Do Organizational Policies Narrow Gender Inequality? Novel Evidence from Longitudinal Employer–Employee Data

Florian Zimmermann,[a,b] Matthias Collischon[a]

a) Institut für Arbeitsmarkt- und Berufsforschung (IAB), Research Department PASS; b) FAU Erlangen-Nuremberg

Abstract: Scholars have long proposed that gender inequalities in wages are narrowed by organizational policies to advance gender equality. Using cross-sectional data, scarce previous research has found an association between gender wage inequalities and these organizational policies, but it remains unclear whether this correlation represents a causal effect. We provide first evidence on this topic by using longitudinal linked employer–employee data covering almost 1,500 firms and nearly one million employee observations in Germany. We investigate whether and how organizational policies affect gender gaps using firm fixed-effects regressions. Our results show that organizational policies reduce the gender wage gap by around nine percent overall. Investigating channels, we show that this effect is entirely driven by advancing women already employed at a given firm, whereas we find no effect on firms' composition and wages of new hires. Furthermore, we show that our findings are not driven by potential sources of bias, such as reverse causality.

Keywords: gender wage gap; organizational policies; fixed effects; linked employer–employee data

Gender inequalities in wages are persistent in many countries, and eliminating discriminatory pay inequalities between men and women is a stated goal of countries all over the world. However, recently, the convergence of men's and women's trajectories in the labor market has slowed or even stalled (England, Levine, and Mishel 2020). To better understand the processes at work and to tackle gender inequality, it is essential to identify at which point gender wage differences arise. In addition to the characteristics of human capital (Blau and Kahn 2017), scholars have identified myriad individual factors contributing to gender inequality, such as motherhood (England et al. 2016; Kleven, Landais, and Søgaard 2019), overtime work (Cha and Weeden 2014), personality traits (Collischon 2021; Nyhus and Pons 2012), social networks (Collischon and Eberl 2021), negotiations (Babcock and Laschever 2009), and social norms (Auspurg, Hinz, and Sauer 2017).

In addition to individual factors, recent research in sociology (e.g., Abendroth et al. 2017; Avent-Holt and Tomaskovic-Devey 2012; Huffman, King, and Reichelt 2017; Srivastava and Sherman 2015) and economics (e.g., Card, Cardoso, and Kline 2016) has followed Baron and Bielby's notion of "bringing the firm back in" (Baron and Bielby 1980:738) and identified the importance of the role of firms in explaining gender wage gaps. This shows that one crucial level that policies aiming to reduce gender wage differentials could target is the firm level.

Research aiming to explain the causes of gender wage inequality within firms has, for example, focused on the role of collective agreements (e.g., Blau and Kahn 2017; Oberfichtner, Schnabel, and Töpfer 2020), sex segregation within firms

(e.g., Ludsteck 2014), and the role of female managers in firms (e.g., Cohen and Huffman 2007; Srivastava and Sherman 2015; Zimmermann 2021). Building on this general line of research, we focus on organizational policies[1] intended to advance gender equality. These policies could play an important role in explaining gender inequalities in wages within firms, as organizational policies to advance gender equality are often explicitly targeted at improving women's positions in firms, for example, through the preferential promotion of women or providing daycare in firms to decrease conflicts between work and family life. Organizational policies can narrow the gender wage gap in at least two ways. First, more gender-equal workplaces might narrow the gender wage gap by changing the composition of the newly hired workforce, either by reducing discriminatory human resource (HR) behavior or by attracting a larger pool of potentially more favorable female hires. Second, organizational policies could reduce the gender wage gap among current employees within a firm by increasing women's pay, for example, through the promotion of female employees to higher positions or reducing the barriers to wage negotiations. Theoretically, some scholars (Kaplan 2006) also suggest that organizational policies could increase gender gaps by using the uptake of these policies as a screening device and discriminate against individuals who use them. However, as most of the empirical literature (Huffman, King, and Reichelt 2017; Van der Lippe, van Breeschoten, and van Hek 2019) finds that organizational policies correlate with smaller gender wage inequalities, we especially theorize on the positive effects of such policies.

Scholars have long suggested that organizational policies could decrease discriminatory differences between groups in general (e.g., Kalev, Dobbin, and Kelly 2006; Tomaskovic-Devey and Avent-Holt 2019) and, more specifically, could narrow the gender wage gap (Cohen and Huffman 2007; Friedman and Galinsky 1992; Weeden 2005). However, to the best of our knowledge, the role of such policies inside firms[2] has only been investigated in two cross-sectional studies,[3] likely due to a lack of suitable longitudinal data for such analyses.

Huffman et al. (2017) investigate the role of family-friendly policies in German establishments in narrowing the gender wage gap. They find that organizational policies, such as employer-provided day care, are associated with a smaller gender wage gap within firms, especially at the lower end of the pay distribution. Van der Lippe et al. (2019) use survey data from 259 organizations in nine European countries and show that firms that offer work–life policies exhibit smaller gender wage gaps. Thus, scholars have found descriptive evidence that organizational policies seem to be correlated with smaller gender wage gaps.

However, whether these findings merit a causal interpretation remains unclear, as these studies are based on cross-sectional analyses that compare gender wage gaps between firms with and without specific organizational practices. Thus, a major gap in the previous literature is whether implementing specific organizational policies actually reduces intrafirm gender wage gaps or whether firms with policies promoting gender equality would exhibit smaller gender wage gaps even in the absence of such policies. Furthermore, the channels through which these policies affect gender wage inequalities have not yet been analyzed empirically. Both the identification of causal effects and investigations of the channels at work are crucial

for gaining a more fine-grained picture of the wage inequalities between and within firms and thus for deriving evidence-based policy conclusions.

To reduce these gaps in the literature, we employ a balanced set of linked employer–employee panel data from Germany that encompasses almost 1,500 private-sector firms and nearly one million observations of employees within these firms: the German Establishment Panel (IAB-BP) in combination with the Linked Employer–Employee Data, Cross-sectional Model 2, 1993 to 2019 (LIAB QM2 9319) from the German Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung, IAB). These unique data allow us to merge longitudinal survey information at the firm level with administrative employment records for all employees in a given firm. In our main analysis, consistent with the OECD sample definition to calculate wage gaps (OECD 2022), we focus on full-time employees. Additionally, we show in a robustness check that our results hardly change when also including part-time employees.

In our analysis, we focus on organizational policies to enhance the situation of women. Specifically, we have information on whether employers provide childcare facilities, offer services that target employees on parental leave, conduct targeted promotions of women, or use other nonspecific policies to promote gender equality. We use information on the prevalence of these policies to construct a summary index of organizational policies, as they likely have additive effects on gender inequality, as shown by Butts, Casper, and Yang (2013). In a robustness check, we also investigate individual effects of the specific measures.

We use these data to contribute to the literature in two ways. First, as the survey data contain longitudinal information on organizational practices that promote gender equality, we use firm fixed-effects regressions to eliminate time-constant unobserved heterogeneity at the firm level, thus investigating the policies' effects on intrafirm gender gaps. Our estimand (Lundberg, Johnson, and Stewart 2021) is therefore the effect of organizational policies on intrafirm gender gaps in wages, hirings, and promotions in the main analysis. We employ a number of additional analyses to show the robustness of our results; that is, we investigate whether reverse causality (e.g., firms that already exhibit narrowing gender wage gaps adopt female-friendly policies), sample restrictions, or specific modeling choices affect our results. To the best of our knowledge, we thus conduct the first analysis in the literature that provides evidence on the connection between intrafirm gender wage gaps and organizational policies while accounting for unobserved time-constant heterogeneity. Furthermore, the aforementioned robustness checks provide supportive evidence for an underlying causal effect.

Second, due to the use of administrative employment records, we can investigate whether any of the effects that we find are driven by either wage increases for current employees or a change in the composition of new hires, thus allowing us to disentangle the channels through which these policies might narrow gender wage inequalities. Specifically, we investigate whether the measures affect the propensity to hire women or the propensity to hire highly qualified women in order to investigate whether and how organizational policies affect hiring processes. Furthermore, we analyze whether these policies lead to wage increases or higher-quality jobs for current female employees to analyze dynamics within the firm. We

are thus able to draw a comprehensive picture of the role of organizational practices in determining gender differences in the labor market.

Theoretical Framework

How Organizational Practices Can Affect the Selection of New Hires

Organizations are spaces in which inequalities are reproduced, and thus organizations could also incorporate and institutionalize gender inequalities through various channels (Acker 1998, 2012; Tomaskovic-Devey and Avent-Holt 2019). The first channel that could explain gender inequalities within organizations is job market signaling. Signaling theory (Spence 1973) provides arguments for how organizational policies could affect the selection of female hires into firms, reducing the within-firm gender wage gap. Organizational policies with an explicit goal of increasing gender equality could send a signal to potential hires that the firm does not discriminate against specific groups, at least not actively (Goldberg and Allen 2008), and could thus, in our context, lead to more applications from more productive or more senior women who might be picky when choosing their employer (Van der Lippe et al. 2019) and thus give firms offering these policies a competitive advantage in the market for employees (Davis and Kalleberg 2006). According to this line of reasoning, holding all else equal, the potential pool of female applicants for a given vacancy is more favorable for firms with female-friendly organizational policies. Assuming that productivity is rewarded monetarily among women within a firm, more strong female candidates for a position could also lead to a narrowing of the within-firm gender wage gap, if more productive women are hired.

Furthermore, organizational policies could function as a signaling device for those who are responsible for the hiring processes within the firm. The corporate decision to establish such policies signals that tackling gender inequality and discriminatory behavior is important, and thus, human resource executives might pay special attention to ensuring that there is no discrimination in the hiring process or to picking female applicants if female applicants are an equally good fit for the open position as the male applicants (Van der Lippe et al. 2019). Thus, signaling theory implies a closing of the gender wage gap through (1) signaling female friendliness to the labor market, leading strong female candidates to apply, and (2) a reduction of wage discrimination through signaling the importance of gender equality to HR.

The second plausible channel relies on taste-based discrimination and related theories that could explain gender inequalities in the hiring process (Becker 1957). Taste-based discrimination arises when employers discriminate against women in their hiring processes because either the employers themselves or the current employees favor working with men, even if this discriminatory behavior implies hiring less able men and turning down qualified women for a given position or hiring equally competent women with lower starting wages than men receive. Theoretically, taste-based discrimination is not necessarily rational for employers, as it implies, for example, hiring a man instead of a better-suited woman, but research has shown that personnel management decisions are also driven by emotions. Thus, these decisions are likely to be discriminatory, even in a competitive labor market

(Rivera 2020). If a firm now introduces policies aimed at increasing gender equality, individuals tasked with hiring new employees in a firm could regard the introduction of such policies as a prompt to reduce their discriminatory behavior. In contrast to the aforementioned mechanism based on signaling theory, which presumes that HR reacts to the introduction of organizational policies by discriminating less but not necessarily changing their biases, the lens of taste-based discrimination can conclude that organizational practices can reduce inherent biases of HR employees and thus reduce gender wage gaps.

Third, and in a manner similar to taste-based discrimination, sociological theories on gender status beliefs (e.g., Ridgeway 2001), which are similar to discrimination, argue that men are often regarded as more competent by their bosses or coworkers due to stereotypes. By valuing work–life balance and gender equality, firms that implement female-friendly organizational practices break with the traditional *ideal worker* norm: a highly committed full-time employee (Munn and Greer 2015; Van der Lippe et al. 2019; Williams 2001). Thus, organizational policies that promote gender equality could also lead to a decrease in discriminatory hiring practices by changing firm culture, resulting in less taste for discrimination and eroding status beliefs. In all of the cases discussed in this section, organizational practices are likely to lead to an inflow of more—and potentially more productive (e.g., due to better qualifications)—female hires into the firm. Furthermore, organizational practices could reduce wage discrimination against newly hired women. Both factors, the composition of new hire inflows as well as a reduction in wage discrimination, could narrow existing gender inequalities. Empirically, taste-based discrimination as well as gender status belief theories thus make the same prediction in our context.

How Organizational Practices Can Affect Already Employed Women

In a manner similar to their potential effects on new hires, organizational policies also act as a signaling device within firms. The literature on gender differences in bargaining behavior shows that women are less likely to initiate individual wage bargaining than men are (Babcock and Laschever 2009), and even conditional on entering into a bargaining situation, women achieve less favorable outcomes than men (Dittrich, Knabe, and Leipold 2014). These findings are often ascribed to gender stereotypes that prescribe less demanding behavior and that have likely been internalized by both the employee herself and her supervisors (Ridgeway 2001). Organizational policies that promote gender equality could signal an erosion of these stereotypes and lead to both female employees being more daring in their wage negotiations and supervisors being more sympathetic to their demands (Van der Lippe et al. 2019). Additionally, this mechanism could also lead to an increased likelihood of women applying for higher positions within the firm and being promoted to them.

