Non-Wage Benefits and Employee Sorting

Maximilian Margolin
Erasmus University Rotterdam
margolin@rsm.nl

Daniel Schaupp
Vienna University of Economics and Business
daniel.schaupp@wu.ac.at

Jee-Eun Shin
Rotman School of Management, University of Toronto
je.shin@rotman.utoronto.ca

Abstract
This study examines the role of non-wage benefits as an employee sorting mechanism using data from the largest employer review platform in Germany and derives three main insights. First, we document that the number and types of benefits employees receive exhibit substantial within-firm variation. This indicates that benefits can not only facilitate the sorting of employees across different firms but also enable sorting into different remuneration arrangements within a given firm. Second, even after tightly controlling for employer- and job-related characteristics, we find that women receive more benefits compared to men and that this difference is concentrated in benefits that can be considered family-friendly. Third, analyses that exploit information on employee satisfaction and cross-sectional variation in employer characteristics corroborate preference-based sorting as the explanation for the observed gender differences in received benefits. Taken together, our results suggest that non-wage benefits can facilitate preference-based sorting of employees into different remuneration arrangements.

JEL Classification: J32, M12, M46

Keywords: non-wage benefits, sorting, workplace preferences, compensation inequality, gender differences

---

We are grateful to *Kununu* (www.kununu.com) for granting us access to their data. Furthermore, we gratefully acknowledge helpful comments and suggestions by Isabella Grabner, Christoph Hörner, Patrick Kampkötter, Khim Kelly, Stephan Kramer, Judith Künneke, Daniel Metzger, Andrea Pawliczek, Caspar Peter, Anjana Rajamani, workshop participants at Cornell University, Erasmus University Rotterdam, Kobe University, LMU Munich, Tilburg University, University of Central Florida, WHU – Otto Beisheim School of Management, as well as conference participants at the 2024 AAA Annual Meeting, 2024 Conference on New Directions in Management Accounting, 2025 AAA MAS Midyear Meeting, and 2025 ACMAR. This article is based on research funded by an IMA Research Foundation Academic Grant.

Non-Wage Benefits and Employee Sorting

Abstract

This study examines the role of non-wage benefits as an employee sorting mechanism using data from the largest employer review platform in Germany and derives three main insights. First, we document that the number and types of benefits employees receive exhibit substantial within-firm variation. This indicates that benefits can not only facilitate the sorting of employees across different firms but also enable sorting into different remuneration arrangements within a given firm. Second, even after tightly controlling for employer- and job-related characteristics, we find that women receive more benefits compared to men and that this difference is concentrated in benefits that can be considered family-friendly. Third, analyses that exploit information on employee satisfaction and cross-sectional variation in employer characteristics corroborate preference-based sorting as the explanation for the observed gender differences in received benefits. Taken together, our results suggest that non-wage benefits can facilitate preference-based sorting of employees into different remuneration arrangements.

JEL Classification: J16, J24, J28, J31, J32, J71, M12, M14, M52, M55

Keywords: non-wage benefits, sorting, workplace preferences, compensation inequality, gender differences

1. Introduction

Non-wage benefits are supplementary perks and amenities that employers provide to their employees in addition to salary or wages.[1] Such benefits comprise a substantial part of firms' total costs of employment and are considered increasingly important elements for attracting, retaining, and motivating employees (e.g., Bhaskaran et al., 2022; Mercer, 2023; Willis Towers Watson, 2020).[2] Because different employees may value benefits differently, offering benefits instead of an equivalent amount of additional pay can serve as a sorting mechanism. That is, firms can exploit employees' heterogeneous preferences by offering specific benefits to attract and contract with the type of employees who value the respective benefits (Eriksson and Kristensen, 2014; Oyer, 2008).

Employee sorting constitutes an important element of management control (Abernethy et al., 2015; Cai, 2023; Campbell, 2012) and prior research has provided empirical evidence for the notion that benefits can facilitate the sorting of employees across firms (e.g., Eriksson and Kristensen, 2014; Oyer, 2008). However, limited insight exists into the question of whether benefits can also facilitate the sorting of employees into different remuneration arrangements within a given firm. Exploring this question is important because benefits are considered to be relatively flexibly negotiable in practice (DePaul, 2020; Gallo, 2015; Prossack, 2019) and could therefore provide a useful element for designing remuneration arrangements targeted at specific employees.

In this study, we exploit a large dataset of employee-level observations provided by *Kununu*, a German employer review website, to provide novel insights into the sorting role of

[1] We use "non-wage benefits" and "benefits" interchangeably throughout this paper. Prior research has furthermore used the terms "fringe benefits" and "perks" as other synonyms.

[2] For example, in the U.S., data collected on employer costs for civilian, private industry, state, and local government workers suggests that expenses for benefits constitute about 30 percent of employer costs for employee compensation. (Bureau of Labor Statistics, 2023. Employer Costs from Employee Compensation - December 2023.)

benefits. Specifically, we obtain from *Kununu* 532,937 employee reviews provided across 107,096 firms between January 2019 and February 2024 for which we observe the submitting employee's job-related characteristics (i.e., employer, job title, tenure, and managerial responsibilities) and remuneration (i.e., amount of pay and benefits received across 17 possible categories).

We begin our analysis by examining whether non-wage benefits are largely consistent for employees of the same firm (and, thus, employees can only vary the number of benefits they receive by their choice of employer) or whether benefits also vary within firms (and thus, employees can also vary their benefits through contracting with a given employer). The results of a variance-decomposition suggest that the total number of benefits employees receive and the propensity to receive each of the 17 benefit categories captured by *Kununu* show substantial variation within firms. Specifically, we find that the variance in the total number of benefits employees receive stems about two-thirds (one-third) from within-firm (between-firm) variation, and the relative share of within-firm variance in the propensity to receive each of the 17 benefit categories varies between 48.2 percent and 75.2 percent.

To examine the idea of whether non-wage benefits can serve as a sorting mechanism, we focus on gender (as a specific employee characteristic) and its relation to the non-wage benefits an employee receives. Prior research has documented that female relative to male employees prefer workplace characteristics that allow them to devote more time to their family-related obligations, including the possibility of working from home and the avoidance of irregular work schedules (Mas and Pallais, 2017), the possibility of working part-time (Wiswall and Zafar, 2018), and a short commute to work (Le Barbanchon et al., 2021). Accordingly, if non-wage benefits are offered by employers as a mechanism to attract and contract with female talent, we posit that females should, *ceteris paribus*, receive more non-wage benefits compared to their male counterparts.

Controlling for a wide range of confounders, including firm-job title-year fixed effects, job-related characteristics, and pay levels, we find robust evidence that female employees receive more benefits than male employees. Analyses, where we regard each of the 17 benefit categories separately, suggest that this relation between gender and benefits is predominantly driven by benefits that can be considered family-friendly because they contribute to an employee's ability to combine work with household-related responsibilities. At the same time, we find no gender differences for most non-family-related types of benefits, such as corporate phones or employer-sponsored internet plans.

We then move to examine preference-based sorting as the explanation for the gender differences in benefits that we observe. While our results are in line with the idea that females sort into contracts with more benefits due to gender differences in preferences for benefits relative to pay (Le Barbanchon et al., 2021; Liu et al., 2023; Mas and Pallais, 2017; Wiswall and Zafar, 2018) it is important to rule out alternative explanations. First, female employees might receive more benefits due to discriminatory remuneration practices. Prior research has extensively documented that female employees receive, on average, lower pay than male employees, even after accounting for job- and employer-specific covariates, referring to this phenomenon as the "gender pay gap" (e.g., Goldin, 2014). An alternative explanation for our results would, therefore, be that firms provide female employees with many (but relatively low-value) benefits as a mere token of compensation for lower pay. Second, female employees might receive more benefits due to the differential negotiability of benefits compared to pay. Females have, on average, a lower propensity to demand (Roussille, 2024) and negotiate for higher pay (Biasi and Sarsons, 2022; Leibbrandt and List, 2015). Because benefits can be more idiosyncratic, it could be that female

employees receive more benefits because they find it easier to negotiate for more generous benefit arrangements rather than more pay.

To assess support for the preference- vs. the discrimination- and negotiation-based explanations, we conduct analyses where we group the 17 benefit types into categories based on whether we would expect to observe differential gender preferences based on prior research (Le Barbanchon et al., 2021; Liu et al., 2023; Mas and Pallais, 2017; Wiswall and Zafar, 2018). Based on the notion that women, on average, take on more responsibilities in caring for children and family members, we distinguish between benefits that contribute to an employee's ability to combine work with household-related responsibilities (i.e., "family-friendly") and general (i.e., "non-family-related") benefits.

First, we use additional data from *Kununu* on employees' reported satisfaction with their employer to examine how pay and different types of benefits are associated with employee satisfaction. We find that while more pay and more generous benefit packages are generally associated with greater satisfaction, gender differences in the strengths of these relations exist that are consistent with the preference-based (but not the discrimination- or negotiation-based) explanation for our main results. Specifically, we find that for female compared to male employees, the relation between pay and satisfaction is weaker, the relation between family-friendly benefits and satisfaction is stronger, and no difference can be observed in the strength of the relation between non-family-related benefits and satisfaction.

Second, we examine whether the gender differences in receiving family-friendly vs. non-family-related benefits exhibit variation depending on employer characteristics conducive to more discretion for employees to choose their remuneration package. The preference-based explanation would suggest that gender differences should be more pronounced where benefits practices are

relatively more transparent and employees can openly choose the benefit types in remuneration negotiations with their employers. We identify firms that offer flexible choice-based benefit plans, which are often referred to as "cafeteria-style" plans, by searching firms' websites, posted job advertisements, and news reports for related keywords. Consistent with preference-based sorting we find that the gender differences in the propensity to receive family-friendly (but not non-family-related) benefits are more pronounced in firms that we identify as offering flexible "cafeteria-style" benefit plans.

Third, we examine whether the gender differences in receiving family-friendly vs. non-family-related benefits are more pronounced for employers with a demonstrated commitment to hiring more female talent. For this, we exploit cross-sectional variation in firms' espoused commitment to gender diversity by exploiting the introduction of legislation in Germany in 2015 which mandates public firms to set and report on targets for employee gender diversity in the three highest levels of management. We examine firms' responses to the introduction of this law and distinguish between firms with vs. without demonstrated commitment to gender diversity based on hand-collected data on (1) firms' self-set targets after the passing of the Gender Target Law (i.e., just before our sample time), and (2) firms' subsequent target achievement. Focusing on the subsample of firms to which the law was applicable, we find that the relation between gender and family-related benefits we document in our main analysis is more pronounced in firms with a demonstrated commitment to gender diversity. This finding corroborates the notion that firms indeed consider the use of family-friendly benefits as an attraction and contracting mechanism when they are interested in hiring and retaining female talent.

Our findings contribute to several streams of literature. First, our results contribute to the literature on employee sorting as an element of management control. To facilitate employee (self-

)selection, firms can offer contracts that are more valuable to the particular type of employee the firm wishes to attract (Shields and Waller, 1988; Waller and Chow, 1985). For example, several analytical (Demski and Feltham, 1978; Fama, 1980; Jensen and Meckling, 1976; Salop and Salop, 1976) and empirical studies (Banker et al., 2001; Cadsby et al., 2007; Chow, 1983; Dohmen and Falk, 2011; Lazear, 2000; Román, 2009; Shields and Waller, 1988) have examined the notion that firms can attract higher-skilled employees by offering compensation schemes that include a performance-based pay component as opposed to fixed pay. However, little evidence exists on how sorting can be achieved for traits other than task-related skills (Dohmen and Falk, 2011; Fehrenbacher et al., 2017; Shields and Waller, 1988). Our results suggest that by offering certain types of non-wage benefits either in addition to or instead of pay, firms can create remuneration packages that are particularly attractive to female employees and thereby can help attract female talent.

