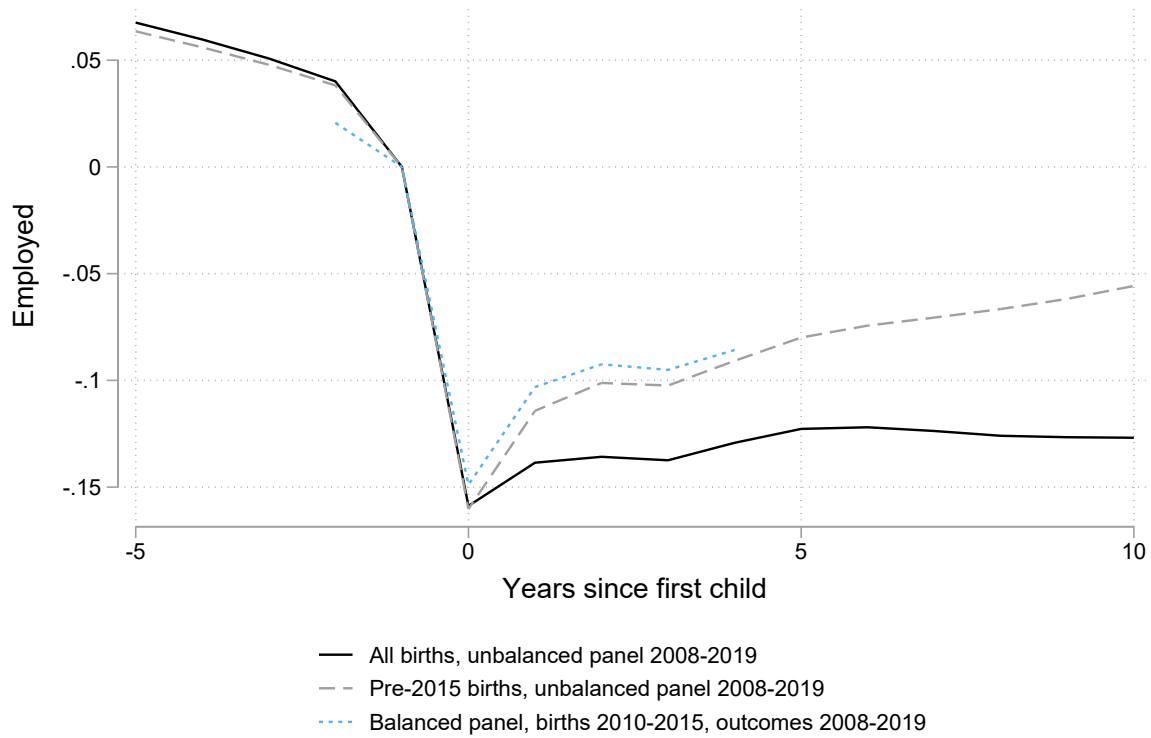
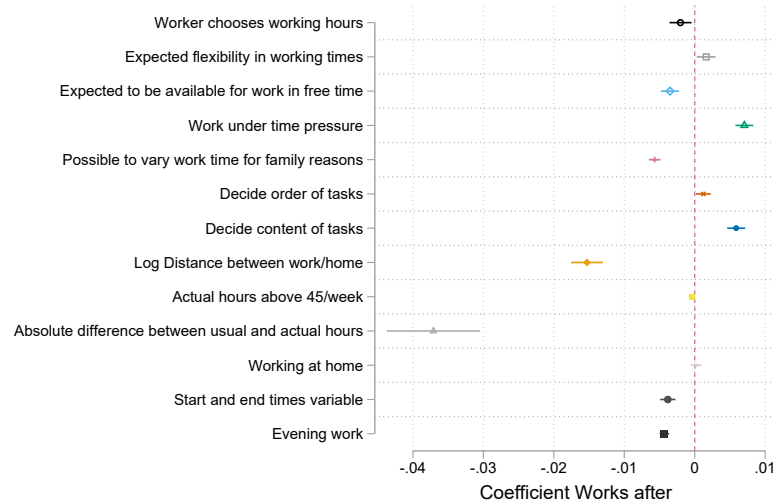*Notes:* This Figure plots the event study coefficients around motherhood for our sample overall, as well as for a balanced panel on a restricted number of years-since-event. The outcome is having any earnings in the calendar year, restricted to women age 16-65 between 2008 and 2019.

Figure A2: Workplace Characteristics before Child Birth

(a) All amenities
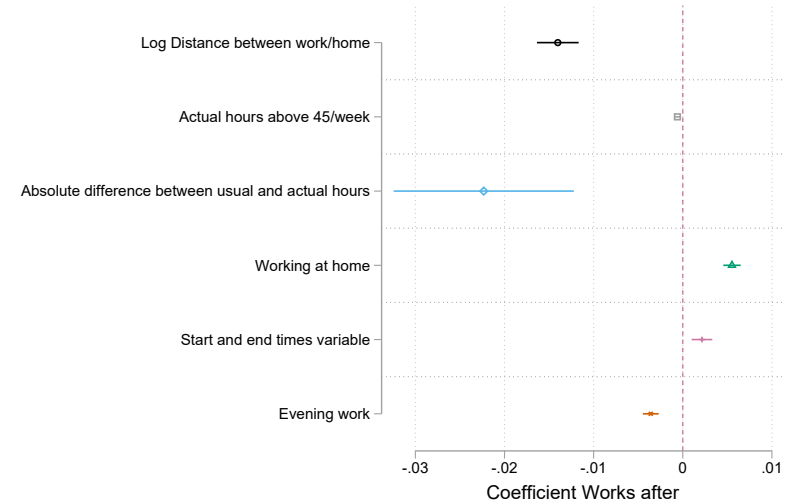
(b) Amenities available in all years

Notes: This figure shows the correlation between workplace amenities in the year before child birth and the selection into work in the year after child birth. The depicted coefficients are the result of a regression including age, occupation, education, firm size and year fixed effects, for one amenity at a time. Since some of these questions are asked only in one year, firms present in that year would be differentially selected into the sample and coefficients may reflect changes in the composition of firms. To alleviate this concern, we restrict to a balanced set of firms which appear in the BFL data in every year in the sample period. The right-hand-side includes a much larger set of firms and a smaller subset of amenities—those measured in every year—in the regressions.