Occupational segregation and the perceived gender stereotypes associated with specific jobs or industries could disadvantage women by devaluating typically female occupations (Reskin 1993; Reskin and Roos 1990). Similarly, these stereotypes could also be associated with organizations. Research has shown that gender wage

differentials vary with the perceived masculinity of the organization (e.g., whether the organization is associated with engineering, a stereotypical male field) (Smith-Doerr et al. 2019). In general, wage gaps within masculine organizations are larger than those within gender-neutral organizations. Although organizational practices do not necessarily change the perceived gender stereotype associated with an organization, these practices could nevertheless reduce discrimination and stereotyping. Thus, organizational policies might boost the career advancement of female employees.

All these factors might not only further contribute to the advancement of women within the firm but also prevent women from leaving. When female employees observe a reduction in discriminatory behavior or perceive the introduction of organizational policies as a signal, they might also be less tempted to leave the firm. Thus, we also expect a smaller outflow of women in firms that introduce female-friendly organizational practices.

Hypotheses and Expectations

As discussed in the previous subsections, there is an ample array of channels that could explain how organizational policies can affect intrafirm gender wage gaps. Overall, the direction implied by the theoretical considerations is clear: organizational policies should narrow gender wage gaps. Thus, our first hypothesis is as follows:

> **H1:** Organizational policies narrow gender wage gaps.

The reduction in gender wage gaps could stem either from a change in the pool of new hires at a firm or from changes in the wages of current employees. Regarding new hires, either organizational policies could attract more and potentially more productive female applicants, or such policies could affect the decisions of human resource executives and reduce discriminatory behavior. This leads to our second set of hypotheses:

> **H2a:** Organizational policies narrow the gender wage gap among newly hired employees.
>
> **H2b:** Implementing organizational policies increases the share of new hires who are female.

Note that H2b does not directly make a statement on the gender wage gap. However, we can use it to investigate whether a firm's hiring behavior changed due to the introduction of organizational policies and thus investigate channels. For example, if, as hypothesized, high-potential women are more likely to apply due to the introduction of these policies, or if HR discriminates less at this stage, we expect the share of women hired to rise. Because high-potential women are also likely to earn higher wages, gender wage inequalities should also narrow.

Regarding the labor market outcomes of current employees, organizational policies could signal that wage bargaining by women is desired and thus increase women's wages and their odds of advancing within the firm. Furthermore, organizational practices could reduce stereotyping, which would also affect wages, the
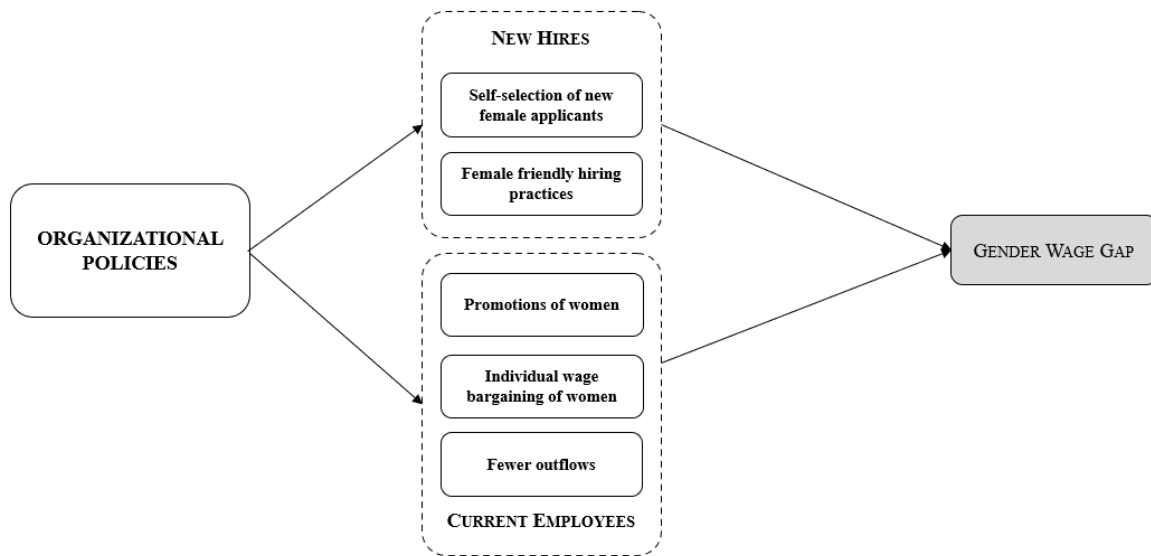
Figure 1: Channels through which organizational policies can affect gender wage gaps in firms.

odds of promotion, and the outflow of women from the firm. This leads to our third set of hypotheses:

> **H3a:** Implementing organizational policies narrows the gender wage gap among current employees.
>
> **H3b:** Implementing organizational policies narrows the gender gap in promotions among current employees.
>
> **H3c:** Implementing organizational policies reduces the share of women leaving the firm from among current employees.

Again, H3c does not directly relate to the gender wage gap. Nonetheless, the turnover of female employees in a firm can also affect the gender wage gap by affecting the composition of a firm's workforce. For example, if high earners are less likely to leave the firm after the introduction of organizational policies, this could result in a narrowing of the gender wage gap. If the quitting behavior of women does not change due to the introduction of organizational policies, outflows are likely no channel for the overall effect on gender gaps. Qutting behavior is thus, as previously discussed, an important channel for gender wage inequalities within firms.

Figure 1 shows the mechanisms that could explain the path from organizational policies to gender wage gaps. Overall, the estimand (Lundberg et al. 2021) implied by the theory is the effect of organizational policies on intrafirm gender gaps in the outcomes described previously.

The German Case

In 1994, the German government introduced binding laws to advance female employment opportunities within the public sector, such as the requirement to preferentially hire female applicants over male applicants with equal capabilities and qualifications (Bundesministerium des Innern 2014; Zimmermann 2021). In comparison with the public sector, where binding laws have been imposed, private-sector firms in Germany have started to voluntarily promote female career advancement in recent decades. For example, in 2001 central associations in the German private industry sector agreed to introduce policies at the firm level to foster labor market opportunities for women on a voluntary basis. These organizational policies have either directly targeted the promotion of female employees or facilitated work–life balance by reconciling tensions between family and work. Despite this voluntary agreement, less than half of all firms introduced such policies (Bächmann et al. 2020a; Zimmermann 2021), and Germany is still characterized by large gender inequalities.

In this study, we focus on private-sector firms because public-sector firms are subject to binding laws for promoting female employment. Furthermore, collective bargaining agreements largely determine wages in the public sector, resulting in lower gender inequality in the public sector than in the private sector (Boll and Lagemann 2018). Because these binding laws and collective wage agreements might dampen the effect of organizational practices on gender wage inequalities in the public sector, we focus on private-sector firms in this study. We assume that the impact of organizational characteristics on earnings is potentially larger in Germany than in other Western countries because Germany had the fifth largest gender wage gap in Europe in 2020 (Eurostat 2022), thus leaving room for adjustment.

Data and Measurements

Data

We use the IAB Establishment Panel (Ellguth, Kohaut, and Möller 2014; Umkehrer 2017) in our analysis. This data set comprises annual firm-level survey data on employment-related topics such as the composition of the workforce and organizational policies. The sample is drawn from all firms in Germany with at least one employee liable to pay social security as of June 30 in the previous year and representative for the German labor market. The data set begins in 1993 in West Germany and in 1996 in East Germany. Professional interviewers conduct mainly face-to-face interviews. Most interview respondents held a managerial position, thus ensuring high data quality. We merge these survey data with individual-level administrative records on all employees required to make social security contributions in those firms (LIAB QM2 9319;[4] Ruf et al. 2021a,b).[5]

The survey collects information on organizational practices in 2004, 2008, 2012, and 2016. We use these waves from the IAB Establishment Panel to investigate the influence of organizational practices on the intrafirm gender wage gap. In our main analysis, we restrict the sample to private-sector firms with at least 10 employees in each year and at least one male and one female full-time employee between the ages

of 20 and 60 and that participated in all four of the survey waves to ensure that we can calculate meaningful gender wage gaps for the respective firms. Furthermore, we drop 107 firms with missing information for any control variables that we use in the analysis. This leaves us with a balanced panel data set consisting of 1,415 firms and 956,447 observations of full-time employees between the ages of 20 and 60. Table A1 and Appendix B in the online supplement describe details on the sample selection and the results for a less restrictive sample, that is, an unbalanced panel. Additionally, we use a sample that also includes part-time employees in a robustness check.

Measurements: Dependent Variables

Wages. Our dependent variable is employee daily gross wages in euros, which is drawn from the social security contributions data and deflated to 2015 euros. In contrast to information taken from survey data, this information is not prone to measurement error or selective nonresponse. One minor drawback of these data is that wage information is censored at the upper earnings limit for statutory pension insurance (currently monthly pay of at least €6,750, affecting approximately 15 percent of our sample). To solve this problem, we impute the deflated wages separately by gender, region (East vs. West Germany), and calendar year using the individual-level control variables. This method is well established in the literature that works with these data (e.g., Card, Heining, and Kline 2013; Dauth and Eppelsheimer 2020). To eliminate randomly generated outliers, the imputed wage is censored at 10 times the 99th percentile. As is common practice in the literature investigating gender wage gaps, we use the natural logarithm of the imputed wage as the outcome of interest to ensure that the wage gaps are not driven by individual outliers and to ensure international comparability.

Promotions. Using information on employees' wages and occupational changes inside a firm, we operationalize promotions with two measures (Anger 2005; Hübler et al. 2000; Pfeifer 2010). The operationalization of promotions using occupational changes might be prone to error because the majority of employees get promoted without noticeable changes in their occupational code (Anger 2005; Pergamit and Veum 1999). Thus, focusing on changes in occupational codes could lead to underestimation of the frequency of promotions. To overcome this constraint, we measure promotions based on wage increases of 10 percent or more as our first measure. Because wages are deflated to 2015 values, wage increases are real wage increases. Second, as a robustness check, we consider occupational changes to a more qualified job as defined by Blossfeld (1987) (Table A2 in the online supplement) that coincide with a wage increase of at least 10 percent as a promotion. In contrast to the former definition, this classification yields a very conservative definition of promotions, as the majority of employees are promoted without changes in their occupational codes (Anger 2005).

We find that 27.0 percent of employee-year observations experience a promotion between the 2008, 2012, and 2016 waves. The number of promotions is lower for women than for men (Table 1). At the employee level, approximately 45.5 percent of employees have ever received a promotion during our study period of 12 years.

Table 1: Promotions for current staff

	Total	Women	Men
Promotions of current staff[a]			
Promotion (wages)	27.0%	23.2%	28.3%
Promotion (wages and occupations)	1.9%	1.4%	2.0%
Employee-year observations	673,519	136,593	536,926

Notes: [a]The observations for promotions of current staff exclude the year 2004 because we do not include the previous period, 2000, in our research. *Source:* Own calculations using LIAB QM2 9319.

For our strict measurement using both wages and occupations, approximately 4.0 percent of employees receive a promotion, which is lower than previous estimates for Germany using similar measurements. Anger (2005) reports that six to eight percent of employees experience a promotion within 11 years. The difference can be explained by our focus on intrafirm labor markets, whereas Anger (2005) also includes promotions after job changes.

Measurements: Regressors

Organizational policies. Our main regressor of interest is the firm's organizational practices promoting gender equality. Under the header "equal opportunity," the survey collects information on which measures aimed at improving the compatibility of family and work and promoting the equal opportunities of women and men are provided in a given firm. The survey provides information on the following four organizational practices that promoted gender equality in 2004, 2008, 2012, and 2016:

- "Support with childcare or financial contributions toward childcare" (0 = no; 1 = yes)

- "Services for employees taking periods of parental leave" (0 = no; 1 = yes)

- "Targeted promotion of women" (0 = no; 1 = yes)

- "Other measures" (0 = no; 1 = yes)

The first two practices facilitate work–life balance by supporting dependent care, and the third practice directly supports women in the workplace. The fourth includes further measures that either facilitate work–life balance or promote equal opportunities for women and men.

Following Van der Lippe et al. (2019) and Zimmermann (2021), we sum the presence of these four policies to generate an index of the number of practices for promoting gender equality, which ranges from zero to four. Butts et al. (2013) show that this approach is credible, as the presence of multiple policies seems to be more important than the presence of a single specific policy. Nonetheless, we also investigate specific policies in the robustness checks.