Second, our results contribute more broadly to research on the optimal design of compensation contracts. It is well understood that workers can have specific preferences for certain aspects of compensation design that would make different, but economically equivalent, compensation packages appear differently attractive to them. For example, workers generally prefer incentive contracts that are formulated as a bonus for good performance over economically equivalent contracts with a penalty for poor performance (Luft, 1994; Van der Stede et al., 2020). Prior research suggests that by considering workers' preferences and assigning them to different compensation schemes, firms can elicit higher effort (Opitz et al., 2024). Our results contribute to this literature by providing insights into how firms can design remuneration contracts consisting of pay and benefits that will be perceived as more attractive by their female compared to male employees, thus allowing the firm to provide stronger incentives for female talent. These insights

have significant practical implications due to the recent rise in corporate interest in how to effectively attract, retain, and foster female talent that is fueled by pressure from investors (e.g., Heath et al., 2023; Taylor, 2021) and regulators (e.g., Vaseghi et al., 2020) alike.

Third, our results contribute to the literature on remuneration inequality. In its pursuit to explain the gender pay gap, prior research has, amongst other arguments, examined gender differences in preferences for certain workplace characteristics that are traded off against higher pay (Le Barbanchon et al., 2021; Mas and Pallais, 2017; Wiswall and Zafar, 2018) as well as individuals' propensity to demand (Roussille, 2024) and negotiate for higher pay (Biasi and Sarsons, 2022; Leibbrandt and List, 2015). Our results contribute to this literature by demonstrating that even within a given employer, and job female employees receive a higher number of family-friendly benefits (e.g., the possibility to work from home, choose work hours flexibly, and make use of on-site or subsidized childcare) and are comparatively more satisfied with their job and employer when they receive more family-friendly benefits.

2. Related literature & theoretical background

2.1. Incentive design and employee self-selection

Research has long been interested in the possibility of employee selection through the offering of incentive contracts (Shields and Waller, 1988). The underlying idea is that when being offered alternative compensation contracts, individuals do not choose randomly but self-select into the contract with the best fit for them (Waller and Chow, 1985). Initially, research focused on task-related skill level as a predictor of contract choice. Analytical studies argue that higher-skilled individuals are more likely to self-select into contracts with a performance-based pay component relative to their lower-skilled counterparts (Demski and Feltham, 1978; Fama, 1980; Jensen and Meckling, 1976; Salop and Salop, 1976). This notion is supported by evidence from experimental

(Cadsby et al., 2007; Chow, 1983; Dohmen and Falk, 2011; Waller and Chow, 1985) as well as field studies (Banker et al., 2001; Lazear, 2000; Román, 2009).

Waller and Chow (1985) extend the findings on the role of task-related capabilities for contract choice to risk preferences and personality traits. They propose and find evidence for a relation between individuals' level of risk aversion and their choice of safer fixed-pay contracts as opposed to riskier performance-based pay contracts. In a more recent effort to further investigate the role of personality traits on contract choice, Fehrenbacher et al. (2017) conducted an experimental study focusing on risk preferences, need for achievement, and locus of control. Specifically, the authors hypothesize and find that individuals with a lower (higher) risk aversion, higher (lower) need for achievement, and external (internal) locus of control are more (less) likely to select a performance-based pay contract (Fehrenbacher et al., 2017).

Apart from the general provision of performance-based pay, prior research has argued that compensating employees with stock options can facilitate the sorting of middle and lower-level employees. Like other forms of performance-based pay, stock options attract employees who are more skilled and less risk-averse (Hall and Murphy, 2002). Hall and Murphy (2003) argue that because of their risky but potentially high payout, stock options also help firms attract entrepreneurial and optimistic employees. In an attempt to disentangle the incentive, attraction, and retention effects of stock options, Oyer and Schaefer (2005) find that stock options are a highly inefficient way to motivate employee effort. The authors conclude that companies widely use stock options as compensation components for middle and lower-level employees primarily for their employee (self-)selection and retention effects.

While, in theory, firms can benefit from designing incentive contracts that could also facilitate employee sorting into different contracts *within* a given organization (Opitz et al., 2024),

the recent focus on pay gaps as indicators of undesirable governance practices suggests that employers cannot resort to differences in pay-related contractual designs to do so (e.g., Bailey et al., 2024; Chang et al., 2022; LaViers et al., 2022). Accordingly, studying the idea of whether and how employers facilitate employee sorting within organizations requires an examination of employees' total remuneration packages that also include many non-wage benefits. In fact, census data in the U.S. suggest that benefit-related costs constitute on average about 30 percent of total employment-related expenses (Bureau of Labor Statistics, 2023).

2.2. Non-wage benefits in remuneration

Non-wage benefits refer to supplementary perks and amenities provided by employers to employees in addition to their base salary or wages. These benefits can include health insurance, retirement plans, flexible work arrangements, and other forms of compensation. As such, these benefits differ from monetary compensation (such as pay) in that they provide tangible, non-monetary value directly to employees. Given that benefits can constitute substantial costs for firms, prior research has explored reasons why firms would offer non-wage benefits instead of paying employees the equivalent amount in the form of a higher salary. This research has provided three main arguments for why non-wage benefits create economic benefits beyond employees' own consumption choices, given higher pay instead of benefits (Oyer, 2008). First, due to economies of scale (e.g., Woodbury, 1983) or preferential tax treatments (e.g., Cymrot, 1980; Feldstein, 1973), firms can obtain certain benefits at a lower cost than employees. Firms would, therefore, offer, e.g., collective retirement plans instead of higher pay to provide employees with the same utility at a lower cost to the firm. Second, certain benefits can reduce the marginal costs of effort of the employee. Firms would therefore offer, e.g., meals at the workplace, to entice employees with a high marginal product of labor to work longer hours. Third, because employees differ in

their valuations of different types of benefits, firms can achieve higher utility for employees with particularly high valuations of these benefits at constant cost to the firm. Firms would, therefore, create higher utility for, e.g., employees with families, by offering health insurance plans with family coverage.

One consequence of the last argument discussed above is that employees will sort to firms based on their valuation of the benefits that these firms offer (Oyer, 2008). In a more recent study, Liu et al. (2023) discuss the possibility that firms can, therefore, strategically use benefits as an attraction mechanism by offering benefits that are valued particularly highly by the type of employees that the firm aims to attract – specifically, female talent. In addition to the pay level, negotiations on employees' total remuneration arrangements also involve detailing the number and type of non-wage benefits (e.g., DePaul, 2020; Gallo, 2015; Prossack, 2019). This may, thus, explicitly allow for employee sorting into different remuneration arrangements within a given organization which may have been difficult to achieve when solely relying on pay-related elements. In this study, we examine whether firms vary their benefit practices consistent with their sorting role across their employees.

3. Data & institutional setting

To investigate the role of non-wage benefits as employee sorting mechanisms, we collaborate with *Kununu* (www.kununu.com), the leading German platform where current and former employees anonymously review companies. Similar to its U.S. equivalent, *glassdoor.com*, *Kununu* collects information on employment conditions and employee satisfaction for companies in Germany, Austria, and Switzerland. According to their website, *Kununu* currently provides several million employee reviews for more than one million companies. Each review submitted to *Kununu* consists of answers to several standardized questions regarding satisfaction with their

employer along multiple dimensions as well as open text reviews where employees provide more detailed information, particularly on their perception of corporate values, their satisfaction with employment conditions, and career perspectives at their employer. After providing an employer review, users receive a separate invitation to provide additional information on their pay as well as the number and type of non-wage benefits that their employer provides them across 17 possible categories.

It is worth noting that the 17 categories of benefits regarded by *Kununu* exclude two types of benefits often discussed in prior research based on U.S. data: paid maternity leave and employer-sponsored health insurance. This is because in our institutional setting (i.e., Germany), paid maternity leave and participation in the public health insurance system are mandated by law and, therefore, do not vary across employers. In contrast to this, the 17 categories of benefits covered by *Kununu* are discretionary and can be varied by employers.

3.1. Sample

To conduct our research, we obtained from *Kununu* all reviews submitted between January 2019 and February 2024, including (1) employees' remuneration packages (pay and awarded non-wage benefits), (2) employees' evaluation of different aspects of their job at their employer, and (3) job- and person-related characteristics such as gender, tenure, job title, and managerial functions.[3] For our analysis, we retain only the subset of employee reviews where users have also provided information on benefits and compensation. Because access to benefits could differ between full-time and part-time employees, we retain only reviews provided by full-time employees and further drop reviews where the employee's gender is not identified as "female" or

[3] We first contacted *Kununu* regarding a possible collaboration in the Summer of 2022. After several communications, including submitting a detailed research proposal, we signed an agreement to collaborate with *Kununu* in November 2022. Under this agreement, we have access to all individual employee reviews collected by *Kununu*.

"male".[4] Our final dataset contains 532,937 observations from employees working in 107,096 unique firms.

The size and granularity of this data set offer two unique possibilities. First, because we observe remuneration arrangements at the level of individual employees, we can decompose the overall variation in the benefits employees receive into a between-firm and a within-firm component. This allows us to gain insight into whether benefits can only serve as a sorting mechanism across firms or whether employees sorting into different remuneration arrangements within a given firm is also possible. Second, because we observe detailed job-related characteristics of the employees in our sample, we can examine empirical support for sorting based on benefits by examining the relation between employee characteristics and received benefits while controlling for sorting based on other job characteristics such as employer, job title, and pay.

3.2. Descriptive statistics

The *Kununu* data allows us to capture for every employee the total amount of pay and the number and type of received non-wage benefits. In particular, when providing their responses, employees are asked to select from a list of 17 different benefits, which of these benefits they receive from their employer.[5] We provide an overview of the different benefits and their definition

[4] All our results are robust to alternatively (1) retaining part-time employees and instead including an indicator to control for employment status as well as (2) retaining employees who responded with "other" or "prefer not to say" to the gender question.

[5] The question *Kununu* uses to collect data on the benefits respondents receive is worded as: *Which of the following benefits does your employer provide?* Based on our conversations with *Kununu* our understanding is that respondents answer this question referring to the benefits that they personally receive and that it, therefore, is an appropriate way to capture individual-level benefit arrangements, despite not being clearly worded as an individual-level question. However, we also acknowledge that this wording could raise concerns about the validity of our measure if employees' responses simply capture their *awareness* of the theoretical possibility of receiving certain benefits from their employer rather than whether they actually receive the respective benefits themselves. That is, it could be possible that benefits vary less between employees of the same firm than our measure suggests and that the within-firm variation we observe in our benefits measure stems at least in part from variation in employees' awareness of the benefits their employer offers (possibly influenced by not only the benefits they personally receive but also the benefits of which they know their coworkers receive). At the same time, an employee's awareness of the availability of certain benefits could plausibly be correlated with their revealed preferences to receive such benefits. To the extent that employee awareness of different types of benefits offered by their employer is a necessary precondition for their

by *Kununu* in Appendix I (Columns 1 and 2). All other variables used in our analysis are explained in Appendix II.

Table 1 presents descriptive statistics for our sample. Employees in our sample report an average annual pay of €58,683 (approximately US$62,790). The average pay of employees in our sample is thus comparable to the average salary reported by the Federal Statistical Office of Germany (€51,876 in 2023) (Federal Statistical Office, 2023a), albeit slightly higher, which indicates that higher-paid employees might be slightly overrepresented. This is perhaps not surprising given that our sample stems from an employer review website which is more likely used by white-collar employees and employees from larger companies. About one-third of the reviews in our sample have been provided by female employees. The vast majority of reviews were provided by employees who do not work in managerial positions (84.9 percent) and do not act as supervisors of other employees (76.3 percent). On average, employees report receiving 5.913 out of the 17 categories of benefits we study. The most commonly offered benefits are flexible workhour arrangements (51.3 percent), access to employee parking (50.0 percent), and corporate retirement plans (48.7 percent). Table 2 presents correlations for the main variables in our sample.