Figure A3: Earnings around Motherhood
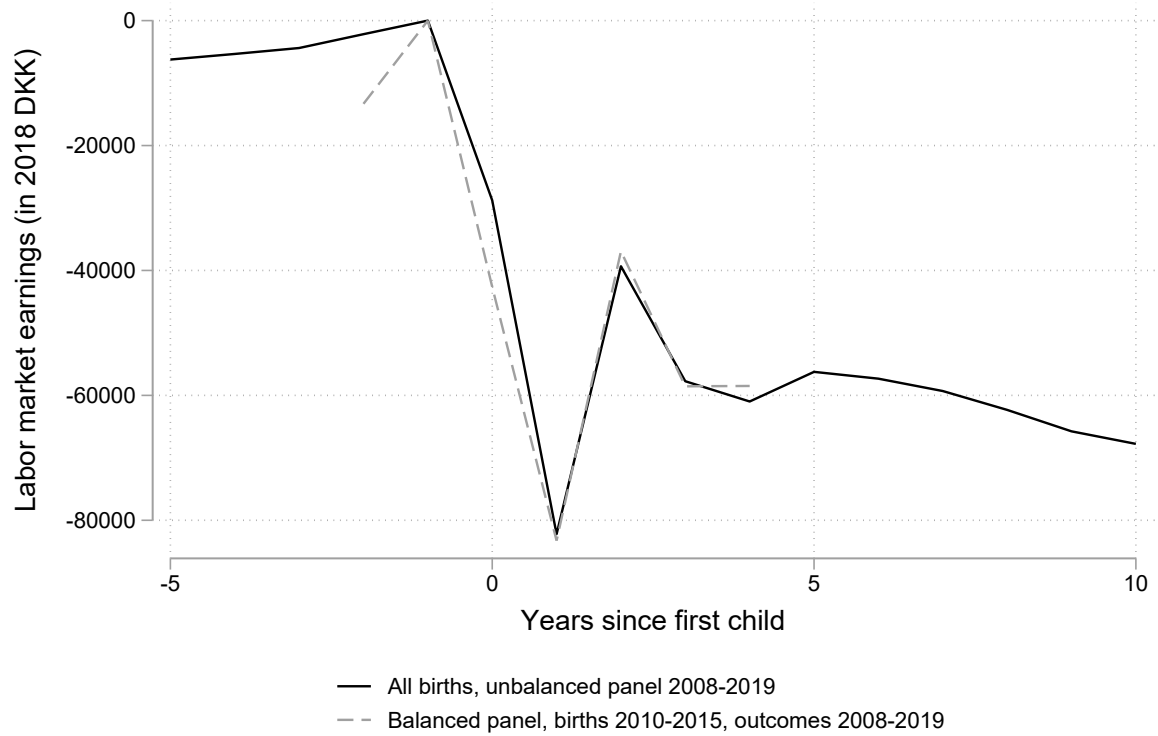
Notes: This Figure plots the event study coefficients around motherhood for our sample overall, as well as for a balanced panel on a restricted number of years-since-event, by necessity. The outcome is earnings conditional on working, restricted to women age 16-65 between 2008 and 2019.
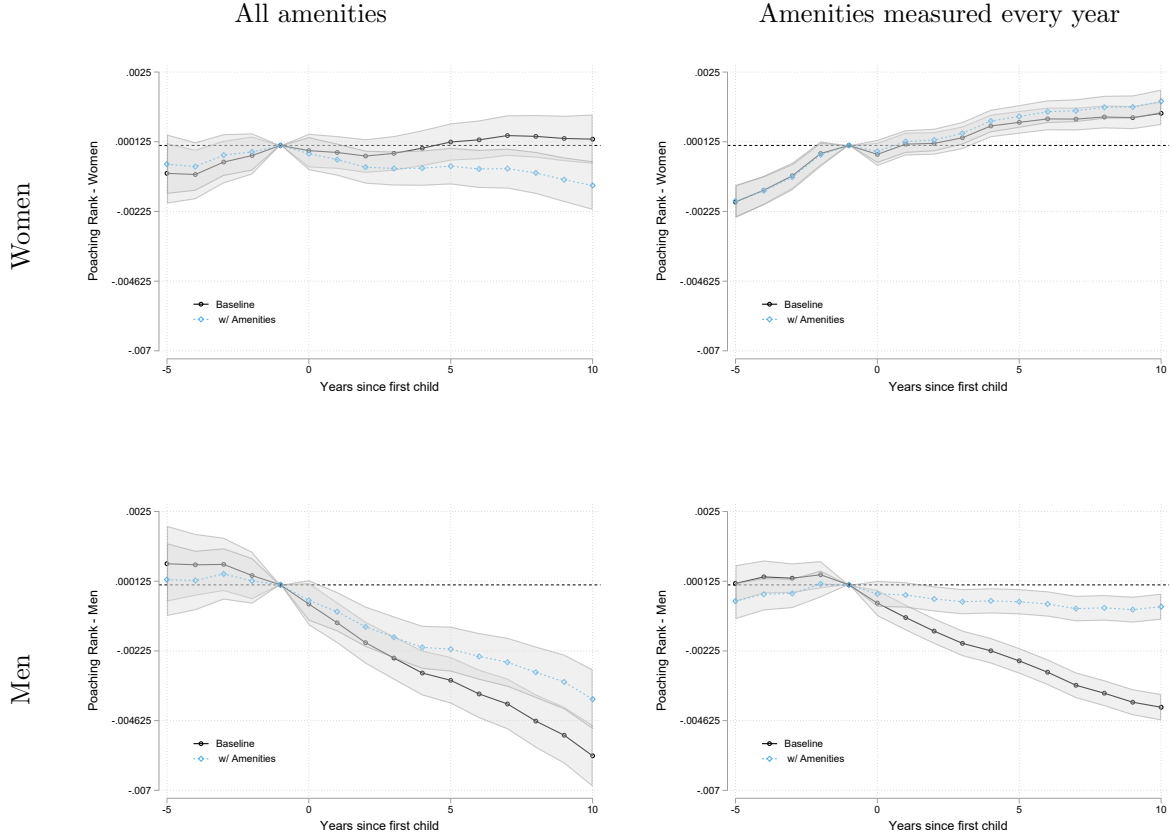
Figure A4: Firm-Level Amenities and Revealed-Preference Rankings (Poaching Rate)

Notes: The figure plots event-study coefficients for firm preferences measured by the poaching rate as a function of years since first birth. The first row uses poaching rates computed over women only, and the second row over men only. In each panel, the solid black line reports estimates from regressions including event-time indicators, age fixed effects, and year fixed effects. The dashed blue line adds firm-level averages of amenities measured in the LFS and administrative data. The left column includes the full set of amenities, including those from one-off ad hoc survey questions, and is restricted to a balanced panel of firms that appear in the BFL data in every year of the sample period. The right column uses a larger set of firms but restricts the amenity controls to those observed in every year. Gray shaded areas denote 95% confidence intervals around the event-time coefficients. Standard errors are computed treating the measured firm rankings as fixed.

Figure A5: Firm-Level Amenities and Revealed-Preference Rankings (RageRank)
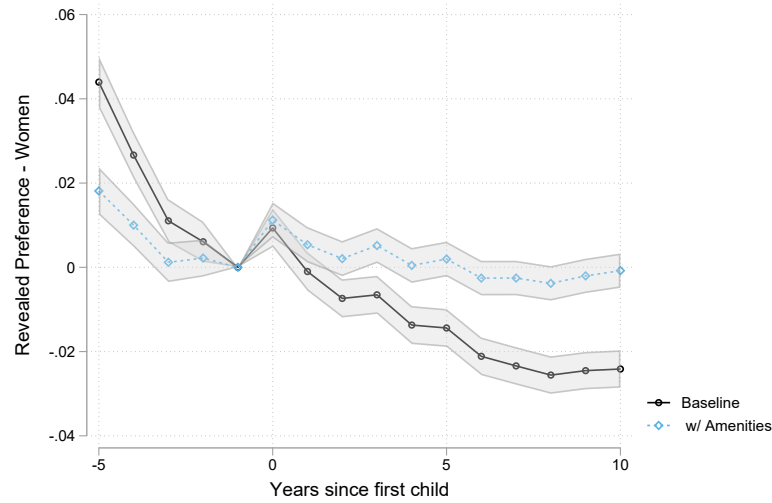
All amenities

Amenities measured every year
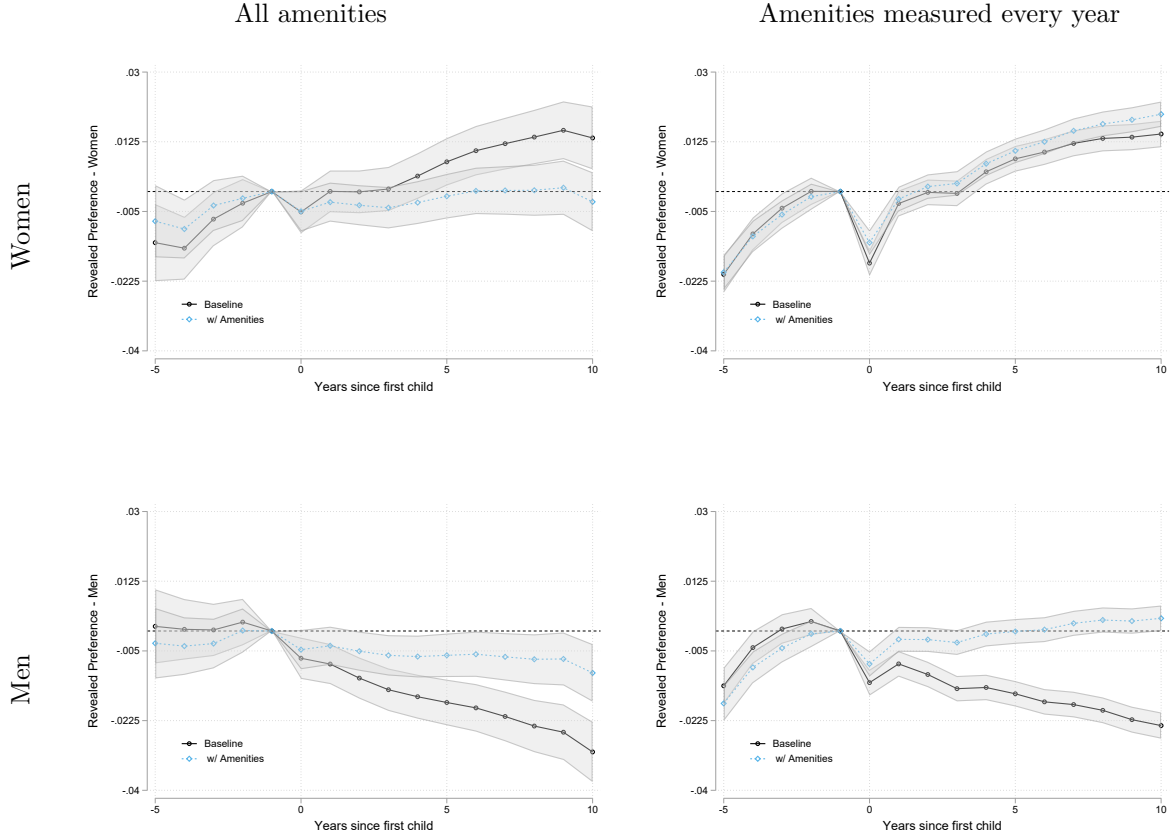
Notes: The figure plots event-study coefficients for firm preferences measured by pagerank as a function of years since first birth. The first row uses poaching rates computed over women only, and the second row over men only. In each panel, the solid black line reports estimates from regressions including event-time indicators, age fixed effects, and year fixed effects. The dashed blue line adds firm-level averages of amenities measured in the LFS and administrative data. The left column includes the full set of amenities, including those from one-off ad hoc survey questions, and is restricted to a balanced panel of firms that appear in the BFL data in every year of the sample period. The right column uses a larger set of firms but restricts the amenity controls to those observed in every year. Gray shaded areas denote 95% confidence intervals around the event-time coefficients. Standard errors are computed treating the measured firm rankings as fixed.