The index represents the number of formal policies for promoting gender equality at the respective firm. Table 2 shows that on average, an employee is employed in

Table 2: Changes in practices promoting gender equality at the firm level

Variable	Mean		Share of observations with changes at the firm level	
	Employee level	Firm level	Employees	Firms
Number of organizational policies	1.79	0.47	89%	63%
Workplace childcare facilities	0.50	0.12	36%	25%
Parental leave	0.59	0.22	57%	49%
Targeted promotion of women	0.42	0.06	30%	15%
Other measures	0.28	0.07	59%	20%
Observations	956,447	5,660	956,447	1,415

Notes: See Table A3 in the online supplement for summary statistics of the organizational policies by gender.
Source: Own calculations using LIAB QM2 9319.

a firm with 1.79 female-friendly organizational policies. At the firm level, however, the number of organizational policies is much lower, at 0.47. Thus, these policies are especially common in larger firms. Table 2 shows that 89 percent of employees work in firms that change their number of practices, and 63 percent of firms change practices. At the firm level, we can see that this change is caused both by firms without policies starting to implement them and by firms increasing the number of policies (Figure 2). For individual practices, 30 to 59 percent of employees work in firms that change a single practice, and 15 to 49 percent of firms change a single practice (Table 2). Like the presence organizational practices, changes in these practices are also more common in larger firms, as implied by the difference in the percentage of employees and firms experiencing changes (see Table A4 in the online supplement for these statistics by firm size). Because introducing formal policies, especially workplace childcare facilities, is expensive, these policies are much more common in large firms (Bächmann, Frodermann, and Müller 2020b; Huffman et al. 2017; Kohaut and Möller 2009). We conduct robustness checks by firm size to take this uneven distribution across firm size into account.

The 2012 and 2016 survey waves contain information on two additional practices that facilitate work–life balance. These include one flexibility practice, "Flexible working hours for employees with care responsibilities" (0 = no; 1 = yes), and one dependent care practice, "Support for employees with relatives who require care" (0 = no; 1 = yes). We constructed another index of practices for promoting gender equality that includes all six practices for the years 2012 and 2016. In the robustness checks, regressions with the index that includes all six practices and that are restricted to the years 2012 and 2016 yield results similar to the main results.

Control variables. In our analysis, we need to rule out confounding factors that could bias our estimate of the effect of organizational policies on intrafirm gender gaps. Thus, following the studies described in the literature review, the control variables at the individual level include labor market experience and its square, tenure and its square, three education dummies, a dummy for non-German nationality as a proxy for migration background (measured as non-German citizenship), and dummies for occupation codes (13 codes) as defined by Blossfeld (1987). At the firm
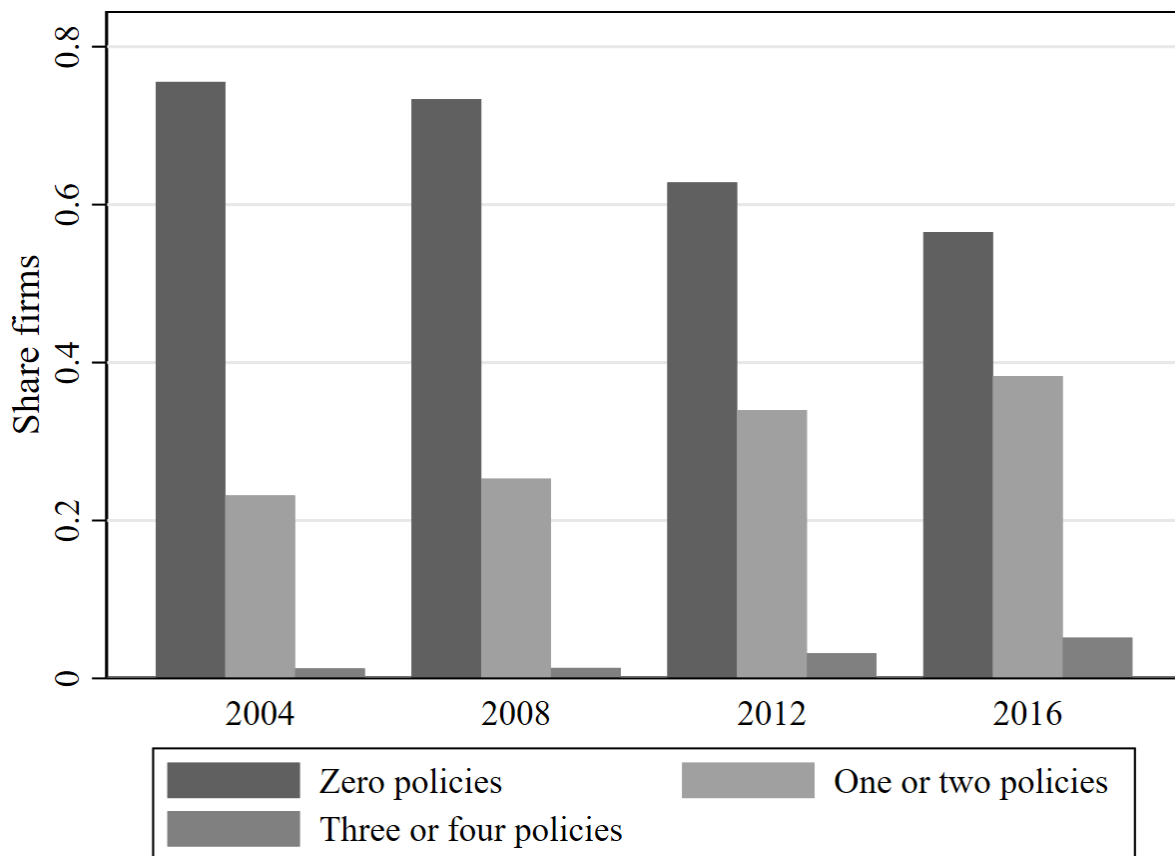
Figure 2: Share of firms with different numbers of policies by year. *Notes:* The number of observations is 5,660 firm-years from 1,415 firms. *Source:* Own calculations using the LIAB QM2 9319.

level, we control for the shares of female, part-time, and qualified employees in the firm's workforce and the existence of a works council, of a collective agreement at the sector level, and of a collective agreement at the firm level. We also include a dummy for a profitable firm, log firm size, a dummy for East Germany, and indicator variables for the one-digit industry code.[6] To capture general economic time trends, we furthermore control for yearly indicators. Table 3 shows the descriptive statistics for these variables.

Empirical Strategy

Identification

As described in the theoretical considerations, the estimand of interest is the effect of organizational policies on intrafirm gender gaps. To this end, we need to eliminate any differences at the firm level that are correlated both with the firm-specific

Table 3: Summary statistics for the whole sample

	Total	Women	Men
Employee characteristics			
Number of years in the sample	2.97	2.61	3.07
	(1.14)	(1.17)	(1.11)
Gross daily wage	139.10	117.68	144.78
	(58.73)	(55.26)	(58.32)
Female	0.21	1.00	0.00
	(0.41)	(0.00)	(0.00)
Experience	17.04	14.61	17.68
	(9.25)	(8.82)	(9.26)
Tenure	12.19	10.32	12.68
	(8.96)	(8.34)	(9.06)
Non-German citizenship	0.06	0.05	0.07
	(0.24)	(0.21)	(0.25)
Highest completed education[a]			
No vocational degree	0.06	0.07	0.06
	(0.27)	(0.25)	(0.23)
Vocational degree	0.75	0.72	0.75
	(0.43)	(0.45)	(0.43)
University degree	0.20	0.21	0.19
	(0.37)	(0.41)	(0.39)
Year[a]			
2004	0.25	0.26	0.25
	(0.43)	(0.44)	(0.43)
2008	0.25	0.25	0.24
	(0.43)	(0.43)	(0.43)
2012	0.25	0.24	0.25
	(0.43)	(0.43)	(0.43)
2016	0.26	0.25	0.26
	(0.44)	(0.43)	(0.44)
Employer characteristics			
Number of employees	13,363	9,257	14,451
	(21,179)	(19,054)	(21,577)
Good profit situation	0.47	0.44	0.48
	(0.50)	(0.50)	(0.50)
Existence of a works council	0.88	0.83	0.90
	(0.32)	(0.37)	(0.30)
No collective agreement	0.14	0.19	0.12
	(0.34)	(0.39)	(0.33)
Collective agreement at the firm level	0.31	0.27	0.32
	(0.46)	(0.44)	(0.47)
Collective agreement at the sector level	0.55	0.55	0.55
	(0.50)	(0.50)	(0.50)
Firm is located in East Germany	0.23	0.31	0.21
	(0.42)	(0.46)	(0.41)
Employee composition			
Share of women	0.25	0.41	0.20
	(0.20)	(0.25)	(0.15)
Share of high-skilled	0.18	0.19	0.17
	(0.13)	(0.15)	(0.12)
Share of part-time	0.07	0.13	0.06
	(0.10)	(0.14)	(0.08)
Observations			
Employee-year observations	956,447	200,391	756,056
Employees	412,825	101,348	311,477
Firms	1,415	1,415	1,415

Notes: Data are means with standard deviations in parentheses. See Table A3 in the online supplement for summary statistics of the occupations, industry sectors, and organizational policies. [a]The sum of observations all years might be larger than 100 percent due to rounding. *Source:* Own calculations using LIAB QM2 9319.

gender wage gap and with the occurrence of organizational practices (Wooldridge 2010:247ff). We thus use fixed-effects regression models that account for time-invariant heterogeneity at the firm level.

We employ the following fully interacted linear regression with firm fixed effects to measure the influence of organizational practices that promote gender equality on the gender wage gap:

$$\ln(w_{it}) = F_i \times \beta_1 + \text{OrgPrac}_{ft} \times \beta_2 + (F_i \times \text{OrgPrac}_{ft}) \times \theta + x'_{ift}\delta + F_i \times x'_{ift}\rho + \mu_f + \epsilon_{it},$$

where $\ln(w)$ is individual i's log daily gross wage in year t, F_i is a female dummy, and OrgPrac_{ft} is the number of organizational practices that promote gender equality in firm f and year t. $F_i \times \text{OrgPrac}_{ft}$ is the interaction between the female dummy and the number of these organizational practices. This interaction term aims to represent the effect of organizational practices that promote gender equality on the gender wage gap in a firm. The coefficient is composed of both between-firm variation, that is, women working in firms with different numbers of organizational practices that promote gender equality, and within-firm variation, that is, changes in the number of these practices inside a firm over time (Table 2). Given that our data are collected only every four years, the effects we measure are averaged over the medium and long term. However, we do not consider the time gaps between the specific survey waves to be a severe problem, as it may take time for the effects to materialize.

The model also includes control variables, x_{ift}, for firm f and individual i in year t. We additionally control for survey year dummies to capture time trends in x_{ift}. To consider variation in the gender wage gap across occupations and industry sectors (Hinz and Gartner 2005), we estimate a fully interacted model following Zimmermann (2021). We center the variables around their means before interacting them with the female dummy. This step allows us to interpret the female coefficient as the gender wage gap at the sample mean (Imbens and Wooldridge 2009). To consider unobserved time-invariant differences between organizations, we include firm fixed effects, μ_f (Rabe-Hesketh and Skrondal 2012). Finally, we cluster the standard errors at the firm level to account for potential autocorrelation in the statistical inference.

Regarding the control variables in our analysis, in some cases, it is unclear whether certain variables are confounders that bias our estimation or whether these variables lie on the path from treatment (i.e., organizational practices) to outcome (Elwert and Winship 2014). For example, controlling for tenure could, on the one hand, account for the time-varying sorting of certain individuals into firms, which we want to account for. On the other hand, organizational practices could nudge employees to remain in the firm longer and thus affect wages. Thus, to provide a comprehensive picture of the effects at play, in our baseline analysis, we show estimations with and without accounting for the control variables. These estimations provide us with lower bound estimates of the effect (net of control variables) and upper bound estimates (without accounting for the control variables).

Testing Hypotheses

The aim of our empirical analysis is threefold. First, we regress wages on the number of organizational policies and control variables at the individual and firm levels to assess whether these policies affect the overall gender wage gap (hypothesis 1). After estimating whether organizational practices influence inequality within a firm, we focus on the channels through which these policies might work.

Second, we test whether organizational practices that promote gender equality change wages or the composition of a firm's workforce by focusing on new hires, that is, employees with a tenure of less than 365 days. We start by focusing on the wages of new hires in order to analyze whether organizational practices narrow the gender wage gap for this group (hypothesis 2a). Next, we regress new hire gender on the number of practices that promote gender equality and the control variables to investigate whether organizational practices lead to more female new hires (hypothesis 2b).