4. Analysis & results

4.1. Variance decomposition of employer-provided non-wage benefits

periodic remuneration negotiations, we note that this measurement error could raise concerns about the economic significance of our results, but is unlikely to invalidate the conclusion that benefits can facilitate preference-based sorting of employees into different remuneration arrangements within a given employer. We also note that this alternative interpretation of our measure is not supported by the results of our additional analyses that we conduct to examine the preference-based sorting explanation. Specifically, if our measure picked up primarily respondents' awareness of what benefits their co-workers receive it is implausible that we would find a positive link between this awareness and the satisfaction of the respondent as well as that this positive relation is stronger for women than it is for men. Similarly, it is implausible that the increased transparency and ease of choice "cafeteria-style" benefit plans provide would result in greater rather than smaller gender differences in empoyees' awareness of how many and which benefits their co-workers receive. Likewise, it is also implausible that in firms with a demonstrated commitment to gender diversity women would be more acutely aware that their co-workers receive many benefits compared to firms without such a commitment.

We begin our analysis by examining the variance in employees' non-wage benefits. Specifically, we are interested in the question of what relative share of the variance in employees' benefits can be attributed to between- compared to within-firm variation. Understanding whether non-wage benefits are largely fixed within employers or whether within-firm variation in benefits exists is important because it shapes our understanding of whether benefits largely serve a sorting role across employers or whether employees can also sort into different remuneration arrangements within employers. To the best of our knowledge, the only prior study that explores within-firm variation in benefits is Ouimet and Tate (2023), which finds that between-firm variation accounts for the vast majority of the variance in benefits (e.g., 86.3 percent for health benefits) while within-firm dispersion of benefits is small.[6]

To conduct a variance decomposition analysis, we follow Ouimet and Tate (2023) as well as prior research that studies variation in pay and decompose the variance in benefits employees in our sample receive into a within- and a between-firm component (Barth et al., 2016; Song et al., 2019). We present the results in Table 3. Results presented in Panel A of Table 3 suggest that 32.3 percent of the variance in the number of benefits employees receive is due to the firm component while roughly two-thirds of the variance is within-firm dispersion. The between-firm variation is reduced to 28.9 percent (26.7 percent) if we account for industry (job title) fixed effects. Results presented in Panel B of Table 3 suggest that the dispersion within firm-years is slightly smaller than that within firms, but still, roughly two-thirds of the variation in the number of benefits are

[6] These previous results are, however, likely not transferable to our setting for at least two reasons. First, Ouimet and Tate (2023) focus on three categories of benefits that, due to legal restrictions in the U.S., are difficult to vary for different employees of the same firm (i.e., health benefits, retirement benefits, and leave benefits). In contrast, our sample includes many benefit categories that are plausibly easier to vary within firms (e.g., corporate car and phone plans). Second, due to data limitations, the observations in Ouimet and Tate (2023) are at the establishment-job-quarter level such that within-firm variation will stem from different benefit policies in different establishments and between whole job types. In contrast, we have access to data on the level of individual employees, thus allowing us to additionally observe variation that stems from different benefit arrangements made by different employees of the same firm.

within a firm-year dispersion. Finally, Panel C presents results for individual benefits categories rather than the total number of benefits received. Results suggest that the share of variance explained by the firm-year component ranges from 28.8 percent to 51.8 percent, with the lowest between-variation (i.e., highest within-firm-year variance) exhibited by *BenefitsCoaching* and *BenefitsChildcare* and the highest between-variation (i.e., lowest within-firm-year variance) exhibited by *BenefitsCafeteria* and *BenefitsDogs*.

These results offer at least two important insights. First, we find that while a sizable share of variance in the benefits employees receive is explained by employer-fixed policies in a given year, the majority of variance is attributable to within-firm-year dispersion. We, therefore, find a less pronounced employer-fixed component in benefits and, instead, more dispersion of benefits arrangements within firm-years compared to Ouimet and Tate (2023). Second, we find that the share of variance that is explained by employer-fixed policies in a given year varies across benefit categories. This result is in line with the idea that certain types of benefits are more difficult to vary within a given firm-year (such as, e.g., the availability and access to a cafeteria) while other benefit types are more flexible and can thus be varied more easily in remuneration arrangements with different employees within the same firm-year (such as, e.g., access to coaching).

4.2. Gender and non-wage benefits

Based on prior research that has documented gender differences in preferences for flexible workplace characteristics (Le Barbanchon et al., 2021; Mas and Pallais, 2017; Wiswall and Zafar, 2018), we further examine the sorting role of non-wage benefits by examining the relation between gender and non-wage benefits. That is if female employees exhibit higher preferences for benefits, firms should offer them more benefits relative to male employees, and firms should vary benefit practices across employees to facilitate sorting. On the other hand, if the provision of benefits is

inconsistent with a sorting role, we expect to observe no gender differences. Alternatively, it may also be possible that female employees are associated with fewer benefits than male employees due to the complementary nature of pay and benefits. For example, recent studies find that firms that pay higher wages also provide more generous benefits (Ouimet and Tate, 2023; Pierce, 2001). Pierce (2001) further documents that the historical growth in pay inequality between high- and low-paid employees has gone hand in hand with a growth in inequality in benefits. Yet, it is important to note that these studies focus on between-firm differences in remuneration practices and not within-firm differences.

To examine the relation between gender and non-wage benefits, we estimate the following model specification with robust standard errors:[7]

$$BenefitsSum_i = \beta_0 + \beta_1 Female_i + \sum \beta\, Controls_i + \sum \beta\, Fixed\ Effects\ + \varepsilon_i \qquad (1)$$

where i denotes the respective employee. The dependent variable *BenefitsSum* is the total number of non-wage benefits that the employee was awarded at their firm ranging from 0 to 17. $Female$ is an indicator that takes the value of 1 if the employee is female and 0 otherwise. Furthermore, we include three important control variables. First, we control for whether the respective employee holds a managerial role within the company. Non-managerial employees often constitute the frontline workforce and operate within distinct work environments, frequently involving shift work. These circumstances typically result in a significant reduction in the number and variety of benefits that could be offered by the company instead of pay. We proxy for this group of employees using *Manager*, which is an indicator that takes a value of 1 for employees who have a managerial position and 0 otherwise. Second, we consider whether the respective

[7] For consistency, we estimate all of our models (i.e., also models where the dependent variable is a count-based variable) as linear OLS regressions. In untabulated robustness tests, we find that our results are robust to alternative estimations as Poisson regressions.

employee acts as a supervisor for any subordinates. Employees with direct reports typically have additional responsibilities, such as supervisory and reporting duties, which may affect the number and variety of benefits that could be awarded to employees. For example, benefits such as home office and flexible working hours are somewhat contingent on whether their direct reports are also awarded these benefits. We proxy for this characteristic using *Supervisor*, which is an indicator that takes a value of 1 for employees that indicate having direct reports and 0 otherwise.[8] Third, we also include *lnPay* as a control, which is calculated as the natural logarithm of the pay the employee receives at their firm.[9] To control for employees' tenure, we include tenure category-fixed effects as *Kununu's* questionnaire does not capture employees' exact tenure in years but rather asks respondents to select one of the categories "0-1 years", "1-3 years", "3-6 years", "6-10 years", and "more than 10 years". Furthermore, we include year, job title, and firm fixed effects. While we also present results when firm, year, and job title fixed effects are included separately, for our main specification, we make use of the size and granularity of our dataset and include combined firm-job title-year fixed effects.

Table 4 presents our results. Each column presents results of estimations that differ based on the inclusion of control variables and fixed effects. Column 1 shows results for a specification where no controls or fixed effects are included. Column 2 shows results when controls and fixed effects related to job characteristics are added. Column 3 shows results when we additionally include firm fixed effects to control for variation between organizations. Column 4 shows results

[8] Employees in managerial roles often act as supervisors, and vice versa, which is also evidenced by a sizable correlation of $\rho = 0.633$ between our two variables *Manager* and *Supervisor*. We nevertheless include both controls as these two concepts are defined separately in German labor law.

[9] Prior research that estimates the gender pay gap frequently includes an individual's age and its squared term to capture human capital. While information on individuals' age is available from *Kununu*, this variable shows a large number of missing values, which would reduce our usable sample size by approximately 40 percent. We therefore do not include age as a covariate in our main specifications. Results from untabulated robustness checks suggest that all of our inferences are robust to including age and its squared term as additional covariates.

when we additionally control for the employee's annual pay. Finally, Column 5 shows results when we include combined firm-job title-year fixed effects.

In all four specifications with controls, we find positive coefficients on our control variables *Manager* and *Supervisor*, suggesting that employees in managerial functions and those with supervisory responsibilities are associated with more benefits. Furthermore, results presented in Columns 4 and 5 show a positive association between pay and benefits. This is consistent with the complementary relation between pay and benefits as documented in prior research based on more recent U.S. census data, which finds that firms paying higher wages also provide more generous benefits (Ouimet and Tate, 2023; Pierce, 2001).

For our main independent variable of interest, the gender indicator *Female*, our results show a negative coefficient in the specification with no controls (Column 1) and positive coefficients in all other specifications. This suggests that while female employees on average receive fewer benefits than male employees, this is likely driven by inherent job- and employer-characteristics. As soon as controls for job-related characteristics are included, we find that female employees are associated with more benefits than male employees. Our results therefore suggest that *ceteris paribus*, female employees receive more non-wage benefits compared to their male counterparts.

To explore whether this result is driven by individual categories of benefits, we estimate separate models for each benefits category. That is, we estimate Equation 1 but replace the dependent variable *BenefitsSum* with separate indicators for each of the 17 benefit categories, which take a value of 1 if the employee receives the respective benefit and 0 otherwise. In the interest of parsimony, we present results only for our main specification which includes all controls and firm-job title-year fixed effects. Results presented in Table 5 show a positive coefficient on

Female for most benefit categories. As all specifications are estimated as OLS regressions, we interpret the estimated coefficients as marginal effects (Ai and Norton, 2003; Angrist and Pischke, 2009). For example, the results in Column 1 of Table 7 suggest that, after the inclusion of covariates and fixed effects, female employees are more likely to receive flexible work hours by 3 percent. Overall, we find that the relation between gender and benefits we find in our first test is persistent across most categories – i.e., female employees are associated with a higher propensity to receive most benefit types than male employees.

Interestingly, perusal of the results for the individual benefit types reveals some categories for which gender differences are not observed. We find that only one benefit category (i.e., corporate cars) is more commonly associated with male employees. Four other categories (i.e., food allowances, corporate phone plans, employer-supported share purchase opportunities, and employer-paid internet plans) show no statistically significant relation with the gender indicator. That is, the gender differences are mainly pronounced for benefits that are less transferrable into monetary value, but rather allow for opportunities to combine work with household responsibilities – i.e., "family-friendly" benefits. This is in line with prior research which has documented that women exhibit higher preferences for job characteristics related to temporal and local flexibility (Le Barbanchon et al., 2021; Mas and Pallais, 2017; Wiswall and Zafar, 2018) consistent with the notion that women take on more family-related care duties for children and old or sick family members (Goldin, 2014).

4.3. Why do female employees receive more benefits?

So far, our findings document robust evidence that female employees are associated with more non-wage benefits than their male counterparts. Moreover, we also document consistent evidence with the preference-based explanation in that gender differences are particularly

pronounced for benefit types that can be considered family-friendly (Le Barbanchon et al., 2021; Mas and Pallais, 2017; Wiswall and Zafar, 2018). However, the preference-based explanation which would be consistent with the sorting role of benefits may not be the only possibility.

Other reasons may be rooted in discriminatory practices of firms providing female employees with many (but relatively low-value) benefits. If employers budget for total employment costs and thus consider pay and benefits as substitutes (e.g., Woodbury, 1983), female employees could be offered packages with more benefits and lower pay while male employees would be offered packages with relatively higher pay. For example, firms may provide female employees with many benefits as a mere token of compensation for lower pay. Firms could thereby exploit the fact that female employees have, on average, a lower willingness to negotiate with employers (Leibbrandt and List, 2015; Roussille, 2024) and offer remuneration packages consisting of lower pay but more benefits to feign equality. As a result, female employees would, all else equal, receive lower pay than their male counterparts (as extensively documented in prior research) but, conversely, more benefits.