Figure A6: Correlation Male and Female Firm Ranking

(a) All amenities
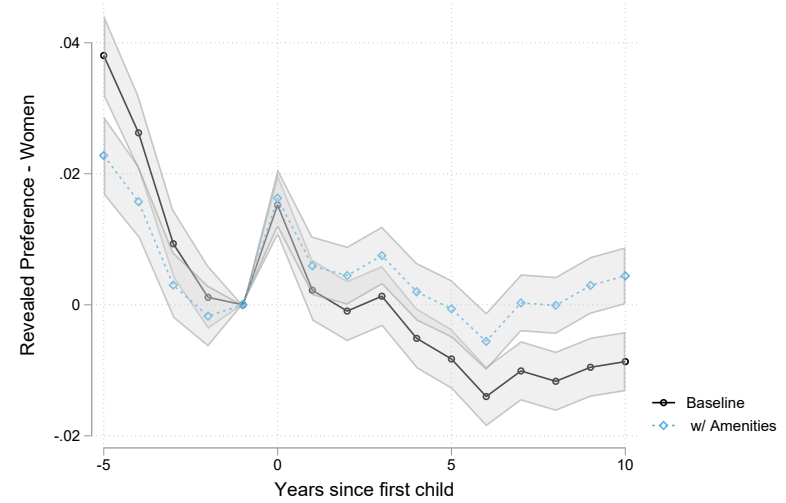
(b) Amenities available in all years

Notes: The figure plots event-study coefficients for the correlation between male and female firm rankings (PageRank measures) as a function of years since first birth. The solid black line reports estimates from regressions including event-time indicators, age fixed effects, and year fixed effects. The dashed blue line adds firm-level averages of amenities measured in the LFS and administrative data. The left panel includes the full set of amenities, including those from one-off ad hoc survey questions, and is restricted to a balanced panel of firms that appear in the BFL data in every year of the sample period. The right panel uses a larger set of firms but restricts the amenity controls to those observed in every year. Gray shaded areas denote 95% confidence intervals around the event-time coefficients. Standard errors are computed treating the measured firm rankings as constants.

Table A1: Vignette Survey: Mothers vs. Non-mothers (All Ages)

	(1)	(2)	(3)
	Mother	Non-mother	P-value
			$WTP_{(1)} = WTP_{(2)}$
Worker chooses working hours	0.023	0.008	0.069
	(0.007)	(0.007)	
Start and end times variable	-0.001	0.009	0.394
	(0.007)	(0.008)	
Hours vary each week	-0.006	-0.005	0.824
	(0.006)	(0.007)	
Long hours	0.049	0.079	0.800
	(0.039)	(0.047)	
Possible to vary work time for family reasons	0.065	0.059	0.150
	(0.008)	(0.009)	
Evening work	-0.109	-0.085	0.009
	(0.009)	(0.010)	
Expected to be available for work in free time	-0.073	-0.062	0.049
	(0.007)	(0.008)	
Can work from home	0.055	0.052	0.234
	(0.008)	(0.009)	
Work under time pressure	-0.071	-0.078	0.490
	(0.008)	(0.009)	
Work is near home	0.101	0.108	0.353
	(0.009)	(0.011)	
Worker decides content of tasks	-0.001	0.025	0.018
	(0.007)	(0.007)	
Percentage increase in wage	0.011	0.014	
	(0.001)	(0.001)	
Observations	10140	7620	17760
Number of participants	338	254	592

Notes: The table reports coefficients from regressions of an indicator for choosing the left-hand-side job vignette on the difference in job characteristics between the left- and right-hand-side jobs (left minus right), for the sample of women. All characteristics are fully interacted with indicators for mothers and non-mothers. Column 1 reports coefficients for mothers; column 2 reports coefficients for non-mothers. Column 3 reports *p*-values from tests of equality between the implied willingness-to-pay ratios for mothers and non-mothers, defined as the ratio of the amenity coefficient to the coefficient on the percentage wage increase. Each individual evaluates 30 job contrasts. Standard errors, in parentheses, are clustered at the participant level.

Table A2: Vignette Survey: Fathers vs. Non-fathers (All Ages)

	(1)	(2)	(3)
	Father	Non-father	P-value
			$WTP_{(1)} = WTP_{(2)}$
Worker chooses working hours	0.019	0.005	0.214
	(0.008)	(0.011)	
Start and end times variable	0.005	0.029	0.089
	(0.008)	(0.010)	
Hours vary each week	-0.011	0.006	0.179
	(0.007)	(0.011)	
Long hours	0.060	-0.013	0.303
	(0.049)	(0.059)	
Possible to vary work time for family reasons	0.040	0.008	0.007
	(0.009)	(0.010)	
Evening work	-0.085	-0.074	0.200
	(0.010)	(0.013)	
Expected to be available for work in free time	-0.041	-0.038	0.502
	(0.009)	(0.010)	
Can work from home	0.051	0.030	0.080
	(0.010)	(0.011)	
Work under time pressure	-0.058	-0.087	0.356
	(0.009)	(0.014)	
Work is near home	0.057	0.073	0.774
	(0.009)	(0.012)	
Worker decides content of tasks	0.019	0.013	0.458
	(0.007)	(0.010)	
Percentage increase in wage	0.016	0.019	
	(0.001)	(0.001)	
Observations	7740	4440	12180
Number of participants	258	148	406

Notes: The table reports coefficients from regressions of an indicator for choosing the left-hand-side job vignette on the difference in job characteristics between the left- and right-hand-side jobs (left minus right), for the sample of men. All characteristics are fully interacted with indicators for fathers and non-fathers. Column 1 reports coefficients for fathers; column 2 reports coefficients for non-fathers. Column 3 reports p-values from tests of equality between the implied willingness-to-pay ratios for fathers and non-fathers, defined as the ratio of the amenity coefficient to the coefficient on the percentage wage increase. Each individual evaluates 30 job contrasts. Standard errors, in parentheses, are clustered at the participant level.

Table A3: Willingness-to-pay estimates - Small amenity set

Amenity	Result	SE	Result	SE	Diff. p-value
Regression on Revealed Preference					
	Women		Men		
Low Distance between work/home	0.12	0.00	0.10	0.00	0.00
Actual hours below 45/week	0.27	0.00	0.13	0.00	0.00
Low absolute difference between usual and actual hours	0.02	0.00	0.03	0.00	0.00
Working at home	0.32	0.00	0.16	0.00	0.00
Start and end times not variable	0.20	0.00	0.01	0.00	0.00
No evening work	-0.04	0.00	-0.05	0.00	0.00
Regression on Job Utility					
	Women		Men		
Low Distance between work/home	0.07	0.00	0.09	0.00	0.00
Actual hours below 45/week	0.34	0.00	0.16	0.00	0.00
Low absolute difference between usual and actual hours	0.01	0.00	0.02	0.00	0.00
Working at home	0.25	0.00	0.09	0.00	0.00
Start and end times not variable	0.10	0.00	-0.04	0.00	0.00
No evening work	-0.11	0.00	-0.10	0.00	0.00

Notes: The table shows the willingness to pay estimates obtained with the register data. The respective gender-rankings have been used, that is pagerank for women for the female sample and pagerank for men for the male sample. The last column shows the p-value of the difference in the willingness to pay estimates across genders. In this table, a small set of amenities has been retained which is consistently observed across time.