Third, we investigate whether organizational policies affect the wage gap for current staff, and we exclude new hires, that is, employees with less than 365 days of tenure. To this end, we restrict the sample to current staff and regress wages on the number of organizational policies and the control variables (hypothesis 3a). Next, we use promotions as the dependent variable with a focus on current staff to investigate whether organizational policies lead to more promotions of current female employees than of current male employees (hypothesis 3b). Last, we investigate whether organizational policies reduce the share of women leaving the firm (hypothesis 3c).

Challenges to Identification

Identifying causal effects in our context is a challenging endeavor, as several issues arise that potentially complicate identification. One problem is selection bias: firms that are already relatively nondiscriminatory toward women (i.e., firms with small gender wage gaps) could be the same firms that are most likely to implement female-friendly organizational practices. This potential source of bias is accounted for in our fixed-effects estimation by eliminating time-invariant unobserved heterogeneity. Additionally, we account for time-varying confounders by controlling for a large set of covariates that could be correlated with the introduction of organizational practices as well as with the gender wage gap at the individual and firm levels, as described in the data section. Most importantly, we control for collective bargaining regimes and the existence of a works council.

Firm fixed effects might not be sufficient to account for all unobserved heterogeneity at the firm level, as pay differences between men and women may be heterogeneous within firms. Although firm fixed effects absorb unobserved time-constant heterogeneity at the firm level that affects men and women in the same way, they do not capture time-constant differences between genders within firms (Hensvik 2014). If a firm is, for example, more female friendly regardless of organizational policies, simply investigating the average differences (as accounted for by the female indicator variable in the estimations) may not suffice to address all biases. To this end, we repeat our estimation with gender-by-firm fixed effects,

that is, estimating separate firm fixed effects for men and women to account for gender-specific, time-invariant unobserved heterogeneity.

Furthermore, we check the robustness of the wage changes inside organizations with match (i.e., employee-by-firm) fixed effects. This specification is stricter than that using individual fixed effects, as match fixed effects consider only an employee's employment history at the same firm, that is, using only intrafirm intraemployee variance. Thus, we can interpret the coefficients from this specification as changes in wages for an individual at a firm that are caused by changes in the independent variables for the individual at that same firm.

Lastly, reverse causality could potentially pose a problem. Firms could follow a trend of closing gender wage gaps over time and then choosing to implement organizational policies as a consequence. We address this issue in two ways. First, we estimate robustness checks in which we regress lagged outcome measures on the propensity to implement organizational practices in order to investigate whether changes in the firm, for example, the implementation of a works council, predate changes in organizational practices. Second, we use the number of organizational policies in the previous period as the independent variable to ensure that wage inequalities change after the number of policies changes.

Results

Descriptive Results

We begin with an overview of the trends in the gender wage gap (Figure 3(a)) and in the number of organizational policies that promote gender equality (Figure 3(b)). In Figure 3(a), we see an unadjusted wage gap of 23.7 percent in 2004, which stagnates until 2008. After 2012, the gender wage gap starts to narrow, and this trend continues in 2016. The stagnation in 2008 can be explained by the financial crisis. The same trend can be observed in Germany in general, and our sample's wage gap is close to the wage gap for all of Germany (DeStatis 2020). A similar trend can also be observed in the United States, where the gender wage gap stagnated from 2000 to 2010 and started to narrow afterward (England et al. 2020). The adjusted gap, which is adjusted for individual-level control variables, that is, work experience and its square, tenure and its square, migration status, three dummies for education, and 13 dummies for occupation, is smaller than the unadjusted gap and follows a similar trend. We observe that the adjusted gender wage gap is much lower inside firms than in the labor market in general. This finding is consistent with previous findings on wage inequalities in U.S. plants (Avent-Holt and Tomaskovic-Devey 2012) and with the literature on gender segregation in the labor market (Reskin 1993), which shows that women tend to systematically work in lower-wage firms, leading to larger gender wage gaps between firms than within firms. Nevertheless, a substantial gender wage gap remains even within firms.

Figure 3(b) depicts the number of organizational practices that promote gender equality inside firms. We can see that this number stagnated from 2004 to 2008 and started to increase in 2012. This upward trend continued in 2016. The stagnation from 2004 to 2008 and the change after 2012 mirror the trend in the wage gap. While
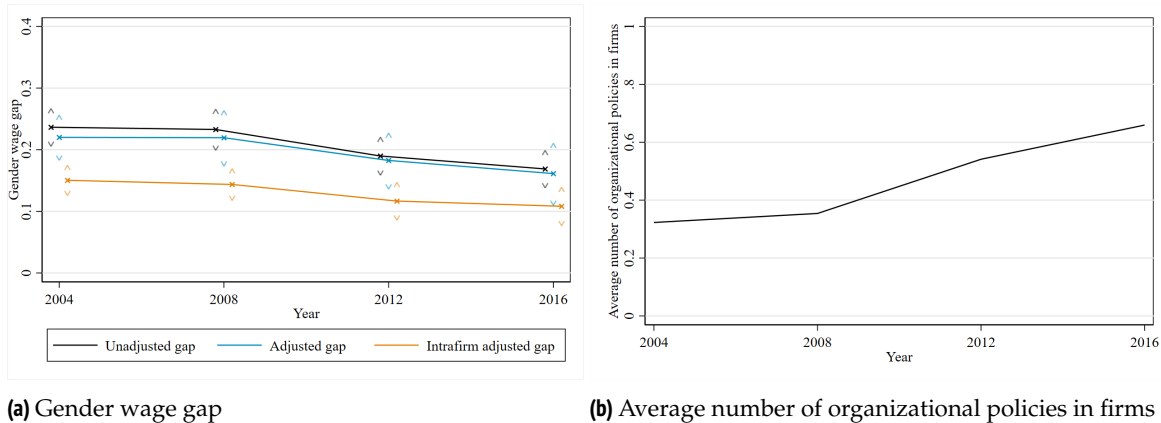
(a) Gender wage gap

(b) Average number of organizational policies in firms

Figure 3: Gender wage gap and number of organizational policies in firms. *Notes:* The gender wage gap is measured in log points. The adjusted gap accounts for individual-level control variables, that is, work experience, its square, tenure, its square, migration status, three dummies for education, and 13 dummies for occupation. The number of observations is 956,777 employee observations in 1,415 firms in (a) and 5,660 firm-years from 1,415 firms in (b). To improve clarity in (a), the point estimates, that is, the x symbols, of different lines are staggered, although each point estimate is measured at the same point in time. The whiskers in (a) represent the 95 percent confidence interval. Standard errors are clustered at the firm level. *Source:* Own calculations using the LIAB QM2 9319.

the number of organizational practices inside firms increased after 2012, the wage gap narrowed. This is a first piece of graphical evidence for a correlation between the number of organizational practices that promote gender equality and the gender wage gap.

To further descriptively investigate whether the gender wage gap in firms is associated with organizational practices, we investigate the variation in intrafirm gender wage gaps by the number of organizational policies within firms in Figure 4. The sample is split into firms with zero organizational practices, one to two practices, and three to four practices in a given year. We observe an overall downward trend from in the wage gaps in firms from 2004 to 2016 for all groups. The decrease ranges from 2.5 percentage points (PP) for firms without organizational practices to 3.0 PP for firms with one to two organizational practices. This trend is much smaller than the overall downward trend for all employees, which amounts to 4.9 PP (Figure 3(a)).

In comparison with employees in firms without organizational practices, employees in firms with organizational practices, especially firms with three to four practices, exhibit a lower intrafirm gender wage gap. This finding also shows that a higher number of organizational policies is associated with a lower wage gap inside firms, implying that a higher intensity of female-friendly practices reduces intrafirm gender gaps. Because firms both introduce organizational policies for the first time and expand the number of such practices, this finding provides evidence for an association between organizational policies and the gender wage gap in firms. However, please note that this graphical evidence cannot be interpreted as a causal effect and that we do not observe the drivers of this correlation. Thus, in the next
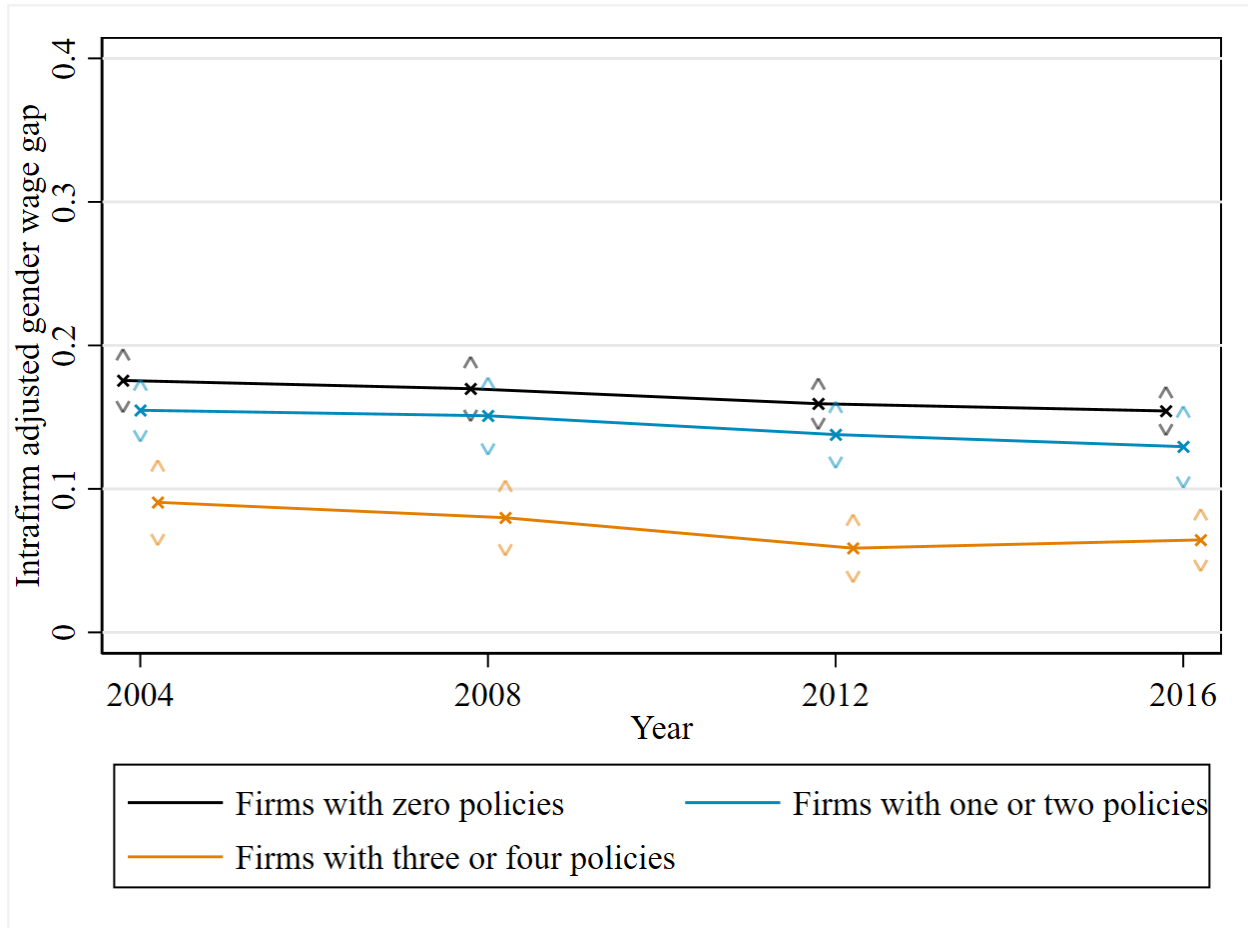
Figure 4: Intrafirm gender wage gap by number of organizational policies in firms. *Notes:* The gender wage gap is measured in log points. The adjusted gap is adjusted for the individual-level control variables, that is, work experience, its square, tenure, its square, migration status, three dummies for education, 13 dummies for occupation, and firm fixed effects. The number of observations is 956,777 employee observations in 1,415 firms. To improve clarity, the point estimates, that is, the x symbols, of different lines are staggered, although each point estimate is measured at the same point in time. The whiskers represent the 95 percent confidence interval. Standard errors are clustered at the firm level. *Source:* Own calculations using the LIAB QM2 9319.

step, we turn to regression analyses to investigate whether this descriptive picture also holds when accounting for potential confounding effects.