To assess these different possible explanations, we leverage the differences in benefit types and conduct three sets of analyses where we distinguish between benefits for which female employees can be expected to exhibit stronger preferences and such benefits for which we would not expect gender differences. That is, our empirical strategy is to examine whether the gender differences we observe across different types of benefits are in line with women showing stronger preferences for family-friendly benefits as suggested by prior research (Le Barbanchon et al., 2021; Mas and Pallais, 2017; Wiswall and Zafar, 2018). Specifically, for our empirical investigation, we categorize the individual benefits into three different groups. We present an overview of which

benefits we assign to which category, as well as brief explanations for our reasoning in Appendix I, Columns 3 and 4.

We form a first group of benefits that we consider family-friendly based on a narrow definition (i.e., benefits that unambiguously contribute to the possibility of combining work and family care duties and that have been frequently examined in prior research as such) which is in line with prior research on revealed gender preferences for family-friendly working conditions. We assign three benefits to this group: the possibility to flexibly choose one's work hours, the possibility to work from home, and the availability of employer-provided childcare. Accordingly, we calculate *BenefitsFamNarrow* as the sum of the three indicators *BenefitsWorkhours*, *BenefitsHomeoffice*, and *BenefitsChildcare*.

Second, we form a group of benefits that we consider family-friendly based on a broader definition, that is benefits that could be more generally considered helpful in attenuating the disadvantages that employees with family responsibilities typically have. Based on the idea that employees with family responsibilities have higher marginal costs of work time (Liu et al., 2023; Oyer, 2008) we assign to this category benefits that provide employees with timesaving and lower coordination costs if provided by the employer (i.e., availability of a medical professional, availability of a cafeteria, availability of employee parking, fitness offers, and the possibility to bring one's dog to work). Furthermore, we assign to this category two types of benefits that provide career support (i.e., coaching offers and corporate events) based on the idea that such benefits are more valuable to employees with family responsibilities as their career progress frequently suffers from fewer opportunities for social interactions with supervisors and colleagues and limited possibilities to work overtime (Cullen and Perez-Truglia, 2023). Additionally, we assign the availability of employer-supported retirement plans to this category because in our research setting

(i.e., Germany) employees who interrupt or leave full-time employment to care for children or family members frequently suffer penalties in the public pension system leading to a *gender pension gap* in the accumulated pension entitlement between men and women (Even and Macpherson, 1994; Federal Statistical Office, 2023b).[10]

Third, we aggregate the remaining benefits (i.e., corporate car, corporate phone, employer-sponsored internet plan, discounts for purchases from the employer, employer-supported share purchase programs, and food vouchers) to the group *BenefitsOther*. These constitute the type of benefits that are the least likely to provide value to employees by allowing them to combine work with household obligations. Instead, these constitute benefits similar to "perks" – i.e., additional incentives with a relatively clear monetary value.

4.3.1. The relation between benefits, pay, and satisfaction

In our first set of tests, we exploit information on employees' satisfaction with their employers available from the *Kununu* reviews to explore possible gender differences in how benefits and pay are associated with employee satisfaction. Intuitively, both higher pay and more extensive benefits (regardless of type) would be associated with higher employee satisfaction. However, the alternative explanations for why female employees receive higher benefits than male employees would yield different predictions regarding the moderating effect of gender. If the relation between gender and benefits we observe stems from gender differences in preferences for certain benefits relative to pay, we would expect to find that for female employees, these benefits exhibit a stronger positive relation with satisfaction compared to male employees, while pay would exhibit a weaker positive relation with satisfaction for female compared to male employees. If,

[10] We create two separate groups *BenefitsFamNarrow* and *BenefitsFamBroad* despite similar predictions for benefits across these two groups for clarity and line with the idea that employees will exhibit differential preferences for benefits in the category *BenefitsFamNarrow* more unambigiously compared to benefits in the category *BenefitsFamBroad*. Our inferences remain the same if we aggregate benefits in these two groups into a single group.

however, female employees receive more benefits due to their lower power and willingness to bargain, we would expect to either find no moderating effect of gender or, conversely, that the association between benefits (pay) and satisfaction is weaker (stronger) for female employees. This is because, based on this alternative explanation, female employees would generally receive inefficiently many benefits yet inefficiently low pay such that the gain in satisfaction from a pay increase would be larger compared to male employees, while the loss in satisfaction from a decrease in pay would be weaker compared to male employees.

To evaluate empirical support for these predictions, we estimate the following model specification, including the same controls and fixed effects as in Equation 1 as well as robust standard errors:

$$Satisfaction_i = \beta_0 + \beta_1 lnPay_i + \beta_2 BenefitsFamNarrow_i + \beta_3 BenefitsFamBroad_i + \beta_4 BenefitsOther_i + \beta_5 Female_i + \beta_6 lnPay_i \times Female_i + \beta_7 BenefitsFamNarrow_i \times Female_i + \beta_8 BenefitsFamBroad_i \times Female_i + \beta_9 BenefitsOther_i \times Female_i + \sum \beta\ Controls_i\ + \sum \beta\ Fixed\ Effects + \varepsilon_i \quad (2)$$

To capture employees' satisfaction with their employers, we rely on *Kununu*'s measure, which asks employees to assess their employer along 13 individual dimensions on a 5-point Likert scale. From these items, we calculate *SatisfactionOverall* as the unweighted average of all 13 items.[11] Additionally, we estimate our model using respondents' satisfaction scores provided for the two sub-dimensions "satisfaction with the remuneration provided by the employer" (*SatisfactionRemuneration*) and "satisfaction with the work conditions at the employer" (*SatisfactionWorkCond*).

[11] Our results are robust to alternatively calculating *Satisfaction* as the factor score of the 13 items.

We present the results of this analysis in Table 6. For all three proxies for employee satisfaction, we find positive and statistically significant coefficients on the direct effects of pay and all three categories of benefits. We, therefore, find that pay and all three regarded categories of benefits are generally positively associated with employee satisfaction. Furthermore, our results for all three proxies for employee satisfaction show support for the notion that gender differences exist in how pay and different types of benefits are related to employee satisfaction. Specifically, we find a negative coefficient on the interaction *lnPay* × *Female* in all three specifications, suggesting that the positive relation between pay and satisfaction is weaker for female compared to male employees. Furthermore, we find a positive coefficient on the interactions *BenefitsFamNarrow* × *Female* and *BenefitsFamBroad* × *Female* in all three specifications, suggesting that the positive relation between family-friendly benefits and satisfaction is stronger for female employees compared to male employees. At the same time, the coefficient on the interaction *BenefitsOther* × *Female* is not statistically significant in any of the specifications. In sum, these results indicate consistent with the preference-based sorting explanation that pay is relatively more valued by male employees compared to female employees while family-friendly benefits are relatively more valued by female employees compared to male employees.

4.3.2. Differences between firms with vs. without flexible choice-based benefit plans

For our second set of tests, we exploit cross-sectional variation in the design of firms' benefit plans and, specifically, whether a firm proactively and transparently offers a choice of benefits. This analysis allows us to evaluate support for a preference-based vs. discrimination- and negotiation-based explanation for the observed gender differences in the number of benefits because they would lead us to differently directed predictions. If female employees receive more benefits than male employees because of differential preferences, then these gender differences

should be more pronounced when the tradeoff between benefits and cash compensation is more transparent and the choice of benefits is more flexible. If, however, female employees receive more benefits than male employees because of discrimination or negotiability of benefits relative to pay, then these gender differences should be more pronounced when benefit plans, and specifically, the tradeoffs between benefits and additional cash compensation, are less transparent, and employees are less flexible in their choices.

Under flexible benefit plans, which are often referred to as "cafeteria-style" plans (e.g., Kawamoto, 2024), employees can exchange part of their cash compensation for non-wage benefits, which can be chosen from an employer-provided menu of options.[12] To the best of our knowledge, information on firms' use of flexible choice-based benefit plans in Germany is not available in a systematic way. To identify firms that offer flexible choice-based benefit plans, we conduct an internet search for the terms "cafeteria-style benefits", "choice of benefits", and "flexible benefits" mentioned on firms' career websites, posted job advertisements, and in news articles related to employment conditions at the respective firm. Because of the large number of firms in our sample, we employ ChatGPT to automatize our search, submitting prompts via the OpenAI API to search for our keywords of interest company by company. We take several steps to ensure the validity of our approach. First, we employ the (at the time of our data collection) most recent and, thus, most powerful and reliable version, ChatGPT 4-o. Second, after drafting a first version of our prompt, we conduct prompt engineering where we optimize the exact wording of our prompt using repeated execution via the ChatGPT interface and additional prompting to supplement the search results with reasoning and exact sources in a small sample of firms for which we manually research the

[12] In the U.S., for example, such plans offer tax advantages pursuant to Section 125 of the Internal Revenue Code. In our setting, i.e., Germany, tax advantages for benefits are defined separately by benefit category in Section 3 and Section 8 of the German tax code *Einkommensteuergesetz*.

mentioning of our keywords of interest.[13] Third, after performing the search via ChatGPT, we randomly select 100 firms from our sample and manually verify the results, finding a 100 percent overlap between our manual coding and the results provided by ChatGPT.

Based on the results of our search, we construct the indicator *FlexCafeteriaPlan*, which takes a value of 1 for firms where we identify the use of at least one of our keywords of interest to describe the benefits offered to employees and 0 otherwise. To test for differences in how gender is related to benefits in firms with vs. without flexible choice-based benefit plans, we estimate an amended model of the specification in Equation 1. Specifically, we regress in separate models our three benefit group variables and *lnPay* as alternative dependent variables on the gender indicator *Female* and the interaction *FlexCafeteriaPlan* × *Female* as well as the full set of controls and fixed effects used in our previous analyses.[14]

Because our coding of *FlexCafeteriaPlan* relies on the presence of certain keywords that identify flexible benefit plans, our approach is prone to Type II errors, i.e., the false labeling of firms as not offering flexible plans due to a lack of (publicly available) descriptions of the respective firm's remuneration practices. Beyond adding noise to our measure, the presence of such Type II errors could bias our analysis if this measurement error is correlated with firm characteristics. In our setting, it is plausible that the availability of information regarding firms' remuneration practices in general and benefit plans in particular is correlated with firm size as

[13] The final version of the prompt we use for our search is: *'PlaceholderFirmName' is a company with employees in Germany. Please research whether this company mentions that they offer their employees in Germany a flexible choice of benefits. Include in your search internet resources such as the company's career website, job advertisements, and news articles about this company. Search resources in English and in German. Reply yes if you find that one of the English-language keywords "cafeteria-style benefits", "choice of benefits", or "flexible benefits" is used to describe the benefits the firm offers its employees in Germany. Also reply "yes" if you find that one of the German-language keywords "Cafeteria System", "Wahlmöglichkeit", or "Flexible Benefits" is used to describe the benefits the firm offers its employees in Germany. Reply "no" if you cannot find any of the listed keywords mentioned regarding the benefits the firm offers. Also reply "no" if you are uncertain. Reply only "yes" or "no" with no explanation.*

[14] *FlexCafeteriaPlan* does not vary at the firm-level. Thus, the direct effect of this variable is colinear with the firm fixed effects and, therefore, omitted.

larger firms are more likely to have more elaborate and extensive career websites and more press coverage. Given the presence of many small firms in our sample, we, therefore, limit our search to the largest 10,000 employers by the number of employee reviews (i.e., ~ 10 percent of the unique firms) in our sample and present the results of our analysis for different firm-size categories.[15]

Results presented in Table 7 provide further support for the notion that female employees exhibit greater preferences for family-friendly benefits compared to male employees. Specifically, results for *BenefitsFamNarrow* and *BenefitsFamBroad* and all three samples that include firms of different sizes show consistently positive and significant coefficients on *Female* and the interaction *FlexCafeteriaPlan* × *Female* (see Columns 1-6). We, therefore, find that while female employees receive more family-friendly benefits than male employees also in firms without flexible choice-based benefit plans, this gender difference is further enhanced in firms that offer such plans. For non-family-related benefits (see Columns 7-9), in contrast, we find that female employees generally receive more such benefits compared to male employees (i.e., we find positive and significant coefficients on *Female*), but this gender difference does not vary significantly between firms with vs. without a flexible choice-based plan (i.e., we find statistically insignificant coefficients on the interaction *FlexCafeteriaPlan* × *Female*). Results for *lnPay* as the dependent variable, which we present in Columns 10-12, indicate that the higher number of benefits female employees receive given a flexible choice regarding benefits stems from the trade-off they make between (additional) benefits and pay. Specifically, we find negative coefficients on the interaction *FlexCafeteriaPlan* × *Female* in all three specifications, with the coefficient being statistically significant in the samples of the 5,000 and 10,000 largest employers ($p < 0.10$, two-tailed) and

[15] Despite including just under 10 percent of our unique firms in our sample, the subsample we use for this analysis covers 58 percent of our employee-review observations and includes all firms with at least 10 employee reviews during our sample period.

approaching statistical significance at the 10% level in the sample of the 1,000 largest employers ($p = 0.188$, two-tailed). Our results, therefore, provide further suggestive evidence consistent with a preferences-based explanation for female employees receiving more family-friendly benefits.