Table A4: Willingness-to-pay estimates - Large amenity set

Amenity	Result	SE	Result	SE	Diff. p-value
Regression on Revealed Preference					
	Women		Men		
Worker chooses working hours	0.13	0.00	0.13	0.00	0.00
No expected flexibility in working times	0.06	0.00	0.14	0.00	0.00
Not Expected to be available for work in free time	-0.02	0.00	-0.13	0.00	0.00
No work under time pressure	0.06	0.00	0.12	0.00	0.00
Possible to vary work hours for family reasons	-0.34	0.00	-0.25	0.00	0.00
Decide order of tasks	-0.02	0.00	-0.05	0.00	0.00
Decide content of tasks	-0.03	0.00	-0.06	0.00	0.00
Low Distance between work/home	0.14	0.00	0.19	0.00	0.00
Actual hours below 45/week	0.50	0.00	0.48	0.00	0.00
Low absolute difference between usual and actual hours	-0.05	0.00	-0.10	0.00	0.00
Working at home	0.48	0.00	0.33	0.00	0.00
Start and end times not variable	0.23	0.00	0.02	0.00	0.00
No evening work	0.15	0.00	0.26	0.00	0.00
Regression on Job Utility					
	Women		Men		
Worker chooses working hours	0.16	0.00	0.17	0.00	0.00
No expected flexibility in working times	0.03	0.00	0.09	0.00	0.00
Not Expected to be available for work in free time	-0.03	0.00	-0.04	0.00	0.00
No work under time pressure	0.08	0.00	0.08	0.00	0.00
Possible to vary work hours for family reasons	-0.32	0.00	-0.38	0.00	0.00
Decide order of tasks	-0.02	0.00	-0.02	0.00	0.01
Decide content of tasks	-0.07	0.00	-0.01	0.00	0.00
Low Distance between work/home	0.10	0.00	0.13	0.00	0.00
Actual hours below 45/week	0.60	0.00	0.60	0.00	0.72
Low absolute difference between usual and actual hours	-0.04	0.00	-0.11	0.00	0.00
Working at home	0.46	0.00	0.25	0.00	0.00
Start and end times not variable	0.16	0.00	0.01	0.00	0.00
No evening work	0.01	0.00	0.22	0.00	0.00

Notes: The table shows the willingness to pay estimates obtained with the register data. The respective gender-rankings have been used, that is pagerank for women for the female sample and pagerank for men for the male sample. The last column shows the p-value of the difference in the willingness to pay estimates across genders. In this table, the largest set of amenities has been retained.

B Details for Computation of Standard Errors

B.1 Standard Errors for Willingness to Pay Estimates using Administrative Data

Let $T = g(\theta_1, \theta_2)$, where θ_1 and θ_2 denote estimators. The variance of the transformation T is approximated via the delta method as:

$$\text{Var}(T) \approx \nabla g(\hat{\theta}_1, \hat{\theta}_2)^T \cdot \text{Cov}(\hat{\theta}_1, \hat{\theta}_2) \cdot \nabla g(\hat{\theta}_1, \hat{\theta}_2)$$

where $\nabla g(\hat{\theta}_1, \hat{\theta}_2)$ denotes the gradient of the transformation, and $\text{Cov}(\hat{\theta}_1, \hat{\theta}_2)$ is the covariance matrix of the estimators. In the application considered here, the transformation is given by:

$$T = g(\hat{\beta}_{\text{amenity}}, \hat{\beta}_{\text{wage}}) = 1 - \exp\left(-\frac{\hat{\beta}_{\text{amenity}}}{\hat{\beta}_{\text{wage}}}\right)$$

The gradient with respect to $\hat{\beta}_{\text{amenity}}$ and $\hat{\beta}_{\text{wage}}$ is:

$$\frac{\partial T}{\partial \hat{\beta}_{\text{amenity}}} = \frac{1}{\hat{\beta}_{\text{wage}}} e^{-\frac{\hat{\beta}_{\text{amenity}}}{\hat{\beta}_{\text{wage}}}}$$

$$\frac{\partial T}{\partial \hat{\beta}_{\text{wage}}} = \frac{\hat{\beta}_{\text{amenity}}}{\hat{\beta}_{\text{wage}}^2} e^{-\frac{\hat{\beta}_{\text{amenity}}}{\hat{\beta}_{\text{wage}}}}$$

Accordingly, the variance of the transformed coefficient is:

$$\text{Var}(T) \approx \left(\frac{\partial T}{\partial \hat{\beta}_{\text{amenity}}}\right)^2 \cdot \text{Var}(\hat{\beta}_{\text{amenity}}) +$$

$$\left(\frac{\partial T}{\partial \hat{\beta}_{\text{wage}}}\right)^2 \cdot \text{Var}(\hat{\beta}_{\text{wage}}) +$$

$$2 \cdot \frac{\partial T}{\partial \hat{\beta}_{\text{amenity}}} \cdot \frac{\partial T}{\partial \hat{\beta}_{\text{wage}}} \cdot \text{Cov}(\hat{\beta}_{\text{amenity}}, \hat{\beta}_{\text{wage}})$$

To compare transformed estimates across genders T_1 and T_2 obtained from independent regressions, the standard error of the difference is:

$$\text{SE}(T_1 - T_2) = \sqrt{\text{SE}(T_1)^2 + \text{SE}(T_2)^2}$$

B.2 Estimation of Flow Utility

We build on Sorkin (2018b); Audoly et al. (2024) to estimate the flow utility u_j associated with a job at firm j, using mobility patterns. These flow utilities allow to back out the willingness to pay for job attributes, net of firm-differences in option values.

Specifically, after estimation of the pageRank measure σV_j from mobility choices as described in the text, we can back out exit rates δ_j, ρ_j, job arrival rates λ_0, λ_1, shock scale σ, offer distribution f_j and flow utility u_j as in Sorkin (2018b); Audoly et al. (2024). Note that δ_j, ρ_j denote worker exit rates either to unemployment or to another firm, λ_0, λ_1 denote the job finding rates when unemployed or employed, respectively. In addition, σ denotes the scaling of compound utility values, which are identified up to the scale of the idiosyncratic taste shifters, f_j denotes the offer distribution. We now outline the estimation procedure using observable mobility patterns computed on matched employer-employee data. For further detail, we refer to Sorkin (2018b); Audoly et al. (2024).

Scaled representation. Define scaled values and flows

$$W_j \equiv \sigma V_j, \quad W_N \equiv \sigma V_N, \qquad \phi_j \equiv \sigma u_j, \quad \phi_N \equiv \sigma u_N.$$

Let η be i.i.d. type-I extreme-value shocks with unit scale and $\varepsilon \equiv \eta/\sigma$. Then

$$\sigma \, \mathbb{E}(V + \varepsilon) = W + \gamma, \qquad \sigma \, \mathbb{E} \max(V_a + \varepsilon_a, V_b + \varepsilon_b) = \ln\!\big(e^{W_a} + e^{W_b}\big) + \gamma,$$

so that choice probabilities depend only on W:

$$p_{k|j} = \frac{e^{W_k}}{e^{W_k} + e^{W_j}}, \qquad p_{j|N} = \frac{e^{W_j}}{e^{W_j} + e^{W_N}}.$$

We normalize $u_N = 0$, hence $\phi_N = 0$, and iterate on W_N.

Data Moments Let the sample span T model periods, which we set as years. Define person-time exposure $E_j = \sum_{t=1}^{T} L_{j,t}$ for firm j, and $E_N = \sum_{t=1}^{T} L_{N,t}$ for non-employment. From counts M_{jk} (flows $j \to k$) and M_{jN} ($j \to N$), form rates per period:

$$r_{A,j} = \frac{\sum_{k \neq j} M_{jk}}{E_j}, \qquad r_{B,j} = \frac{M_{jN}}{E_j}, \qquad r_{\text{J2J}} = \frac{\sum_{j \neq k} M_{jk}}{\sum_j E_j}.$$

We map rates to per-period probabilities using the competing-Poisson formula:

$$A_j = \left(1 - e^{-(r_{A,j}+r_{B,j})}\right)\frac{r_{A,j}}{r_{A,j}+r_{B,j}}, \quad B_j = \left(1 - e^{-(r_{A,j}+r_{B,j})}\right)\frac{r_{B,j}}{r_{A,j}+r_{B,j}}$$

$$\text{J2J} = 1 - e^{-r_{\text{J2J}}} \quad s_j = \frac{M_{Nj}}{\sum_\ell M_{N\ell}},$$

where M_{jk} is the flow $j \to k$, M_{jN} is $j \to N$, M_{Nj} is $N \to j$, and $L_{j,t}$ is firm j's employment.

Identification and Estimation of $W_N, f_j, \lambda_0, \sigma$ With this information, together with pageRank measures $W_j = \sigma V_j$, all model elements are identified. In practice, we obtain all model counterparts in the following sequence, iterating over the value of non-employment W_N:

- **Job Choice Probabilities** $p_{k|j}$**:** With i.i.d. type-I EV shocks of unit scale in W-space:

$$p_{k|j} = \Pr(k \succ j) = \frac{e^{W_k}}{e^{W_k} + e^{W_j}}, \quad p_{j|N} = \Pr(j \succ N) = \frac{e^{W_j}}{e^{W_j} + e^{W_N}}.$$

- **Offer Distribution** f_j**:** From $N \to j$ flows

$$f_j = \frac{\frac{s_j}{p_{j|N}}}{\sum_\ell \frac{s_\ell}{p_{\ell|N}}}.$$

- **Arrival rate** λ_0**:** For non-employment, let the exit rate to any job be $r_{\text{NE}} = \frac{\sum_j M_{Nj}}{E_N}$ and let $a = \sum_j f_j p_{j|N}$ be the acceptance probability. Then the per-period offer arrival probability is

$$\lambda_0 = 1 - \exp\left(-\frac{r_{\text{NE}}}{a}\right).$$

- **Value of Non-Employment** W_N**:** The Bellman equation in scaled form is:

$$W_N = \phi_N + \beta\left[\lambda_0 \sum_k f_k\left(\ln(e^{W_k} + e^{W_N}) + \gamma\right) + (1 - \lambda_0)\left(W_N + \gamma\right)\right].$$

We solve this one-dimensional fixed point given $\{W_k\}, f, \lambda_0, \beta$ and ϕ_N, setting $\phi_N = 0$.