Main Results

Table 4 reports the influence of organizational policies on the intrafirm gender wage gap. First, we estimate models without control variables (column 1) to obtain the upper bound for our effect; that is, we keep open all potential causal pathways through which organizational practices might affect the gender wage gap. Second, we estimate models that include the control variables (column 2) to identify the lower bound on our effect. Because organizational policies lead theoretically, for

Table 4: Organizational practices and the gender wage gap

	(1) Upper bound	(2) Lower bound
Female	$-0.137^{\dagger}$ (0.009)	$-0.128^{\dagger}$ (0.004)
Organizational policies	0.025^{*} (0.011)	0.004 (0.003)
Female $\times$ Organizational policies	$0.019^{\dagger}$ (0.005)	$0.011^{\dagger}$ (0.004)
Controls	No	Yes
Firm fixed effects	Yes	Yes
Observations	956,447	956,447
Firms	1,415	1,415

Notes: The dependent variable is the log daily wage. Columns 1 and 2 show the results of firm fixed-effects regressions. Column 1 does not include any control variables. For column 2, the individual-level control variables include labor market experience and its square, tenure and its square, three education dummies, a dummy for non-German nationality, 13 dummies for occupation as defined by Blossfeld (1987), and three year dummies. We also include the shares of female, qualified, and part-time employees in a firm's workforce; dummies for the existence of a works council, a collective agreement at the sector level, and a collective agreement at the firm level; profitability; log firm size; a dummy for East Germany; and dummies for one-digit industry codes. See Table 3 for summary statistics of the control variables. We also control for interactions between all of these individual- and firm-level variables and the female dummy. The standard errors are clustered at the firm level and shown in parentheses. $* \, p < 0.05$; $\dagger \, p < 0.01$ (two-tailed t tests). *Source:* Own calculations using the LIAB QM2 9319.

example, to the hiring of more women, the result should be a lower wage gap. Controlling for the share of a firm's workforce that is female would close down this pathway and lead to an underestimation of the true causal effect. Thus, closing down potential causal pathways in our regression models with control variables leads to an estimation of the lower bound, that is, the direct effect of the policies excluding other pathways.

For the upper bound model without control variables, Table 4, column 1, shows that a higher number of organizational practices significantly reduces the gender wage gap in firms by 1.9 PP (exp(0.019)-1, as displayed in the interaction term coefficient), or, in relative terms, by approximately 15.0 percent.[7] In the lower bound regression, net of control variables, organizational policies still reduce the intrafirm gender wage gap significantly by 1.1 PP, or approximately 9.2 percent (column 2).

The average marginal effect for women, that is, the total effect of the number of organizational practices that promote gender equality on female employee wages, amounts to an upper bound of 4.5 percent (exp(0.019+0.025)-1, estimates from Table 4, column 1; Figure 5) and a lower bound of 1.5 percent (exp(0.011+0.004)-1, estimates from Table 4, column 2; Figure 5) (Table A5 in the online supplement shows the results of the formal calculation of the marginal effects with standard
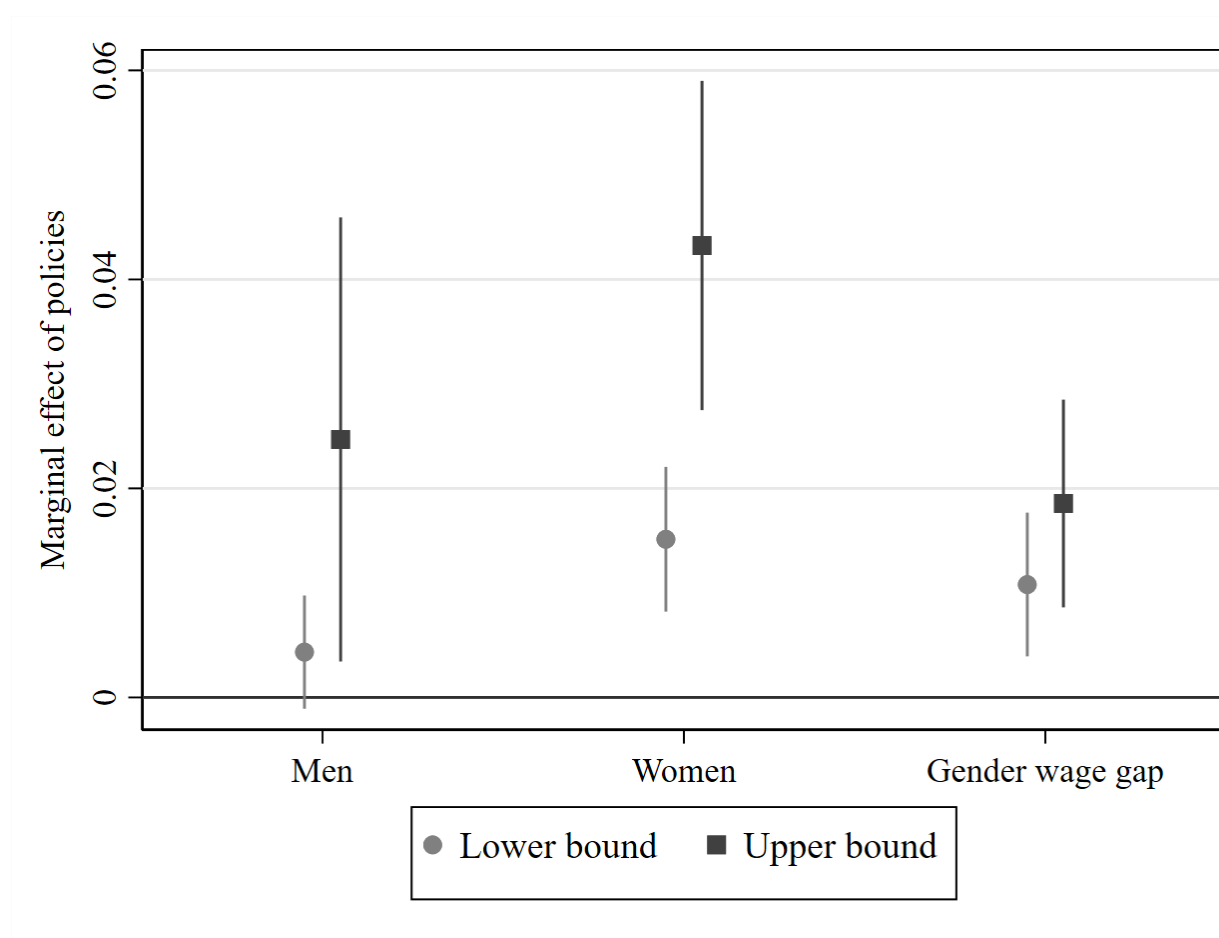
Figure 5: Effect of organizational policies on the wages of men and women and on the gender wage gap. *Notes:* The marginal effects for men and women can be found in Table A4 in the online supplement and are calculated using the upper and lower bound regression estimates from Table 4. The effect on the intrafirm gender wage gap is the coefficient on Female × Organizational policies from Table 4 for the upper and lower bound specifications. The plot shows the coefficients and the 95 percent confidence intervals calculated using two-tailed *t* tests. The standard errors are clustered at the firm level. *Source:* Own calculations using the LIAB QM2 9319.

errors by gender). The effect of such policies on male wages is positive in magnitude and statistically significant in the upper bound regression but loses statistical significance in the lower bound estimations ($p = 0.116$). The effect on the intrafirm gender wage gap is also shown in Figure 5; it is equal to the effects displayed in columns 1 and 2 of Table 4.

Overall, we find that organizational policies exert a narrowing influence on the gender wage gap inside firms and that this influence ranges from 1.1 PP to 1.9 PP per additional organizational practice, or approximately 9.2 to 15.0 percent of the overall gender wage differential. Because our lower bound estimates are still statistically significant, we find strong evidence supporting hypothesis 1 that organizational policies narrow the gender wage gap.

Changing the Composition of the Workforce or the Wages of Current Employees?

Increasing the number of organizational practices that promote gender equality could affect the gender wage gap inside a firm in at least five ways. First, having a more gender-equal workplace might narrow the intrafirm gender wage gap by sensitizing HR to gender equality, resulting in, for example, reduced discriminatory behavior. Second, organizational practices that promote gender equality might help the firm attract more female applicants or cause HR to hire more female applicants, thus changing the composition of the workforce. This compositional change might narrow intrafirm gender inequalities in wages. Third, a higher number of organizational practices that promote gender equality might lead to a lower gender wage gap in a firm among current staff. Fourth, a higher number of organizational practices that promote gender equality might lead to more promotions for women than for men, contributing to a narrower intrafirm gender wage gap. Fifth, a higher number of organizational practices might result in women staying longer in a firm, reducing the outflow of potentially highly qualified female employees. If turnover of women with high earnings potential is reduced, this could also lead to a decrease of the gender wage gap within firms. For brevity, we rely on fixed-effects estimations with control variables when we investigate these channels; that is, we estimate the lower bounds of the effects. The upper bound effects for all specifications can be found in Table A6 in the online supplement, and the results are similar to the lower bound effects.

First, to investigate whether organizational policies that promote gender equality narrow the gender wage gap in firms for new hires, we focus on employees with less than 365 days of tenure. Column 1 of Table 5 shows that organizational policies do not affect the intrafirm gender wage gap among newly hired employees. This result is evidence against hypothesis 2a, which states that organizational policies narrow the gender wage gap inside of a firm among newly hired employees. This finding implies that organizational policies lead to neither a reduction in wage discrimination during the hiring process nor a more qualified pool of female hires who are rewarded monetarily for their productivity.

Second, we analyze whether organizational practices that promote gender equality lead to more female new hires in a firm. Even when, as shown in the previous estimation, the intrafirm gender wage gap for new hires does not decrease, it could nevertheless be the case that firms hire more women and that discrimination in hiring but not wage discrimination is reduced by the presence of female-friendly organizational policies. For this analysis, we regress the gender of new hires made in the last 365 days on the number of organizational practices that promote gender equality and the control variables at the individual and firm levels. Organizational policies that promote gender equality do not affect the gender of new hires (Table 5, column 2). These results are consistent for highly qualified and less qualified new hires (Table A7 in the online supplement). Table A8 in the online supplement shows that these policies also do not influence the type of hires made in the last 365 days when calculated at the firm level, that is, the share of female new hires (column 1), the share of full-time female new hires (column 2), the share of part-time female new hires (column 3), or the share of part-time new hires (column 4). Thus, our

Table 5: Disentangling the effect of organizational policies on current staff and new hires

	(1)	(2)	(3)	(4)	(5)
	Wages for new hires	Female gender of new hires	Wages for current staff	Promotions for current staff	Female gender of an outflow
Female	$-0.142^\dagger$ (0.012)		$-0.126^\dagger$ (0.004)	$-0.030^\dagger$ (0.003)	
Organizational policies	-0.002 (0.005)	-0.002 (0.005)	0.004 (0.003)	-0.030^* (0.012)	-0.002 (0.004)
Female × Organizational policies	0.005 (0.006)		$0.011^\dagger$ (0.003)	$0.029^\dagger$ (0.007)	
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	54,365	54,365	902,082	673,519	85,442
Firms	1,363[a]	1,363[a]	1,415	1,415	1,373[b]

Notes: For column 1, the dependent variable is log daily wages, and the sample is restricted to new hires, that is, employees with a tenure of less than 365 days. The fixed-effects regression includes the same control variables as in column 2 of Table 4. For column 2, the dependent variable is the female gender dummy, which equals 1 for women and 0 for men. The sample is restricted to new hires with a tenure of less than 365 days. The control variables are the individual- and firm-level variables described in the notes to Table 4. The interaction effects with the female dummy are not included because the female dummy is the dependent variable. For column 3, the dependent variable is log daily wages, and the sample is restricted to employees with a tenure of more than 365 days. The fixed-effects regression includes the same control variables as in column 2 of Table 4. In column 4, the dependent variable is the dummy variable indicating the promotion of an employee, and the sample is restricted to employees with a tenure of more than 365 days and excludes the period 2004. The fixed-effects regression includes the same control variables as in column 3. In column 5, the dependent variable is the female gender dummy, and the sample focuses on current staff, that is, employees with more than 365 days of tenure who leave the firm during the next 365 days. The control variables are the individual- and firm-level variables described in the notes to Table 4. The interaction effects with the female dummy are not included because the female dummy is the dependent variable. For the lower bound regressions without control variables, see Table A6 in the online supplement. [a]The number of firms is less than 1,415 in the new hires specifications because some firms did not hire any new full-time employees in the last 365 days during the observed years. [b]The number of firms is less than 1,415 in the exiting employees specification because some firms did not have any full-time employees exit the firm in the following 365 days during the observed years. The standard errors are clustered at the firm level and shown in parentheses. $* p < 0.05$; $\dagger p < 0.01$ (two-tailed t tests). *Source:* Own calculations using the LIAB QM2 9319.

results are evidence against hypothesis 2b, which states that substantial changes in the composition of a firm's workforce contribute to narrower gender wage gaps in firms. Overall, we do not find that organizational policies have an effect on the intrafirm gender wage gap among new hires or on the composition of the newly hired workforce. These results imply that organizational policies affect neither the composition of the pool of applicants nor decisions or discriminatory behavior by HR regarding hires.