4.3.3. Differences between firms with vs. without commitment to gender diversity

The preceding two analyses provide evidence in line with the preference-based explanation for the gender differences in benefits we observe. This raises the question of whether firms then use benefits accordingly when they are interested in attracting and retaining female talent. To explore this question, we conduct a third set of analyses where we exploit cross-sectional variation in firms' espoused commitment to gender diversity and test whether the relation between gender and benefits we document varies between firms with vs. without commitment to gender diversity. If the results of our main analysis can be explained by preference-based sorting, we would expect to find that gender differences in benefits are more pronounced in firms with a demonstrated commitment to gender diversity. In contrast, if our main results stem from discrimination or differences in propensity to negotiate, we would expect that gender differences in benefits will be less pronounced in firms with a commitment to gender diversity.

With the recent surge in the presence of diversity, equity, and inclusion (DEI) in the public debate, many jurisdictions have begun to implement various forms of corporate governance measures to promote gender equality in employment opportunities. These range from stronger measures such as mandated gender quotas either in corporate boards and/or executive teams (e.g., Ahern and Dittmar, 2012; Allen and Wahid, 2024; Greene et al., 2020; Matsa and Miller, 2013) to weaker disclosure-based regulations mandating firms to provide more information on their gender-related employment profile (e.g., Fauver et al., 2022), and divergent forms of self-regulation via voluntary codes such as the inclusion of specific targets (e.g., Mensi-Klarbach et al., 2021).

Keeping pace with the worldwide trend to encourage gender diversity in firms' employment practices, Germany passed the "Act on Equal Participation of Women and Men in Executive Positions in the Private and Public Sectors" (hereafter, the *Gender Target Law*) in April 2015. The law states that beginning on 30 September 2015, public and large private companies in Germany must set targets for the proportion of female employees in the top three management levels, i.e., the executive level and the two next management levels below that (Deutscher Bundestag, 2015). Companies are generally free to set their gender diversity target at any value, i.e., even targets of zero percent are possible. The law defines no repercussions in case a firm misses its targets, relying instead on the principle of "naming-and-shaming" through increased transparency. All information regarding a target, i.e., the target level, the time horizon until the target needs to be reached, and actual target achievement, must be published in the company's annual report.

We leverage firms' responses to the Gender Targets Law to distinguish between firms with vs. without commitment to gender diversity. If female employees receive more benefits than male employees because of differential preferences for benefits relative to pay, as suggested by our analysis of employee satisfaction and cafeteria-style benefit plans, then we would expect firms with a commitment to gender diversity to respond (more strongly) to these preferences and offer female employees more benefits relative to pay. This prediction is, however, not without tension. Firms with a strong commitment to gender equality could, alternatively, exhibit lower gender differences in remuneration practices if a greater commitment to gender diversity is reflective of a more equitable gender-based firm culture (as intended by the regulation).

To construct proxies for firms' demonstrated commitment to gender diversity, we hand-collect data on (1) firms' self-set targets after the passing of the Gender Target Law (i.e., just before our sample time), and (2) firms' subsequent target achievement. For our first proxy, we

construct the indicator *DiversityTargetsSet*, which takes a value of 1 if a firm (1) falls under the Gender Target Law, (2) has set and reported targets for all three levels of management required by the law, and (3) has set targets that can be considered at least somewhat "serious", which we define as non-zero for the executive level and > 10 percent for the two levels below the executive level.[16] For our second proxy, we construct the indicator *DiversityTargetsAchieved*, which takes a value of 1 if a firm has set targets as defined in *DiversityTargetsSet* and subsequently achieves at least one of these targets and 0 otherwise.

To test for differences in how gender is related to benefits and pay in firms with different levels of commitment to gender diversity, we estimate amended specifications of the specification in Equation 1. Specifically, we regress *lnPay* and our three benefit group variables as alternative dependent variables on the gender indicator *Female* and include interactions between gender and our two proxies for demonstrated commitment (*DiversityTargetsSet* × *Female* and *DiversityTargetsAchieved* × *Female*). In our estimations, we also include the full set of control variables and fixed effects used in our previous analyses and use robust standard errors.[17]

We present the results of this analysis in Table 8. Results for *BenefitsFamNarrow* and *BenefitsFamBroad* as the dependent variables presented in Columns 1-4 show a significant positive coefficient on the interactions between *Female* and both proxies for a firm's commitment to gender diversity. We therefore find evidence that is consistent with the notion that firms demonstrating commitment to gender diversity are more inclined to offer female employees relatively more family-friendly benefits compared to firms without such commitment. In contrast to this, results for *BenefitsOther* and *lnPay* as the dependent variables, which we present in

[16] Our inferences are robust to using alternative thresholds to define targets as "serious" as long as targets of 0 percent and very close to 0 percent are treated equivalent to no targets set.
[17] *DiversityTargetsSet* and *DiversityTargetsAchieved* do not vary at the firm-level. Thus, the direct effect of both variables is colinear with the firm fixed effects and, therefore, omitted.

Columns 5-8, show no support for a statistically significant coefficient on the interaction between *Female* and either of our two proxies for commitment to gender equality. This suggests that there is no significant difference in how firms with vs. without a commitment to gender diversity award non-family related benefits and pay to female employees compared to male employees.

In sum, our results suggest that firms with a demonstrated commitment to gender diversity offer, on average, more attractive remuneration packages to female employees compared to firms without such a commitment. However, this higher attractiveness manifests not in higher pay but in more family-friendly non-wage benefits, which could support female employees in combining their work with domestic care duties, which they typically take on to a greater extent than male employees (Goldin, 2014). Our results thus provide further evidence that is suggestive of female employees showing stronger preferences for certain (i.e., family-friendly) benefits compared to male employees. These results might, however, also indicate differences in "negotiability" between pay and benefits. Pay constitutes an element that is more easily quantifiable, and pay gaps within organizations have recently come into focus as indicators for undesirable governance practices (e.g., Bailey et al., 2024; Chang et al., 2022; LaViers et al., 2022). Our results might thus suggest that firms are less willing to introduce variation in pay levels as a means to attract or retain female talent. Instead, they are more likely to resort to dialing the lever on the offering of non-wage benefits. That is, unlike pay, benefits are relatively more difficult to quantify and are, thus, subject to greater information asymmetry in the remuneration negotiation process between the employer and the employee. For firms without a demonstrated commitment to gender diversity, our results show a pronounced gender pay gap to the disadvantage of female employees but only relatively weak evidence of female employees receiving more benefits. Thus, our findings also highlight the possibility of female employees being more subject to potentially discriminatory pay

negotiation processes given their reliance on benefits, particularly in firms without an espoused commitment to gender diversity (Azmat and Petrongolo, 2014; Bertrand, 2011; Bowles, 2013; Hernandez-Arenaz and Iriberri, 2019; Mazei et al., 2015).

5. Conclusion

This study examines gender differences in non-wage benefits by exploiting data from an employer review platform that collects information on employees' benefits, pay, gender, and employer- and job-related characteristics. Our analysis yields three main insights. First, we document that the variation in the number of benefits employees receive stems predominantly from within-firm dispersion rather than between-firm variation. Second, we find that *ceteris paribus* female employees receive more non-wage benefits than male employees and that this difference is predominantly driven by benefit categories that can be considered family-friendly. Third, we find suggestive evidence consistent with the notion that the observed gender differences in benefits stem from differential preferences for family-friendly benefits relative to pay.

Our results have several important implications. Our results on the source of variation in benefits and the relation between benefits and gender suggest that not only do female employees sort into organizations that offer more generous benefits, but also, within organizations female employees appear to contract under different terms compared to male employees in similar jobs. Furthermore, our results provide suggestive evidence for the notion that the relation between gender and benefits we document stems from differential preferences for family-friendly benefits relative to pay between female and male employees. This also means that firms aiming to achieve higher gender equality could be more likely to offer female employees remuneration packages that include more female-friendly benefits and, thus, should be particularly attractive to female talent. Finally, our results indicate that it might be important to consider the value employees receive in

the form of non-wage benefits when estimating gender differences in remuneration. Because we find that women receive more benefits with and without a clear monetary value compared to men and this could be, at least in part, due to gender differences in the tradeoff employees make between benefits and pay, this gender benefits gap might explain a part of the gender pay gap typically found in organizations.

Our results highlight two avenues for future research. First, while our results provide suggestive evidence consistent with the notion that female employees have higher preferences for (most types of) benefits compared to male employees, our study cannot speak to the question of why this is the case. Because our data contains no information on the personal situation of the employees in our sample, we cannot infer care responsibilities or other circumstances that would likely drive individuals' preferences for benefits related to flexibility and work-life balance (Goldin, 2014). Future research could use survey data to test our conjecture that female employees exhibit higher preferences for different types of benefits compared to male employees and investigate drivers of this difference, such as personal situation or personality.

Second, while our results indicate that it might be important to consider both benefits and pay to assess gender differences in total remuneration, our data cannot speak to the question of what part of the gender pay gap can be explained (and compensated) by female employees receiving more benefits. Future research could use survey or (field) experimental data to obtain representative estimates of employees' willingness to pay for different types of benefits as well as contextual factors that affect it. This would make it possible to derive valid and reliable estimates for the value of individual types of benefits, allowing one to calculate the total value of remuneration packages consisting of pay and benefits to different individuals.

References

Abernethy, M.A., Dekker, H.C., Schulz, A.K.-D., 2015. Are Employee Selection and Incentive Contracts Complements or Substitutes? Journal of Accounting Research 53, 633–668.

Ahern, K.R., Dittmar, A.K., 2012. The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation. Quarterly Journal of Economics 127, 137-197.

Ai, C., Norton, E.C., 2003. Interaction Terms in Logit and Probit Models. Economics Letters 80, 123-129.

Allen, A., Wahid, A.S., 2024. Regulating Gender Diversity: Evidence from California Senate Bill 826. Management Science 70, 2023-2046.

Angrist, J., Pischke, J.-S., 2009. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton NJ: Princeton University Press.

Azmat, G., Petrongolo, B., 2014. Gender and The Labor Market: What Have We Learned from Field and Lab Experiments? Labour Economics 30, 32-40.

Bailey, M., Glaeser, S., Omartian, J.D., Raghunandan, A., 2024. Misreporting of Mandatory ESG Disclosures: Evidence from Gender Pay Gap Information. Working Paper.

Banker, R.D., Lee, S.-Y., Potter, G., Srinivasan, D., 2001. An Empirical Analysis of Continuing Improvements Following the Implementation of a Performance-Based Compnesation Plan. Journal of Accounting and Economics, 315–350.

Barth, E., Bryson, A., Davis, J.C., Freeman, R., 2016. It's Where You Work: Increases in the Dispersion of Earnings across Establishments and Individuals in the United States. Journal of Labor Economics 34, S67-S97.