We iterate on these steps until convergence in W_N. This preserves the interpretation of $\{W_j = \sigma V_j\}$ while using EN/NE flows to pin down (f_j, λ_0, W_N).

Separation shocks δ_j, ρ_j and arrival rate λ_1: Define $x_j = 1 - \rho_j - \delta_j$ and

$$S_j = \lambda_1 \sum_k f_k \, p_{k|j}, \qquad T_j = (1 - \lambda_1) \, p_{N|j}.$$

Firm outflow identities in discrete time imply

$$x_j = \frac{1 - A_j - B_j}{1 - S_j - T_j}, \qquad \rho_j = A_j - x_j S_j, \qquad \delta_j = B_j - x_j T_j.$$

$$r_{\text{EE}} = \frac{r_{\text{J2J}}}{\displaystyle\sum_j \frac{L_j}{\sum_\ell L_\ell} x_j \sum_k f_k \, p_{k|j}} \qquad \text{and} \qquad \lambda_1 = 1 - \exp(-r_{\text{EE}}).$$

Because x_j depends on λ_1 through S_j, T_j and λ_1 depends on x_j, we solve by fixed-point iteration. With the constructions above, $A_j + B_j \leq 1$ and $S_j, T_j \in [0, 1]$. A necessary condition is $S_j + T_j \leq A_j + B_j$ (equivalently $0 \leq x_j \leq 1$). Hence, we follow the literature and estimate the separation shocks on firms with declining firm size. We follow the literature and estimate the rates for sectors. For implementation, we choose 29 NACE-2 sectors.

Recover u_j Once $W_N, \rho_j, \delta_j, f_j, \lambda_0, \lambda_1$ are pinned down, back out $\phi_j = \sigma u_j$ by inverting the scaled firm Bellman equation for job j:

$$\begin{aligned}
\phi_j = W_j - \beta \Big[& \delta_j \big(W_N + \gamma \big) + \rho_j \sum_k f_k \big(W_k + \gamma \big) \\
& + (1 - \delta_j - \rho_j) \lambda_1 \sum_k f_k \Big(\ln \big(e^{W_j} + e^{W_k} \big) + \gamma \Big) \\
& + (1 - \delta_j - \rho_j)(1 - \lambda_1) \Big(\ln \big(e^{W_N} + e^{W_j} \big) + \gamma \Big) \Big].
\end{aligned}$$

Imposing the moment restriction using AKM fixed effects Ψ_j

$$\text{Var}\big(\phi_j / \sigma \big) = \text{Var}(\Psi_j),$$

allows to pin down σ. Objects that depend only on W (choice probabilities $p_{k|j}$, offer shares f, and therefore $\lambda_0, \lambda_1, S_j, T_j, x_j$) are invariant to the numeric value of σ. However, the Bellman expectations imply that for fixed $\{W_j\}$, both ϕ_j and W_N are level objects that require σ to convert back to (u, V). A convenient normalization is $\text{Var}(\phi_j / \sigma^\star) = \text{Var}(\Psi_j)$, so that $u_j = \phi_j / \sigma^\star$ is on the same scale as Ψ_j. As in Audoly et al. (2024), this implies

that amenities a_j can only be compensating differentials. Finally, we choose $\sigma^\star > 0$ such that $\mathrm{Var}(\phi_j/\sigma^\star) = \mathrm{Var}(\Psi_j)$ and recover levels

$$u_j = \frac{\phi_j}{\sigma^\star}, \qquad V_j = \frac{W_j}{\sigma^\star}, \qquad V_N = \frac{W_N}{\sigma^\star}.$$

that is

$$\sigma^\star = \sqrt{\frac{\mathrm{Var}_w(\phi_j)}{\mathrm{Var}_w(\Psi_j)}}, \quad \mathrm{Var}_w(X_j) = \frac{\sum_j w_j\,(X_j - \bar{X}_w)^2}{\sum_j w_j}, \quad \bar{X}_w = \frac{\sum_j w_j X_j}{\sum_j w_j}.$$

B.3   Standard Errors for Two-Stage Regression Using Firm Rank Variables

B.3.1   Overview

We consider a two-step estimation procedure:

1. Estimate firm characteristics Z_j in a first stage;

2. Regress estimated firm characteristics $\hat{Z}_j$ on covariates X_j:

$$\hat{Z}_j = X_j\beta + \omega_j,$$

where the regression residual $\omega_j = \varepsilon_j + \nu_j$ combines structural noise ε_j and estimation error ν_j from the first stage.

We consider three firm-level measures Z_j: firm fixed effects $\hat{\psi}_{j(i,t)}$, PageRank $\exp(V^g)$, and poaching rates π_j. Each is subject to estimation error due to limited mobility, finite-sample network statistics, or sparse data. These errors induce bias in the variance estimate of the second-stage coefficient estimates $\hat{\beta}$. We focus here on how heteroskedasticity in the measurement error ν_j affects the variance of $\hat{\beta}$. From the moment condition:

$$\hat{\beta} = (X'X)^{-1}X'\hat{Z} = \beta + (X'X)^{-1}X'\nu,$$

the variance of $\hat{\beta}$ is:

$$\mathrm{Var}(\hat{\beta}) = (X'X)^{-1}X'(\Sigma_\varepsilon + \Sigma_\nu)X(X'X)^{-1}.$$

which highlights that heteroskedasticity in ν_j leads to error in the variance estimate of $\hat{\beta}$. This is a realistic scenario - it has been shown that larger firms with more firm movers

yield more precise first-stage estimates (e.g. for AKM fixed effects, cf. Bonhomme et al. (2023)).

Simulation-Based Variance Estimation To address this additional uncertainty, we adopt a simulation-based variance combination approach, conditional on an estimate of $\widehat{\mathrm{Var}}(\nu_j)_j$.[27] Specifically, we assume:

$$\hat{Z}_j = Z_j + \nu_j, \quad \nu_j \sim \mathcal{N}(0, \widehat{\mathrm{Var}}(\nu_j)_j),$$

with $E[\nu X] = 0$; our procedure propagates variance, not endogeneity. We then implement the following steps:

1. Simulate $\nu_j^{(s)} \sim \mathcal{N}(0, \widehat{\mathrm{Var}}(\nu_j)_j)$, for $s = 1, \ldots, S$

2. Construct $Z_j^{(s)} = \hat{Z}_j - \nu_j^{(s)}$

3. Estimate $\hat{\beta}^{(s)}$ from $Z_j^{(s)} = X_j \beta + \varepsilon_j$ and conduct inference

To conduct inference, for each simulation s we estimate $\hat{\beta}^{(s)}$ and record its model-based variance $V^{(s)} = \widehat{\mathrm{Var}}(\hat{\beta}^{(s)})$. Following Rubin (1987), we combine across S draws as

$$\bar{\beta} = \frac{1}{S} \sum_{s=1}^{S} \hat{\beta}^{(s)}, \quad W = \frac{1}{S} \sum_{s=1}^{S} V^{(s)}, \quad B = \frac{1}{S-1} \sum_{s=1}^{S} (\hat{\beta}^{(s)} - \bar{\beta})(\hat{\beta}^{(s)} - \bar{\beta})^{\top},$$

and report the total variance

$$T = W + \left(1 + \tfrac{1}{S}\right) B, \qquad \mathrm{SE}(\bar{\beta}) = \sqrt{\mathrm{diag}(T)}.$$

This accounts for both within-simulation (sampling) and between-simulation (attenuation-correction) uncertainty. In practice, we se $S = 100$.

We now describe how $\widehat{\mathrm{Var}}(\nu_j)_j$ is estimated for each type of firm characteristic.

---

[27]Note that standard bootstrap estimates could be severely biased. By definition, bootstrap estimators are smooth functions of resampled data. However, for estimated firm-level quantities - such as $\hat{\psi}_j$, π_j, and PageRank - the bootstrap perturbs not just noise but the underlying network structure or labor mobility paths. This invalidates standard bootstrap resampling assumptions, since the structure used to define ν_j is not held fixed. As a result, naive bootstrapped variance estimates for $\hat{\beta}$ could be severely biased, especially when heteroskedasticity in ν_j is driven by network sparsity or unbalanced sample coverage.

B.3.2 Variance Estimators for Firm Fixed Effects $\hat{\psi}_{j(i,t)}$

Let $\hat{\psi} = Aw$, where A is the projection matrix from the first-stage AKM estimation. Kline et al. (2020) show that the variance of the estimation error can be approximated as:

$$\text{Var}(\nu) \approx \sigma^2 AA',$$

where σ^2 is estimated using leave-one-out methods.