Third, we restrict our sample to current staff, that is, we exclude new hires with less than 365 days of tenure, to test whether organizational practices that promote

gender equality affect the intrafirm gender wage gap among current staff. Table 5 shows that having a higher number of these practices is associated with a lower intrafirm gender wage differential among current staff (column 3). These results provide evidence in support of hypothesis 3a, which states that organizational practices narrow the intrafirm gender wage gap among current staff.

Fourth, we explore promotions as a potential path to achieving higher wages for female employees. We regress a dummy for whether an employee has been promoted on the number of policies that promote gender equality and the control variables for employees with a tenure of at least 365 days (Table 5, column 4). We find that organizational policies influence the promotions of female employees. This finding is robust to a stricter measurement of promotions (Table A9, column 2, in the online supplement). Thus, we find evidence for hypothesis 3b, which states that organizational practices reduce the gender wage gap inside of firms by leading to more promotions of female employees. Additionally, note that, in this case, the advancement of women is compensated for by a negative effect for men, which is arguably mechanical: if the number of promotions remains constant overall, promoting more women mechanically leads to fewer promotions of men.

Fifth, we investigate whether organizational policies reduce the number of exiting female employees (Table 5, column 5). We find no effect of these policies on outflows. These results are robust for highly qualified and non–highly qualified outflows (Table A10 in the online supplement). Table A11 in the online supplement shows that organizational policies also do not influence outflows in the last 365 days calculated at the firm level, such as the female share of outflows (column 1), the female share of full-time outflows (column 2), the female share of part-time outflows (column 3), and the share of part-time outflows (column 4). Thus, our results suggest that organizational policies do not affect workforce composition among current employees. Overall, we find that organizational policies reduce the intrafirm gender wage gap among current staff, for example, by resulting in more female employees being promoted.

Addressing Challenges to Identification

A potential source of unobserved heterogeneity is firm-level female friendliness. Firm fixed effects account for unobserved time-invariant heterogeneity at the firm level that affects men and women in the same way (Hensvik 2014). If a firm is more female friendly regardless of how many formal organizational practices that promote gender equality it implements, this characteristic will not be captured by firm fixed effects. Hensvik (2014) suggests the use of firm-by-female fixed effects to capture gender-specific unobserved time-invariant heterogeneity at the firm level. In this estimation, we obtain within-gender within-firm estimates of our coefficients of interest. When including these fixed effects, organizational practices become statistically insignificant, although they border the typical five percent threshold for significance ($p = 0.079$) (Table 6, column 1). For large firms, that is, firms with more than 100 employees on average, we find a statistically significant narrowing effect of organizational policies on the gender wage gap (Table A12, column 2, in the online supplement). This effect might be explained by the higher intrafirm variance

Table 6: Female friendliness, match fixed effects, and reverse causality

	(1)	(2)	(3)	(4)
			Controlling for	
	Firm-by-female fixed effects	Match fixed effects	Lagged firm profitability	Lagged organizational policies
Organizational policies	0.005 (0.003)	0.005* (0.003)	−0.001 (0.003)	
Female × Organizational policies	0.006 (0.003)	0.005 (0.003)	0.011† (0.003)	
Lagged organizational policies				0.002 (0.004)
Female × Lagged organizational policies				0.012† (0.004)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	Yes	Yes
Female-by-firm fixed effects	Yes	No	No	No
Match fixed effects	No	Yes	No	No
Observations	956,447	956,447	716,299	716,299
Firms	1,415	1,415	1,415	1,415

Notes: For columns 1 to 4, the dependent variable is log daily wages. The fixed-effects regressions include the same control variables as in column 2 of Table 4. For column 1, the model includes firm-by-female fixed effects instead of firm fixed effects. The model in column 2 controls for match fixed effects, which represent employee–firm matches. In column 3, we control for lagged firm profitability instead of current period profitability, that is, profitability in 2004 for observations in 2008. For columns 3 and 4, the sample is restricted to the years 2008, 2012, and 2016. The lagged organizational practices are the organizational practices in the previous period, that is, the organizational practices from 2004 for observations from 2008. The number of observations is lower because we exclude 2004, the first period. The models in columns 3 and 4 also includes firm fixed effects. The standard errors are clustered at the firm level and shown in parentheses. $* \ p < 0.05$; † $p < 0.01$ (two-tailed t tests). Source: Own calculations using the LIAB QM2 9319.

in organizational policies for larger firms. Thus, although the coefficient decreases in magnitude, we still find that organizational policies narrow gender wage gaps when accounting for a firm's female friendliness.

We use the match fixed effects to estimate wage changes over time for employees inside a firm, an even stricter approach than the aforementioned firm-by-female fixed effects. A match fixed effect represents the combination of an employee and a firm (Woodcock 2008). Thus, we focus on the within-firm variance in wage differences for an individual resulting from differences in the number of organizational practices that promote gender equality in the same firm. When using match fixed effects, organizational practices no longer significantly influence the wage gap ($p = 0.091$) (Table 6, column 2). Similar to when female-by-firm fixed effects are used, we find a statistically significant negative influence of organizational practices on the intrafirm wage differential for large firms (Table A12, column 4, in the online supplement). This result reinforces the conclusion that wage changes for current

staff drive the narrowing effect of organizational policies on the gender wage gap inside firms.

In the next step, we address potential problems of reverse causality. Although we assume that organizational practices narrow the gender wage gap, the true relationship could be the reverse. Firms in which women have more power and thus a lower wage differential might more often introduce organizational practices that promote gender equality (Van der Lippe et al. 2019). To take this reverse causality into account, we first analyze whether the implementation of organizational policies is predated by changes in employee codetermination, that is, the presence of works councils or collective agreements, or by changes in female negotiating power, that is, the female share of employees or a lower intrafirm wage gap (Table A13 in the online supplement). Additionally, we also investigate whether the success and growth of a firm, that is, increasing wages, increasing number of employees, or increasing profitability, predate changes in organizational practices (Table A14 in the online supplement).

We regress the number of organizational policies on a lagged indicator, such as the female share of employees in 2004 for observations in 2008, and the control variables. Because we use fixed effects at the firm level, we measure intrafirm changes. We do not find any evidence for reverse causality except for firm profitability in the previous period (Tables A13 and A14 in the online supplement). Controlling for lagged firm profitability instead of current profitability does not affect our results (Table 6, column 3).

Second, to ensure that changes in the number of policies predate changes in gender inequalities, we use regressions with a lagged variable for organizational practices, such as organizational policies in 2004 for the observations in 2008. Our results are very similar to our main results in Table 4, column 2, when we use these lagged variables (Table 6, column 4). In summary, we do not find evidence that reverse causality biases our results, but we cannot rule out all potential channels.

Robustness Checks

After addressing potential challenges to our identification strategy, we perform further robustness checks. Because we aggregate different kinds of practices that promote gender equality into an index, we test the robustness of our index in three ways. First, we consider dummies for the number of organizational policies to investigate whether their influence on gender wage inequalities is linear. Figure A1 in the online supplement shows that this effect is linear in the upper bound regressions. The lower bound regressions follow a trend similar to that of the upper bound regressions except for a dip in the presence of three organizational policies. Thus, organizational practices have an approximately linear influence on the intrafirm gender wage gap.

Second, we use dummies for each individual organizational practice (Table A15, column 1, in the online supplement). We find that "Other measures" narrow the gender wage differential in firms and that the influence of "workplace childcare facilities" is barely not statistically significant ($p = 0.098$). The other two organizational practices that promote gender equality, that is, "Parental leave"

and "Targeted promotion of women," do not statistically significantly influence the intrafirm gender wage differential, but the coefficients on all of the organizational policies are positive and are not statistically significantly different from each other. Because, theoretically, the sum of the policies is more important than the individual policies, this result is in line with theory and is similar to the results obtained by Van der Lippe et al. (2019), who find a statistically significant coefficient at the five percent level for one out of five practices.

Third, the survey included two additional work–life balance practices in the 2012 and 2016 waves: "Flexible working hours for employees with care responsibilities" and "Support for employees with relatives who require care." The main results are robust to the use of an index for all six organizational practices that promote gender equality and to the use of a sample restricted to 2012 and 2016 (Table A15, column 2, in the online supplement). Fourth, we construct a work–life balance practices index following Van der Lippe et al. (2019). This index includes three dependent care policies and one flexibility policy and is calculated on the years 2012 and 2016. The results for all practices (Table A15, column 2, in the online supplement) and for work–life balance practices only (Table A15, column 3, in the online supplement) are very similar. Thus, we assume that aggregating multiple kinds of policies together does not influence our results.

Due to the fact that large firms have more organizational policies, we investigate heterogeneities by firm size. We find that organizational policies affect the intrafirm gender wage gap only in large firms (Table A16, columns 1 and 2, in the online supplement). This finding might be explained by the high costs of these practices, especially for small firms. We also check whether the financial crisis in 2008 affects our results. In the graphical trend (Figure 3), we see that the wage gaps and the number of organizational policies stagnate between 2004 and 2008 and change in 2012 and 2016. To ensure that the financial crisis does not affect our results, we split the sample into the years 2004 and 2008 as well as the years 2012 and 2016. We find that organizational policies influence gender gaps in the 2012-and-2016 subsample, and we find a coefficient of similar size (0.013 for 2012 and 2016 and 0.010 for 2004 and 2008) that is marginally statistically not significant for the 2004-to-2008 subsample ($p = 0.065$) (Table A16, columns 3 and 4, in the online supplement). Thus, the financial crisis does not bias our results.

Women at the top or bottom of the wage distribution might benefit from organizational policies differently than their peers in the middle of the distribution due to the glass ceiling and the sticky floor. Huffman et al. (2017) suggest that the effects of practices that promote gender equality on female wages are especially strong among low-income women. We approximate this nonlinearity by splitting the sample into employees with and without a university degree, as educational qualifications and job sorting are tightly linked in Germany (DiPrete and McManus 1996). Thus, employees with lower educational qualifications on average work in less-qualified jobs that usually pay less. We find that organizational policies influence gender wage differentials in firms among less-qualified employees. For highly qualified employees, organizational policies do not significantly narrow the gender wage gap ($p = 0.078$) (Table A17, columns 1 and 2, in the online supple-

ment). Thus, in line with previous research for Germany (Huffman et al. 2017), we find an especially strong effect among low-income women.

We focus on full-time employees due to a lack of information about working hours. Part-time employment is especially important for women because approximately 33.7 percent of women in our sample firms work part-time, but only approximately 2.5 percent of men are employed part-time. Our results are robust to the inclusion of part-time employees and to controlling for part-time employment (Table A17, column 3, in the online supplement). Because our results are robust to the inclusion of part-time employment and because Van der Lippe et al. (2019) find similar results when using hourly and monthly wages, we assume that our findings can be generalized to the overall population of employees.

Conclusion

Although scholars have long assumed that organizational policies that promote gender equality narrow inequalities (e.g., Cohen and Huffman 2007; Friedman and Galinsky 1992), research regarding this topic is rare, and intrafirm insights are limited to those obtained from cross-sectional data. This article is the first to address this omission by investigating the role of organizational practices that promote gender equality in reducing intrafirm gender inequalities in wages. To do so, we use longitudinal linked employer–employee data and account for a large number of potential confounders, including time-invariant unobserved heterogeneity and several cases of reverse causality. We theorize that female-friendly organizational policies could decrease the gender wage gap in firms either by changing the composition of firm hires or by advancing women within a firm, either through wage increases or through an increased probability of promotion. Although previous studies have proposed these mechanisms, we are the first study to disentangle them empirically. We investigate these hypotheses using firm fixed-effects regression models with almost 1,500 private-sector firms and nearly one million employee observations from Germany.

We find that introducing one additional organizational policy narrows the intrafirm gender wage gap on average by 1.1 PP or approximately nine percent according to our most conservative estimates. This indicates that the importance of organizational policies for determining gender wage gaps is the same in magnitude as the contribution of certain individual characteristics, such as personality traits (Collischon 2021; Nyhus and Pons 2012) and overwork (Cha and Weeden 2014), as both sets of characteristics explain approximately 8 to 11 percent of the gender wage gap. On the firm level, organizational practices are as important as occupational segregation, which explains approximately nine percent of the gender wage gap (Ludsteck 2014), or a 10-PP increase in the share of female second-level managers (Zimmermann 2021). Thus, the contribution of organizational policies to the gender wage gap is substantial and is as decisive for gender inequalities as occupational segregation. However, in contrast to occupational segregation, organizational practices have received little attention in the public debate to date.