Bertrand, M., 2011. New Perspecitves on Gender, in: Ashenfelter, O., Card, D. (Eds.), Handbook of Labor Economics Elsevier, pp. 1543-1590.

Bhaskaran, S., Davis, A., Desbrière, C., Wasserteil, S., 2022. Bridging the Advancement Gap: What Frontline Employees Want—and What Employers Think They Want, in: McKinsey & Co. (Ed.).

Biasi, B., Sarsons, H., 2022. Flexible Wages, Bargaining, and the Gender Gap Get access Arrow. Quarterly Journal of Economics 137, 215–266.

Bowles, H.R., 2013. Psychological Perspectives on Gender in NEgotiation, in: Ryan, M.K., Branscombe, N.R. (Eds.), The Sage Handbook of Gender and Psychology: Sage, pp. 465-483.

Bureau of Labor Statistics, 2023. Employer Costs from Employee Compensation - December 2023.

Cadsby, C.B., Song, F., Tapon, F., 2007. Sorting and Incentive Effects of Pay for Performance: An Experimental Investigation. Academy of Management Journal 50, 387–405.

Cai, W., 2023. Formalizing the Informal: Adopting a Formal Culture-Fit Measurement System in the Employee-Selection Process. The Accounting Review 98, 47-70.

Campbell, D., 2012. Employee Selection as a Control System. Journal of Accounting Research 50, 931–966.

Chang, W., Dambra, M., Schonberger, B., Suk, I., 2022. Does Sensationalism Affect Executive Compensation? Evidence from Pay Ratio Disclosure Reform. Journal of Accounting Research 61, 187-242.

Chow, C.W., 1983. Compensation Scheme and Performance. The Accounting Review 58, 667-685.

Coffman, K.B., Collis, M.R., Kulkarni, L., 2024. Whether to Apply. Management Science 70, 4649-4669.

Cullen, Z.B., Perez-Truglia, R., 2023. The Old Boys' Club: Schmoozing and the Gender Gap. American Economic Review 113, 1703-1740.
Cymrot, D.J., 1980. Private Pension Saving: The Effect of Tax Incentives on the Rate of Return. Southern Economic Jounal 47, 179-190.
Demski, J.S., Feltham, G.A., 1978. Economic Incentives in Budgetary Control Systems. The Accounting Review 53, 336-359.
DePaul, K., 2020. Negotiating a Job Offer? Here's How to Get What You Want. Harvard Business Review.
Deutscher Bundestag, 2015. Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst. Bonn: Bundesgesetzblatt Teil I Nr. 17, pp. 642-662.
Dohmen, T., Falk, A., 2011. Performance Pay and Multidimensional Sorting: Productivity, Preferences, and Gender. American Economic Review 101, 556-590.
Eriksson, T., Kristensen, N., 2014. Wages or Fringes? Some Evidence on Trade-Offs and Sorting. Journal of Labor Economics 32, 899-928.
Even, W.E., Macpherson, D.A., 1994. Gender Differences in Pensions. Journal of Human Resources 29, 555-587.
Fama, E.F., 1980. Agency Problems and the Theory of the Firm. Journal of Political Economy 88, 288-307.
Fauver, L., Hung, M., Taboada, A.G., Wang, E.J., 2022. Boardroom Gender Diversity Reforms and Institutional Monitoring: Global Evidence. Review of Accounting Studies 29, 621-664.
Federal Statistical Office, 2023a. Earnings by Economic Branch and Occupation.
Federal Statistical Office, 2023b. Gender Pension Gap: Retirement Income of Women Almost One Third Below that of Men in 2021.
Fehrenbacher, D.D., Kaplan, S.E., Pedell, B., 2017. The Relation between Individual Characteristics and Compensation Contract Selection. Management Accounting Research 34, 1–18.
Feldstein, M.S., 1973. The Welfare Loss of Excess Health Insurance. Journal of Political Economy 81, 251-280.
Gallo, A., 2015. Setting the Record Straight on Negotiating Your Salary. Harvard Business Review.
Goldin, C., 2014. A Grand Gender Convergence: Its Last Chapter. American Economic Review 104, 1091-1119.
Greene, D., Intintoli, V.J., Kahle, K.M., 2020. Do Board Gender Quotas Affect Firm Value? Evidence from California Senate Bill No. 826. Journal of Corporate Finance 60.
Hall, B.J., Murphy, K.J., 2002. Stock Options for Undiversified Executives. Journal of Accounting and Economics 33, 3-42.
Hall, B.J., Murphy, K.J., 2003. The Trouble with Stock Options. Journal of Economic Perspectives 17, 49-70.
Heath, D., Macciocchi, D., Michaely, R., C. Ringgenberg, M., 2023. Does Socially Responsible Investing Change Firm Behavior? Review of Finance 27, 2057-2083.
Hernandez-Arenaz, I., Iriberri, N., 2019. A Review of Gender Differences in Negotiation, Oxford Research Encyclopedia of Economics and Finance. Oxford, UK: Oxford University Press.
Jensen, M.C., Meckling, W.H., 1976. Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of Financial Economics 3, 305-360.

Kawamoto, D., 2024. More CHROs are investigating cafeteria plans for benefits. Should you, too?
LaViers, L., Sandvik, J., Xu, D., 2022. CEO Pay Ratio Voluntary Disclosures and Stakeholder Reactions. Review of Accounting Studies 29, 109-150.
Lazear, E.P., 2000. Performance Pay and Productivity. American Economic Review 90, 1346-1361.
Le Barbanchon, T., Rathelot, R., Roulet, A., 2021. Gender Differences in Job Search: Trading off Commute Against Wage. Quarterly Journal of Economics 136, 381-426.
Leibbrandt, A., List, J.A., 2015. Do Women Avoid Salary Negotiations? Evidence from a Large-Scale Natural Field Experiment. Management Science 61, 2016-2024.
Liu, T., Makridis, C., A., Ouimet, P., Siminitzi, E., 2023. The Distribution of Nonwage Benefits: Maternity Benefits and Gender Diversity. Review of Financial Studies 36, 194-234.
Luft, J.L., 1994. Bonus and Penalty Incentives Contract Choice by Employees. Journal of Accounting and Economics 18, 181-206.
Mas, A., Pallais, A., 2017. Valuing Alternative Work Arrangements. American Economic Review 107, 3722-3759.
Matsa, D.A., Miller, A.R., 2013. A Female Style in Corporate Leadership? Evidence from Quotas. American Economic Journal: Applied Economics 5, 136-169.
Mazei, J., Huffmeier, J., Freund, P.A., Stuhlmacher, A.F., Bilke, L., Hertel, G., 2015. A Meta-Analysis on Gender Differences in Negotiation Outcomes and Their Moderators. Psychological Bulletin 141, 85-104.
Mensi-Klarbach, H., Leixnering, S., Schiffinger, M., 2021. The Carrot or the Stick: Self-Regulation for Gender-Diverse Boards via Codes of Good Governance. Journal of Business Ethics 170, 577-593.
Mercer, 2023. Health on Demand 2023 Survey Report.
Opitz, S., Sliwak, D., Vogelsang, T., ZImmermann, T., 2024. The Algorithmic Assignment of Incentive Schemes. Management Science.
Ouimet, P., Tate, G.A., 2023. Firms with Benefits? Nonwage Compensation and Implications for Firms and Labor Markets. NBER Working Paper 31463.
Oyer, P., 2008. Salary or Benefits. Research in Labor Economics 28, 429-467.
Oyer, P., Schaefer, S., 2005. Why Do Some Firms Give Stock Options to All Employees?: An Empirical Examination of Alternative Theories. Journal of Financial Economics 76, 99–133.
Pierce, B., 2001. Compensation Inequality. Quarterly Journal of Economics 116, 1493-1525.
Prossack, A., 2019. How To Negotiate For Non-Salary Benefits. Forbes.
Román, F.J., 2009. An Analysis of Changes to a Team-Based Incentive Plan and Its Effects on Productivity, Product Quality, and Absenteeism. Accounting, Organizations and Society 34, 589-618.
Roussille, N., 2024. The Role of the Ask Gap in Gender Pay Inequality. Quarterly Journal of Economics 139, 1557-1610.
Salop, J., Salop, S., 1976. Self-Selection and Turnover in the Labour Market. Quarterly Journal of Economics 90, 619-627.
Shields, M.D., Waller, W.S., 1988. A Behavioral Study of Accounting Variables in Performance-Incentive Contracts. Accounting, Organizations and Society 13, 581-594.
Song, J., Price, D.J., Guvenen, F., Bloom, N., von Wachter, T., 2019. Firming Up Inequality. Quarterly Journal of Economics 134, 1-50.

Taylor, M., 2021. Institutional Investors Increase Focus on Ethnic and Gender Diversity in Wake of 2020. Institutional Asset Manager.
Van der Stede, W.A., Wu, A., Wu, S.Y.-C., 2020. An Empirical Analysis of Employee Responses to Bonuses and Penalties. The Accounting Review 95, 395-412.
Vaseghi, M., Marcogliese, P., Bieber, E., 2020. Incorporating Human Capital Management Disclosures into a Company's Annual Report. Harvard Law School Forum on Corporate Governance.
Waller, W.S., Chow, C.W., 1985. The Self-Selection and Effort Effects of Standard-Based Employment Contracts: A Framework and Some Empirical Evidence. The Accounting Review 60, 458-476.
Willis Towers Watson, 2020. 2019/2020 Global Benefits Attitudes Survey.
Wiswall, M., Zafar, B., 2018. Preference for the Workplace, Investment in Human Capital, and Gender. Quarterly Journal of Economics 133, 457-507.
Woodbury, S.A., 1983. Substitution between Wage and Nonwage Benefits. American Economic Review 73, 166-182.

TABLE 1

Descriptive statistics

	N	Mean	Std. Dev.	25-perc.	Median	75-perc.
Main variables						
BenefitsSum	532,937	5.543	4.121	2.000	5.000	9.000
lnPay	532,937	10.691	0.740	10.404	10.703	11.002
Female	532,937	0.347	0.476	0.000	0.000	1.000
Manager	532,937	0.151	0.358	0.000	0.000	0.000
Supervisor	498,144	0.237	0.425	0.000	0.000	0.000
Detailed overview individual benefits						
BenefitsWorkhours	532,937	0.513	0.500	0.000	1.000	1.000
BenefitsHomeoffice	532,937	0.472	0.499	0.000	0.000	1.000
BenefitsCafeteria	532,937	0.262	0.440	0.000	0.000	1.000
BenefitsFood	532,937	0.184	0.387	0.000	0.000	0.000
BenefitsChildcare	532,937	0.065	0.246	0.000	0.000	0.000
BenefitsRetirement	532,937	0.487	0.500	0.000	0.000	1.000
BenefitsFitness	532,937	0.318	0.466	0.000	0.000	1.000
BenefitsMedic	532,937	0.351	0.477	0.000	0.000	1.000
BenefitsCoaching	532,937	0.303	0.460	0.000	0.000	1.000
BenefitsParking	532,937	0.500	0.500	0.000	0.000	1.000
BenefitsDiscount	532,937	0.356	0.479	0.000	0.000	1.000
BenefitsCar	532,937	0.214	0.410	0.000	0.000	0.000
BenefitsPhone	532,937	0.378	0.485	0.000	0.000	1.000
BenefitsShares	532,937	0.185	0.388	0.000	0.000	0.000
BenefitsEvents	532,937	0.474	0.499	0.000	0.000	1.000
BenefitsInternet	532,937	0.358	0.479	0.000	0.000	1.000
BenefitsDogs	532,937	0.124	0.329	0.000	0.000	0.000

This table presents descriptive statistics for our sample. Benefit categories are explained in Table 1. All variables are explained in Appendix II.