B.3.3 Variance Estimators for the Poaching Rate π_j

The poaching rate is defined as:

$$\pi_j = \frac{N_j^{EE}}{N_j^{EE} + N_j^{UE}},$$

where N_j^{EE} is the number of hires from other firms, and N_j^{UE} is the number of hires from unemployment. Assuming hires are independent Bernoulli draws, we estimate:

$$\text{Var}(\pi_j)_j = \frac{\pi_j(1 - \pi_j)}{N_j^{EE} + N_j^{UE}}.$$

B.3.4 Variance Estimators for PageRank $\exp(V^g)$

In the following, we show how we can use the MLE formulation of Pagerank to derive the variance of Pagerank estimates.

Maximum Likelihood Estimate of PageRank   The probability of a worker choosing firm k is given by:
$$\pi_k = \frac{\exp(V_k^g)}{\sum_l \exp(V_l^g)}.$$

Now suppose we observe aggregate mobility data in the form of a matrix $M^0 \in \mathbb{R}^{F \times F}$, where M_{kj}^0 denotes the number of workers moving from firm j to firm k. Assuming that all transitions are independent, the likelihood of observing the entire set of transitions is:

$$\prod_{j=1}^{F} \prod_{k=1}^{F} (\pi_k)^{M_{kj}^0}.$$

Taking logs, the log-likelihood becomes:

$$\mathcal{L}(V^g) = \sum_{j=1}^{F} \sum_{k=1}^{F} M_{kj}^0 \log(\pi_k).$$

Substituting in the expression for π_k, we get:

$$\log(\pi_k) = V_k^g - \log\left(\sum_{l=1}^{F} \exp(V_l^g)\right).$$

Thus, the log-likelihood simplifies to:

$$\mathcal{L}(V^g) = \sum_{j=1}^{F} \sum_{k=1}^{F} M_{kj}^0 \left[V_k^g - \log\left(\sum_{l=1}^{F} \exp(V_l^g)\right)\right].$$

We can advance further using

$$
\begin{aligned}
\mathcal{L}(V^g) &= \sum_{j=1}^{F} \sum_{k=1}^{F} M_{kj}^0 \left[V_k^g - \log\left(\sum_{l=1}^{F} \exp(V_l^g)\right)\right] \\
&= \sum_{k=1}^{F} \left(\sum_{j=1}^{F} M_{kj}^0\right) V_k^g - \sum_{j=1}^{F} \left(\sum_{k=1}^{F} M_{kj}^0\right) \log\left(\sum_{l=1}^{F} \exp(V_l^g)\right) \\
&= \sum_{k=1}^{F} T_k \cdot V_k^g - \left(\sum_{j=1}^{F} S_{jj}^0\right) \log\left(\sum_{l=1}^{F} \exp(V_l^g)\right),
\end{aligned}
$$

where $T_k = \sum_{j=1}^{F} M_{kj}^0$ is the total number of workers flowing into firm k, and $S_{jj}^0 = \sum_k M_{kj}^0$ is the total number of workers leaving firm j. Taking the derivative of $\mathcal{L}$ with respect to V_m^g, we obtain:

$$
\begin{aligned}
\frac{\partial \mathcal{L}}{\partial V_m^g} &= T_m - \left(\sum_{j=1}^{F} S_{jj}^0\right) \cdot \frac{\exp(V_m^g)}{\sum_{l=1}^{F} \exp(V_l^g)} \\
&= T_m - N \cdot \pi_m,
\end{aligned}
$$

where $N = \sum_j S_{jj}^0$ is the total number of observed transitions. Setting the gradient to zero yields:

$$T_m = N \cdot \pi_m, \quad \text{for all } m.$$

This is equivalent to:

$$\frac{T_m}{N} = \pi_m,$$

meaning the empirical inflow share equals the predicted probability in equilibrium.

Equivalence to PageRank Solution We now show that the maximum likelihood estimator V^g from the multinomial logit model is equivalent to the PageRank solution as described in Sorkin (2018a). Recall from above that the MLE satisfies:

$$\pi_k = \frac{T_k}{N}, \quad \text{where } T_k = \sum_j M_{kj}^0, \quad N = \sum_{k,j} M_{kj}^0.$$

Since $\pi_k = \frac{\exp(V_k^g)}{\sum_l \exp(V_l^g)}$, this implies:

$$\frac{\exp(V_k^g)}{\sum_l \exp(V_l^g)} = \frac{T_k}{N}.$$

Multiplying both sides by $\sum_l \exp(V_l^g)$, we get:

$$\exp(V_k^g) = \frac{T_k}{N} \cdot \sum_l \exp(V_l^g),$$

which shows that $\exp(V_k^g)$ is proportional to T_k, the total number of workers arriving at firm k. Now consider the PageRank equation:

$$S^{0^{-1}} M^0 \exp(V^g) = \exp(V^g),$$

where S^0 is the diagonal matrix of column sums of M^0, i.e., $S_{kk}^0 = \sum_j M_{jk}^0$, the total number of workers leaving firm k. This formulation assumes that a worker at origin firm j chooses destination firm k with probability:

$$\frac{M_{kj}^0}{\sum_l M_{lj}^0} = \frac{M_{kj}^0}{S_{jj}^0}.$$

Let $P = S^{0^{-1}} M^0$ denote the transition matrix. Then, $\exp(V^g)$ is the stationary distribution of this Markov chain:

$$P \exp(V^g) = \exp(V^g).$$

This implies that $\exp(V^g)$ is a right eigenvector of P associated with eigenvalue 1. In equilibrium, the inflow to each firm (the left-hand side) equals the value of the firm (right-hand side), which aligns with the MLE first-order condition where inflow shares match predicted choice probabilities. Hence, solving the MLE via the multinomial logit model yields the same fixed-point solution as computing the PageRank from the normalized

mobility matrix. Hence, the vector $\exp(V^g)$ can be interpreted either as the MLE-implied firm attractiveness or as the PageRank centrality in the labor mobility network. Note that this equivalence holds up to scale, since both models are only identified up to a location shift in V^g.

Variance PageRank   We can use this insight to derive the MLE-based variance of the estimate. The observed information (negative Hessian) matrix is:

$$\frac{\partial^2 \mathcal{L}}{\partial V_m^g \partial V_n^g} = -N \left[\pi_m (\delta_{mn} - \pi_n) \right],$$

where δ_{mn} is the Kronecker delta. In matrix form:

$$\nabla^2 \mathcal{L} = -N \left(\mathrm{diag}(\pi) - \pi \pi^\top \right).$$

Thus, the asymptotic variance of V^g is:

$$\mathrm{Var}(V^g) = \frac{1}{N} \left(\mathrm{diag}(\pi) - \pi \pi^\top \right)^+,$$

where $(\cdot)^+$ denotes the Moore-Penrose pseudoinverse. In practice, we normalize based on a π weighted mean $\bar{V}_\pi = \sum_k \pi_k V_k$. Because V is only identified up to a constant, we must fix one linear normalization. A natural choice is the π weighted mean $\bar{V}_\pi = \sum_k \pi_k V_k$, i.e. impose $\sum_k \pi_k V_k = 0$. This choice is optimal in the following sense. For any anchor w with $\sum_k w_k = 1$ (so we report $V_i - w^\top V$), the delta method and the Fisher information $J = \mathrm{diag}(\pi) - \pi \pi^\top$ imply

$$\mathrm{Var}\left(V_i - w^\top V \right) = \frac{1}{N} \sum_{k=1}^F \frac{(e_i - w)_k^2}{\pi_k} = \frac{1}{N} \left(\frac{1}{\pi_i} - \frac{2w_i}{\pi_i} + \sum_k \frac{w_k^2}{\pi_k} \right).$$

Minimizing this over w subject to $\sum_k w_k = 1$ gives $w_k = \lambda \pi_k$ with $\lambda = 1$, hence $w = \pi$. Therefore anchoring at the π weighted mean yields the smallest asymptotic variance among all convex–combination anchors and delivers the simple formula $\mathrm{Var}(V_i - \bar{V}_\pi) = \frac{1}{N}(\frac{1}{\pi_i} - 1)$.

C Online Appendix: Survey Materials

C.1 Original Survey

Informed Consent

INFORMATIONSARK OM AARHUS UNIVERSITET

Professor Nabanita Datta Gupta, Institut for Økonomi,
Aarhus Universitet, er i gang med et forskningsstudie
finansieret af ROCKWOOL fonden omkring vurderinger af
jobkarakteristika.

Rekruttering af deltagere udføres af Bilendi.co, en survey
virksomhed med over 20 års erfaring i at hjælpe forskere
med markedsundersøgelser i over 13 europæiske lande,
herunder Danmark.

Din deltagelse i denne forskningsundersøgelse er frivillig.

Hvorfor udføres denne undersøgelse?
Formålet med denne undersøgelse er at kortlægge,
hvordan enkeltpersoner beslutter, hvilken type job de
foretrækker. Ved hjælp af en række hypotetiske
jobkontraster bliver du bedt om at vælge, hvilket job du

70

foretrækker at have. Ud fra disse kontraster vil forskerne være i stand til at forstå individers præferencer for jobkarakteristika.