We further disentangle the influence of organizational policies on gender wage inequalities by separately investigating the effects of these policies on new hires and

on current staff. Regarding the effects on new hires, we cannot find an influence of organizational practices on the gender wage gap in firms or on the probability of hiring women. Thus, we do not find that organizational policies exert an influence on the intrafirm gender wage gap or a firm's structural composition. This is novel evidence against the theoretical channel that organizational policies change the hiring practices of HR departments or influence the application behavior of women. For example, potential hires might not be aware of organizational policies within firms and thus do not change their application behavior in response to those policies.

For current staff, our analyses show that the negative effect of organizational policies on the gender wage gap is driven entirely by wage increases for current female employees. We do not find that these policies have a negative influence on the wages of currently employed men, suggesting that the gain for women does not simply represent a redistribution away from male employees. Our results show that this reduction in the gender wage gap coincides with a higher probability of promotion for current female employees in a firm. These results provide evidence for certain theoretical channels: women might negotiate their wages more often, and the stereotyping of women by supervisors might decrease. Furthermore, analyses of heterogeneities reveal that the effects are especially concentrated among large firms (with more than 100 employees) as well as among less-qualified employees. Robustness checks show that potential sources of bias such as reverse causality, a firm's female friendliness, or other sources of bias do not explain our results.

Our results provide the first longitudinal evidence supporting previous findings that organizational policies are correlated with smaller gender wage gaps. For Germany, Huffman et al. (2017) show that these policies are associated with narrower gender wage gaps in firms, especially among low-paid employees. Using data from nine European countries, Van der Lippe et al. (2019) also find a correlation between work–life balance practices and a narrowing gender wage gap. Our basic results are in line with these previous cross-sectional studies on nine different European countries, indicating that our results are generalizable.

Although our data offer a unique opportunity to investigate the influence of organizational policies on the gender wage gap, we have to address four limitations. First, our data contain information on organizational practices every four years only. Gaining a more subtle picture of the effects of such practices through higher-frequency data on this topic would further advance our understanding of the gender dynamics within organizations. Second, the organizational policy categories that we observe are relatively crude. More data are needed regarding specific practices in order to investigate which practices are the most effective. Third, informal practices might affect whether formal organizational policies influence gender inequalities. In previous cross-sectional research, the association between work–life policies and the gender wage gap is robust to the consideration of informal policies (Van der Lippe et al. 2019). This robustness indicates that our our results could also be robust to the inclusion of informal policies. Fourth, although we can credibly rule out various sources of bias in our analysis, it would nevertheless be beneficial to investigate potential reforms that led to the introduction of organizational practices and thus obtain evidence from natural experiments to find truly causal evidence on the effects of organizational practices through the use of exogenous variation.

Our study suggests avenues for further research. First, analyzing the potential effects of organizational policies on hiring behavior and the pool of applicants would deepen our understanding of the mechanisms at work. Although according to signaling theory, organizational policies should affect the gender wage gap by changing hiring practices, we do not find that these policies have an influence on whether women are hired or whether more qualified women are hired. Because we measure only realized hires, we cannot distinguish between effects on applicants and effects on HR behavior. Further research could look more deeply inside the black box of hiring processes and shed light on the effect of organizational policies from the perspective of HR departments as well as that of potential applicants. Second, we focus on the presence of organizational policies at the firm level but not on the uptake of these policies by employees. Previous research has documented that the use of work–life balance policies is associated with higher gender inequality (e.g., Glass 2004) because it is mostly women who use these policies (Kossek, Lautsch, and Eaton 2006), and employees who use these policies might be seen by managers as less motivated (Kirby and Krone 2002). Investigating the interplay between the presence of organizational policies and individual uptake on gender inequalities in firms would be helpful for deepening our understanding of the association between organizational policies and gender inequalities. Third, investigating the heterogeneity between subgroups could uncover further important variation in the effects of organizational practices. For example, motherhood is closely linked to career advancement (Budig and England 2001; Kleven et al. 2019). Bächmann et al. (2020b), for example, find that organizational policies can reduce employment interruptions for women, which could also affect gender wage gaps. Thus, estimating the effects and interplay of organizational practices and motherhood is an important endeavor for future research.

Regarding policy implications, our study shows that organizational practices practices are not merely window dressing and can be a tool for decreasing gender inequality in the labor market. Thus, to further reduce gender gaps, policymakers could work to advance such policies at the firm level. Promoting such policies seems especially beneficial, as organizational policies do not affect the wages of men negatively; that is, they do not lead to a redistribution among groups of employees but rather provide a net benefit for women without drawbacks (with the [somewhat mechanical] exception of promotions). Laws such as the German law for pay transparency (Entgelttransparenzgesetz) that was introduced in 2018 and requires large employers to inform employees of gender wage disparities in their occupation within the firm upon request, for example, could nudge firms toward introducing policies such as those studied here in order to reduce the gender inequalities in wages.

Notes

1 The literature sometimes also uses the term *organizational practices*. We use both terms interchangeably.

2 Some studies have analyzed the association between these policies and gender wage inequalities using individual-level data (e.g., Weeden 2005). Because we analyze the

inequalities inside organizations, we focus on the literature that uses linked employer–employee data.

3 A related strand of literature investigates the effect of female managers on gender wage gaps (e.g., Srivastava and Sherman 2015) and whether organizational practices mediate or moderate the influence of female managers on gender wage gaps (e.g., Abendroth et al. 2017; Zimmermann 2021). Theoretically, female managers could also affect the implementation of organizational practices, and thus, these practices could be a channel through which the effect occurs. However, in this article, we focus only on the direct relation between organizational practices and gender wage gaps and thus abstain from a broader discussion of the role of female managers, as a comprehensive literature on this topic already exists.

4 The Research Data Centre of the Federal Employment Agency at the IAB (`https://fdz.iab.de/en/startseite-en/`) provides the LIAB QM2 9319.

5 Civil servants, family workers, students, and self-employed individuals are not part of this data set because they do not contribute to social security in Germany.

6 The shares are calculated using the employee data in the Establishment History Panel (BHP). The log firm size, the dummy for being located in East Germany, and the industry sectors are drawn from the BHP. See Schmucker et al. (2018) for more information regarding this data set. The remaining employer-level variables are taken from the survey data in the LIAB.

7 The influence on the intrafirm gender wage gap in our estimation can be calculated as follows: Effect of organizational practices on gender wage gap in firms/intrafirm gender wage gap = Female $\times$ Organizational practices/Female = (exp(0.019)-1)/(exp(-0.137)-1) = -15.0 percent.

References

Abendroth, Anja-K., Silvia Melzer, Alexandra Kalev, and Donald Tomaskovic-Devey 2017. "Women at Work: Women's Access to Power and the Gender Earnings Gap." *ILR Review* 70(1):190–222. `https://doi.org/10.1177/0019793916668530`.

Acker, Joan. 1998. "The Future of 'Gender and Organizations': Connections and Boundaries." *Gender, Work & Organization* 5(4):195–206. `https://doi.org/10.1111/1468-0432.00057`.

Acker, Joan. 2012. "Gendered Organizations and Intersectionality: Problems and Possibilities." *Equality, Diversity and Inclusion: An International Journal* 31(3):214–24. `https://doi.org/10.1108/02610151211209072`.

Anger, Silke. 2005. "Working Time as an Investment? The Effects of Unpaid Overtime on Wages, Promotions, and Layoffs." DIW Discussion Papers No. 535. Berlin: Deutsches Institut für Wirtschaftsforschung (DIW). `https://www.econstor.eu/handle/10419/18386`.

Auspurg, Katrin, Thomas Hinz, and Carsten Sauer. 2017. "Why Should Women Get Less? Evidence on the Gender Pay Gap from Multifactorial Survey Experiments." *American Sociological Review* 82(1):179–210. `https://doi.org/10.1177/0003122416683393`.

Avent-Holt, D., and D. Tomaskovic-Devey. 2012. "Relational Inequality: Gender Earnings Inequality in U.S. and Japanese Manufacturing Plants in the Early 1980s." *Social Forces* 91(1):157–80. `https://doi.org/10.1093/sf/sos068`.

Babcock, Linda, and Sara Laschever. 2009. *Women Don't Ask: Negotiation and the Gender Divide*. Princeton University Press.

Bächmann, Ann-Christin, Corinna Frodermann, Daniela Grunow, Marina Hagen, and Dana Müller. 2020a. "Family-Friendly Organizational Arrangements – Anything but 'a Fuss' (over Nothing)!" *IAB-Forum: The Magazine of the Institute for Employment Resesarch*, February 20. Retrieved May 17, 2022. https://www.iab-forum.de/en/family-friendly-organizational-arrangements-anything-but-a-fuss-over-nothing/.

Bächmann, Ann-Christin, Corinna Frodermann, and Dana Müller. 2020b. "Does the Firm Make the Difference? The Influence of Organizational Family-Friendly Arrangements on the Duration of Employment Interruptions after Childbirth." *European Sociological Review* 36(5):798–813. https://doi.org/10.1093/esr/jcaa016.

Baron, James N., and William T. Bielby. 1980. "Bringing the Firms Back in: Stratification, Segmentation, and the Organization of Work." *American Sociological Review* 45(5):737–65. https://doi.org/10.2307/2094893.

Becker, Gary Stanley. 1957. *The Economics of Discrimination*. Economics Research Studies of the Economics Research Center of the University of Chicago. University of Chicago Press.

Blau, Francine D., and Lawrence M. Kahn. 2017. "The Gender Wage Gap: Extent, Trends, and Explanations." *Journal of Economic Literature* 55(3):789–865. https://doi.org/10.1257/jel.20160995.

Blossfeld, Hans-Peter. 1987. "Labor-Market Entry and the Sexual Segregation of Careers in the Federal Republic of Germany." *American Journal of Sociology* 93(1):89–118. https://doi.org/10.1086/228707.

Boll, Christina, and Andreas Lagemann. 2018. "Gender Pay Gap im öffentlichen Dienst und in der Privatwirtschaft." *Wirtschaftsdienst* 98(7):528–30. https://doi.org/10.1007/s10273-018-2326-3.

Budig, Michelle J., and Paula England. 2001. "The Wage Penalty for Motherhood." *American Sociological Review* 66(2):204–25. https://doi.org/10.2307/2657415.

Bundesministerium des Innern. 2014. *Der öffentliche Dienst des Bundes*. Berlin: Bundesministerium des Innern. https://www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/oeffentlicher-dienst/oed.pdf?__blob=publicationFile&v=5.

Butts, Marcus M., Wendy J. Casper, and Tae Seok Yang. 2013. "How Important Are Work–Family Support Policies? A Meta-analytic Investigation of Their Effects on Employee Outcomes." *Journal of Applied Psychology* 98(1):1–25. https://doi.org/10.1037/a0030389.

Card, David, Ana Rute Cardoso, and Patrick Kline. 2016. "Bargaining, Sorting, and the Gender Wage Gap: Quantifying the Impact of Firms on the Relative Pay of Women." *Quarterly Journal of Economics* 131(2):633–86. https://doi.org/10.1093/qje/qjv038.

Card, David, Jörg Heining, and Patrick Kline. 2013. "Workplace Heterogeneity and the Rise of West German Wage Inequality." *Quarterly Journal of Economics* 128(3):967–1015. https://doi.org/10.1093/qje/qjt006.

Cha, Youngjoo, and Kim A. Weeden. 2014. "Overwork and the Slow Convergence in the Gender Gap in Wages." *American Sociological Review* 79(3):457–84. https://doi.org/10.1177/0003122414528936.

Cohen, Philip N., and Matt L. Huffman. 2007. "Working for the Woman? Female Managers and the Gender Wage Gap." *American Sociological Review* 72(5):681–704. https://doi.org/10.1177/000312240707200502.

Collischon, Matthias. 2021. "Personality Traits as a Partial Explanation for Gender Wage Gaps and Glass Ceilings." *Research in Social Stratification and Mobility* 73:100596. https://doi.org/10.1016/j.rssm.2021.100596.

Collischon, Matthias, and Andreas Eberl. 2021. "Social Capital as a Partial Explanation for Gender Wage Gaps." *British Journal of Sociology* 72(3):757–73. https://doi.org/10.1111/1468-4446.12833.

Davis, Amy E., and Arne L. Kalleberg. 2006. "Family-Friendly Organizations? Work and Family Programs in the 1990s." *Work and Occupations* 33(2):191–223. https://doi.org/10.1177/0730888405280446.