TABLE 2

Correlations

Panel A: Pairwise correlations of main variables

		(1)	(2)	(3)	(4)
(1)	*BenefitsSum*	1.000			
(2)	*lnPay*	0.287***	1.000		
(3)	*Female*	-0.014***	-0.143***	1.000	
(4)	*Manager*	0.127***	0.185***	-0.084***	1.000
(5)	*Supervisor*	0.086***	0.134***	-0.057***	0.633***

Panel B: Listwise correlations of benefits with main variables

		Female	*Manager*	*Supervisor*	*lnPay*
(1)	*BenefitsWorkhours*	0.016***	0.067***	0.027***	0.238***
(2)	*BenefitsHomeoffice*	0.000	0.066***	0.014***	0.277***
(3)	*BenefitsCafeteria*	-0.024***	0.018***	-0.023***	0.146***
(4)	*BenefitsFood*	-0.022***	0.031***	0.011***	0.121***
(5)	*BenefitsChildcare*	0.020***	0.031***	0.014***	0.097***
(6)	*BenefitsRetirement*	0.011***	0.059***	0.031***	0.182***
(7)	*BenefitsFitness*	0.009***	0.071***	0.043***	0.171***
(8)	*BenefitsMedic*	0.012***	0.047***	0.022***	0.134***
(9)	*BenefitsCoaching*	0.013***	0.133***	0.115***	0.141***
(10)	*BenefitsParking*	-0.038***	0.041***	0.026***	0.098***
(11)	*BenefitsDiscount*	0.024***	0.067***	0.044***	0.085***
(12)	*BenefitsCar*	-0.090***	0.126***	0.119***	0.157***
(13)	*BenefitsPhone*	-0.093***	0.129***	0.101***	0.256***
(14)	*BenefitsShares*	-0.019***	0.078***	0.062***	0.127***
(15)	*BenefitsEvents*	0.030***	0.066***	0.055***	0.149***
(16)	*BenefitsInternet*	-0.016***	0.078***	0.072***	0.151***
(17)	*BenefitsDogs*	0.054***	0.039***	0.058***	0.043***

This table shows correlations between our main variables. Panel A shows pairwise correlations for our main variables where *BenefitsSum* is the aggregated count of benefits offered to an employee. Panel B shows correlations between our main variables and each individual benefit category included in our analysis. Benefit categories are explained in Table 1. All variables are explained in Appendix II.

TABLE 3

Variance decomposition

	(1) *Between Variance*	(2) *Within Variance*	(3) *Total Variance*	(4) *% Between Variance*	(5) *% Within Variance*
Panel A. Variance between/within firms					
BenefitsSum	5.565	11.686	17.251	32.3%	67.7%
Demean Industry	4.798	11.793	16.591	28.9%	71.1%
Demean Job Title	4.080	11.230	15.310	26.7%	73.3%
Panel B. Variance between/within firm-years					
BenefitsSum	6.754	11.029	17.783	38.0%	62.0%
Demean Industry	5.969	11.045	17.104	34.9%	65.1%
Demean Job Title	5.230	10.584	15.814	33.1%	66.9%
Panel C. Variance between/within firm-years by benefit type					
BenefitsWorkhours	0.090	0.159	0.249	36.2%	63.8%
BenefitsHomeoffice	0.111	0.139	0.250	44.2%	55.8%
BenefitsCafeteria	0.109	0.101	0.210	51.8%	48.2%
BenefitsFood	0.065	0.096	0.161	40.3%	59.7%
BenefitsChildcare	0.023	0.046	0.069	32.4%	67.6%
BenefitsRetirement	0.096	0.154	0.250	38.3%	61.7%
BenefitsFitness	0.078	0.149	0.227	34.2%	65.8%
BenefitsMedic	0.102	0.132	0.234	43.1%	56.9%
BenefitsCoaching	0.064	0.157	0.221	28.8%	71.2%
BenefitsParking	0.091	0.159	0.250	36.5%	63.5%
BenefitsDiscount	0.087	0.152	0.239	36.6%	63.4%
BenefitsCar	0.067	0.103	0.170	39.5%	60.5%
BenefitsPhone	0.099	0.141	0.240	41.1%	58.9%
BenefitsShares	0.053	0.108	0.161	32.8%	67.2%
BenefitsEvents	0.083	0.167	0.250	33.3%	66.7%
BenefitsInternet	0.077	0.154	0.231	33.3%	66.7%
BenefitsDogs	0.049	0.054	0.103	47.2%	52.8%

This table presents the results of the variance decomposition analysis. Panel A presents results for the decomposition of variance in the variable *BenefitsSum* into between- and within-firm variance. Panel B presents results for the decomposition of variance in the variable *BenefitsSum* into between- and within-firm-year variance. Panel C presents results for the decomposition of variance in the individual benefit categories into between- and within-firm-year variance. Benefit categories are explained in Table 1. All variables are explained in Appendix II.

TABLE 4

Analysis of the relation between gender and the number of non-wage benefits received

	(1)	(2)	(3)	(4)	(5)
Dependent variable:	*BenefitsSum*	*BenefitsSum*	*BenefitsSum*	*BenefitsSum*	*BenefitsSum*
Female	-0.127***	0.090***	0.176***	0.233***	0.274***
	(0.012)	(0.013)	(0.014)	(0.014)	(0.029)
Manager		0.775***	0.616***	0.527***	0.403***
		(0.023)	(0.025)	(0.025)	(0.056)
Supervisor		0.048***	0.462***	0.425***	0.464***
		(0.018)	(0.020)	(0.020)	(0.044)
lnPay				0.640***	0.537***
				(0.011)	(0.022)
Constant	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	No
Tenure FE	No	Yes	Yes	Yes	Yes
Job Title FE	No	Yes	Yes	Yes	No
Firm FE	No	No	Yes	Yes	No
Firm-Job Title-Year FE	No	No	No	No	Yes
Observations	532,937	492,390	444,513	444,513	142,767
adj. R^2	0.000	0.125	0.281	0.290	0.360

This table presents the results of the analysis of the relation between gender and number of benefits received. Observations are on the employee-review level. The dependent variable in all models is the number of benefits received by the employee. The main variable of interest is the gender indicator *Female*. Column (1) shows results without controls or fixed effects. Column (2) shows results with controls and fixed effects related to job characteristics. Column (3) shows results with firm-fixed effects added. Column (4) shows results additionally controlling for the amount of pay received by the employee. Column (5) shows results when firm-, job title-, and year-fixed are replaced with firm-job title-year-fixed effects. All models are estimated as OLS regressions with robust standard errors reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. All variables are explained in Appendix II.

TABLE 5

Analysis of individual benefits

Dependent variable:	(1) *Benefits Workhours*	(2) *Benefits Homeoffice*	(3) *Benefits Cafeteria*	(4) *Benefits Food*	(5) *Benefits Childcare*	(6) *Benefits Retirement*	(7) *Benefits Fitness*	(8) *Benefits Medic*	(9) *Benefits Coaching*
Female	0.030***	0.027***	0.011***	0.003	0.005**	0.026***	0.022***	0.034***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.004)	(0.004)	(0.003)	(0.004)
Manager	0.023***	0.028***	-0.003	0.004	0.006	0.019***	0.032***	0.020***	0.056***
	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)	(0.007)	(0.006)	(0.006)	(0.007)
Supervisor	0.021***	0.011**	0.008**	0.016***	0.012***	0.017***	0.030***	0.021***	0.071***
	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
lnPay	0.045***	0.038***	0.022***	0.018***	0.015***	0.048***	0.040***	0.031***	0.035***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.003)
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	142,767	142,767	142,767	142,767	142,767	142,767	142,767	142,767	142,767
Adj. R^2	0.335	0.489	0.473	0.310	0.234	0.280	0.243	0.343	0.183

(continued)

TABLE 5 (continued)

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Dependent variable:	*BenefitsDiscount*	*BenefitsParking*	*BenefitsCar*	*BenefitsPhone*	*BenefitsShares*	*BenefitsEvents*	*BenefitsInternet*	*BenefitsDogs*
Female	0.023***	0.030***	-0.005**	0.002	0.003	0.035***	-0.005	0.012***
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)
Manager	0.014**	0.020***	0.050***	0.053***	0.024***	0.029***	0.026***	0.002
	(0.007)	(0.007)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.004)
Supervisor	0.027***	0.014**	0.040***	0.036***	0.038***	0.042***	0.039***	0.020***
	(0.005)	(0.006)	(0.004)	(0.004)	(0.005)	(0.006)	(0.005)	(0.003)
lnPay	0.038***	0.036***	0.027***	0.034***	0.027***	0.044***	0.031***	0.009***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	142,767	142,767	142,767	142,767	142,767	142,767	142,767	142,767
adj. R^2	0.251	0.259	0.439	0.493	0.221	0.221	0.234	0.342

This table shows results of an analysis of gender differences across different non-wage benefits. Observations are on the employee review level. Each column presents results for a different type of benefit where the dependent variable is coded as 1 if the employee providing the review receives the respective benefit and 0 otherwise. The main coefficient of interest is that on *Female* which captures the relation between the gender indicator and the dependent variable. All models are estimated as OLS regressions with robust standard errors reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. Benefit categories are explained in Table 1. All variables are explained in Appendix II.

TABLE 6

Pay and benefits as drivers of employee satisfaction

	(1)	(2)	(3)
Dependent variable:	*SatisfactionOverall*	*SatisfactionRemuneration*	*SatisfactionWorkCond*
lnPay	0.125***	0.187***	0.125***
	(0.007)	(0.009)	(0.009)
BenefitsFamNarrow	0.202***	0.171***	0.209***
	(0.006)	(0.007)	(0.008)
BenefitsFamBroad	0.144***	0.139***	0.140***
	(0.003)	(0.003)	(0.003)
BenefitsOther	0.076***	0.084***	0.077***
	(0.004)	(0.004)	(0.005)
Female	0.529***	0.536***	0.695***
	(0.117)	(0.141)	(0.142)
lnPay x Female	-0.062***	-0.056***	-0.077***
	(0.011)	(0.013)	(0.014)
BenefitsFamNarrow x Female	0.041***	0.025**	0.059***
	(0.009)	(0.011)	(0.011)
BenefitsFamBroad x Female	0.033***	0.034***	0.032***
	(0.004)	(0.005)	(0.005)
BenefitsOther x Female	-0.004	-0.010	-0.004
	(0.005)	(0.007)	(0.007)
Manager	-0.001	0.007	-0.026
	(0.014)	(0.016)	(0.017)
Supervisor	0.122***	0.083***	0.110***
	(0.012)	(0.014)	(0.015)
Constant	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes
Observations	142,767	142,767	142,767
adj. R^2	0.465	0.412	0.373

This table presents the results of the analysis of employee satisfaction. Observations are on the employee-review level. The dependent variable in all models is the level of employee satisfaction. Column (1) shows results for a measure of overall satisfaction with the employer. Column (2) shows results for satisfaction specifically with the remuneration at the employer. Column (3) shows results for satisfaction specifically with the work conditions at the employer. All models are estimated as OLS regressions with robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. All variables are explained in Appendix I.