Hvad sker der, hvis jeg deltager i denne forskningsundersøgelse?

Det er frivilligt at deltage i denne undersøgelse. Ved deltagelse vil forskeren bede dig om følgende:
At deltage i undersøgelsen vedrørende dine jobpræferencer. Undersøgelsen vil også omfatte grundlæggende demografiske oplysninger.

Hvor længe vil jeg være i forskningsundersøgelsen?

Deltagelse tager i alt ca. 20 minutter.

Er der nogen potentielle risici eller ubehag, som jeg kan forvente af denne undersøgelse?

Der er ingen forventede risici eller ubehag.

Er der nogen potentielle fordele ved at deltage?

Du kan drage fordel af undersøgelsen ved at modtage vejledning om potentielle jobmuligheder, når studiet er slut.

Vil jeg blive betalt for at deltage?

Du vil modtage 200 Bilendi point for at deltage.

Vil oplysninger om mig og min deltagelse blive behandlet fortroligt?

Alle oplysninger, der indhentes i forbindelse med denne undersøgelse, og som kan identificere dig, forbliver fortrolige. De vil kun blive videregivet med din tilladelse eller som krævet ved lov. Den forskningsansvarlige vil ikke have adgang til identificerbare data. Identificerbare oplysninger vil kun blive brugt til betaling og til at sende personlige forslag om jobmuligheder. Data vil blive afidentificeret og anonymiseret inden analysen.

Hvordan vil resultater videregives?

Resultater vil kun blive videregivet i aggregeret form, hvilket betyder, at ingen individuelle deltageres svar kan identificeres. De aggregerede resultater vil blive publiceret i videnskabelige tidsskrifter efter at have gennemgået peer review. Deltagerne er velkomne til at anmode om at se de publikationer, der kommer ud af undersøgelsen.

Hvilke rettigheder har jeg, hvis jeg deltager i denne undersøgelse?

• Du kan vælge, om du vil være med i denne undersøgelse eller ej, og du kan til enhver tid trække dit samtykke tilbage ved at afbryde deltagelsen.

• Uanset hvilken beslutning du træffer, vil der ikke være nogen straf for dig og intet tab af ydelser, som du ellers var berettiget til.

• Du kan nægte at besvare spørgsmål, som du ikke ønsker at besvare, og stadig deltage i undersøgelsen.

• Efter at have deltaget, kan du ikke længere trække dit tilsagn om samtykke om deltagelse tilbage.

Hvem kan jeg kontakte, hvis jeg har spørgsmål til denne undersøgelse?

• *Forskerholdet:*

Hvis du har spørgsmål, kommentarer eller bekymringer om forskningen, kontakt venligst forskeren ansvarlig for undersøgelsen: Professor Nabanita Datta Gupta, ndg@econ.au.dk

• *Databeskyttelse ved Aarhus Universitet*

Hvis du har spørgsmål til dine rettigheder som deltager i

undersøgelsen, eller hvis du har bekymringer eller forslag, og du ønsker at tale med andre end forskerne, kan du kontakte Databeskyttelsesrådgiveren tilknyttet Aarhus Universitet på mail: dpo@au.dk

Samtykke

Jeg har læst denne formular, og forskningsundersøgelsen er blevet forklaret for mig. Jeg har fået mulighed for at stille spørgsmål, og mine spørgsmål er blevet besvaret. Hvis jeg har yderligere spørgsmål, har jeg fået at vide, hvem jeg skal kontakte. Jeg accepterer at deltage i den ovenfor beskrevne forskningsundersøgelse.

Du modtager betaling og rådgivning inden for to uger.

Hvis du accepterer at deltage, skal du klikke på "ja". ${e://Field/p} ${e://Field/m}

○ Ja
○ Nej

Elegibility

Tak fordi du deltog i denne undersøgelse. Det tager ca. 20 minutter at gennemføre denne undersøgelse. Denne undersøgelse spørger om dine jobpræferencer. Først vil vi spørge om dit nuværende job.

Er du ansat i øjeblikket?

○ Ja

○ Nej

Sociodemographic Questions

Hvad er din alder?

[   ]

Hvilket køn er du?

○ Kvinde

○ Mand

○ Andet

Hvad er din højeste fuldførte uddannelse?

○ Ingen uddannelse

○ Grundskole

○ Gymnasiale uddannelser

○ Erhvervsfaglige uddannelser

○ Kortere videregående uddannelser

○ Mellemlange videregående uddannelser

○ Lange videregående uddannelser

○ Phd og forskeruddannelser

Har du hjemmeboende børn?

○ Ja
○ Nej

Hvad er din nuværende branche?

○ **Ledelsesarbejde**, fx øverste ledelse i myndigheder, virksomheder og organisationer, inden for administration, produktions- og servicevirksomhed, hotel og restauration og andre serviceområder

○ **Arbejde, der forudsætter viden på højeste niveau indenfor pågældende område**, fx ingeniør, læge, sygeplejerske, underviser, pædagog, økonomi-, administration- og salgsmedarbejder, revisor, finans- og forsikringsarbejde, IT, journalist, præst, bibliotekar, forfatter, kunstner m.fl.

○ **Arbejde, der forudsætter viden på mellemniveau**, fx tekniker, arbejde indenfor forretningsservice, agent- og mæglerarbejde, salg og køb, speditør, told og grænsearbejde, forvaltning og udøvelse af lovgivning, sportsudøver og træner, fotograf, køkkenchef, driftsteknikarbejde m.fl.

○ **Almindeligt kontor- og kundeservice arbejde**, fx sekretærarbejde, kasserer og kundeinformationsarbejde, beregnings- og registreringsarbejde, lagerekspeditionsarbejde m.fl.

○ **Service- og salgsarbejde**, fx service under transport, kokkearbejde, tjener, frisør, inspektørarbejde indenfor rengøring, salgsarbejde, omsorgsarbejde for børn og indenfor pleje og sundhed, redning og overvågningsarbejde

○ **Arbejde indenfor landbrug, skovbrug og fiskeri ekskl. medhjælp**, fx arbejde indenfor landbrug og gartneri, plantevækst, dyreopdræt, skovbrug, fiskeri og jagt

○ **Håndværkspræget arbejde**, fx indenfor byggeri, metal- og maskinarbejde, præcisionshåndværk og grafik, elektriske og elektroniske område, fødevarefremstilling, snedkeriarbejde m.fl.

○ **Operatør- samt monteringsarbejde og transportarbejde**, fx operatørarbejder ved stationære anlæg og maskiner, monteringsarbejde af mekanisk, elektrisk og elektronisk arbejde, chaufførarbejde og førere af køretøj m.fl.

○ **Andet manuelt arbejde**, fx rengøringsarbejde, manuelt arbejde indenfor landbrug, skovbrug og fiskeri, råstofudvinding, bygge og anlæg, produktions-, transport- og lagerarbejde, tilberedning af mad m.fl.

○ **Militært arbejde**, fx på officersniveau, befalingsmandsniveau og øvrige rangordener

Hvad er din nuværende månedsløn før skat (i DKK. Hvis du ikke ønsker at svare, kan du lade feltet stå blankt)?

I din nuværende stilling, har du:

○ Deltid

○ Fuldtid

○ Mange timer (over 37 timer)

I din nuværende stilling:

○ Bestemmer du selv din tidsplan

○ Er din tidsplan besluttet af din arbejdsgiver

I din nuværende stilling, har du mulighed for at arbejde hjemme?

○ Ja

○ Nej

I din nuværende stilling:

○ varierer dit start-/sluttidspunkt på arbejdet

○ start-/sluttidspunkt på arbejdet er faste

Har du aftenarbejde i din nuværende stilling?

○ Ja

○ Nej

I din nuværende stilling:

○ dit timetal om ugen varierer hver uge

○ dit timetal er omtrent det samme hver uge

Er det nemt at justere din tid på arbejdet af

familiemæssige / personlige årsager i din nuværende stilling?

○ Ja
○ Nej

Er du nogensinde tilkaldevagt i din nuværende stilling?

○ Ja
○ Nej

Ligger din arbejdsplads inden for 15km fra din bopæl?

○ Ja
○ Nej

Ligger din arbejdsplads mere end 30km fra din bopæl?

○ Ja
○ Nej

Job Selection Instructions

I den næste del af undersøgelsen får du vist 30 profiler af hypotetiske job. Disse job kan variere på følgende måder: timetal, kontrol over timer, mulighed for at arbejde hjemme, start-/-sluttidspunkter, omfanget af aftenarbejde, om arbejdstiden kan justeres, om man er tilkaldevagt, transporttid og lønvilkår.

Vi bruger dine svar i dette afsnit til at give dig personlige forslag til typer af jobs, der i øjeblikket er tilgængelige, og som kan passe til dine præferencer. Hvis du beslutter dig for at modtage disse forslag, vil du modtage dem via Bilendi. Vi kontakter ikke arbejdspladser eller virksomheder på dine vegne. Vi giver dig kun anbefalinger, der er i overensstemmelse med de valg, du foretager i den næste del af dette spørgeskema, hvis du siger, at du er interesseret i disse forslag.