Dauth, Wolfgang, and Johann Eppelsheimer. 2020. "Preparing the Sample of Integrated Labour Market Biographies (SIAB) for Scientific Analysis: A Guide." *Journal for Labour Market Research* 54(1):10. https://doi.org/10.1186/s12651-020-00275-9.

DeStatis. 2020. "Gender Pay Gap 2019: Verdienstunterschied zwischen Männern und Frauen erstmals unter 20 %." Wiesbaden: DeStatis, news release, December 8. https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/12/PD20_484_621.html.

DiPrete, Thomas A., and Patricia A. McManus. 1996. "Institutions, Technical Change, and Diverging Life Chances: Earnings Mobility in the United States and Germany." *American Journal of Sociology* 102(1):34–79. https://doi.org/10.1086/230908.

Dittrich, Marcus, Andreas Knabe, and Kristina Leipold. 2014. "Gender Differences in Experimental Wage Negotiations." *Economic Inquiry* 52(2):862–73. https://doi.org/10.1111/ecin.12060.

Ellguth, Peter, Susanne Kohaut, and Iris Möller. 2014. "The IAB Establishment Panel—Methodological Essentials and Data Quality." *Journal for Labour Market Research* 47(1–2):27–41. https://doi.org/10.1007/s12651-013-0151-0.

Elwert, Felix, and Christopher Winship. 2014. "Endogenous Selection Bias: The Problem of Conditioning on a Collider Variable." *Annual Review of Sociology* 40:31–53. https://doi.org/10.1146/annurev-soc-071913-043455.

England, Paula, Jonathan Bearak, Michelle J. Budig, and Melissa J. Hodges. 2016. "Do Highly Paid, Highly Skilled Women Experience the Largest Motherhood Penalty?" *American Sociological Review* 81(6):1161–89. https://doi.org/10.1177/0003122416673598.

England, Paula, Andrew Levine, and Emma Mishel. 2020. "Progress toward Gender Equality in the United States Has Slowed or Stalled." *Proceedings of the National Academy of Sciences of the United States of America* 117(13):6990–97. https://doi.org/10.1073/pnas.1918891117.

Eurostat. 2022. "Gender Pay Gap Statistics." https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Gender_pay_gap_statistics.

Friedman, Dana E., and Ellen Galinsky. 1992. "Work and Family Issues: A Legitimate Business Concern." Pp. 168–207 in *Work, Families, and Organizations*, edited by S. Zedeck. San Francisco, CA: Jossey-Bass.

Glass, Jennifer. 2004. "Blessing or Curse?" *Work and Occupations* 31(3):367–94. https://doi.org/10.1177/0730888404266364.

Goldberg, Caren B., and David G. Allen. 2008. "Black and White and Read All Over: Race Differences in Reactions to Recruitment Web Sites." *Human Resource Management* 47(2):217–36. https://doi.org/10.1002/hrm.20209.

Hensvik, Lena E. 2014. "Manager Impartiality: Worker–Firm Matching and the Gender Wage Gap." *ILR Review* 67(2):395–421. https://doi.org/10.1177/001979391406700205.

Hinz, Thomas, and Hermann Gartner. 2005. "Geschlechtsspezifische Lohnunterschiede in Branchen, Berufen und Betrieben" (The Gender Wage Gap within Economic Sectors, Occupations, and Firms). *Zeitschrift für Soziologie* 34(1):22–39. https://doi.org/10.1515/zfsoz-2005-0102.

Hübler, Olaf, Robert A. Hart, David N. F. Bell, and Wolfgang Schwerdt. 2000. "Paid and Unpaid Overtime Working in Germany and the UK." IZA Discussion Papers No. 133. Bonn: Institute for the Study of Labor (IZA). https://www.econstor.eu/handle/10419/20972.

Huffman, Matt L., Joe King, and Malte Reichelt. 2017. "Equality for Whom? Organizational Policies and the Gender Gap across the German Earnings Distribution." *ILR Review* 70(1):16–41. https://doi.org/10.1177/0019793916673974.

Imbens, Guido W., and Jeffrey M. Wooldridge. 2009. "Recent Developments in the Econometrics of Program Evaluation." *Journal of Economic Literature* 47(1):5–86. https://doi.org/10.1257/jel.47.1.5.

Kalev, Alexandra, Frank Dobbin, and Erin Kelly. 2006. "Best Practices or Best Guesses? Assessing the Efficacy of Corporate Affirmative Action and Diversity Policies." *American Sociological Review* 71(4):589–617. https://doi.org/10.1177/000312240607100404.

Kaplan, David M. 2006. "Can Diversity Training Discriminate? Backlash to Lesbian, Gay, and Bisexual Diversity Initiatives." *Employee Responsibilities and Rights Journal* 18(1):61–72. https://doi.org/10.1007/s10672-005-9005-4.

Kirby, Erika, and Kathleen Krone. 2002. " 'The Policy Exists but You Can't Really Use It': Communication and the Structuration of Work–Family Policies." *Journal of Applied Communication Research* 30(1):50–77. https://doi.org/10.1080/00909880216577.

Kleven, Henrik, Camille Landais, and Jakob Egholt Søgaard. 2019. "Children and Gender Inequality: Evidence from Denmark." *American Economic Journal: Applied Economics* 11(4):181–209. https://doi.org/10.1257/app.20180010.

Kohaut, Susanne, and Iris Möller. 2009. "Vereinbarungen zur Chancengleichheit: Kaum Fortschritte bei der betrieblichen Förderung." IAB-Kurzbericht No. 26/2009. Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung (IAB). https://www.econstor.eu/handle/10419/158313.

Kossek, Ellen Ernst, Brenda A. Lautsch, and Susan C. Eaton. 2006. "Telecommuting, Control, and Boundary Management: Correlates of Policy Use and Practice, Job Control, and Work–Family Effectiveness." *Journal of Vocational Behavior* 68(2):347–67. https://doi.org/10.1016/j.jvb.2005.07.002.

Ludsteck, Johannes. 2014. "The Impact of Segregation and Sorting on the Gender Wage Gap: Evidence from German Linked Longitudinal Employer–Employee Data." *ILR Review* 67(2):362–94. https://doi.org/10.1177/001979391406700204.

Lundberg, Ian, Rebecca Johnson, and Brandon M. Stewart. 2021. "What Is Your Estimand? Defining the Target Quantity Connects Statistical Evidence to Theory." *American Sociological Review* 86(3):532–65. https://doi.org/10.1177/00031224211004187.

Munn, Sunny L., and Tomika W. Greer. 2015. "Beyond the 'Ideal' Worker: Including Men in Work–Family Discussions." Pp. 21–38 in *Gender and the Work–Family Experience*, edited by M. J. Mills. Cham: Springer International Publishing.

Nyhus, Ellen K., and Empar Pons. 2012. "Personality and the Gender Wage Gap." *Applied Economics* 44(1):105–18. https://doi.org/10.1080/00036846.2010.500272.

Oberfichtner, Michael, Claus Schnabel, and Marina Töpfer. 2020. "Do Unions and Works Councils Really Dampen the Gender Pay Gap? Discordant Evidence from Germany." *Economics Letters* 196:109509. https://doi.org/10.1016/j.econlet.2020.109509.

Organisation for Economic Co-operation and Development (OECD). 2022. "Gender Wage Gap." OECD Data. Retrieved August 30, 2022. https://data.oecd.org/earnwage/gender-wage-gap.htm.

Pergamit, Michael R., and Jonathan R. Veum. 1999. "What Is a Promotion?" *ILR Review* 52(4):581–601. https://doi.org/10.1177/001979399905200405.

Pfeifer, Christian. 2010. "Determinants of Promotions in an Internal Labour Market." *Schmalenbach Business Review* 62(4):342–58. https://doi.org/10.1007/BF03396810.

Rabe-Hesketh, Sophia, and Anders Skrondal. 2012. *Multilevel and Longitudinal Modeling Using Stata.* 3rd ed. College Station, TX: Stata Press.

Reskin, Barbara. 1993. "Sex Segregation in the Workplace." *Annual Review of Sociology* 19:241–70. https://doi.org/10.1146/annurev.so.19.080193.001325.

Reskin, Barbara and Patricia A. Roos. 1990. *Job Queues, Gender Queues: Explaining Women's Inroads into Male Occupations*. Philadelphia: Temple University Press.

Ridgeway, Cecilia L. 2001. "Gender, Status, and Leadership." *Journal of Social Issues* 57(4):637–55. https://doi.org/10.1111/0022-4537.00233.

Rivera, Lauren A. 2020. "Employer Decision Making." *Annual Review of Sociology* 46(1):215–32. https://doi.org/10.1146/annurev-soc-121919-054633.

Ruf, Kevin, Lisa Schmidtlein, Stefan Seth, Heiko Stüber, and Matthias Umkehrer. 2021a. "Linked-Employer-Employee-Data of the IAB (LIAB): LIAB Cross-sectional Model 2 1993–2019, Version 1." Nürnberg: Research Data Centre (FDZ) of the Federal Employment Agency (BA) at the Institute for Employment Research (IAB). https://doi.org/10.5164/IAB.LIABQM29319.de.en.v1.

Ruf, Kevin, Lisa Schmidtlein, Stefan Seth, Heiko Stüber, and Matthias Umkehrer. 2021b. "Linked Employer–Employee Data from the IAB: LIAB Cross-sectional Model 2 (LIAB QM2) 1993-2019." FDZ-Datenreport 03/2021. Nürnberg: Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB). https://doi.org/10.5164/IAB.FDZD.2103.en.v1.

Schmucker, Alexandra, Johanna Eberle, Andreas Ganzer, Jens Stegmaier, Jens, and Matthias Umkehrer. 2018. "Establishment History Panel 1975–2016." FDZ-Datenreport 1/2018. Nürnberg: Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB). https://doi.org/10.5164/IAB.FDZD.1801.en.v1.

Smith-Doerr, Laurel, Sharla Alegria, Kaye Husbands Fealing, Debra Fitzpatrick, and Donald Tomaskovic-Devey. 2019. "Gender Pay Gaps in U.S. Federal Science Agencies: An Organizational Approach." *American Journal of Sociology* 125(2):534–76. https://doi.org/10.1086/705514.

Spence, Michael. 1973. "Job Market Signaling." *Quarterly Journal of Economics* 87(3):355. https://doi.org/10.2307/1882010.

Srivastava, Sameer B., and Eliot L. Sherman. 2015. "Agents of Change or Cogs in the Machine? Reexamining the Influence of Female Managers on the Gender Wage Gap." *American Journal of Sociology* 120(6):1778–808. https://doi.org/10.1086/681960.

Tomaskovic-Devey, Donald, and Dustin Avent-Holt. 2019. *Relational Inequalities: An Organizational Approach*. New York: Oxford University Press.

Umkehrer, Matthias. 2017. "Combining the Waves of the IAB Establishment Panel: A Do-File for the Basic Data Preparation of a Panel Data Set in Stata." FDZ Methodenreport 12/2017. Nürnberg: Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB). https://fdz.iab.de/en/publication/?id=8119512.

Van der Lippe, Tanja, Leonie van Breeschoten, and Margriet van Hek. 2019. "Organizational Work–Life Policies and the Gender Wage Gap in European Workplaces." *Work and Occupations* 46(2):111–48. https://doi.org/10.1177/0730888418791652.

Weeden, Kim A. 2005. "Is There a Flexiglass Ceiling? Flexible Work Arrangements and Wages in the United States." *Social Science Research* 34(2):454–82. https://doi.org/10.1016/j.ssresearch.2004.04.006.

Williams, Joan. 2001. *Unbending Gender. Why Family and Work Conflict and What to Do about It.* New York: Oxford University Press.

Woodcock, Simon D. 2008. "Wage Differentials in the Presence of Unobserved Worker, Firm, and Match Heterogeneity." *Labour Economics* 15(4):771–93. https://doi.org/10.1016/j.labeco.2007.06.003.

Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross Section and Panel Data.* Cambridge, MA: MIT Press.

Zimmermann, Florian. 2021. "Managing the Gender Wage Gap—How Female Managers Influence the Gender Wage Gap among Workers." *European Sociological Review* 38(3):355–70. https://doi.org/10.1093/esr/jcab046.

Florian Zimmermann: Corresponding author. Institut für Arbeitsmarkt- und Berufsforschung (IAB), Research Department PASS; FAU Erlangen-Nuremberg. E-mail: florian.zimmermann@iab.de.

Matthias Collischon: Institut für Arbeitsmarkt- und Berufsforschung (IAB), Research Department PASS. E-mail: matthias.collischon2@iab.de.