TABLE 7

Analysis of benefits and pay when firms offer flexible choice-based benefit plans

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Largest 1,000 Employers	Largest 5,000 Employers	Largest 10,000 Employers	Largest 1,000 Employers	Largest 5,000 Employers	Largest 10,000 Employers
Dependent variable:	*BenefitsFamNarrow*	*BenefitsFamNarrow*	*BenefitsFamNarrow*	*BenefitsFamBroad*	*BenefitsFamBroad*	*BenefitsFamBroad*
Female	0.064***	0.060***	0.055***	0.214***	0.189***	0.179***
	(0.008)	(0.007)	(0.007)	(0.021)	(0.018)	(0.017)
FlexCafeteriaPlan x Female	0.090***	0.093***	0.096***	0.121*	0.145**	0.150**
	(0.028)	(0.028)	(0.028)	(0.071)	(0.071)	(0.072)
Manager	0.054***	0.049***	0.051***	0.160***	0.160***	0.162***
	(0.015)	(0.013)	(0.012)	(0.038)	(0.033)	(0.032)
Supervisor	0.022*	0.041***	0.043***	0.162***	0.209***	0.220***
	(0.012)	(0.011)	(0.010)	(0.033)	(0.028)	(0.026)
lnPay	0.108***	0.105***	0.101***	0.297***	0.286***	0.271***
	(0.006)	(0.005)	(0.005)	(0.016)	(0.013)	(0.013)
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	78,058	111,205	123,899	78,058	111,205	123,899
adj. R^2	0.451	0.446	0.447	0.302	0.305	0.308

(continued)

TABLE 7 (continued)

Sample:	(7) Largest 1,000 Employers	(8) Largest 5,000 Employers	(9) Largest 10,000 Employers	10) Largest 1,000 Employers	(11) Largest 5,000 Employers	(12) Largest 10,000 Employers
Dependent variable:	*BenefitsOther*	*BenefitsOther*	*BenefitsOther*	*lnPay*	*lnPay*	*lnPay*
Female	0.035**	0.018	0.013	-0.073***	-0.067***	-0.065***
	(0.014)	(0.012)	(0.012)	(0.006)	(0.005)	(0.005)
FlexCafeteriaPlan x Female	0.039	0.054	0.057	-0.023	-0.030*	-0.032*
	(0.051)	(0.052)	(0.052)	(0.018)	(0.018)	(0.018)
Manager	0.170***	0.160***	0.166***	0.128***	0.124***	0.120***
	(0.027)	(0.024)	(0.023)	(0.011)	(0.010)	(0.009)
Supervisor	0.168***	0.187***	0.194***	0.039***	0.040***	0.038***
	(0.023)	(0.019)	(0.018)	(0.010)	(0.008)	(0.008)
lnPay	0.203***	0.193***	0.183***	0.025***		
	(0.011)	(0.009)	(0.009)	(0.004)		
BenefitsFamNarrow				0.011***	0.026***	0.027***
				(0.002)	(0.003)	(0.003)
BenefitsFamBroad				0.014***	0.011***	0.010***
				(0.002)	(0.001)	(0.001)
BenefitsNonFam					0.014***	0.013***
					(0.002)	(0.002)
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	78,058	111,205	123,899	78,058	111,205	123,899
adj. R^2	0.348	0.348	0.352	0.421	0.412	0.404

This table presents the results of the analysis of the relation between gender and the number of benefits received as well as pay for firms that do vs. do not offer a flexible choice of benefits, i.e., a "cafeteria-style" benefit plan. Observations are on the employee-review level. The main variable of interest is the interaction between the gender indicator and the indicator for whether a firm offers a flexible "cafeteria-style" benefits plan (*Female* x *FlexCafeteriaPlan*). Columns (1), (4), (7), and (10) show results for a sample that includes only the 1,000 largest employers by number of employee reviews. Columns (2), (5), (8), and (11) show results for a sample that includes only the 5,000 largest employers by number of employee reviews. Columns (3), (6), (9), and (12) show results for a sample that includes only the 10,000 largest employers by number of employee reviews. All models are estimated as OLS regressions with robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. All variables are explained in Appendix I.

TABLE 8

Analysis of benefits and pay conditional on firm type

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable:	*BenefitsFamNarrow*		*BenefitsFamBroad*		*BenefitsOther*		*lnPay*	
Female	0.026	0.038*	0.120**	0.132**	-0.017	-0.009	-0.070***	-0.064***
	(0.022)	(0.021)	(0.054)	(0.053)	(0.040)	(0.039)	(0.014)	(0.014)
Female x DiversityTargetsSet	0.109***		0.205**		0.066		0.005	
	(0.040)		(0.102)		(0.074)		(0.024)	
Female x DiversityTargetsAchieved		0.084**		0.196*		0.048		-0.015
		(0.042)		(0.107)		(0.078)		(0.026)
Manager	0.069*	0.069*	0.199**	0.199**	0.197***	0.197***	0.111***	0.111***
	(0.036)	(0.036)	(0.091)	(0.091)	(0.068)	(0.068)	(0.024)	(0.024)
Supervisor	-0.001	-0.001	0.139*	0.139*	0.188***	0.188***	0.003	0.003
	(0.030)	(0.030)	(0.076)	(0.076)	(0.055)	(0.055)	(0.021)	(0.021)
lnPay	0.121***	0.121***	0.286***	0.287***	0.203***	0.203***		
	(0.014)	(0.014)	(0.038)	(0.038)	(0.027)	(0.027)		
BenefitsFamNarrow							0.030***	0.031***
							(0.008)	(0.008)
BenefitsFamBroad							0.007**	0.007**
							(0.003)	(0.003)
BenefitsNonFam							0.008*	0.008*
							(0.004)	(0.004)
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tenure FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Job Title-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,826	18,826	18,826	18,826	18,826	18,826	18,826	18,826
adj. R^2	0.409	0.408	0.262	0.262	0.307	0.306	0.390	0.390

This table presents the results of the analysis of the relation between gender and the amount of pay and benefits received for firms with different levels of commitment to fostering female talent. Observations are on the employee-review level. The main variable of interest is the interaction between the gender indicator and the measure of the commitment of a firm to foster female talent (*Female x DiversityTargetSet* and *Female x DiversityTargetAchieved*, respectively). Columns (1) and (2) show results where the dependent variable is the number of benefits received. Columns (3) and (4) show results where the dependent variable is pay. All models are estimated as OLS regressions with robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. All variables are explained in Appendix I.

Appendix I

Overview benefits, definitions, and groupings

No	*Benefit*	*Definition*	*Benefit Group*	*Reasoning*
1	*BenefitsWorkhours*	The possibility for an employee to decide when to work (i.e., typical office hours vs. asynchronous work) at least on a certain number of days during a typical week.	*BenefitsFamNarrow*	The temporal flexibility achieved through the possibility to choose one's work hours flexibly facilitates the compatibility of work with family, care, and household duties.
2	*BenefitsHomeoffice*	The possibility for an employee to work at home vs. in the office at least on a certain number of days during a typical week.	*BenefitsFamNarrow*	The flexibility achieved through the possibility to work from home facilitates the compatibility of work with family, care, and household duties.
3	*BenefitsCafeteria*	The availability of a (subsidized) on-site cafeteria which, typically, offers coffee and snacks.	*BenefitsFamBroad*	Access to meals at the workplace provides time-savings compared purchasing food at outside vendors (e.g., with a food allowance voucher) facilitating the compatibility of work with family, care, and household duties.
4	*BenefitsFood*	An awarded allowance for food through, e.g., credit for food delivery services or a company-subsidized food vendor.	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
5	*BenefitsChildcare*	The availability of free-of-charge or subsidized on-site childcare (e.g., on-site company kindergarten).	*BenefitsFamNarrow*	Access to childcare facilities at the workplace facilitates the compatibility of work with family and childcare duties.
6	*BenefitsRetirement*	The possibility to participate in a corporate retirement plan.	*BenefitsFamBroad*	Due to lower income, a higher propensity to be employed part-time, and career interruptions due to childbearing, employees with families women typically face a *Gender Pension Gap* (Even and Macpherson, 1994; Federal Statistical Office, 2023b). As a result, women have a higher need to supplement state pension with additional employer-supported pension schemes.
7	*BenefitsFitness*	The availability of free-of-charge or subsidized fitness offers (e.g., on-site gym or fitness courses.	*BenefitsFamBroad*	Access to fitness offers at the workplace provides time-savings compared to attending a "regular" class or gym thereby facilitating the compatibility of work with family, care, and household duties.

8	*BenefitsMedic*	The availability of free-of-charge or subsidized medical care (e.g., on-site practitioner).	*BenefitsFamBroad*	Access to medical care at the workplace provides time-savings compared to seeing a "regular" practitioner thereby facilitating the compatibility of work with family, care, and household duties.
9	*BenefitsCoaching*	The possibility to participate in free-of-charge or subsidized coaching or training for professional development.	*BenefitsFamBroad*	Women might exhibit lower confidence in their abilities to perform a job compared to equally-qualified men, as suggested by lower application rates of women to challenging positions (Coffman et al., 2024). Interventions that reduce ambiguity regarding necessary qualifications have been demonstrated to reduce gender differences in applications (Coffman et al., 2024). We contend that the opportunity to receive coaching is similar in that it is reassuring to an employee that they will be supported in fulfilling the requirements of their job and their pursuit of professional growth. As a result, this possibility will be more taken advantage of by women.
10	*BenefitsParking*	The availability of a (free) on-site parking lot.	*BenefitsFamBroad*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
11	*BenefitsDiscount*	A discount offered to employees on products or services of the employer.	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
12	*BenefitsCar*	The free-of-charge or subsidized possibility of using a company car (e.g., employer-paid car lease).	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
13	*BenefitsPhone*	A free-of-charge or subsidized company phone and phone plan.	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
14	*BenefitsShares*	The possibility to obtain shares of the employing firm at beneficial conditions (e.g., employer-matching on share purchases).	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.

15	*BenefitsEvents*	The availability of events for employees which are organized and paid for by the company.	*BenefitsFamBroad*	Social interactions with superiors are beneficial for employees' career advancement but employees with family responsibilities – and women in particular – have been demonstrated to fall behind in such interactions in the workplace (Cullen and Perez-Truglia, 2023). We contend that corporate events can be particularly important and beneficial to employees with family responsibilities as they provide additional and more casual opportunities to engage in social interactions with supervisors outside of the regular workplace.
16	*BenefitsInternet*	Possibility to participate in a free-of-charge or subsidized internet plan.	*BenefitsOther*	Fungible benefit with a clear monetary value and no obvious reasons for family-related differences in preferences.
17	*BenefitsDogs*	The possibility for employees to bring their dogs to work.	*BenefitsFamBroad*	The possibility of bringing one's dog to work provides flexibility which facilitates the compatibility of work with care duties.

Appendix II

Variable descriptions

Variable Name	Definition
BenefitsSum	Variable that captures how many benefits out of the 18 possible categories an employee receives.
BenefitsFamNarrow	Variable that captures how many benefits out of the 3 categories considered family-friendly based on a narrow definition an employee receives.
BenefitsFamBroad	Variable that captures how many benefits out of the 7 categories considered family-friendly based on a broad definition an employee receives.
BenefitsNonFam	Variable that captures how many benefits out of the 8 categories considered non-family-related an employee receives.
lnPay	Natural logarithm of the amount of annual pay in Euro an employee receives.
Female	Indicator that takes a value of 1 if an employee indicated their gender as *female* and 0 for *male*.
Manager	Indicator that takes a value of 1 if an employee indicated their position as a non-managerial position and 0 otherwise.
Supervisor	Indicator that takes a value of 1 if an employee indicated that they supervise at least one employee as a direct report and 0 otherwise.
SatisfactionOverall	Satisfaction of the employee with their employer measured on a 5-point Likert scale. Calculated as the unweighted average of 13 items that cover different dimensions of employer satisfaction.
SatisfactionRemuneration	Satisfaction of the employee with remuneration provided by their employer measured on a 5-point Likert scale.
SatisfactionWorkCond	Satisfaction of the employee with the work conditions at their employer measured on a 5-point Likert scale.
FlexCafeteriaPlan	Indicator that captures whether an employer offers employees a flexible choice-based "cafeteria-style" benefits plan. Takes a value of 1 if the benefit plan offered by the firm is described as "cafeteria-style benefits", "choice of benefits", or "flexible benefits" on the firm's career website, in posted job advertisements, or in news articles on the remuneration system offered by the firm, and 0 otherwise.
DiversityTargetsSet	Indicator that captures a firm's commitment to gender equality which takes a value of 1 if a firm falls under the Gender Target Law and has set and reported (non-zero) targets for all three levels of management required by the law, and 0 otherwise.
DiversityTargetsAchieved	Indicator that captures a firm's commitment to gender equality which takes a value of 1 if a firm falls under the Gender Target Law, has set and reported non-zero targets for all three levels of management required by the law, and subsequently achieves at least one of its targets, and 0 otherwise.