Job Selection Exercise

	Job A	Job B
Timetal	${e://Field/jobA_hours_01}	${e://Field/jobB_hours_01}
Kontrol over timer	${e://Field/jobA_control_hours_01}	${e://Field/jobB_control_hours_01}
Arbejde hjemmefra	${e://Field/jobA_remote_work_01}	${e://Field/jobB_remote_work_01}
Mødetid på arbejde	${e://Field/jobA_time_flexibility_01}	${e://Field/jobB_time_flexibility_01}
Brug for at arbejde om aftenen	${e://Field/jobA_evenings_01}	${e://Field/jobB_evenings_01}
Timetal er regelmæssige	${e://Field/jobA_regular_hours_01}	${e://Field/jobB_regular_hours_01}
Tempo	${e://Field/jobA_pace_01}	${e://Field/jobB_pace_01}
Uafhængighed	${e://Field/jobA_independence_01}	${e://Field/jobB_independence_01}
Familietid	${e://Field/jobA_family_time_01}	${e://Field/jobB_family_time_01}
Tilkaldevagt	${e://Field/jobA_oncall_01}	${e://Field/jobB_oncall_01}
Afstand	${e://Field/jobA_distance_01}	${e://Field/jobB_distance_01}
Løn	${e://Field/jobA_salary_increase_01} % mere end din nuværende månedsløn	${e://Field/jobB_salary_increase_01} % mere end din nuværende månedsløn

Hvilket job foretrækker du?

○ A

○ B

Author note: This is repeated 29 additional times, but we do not print these additional contrasts to save pages.

	Job A	Job B
Timetal	${e://Field/jobA_hours_02}	${e://Field/jobB_hours_02}
Kontrol over timer	${e://Field/jobA_control_hours_02}	${e://Field/jobB_control_hours_02}

C.2   Survey in English translation

Information Sheet about Aarhus University

Professor Nabanita Datta Gupta, Department of Economics, Aarhus University, is conducting a research project funded by the ROCKWOOL Foundation on evaluations of job characteristics.

Recruitment of participants is carried out by Bilendi.co, a survey company with over 20 years of experience helping researchers with market studies in more than 13 European countries, including Denmark.

Your participation in this research study is voluntary.

Why is this study being conducted?

The purpose of this study is to map how individuals decide which type of job they prefer. Using a series of hypothetical job contrasts, you will be asked to choose which job you would prefer to have. Based on these contrasts, researchers will be able to understand individuals' preferences for job characteristics.

What happens if I participate in this research study?

Participation is voluntary. If you choose to participate, the researcher will ask you to:

- Take part in the survey about your job preferences.
- Answer some basic demographic questions.

How long will I be in the research study?

Participation takes about 20 minutes in total.

Are there any potential risks or discomforts I can expect from this study?

There are no expected risks or discomforts.

Are there any potential benefits to participating?

You may benefit from the study by receiving guidance on potential job opportunities once the study is completed.

Will I be paid for participating?

You will receive 200 Bilendi points for participating.

Will information about me and my participation be kept confidential?

All information collected during this study that can identify you will remain confidential. It will only be disclosed with your permission or as required by law. The researcher will not have access to identifiable data.

Identifiable information will only be used for payment and to send personalized suggestions about job opportunities. Data will be de-identified and anonymized before analysis.

How will results be shared?

All results will only be shared in aggregated form, meaning no individual participant's responses can be identified. Results will be published in scientific journals after peer review. Participants are welcome to request copies of publications resulting from the study.

What rights do I have if I participate in this study?

- You can choose whether or not to participate, and you can withdraw your consent at any time by stopping participation.

- Whatever decision you make, there will be no penalty and no loss of benefits you are otherwise entitled to.

- You can refuse to answer any questions you do not wish to answer and still participate in the survey.

- After participating, you cannot withdraw your consent for participation.

Who can I contact if I have questions about this study?

Research team If you have questions, comments, or concerns about the research, please contact the researcher responsible for the study:

Professor Nabanita Datta Gupta, ndg@econ.au.dk

Data Protection Officer at Aarhus University If you have questions about your rights as a participant, or if you have concerns or suggestions and wish to speak to someone other than the researchers, you can contact the Data Protection Officer at Aarhus University at dpo@au.dk.

You will receive payment and guidance within two weeks.

Consent

If you agree to participate, please click "Yes".

Yes   No

Survey Introduction and Questions

Introductory text

Thank you for participating in this survey. It takes about 20 minutes to complete. This survey asks about your job preferences. First, we will ask about your current job and some background questions.

Screening and background questions

(a) Are you currently employed?

Response options: Yes / No. (If "No", not eligible.)

(b) What is your age?

(c) What is your gender?

Response options: Male / Female / Other.

(d) What is your highest completed level of education?

Response options:

- No education

- Primary school

- Upper secondary education

- Vocational education

- Short-cycle higher education

- Medium-cycle higher education

- Long-cycle higher education

- PhD and research education

(e) Do you have children living at home?

Response options: Yes / No.

(f) Do you live in:

Response options:

- A large city

- A medium-sized city

- A small town

- The countryside

(g) What is your current monthly salary?

(Please report your monthly salary or indicate "Prefer not to answer".)

(h) What is your current industry? (Based on Denmark Statistics occupational codes)

Response options:

1: Management work, e.g., top management in authorities, companies, and organizations, within administration, production and service companies, hotel and restaurant, and other service areas.

2: Work requiring knowledge at the highest level in the relevant field, e.g., engineer, doctor, nurse, teacher, educator, economics, administration and sales staff, auditor, finance and insurance work, IT, journalist, priest, librarian, author, artist, etc.

3: Work requiring intermediate-level knowledge, e.g., technician, business services, agent and broker work, sales and purchasing, freight forwarding, customs and border work, administration and law enforcement, athlete and coach, photographer, head chef, operations technician, etc.

4: General office and customer service work, e.g., secretarial work, cashier and customer information work, calculation and registration work, warehouse dispatch work, etc.

5: Service and sales work, e.g., service during transport, cooking, waiter, hairdresser, cleaning inspector, sales work, childcare and health care work, rescue and surveillance work.

6: Work in agriculture, forestry, and fishing excluding assistants, e.g., work in farming and horticulture, plant growth, animal husbandry, forestry, fishing, and hunting.

7: Craft-related work, e.g., construction, metal and machine work, precision craftsmanship and graphics, electrical and electronic work, food production, carpentry, etc.

8: Operator and assembly work and transport work, e.g., operator work at stationary plants and machines, assembly work of mechanical, electrical, and electronic work, driver work and vehicle operation, etc.

9: Other manual work, e.g., cleaning work, manual work in agriculture, forestry, and fishing, raw material extraction, construction, production, transport and warehouse work, food preparation, etc.

0: Military work, e.g., officer level, non-commissioned officer level, and other ranks.

(i) In your current position, please answer the following:

- Do you have part-time, full-time, or long hours?

- Do you set your own schedule, or is your schedule set by your employer?

- Do you have the ability to work from home?

- Are your start/end times at work fixed or variable?

- Do you work evenings?

- Does your weekly working time vary, or is it about the same each week?

- Is it easy to adjust your working hours for family/personal reasons?

- Are you ever on call?

- Is your workplace within 15 km of your home?

- Is your workplace more than 30 km from your home?

Hypothetical job profiles

In the next part of the survey, you will be shown 30 profiles of hypothetical jobs. These jobs can vary in the following ways:

- Number of hours

- Control over hours

- Ability to work from home

- Start/end times

- Amount of evening work

- Weekly hours

- Flexibility of working time

- On-call requirements

- Commute time

- Salary conditions

We use your answers in this section to give you personalized suggestions for types of jobs currently available that may match your preferences. If you decide to receive these suggestions, you will receive them via Bilendi. We will not contact workplaces or companies on your behalf. We only provide recommendations that match the choices you make in the next part of this questionnaire, if you indicate that you are interested in these suggestions.

Choice questions

Which job do you prefer?

A   B

Example characteristics for the study

Job suggestions

Are you interested in receiving job suggestions based on your preferences?

Yes   No

Thank you for participating in this research study!

Table A5: Example characteristics for hypothetical jobs

Feature	Job A	Job B	Job C
Hours	Part-time – 20 hours per week	Full-time – 37 hours per week	Long hours – typically more than 37 hours
Control	Set your own schedule	Employer sets your schedule	
Work from home	None	Yes, employees can work from home some days	
Start times	Fixed times	Variable start/end times	
Evening work	Yes, often	Never	
Hours regular	Same number of hours each week	Hours vary from week to week	
Pace	Relaxed	Time pressure	
Independence	You decide how to do your work	Tasks and workflows are well-defined	
Family time	Easy to adjust for personal/family	Difficult to adjust for personal/family	
On-call	You may be contacted when off-duty	You are not on call	
Distance	Workplace within 15 km of home	Workplace more than 30 km away	
Salary	x% more than your current monthly salary		