

Supplement to:

Zimmermann, Florian, and Matthias Collischon. 2023.
“Do Organizational Policies Narrow Gender Inequality? Novel Evidence from Longitudinal Employer–Employee Data.” *Sociological Science* 10: 47-81.

Table A 1. Selected results unbalanced panel

	(1) Fixed Effects	(2) Wages of current staff	(3) Promotions of current staff	(4) Matched fixed effects
Organizational policies	0.003 (0.002)	0.003 (0.002)	-0.022 (0.013)	0.004 (0.002)
Female X Organizational policies	0.007 [†] (0.002)	0.007 [†] (0.002)	0.019 [†] (0.006)	0.005* (0.002)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	No
Match fixed effects	No	No	No	Yes
Observations	1,904,393	1,778,194	1,363,534 ^a	1,904,393
Firms	3,455	3,455	3,455	3,455

Notes: For columns (1) and (2) the dependent variable is log daily wage. The regression in column (1) is specified as the fixed-effects regression in column 2 of Table 4. For column (2), we restrict the sample to employees with a tenure of at least one year. See column 3 of Table 5 for the specification of the fixed effects regression. For column (3), the dependent variable is the dummy variable 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 regression is specified as the regression in column 4 of Table 5. For column (4) the dependent variable is log daily wage. We use match fixed effects, as in column (2) of Table 6. See Table 4 for a list of control variables used in regressions in columns (1) to (4).

^a The number of observations is lower in the promotions sample since this sample excludes the period 2004 and is restricted to employees with a tenure of at least a year.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% [†]1%
Source: Own calculations using the LIAB QM2 9319.

Table A 2. Promotions according to occupation codes

<i>Less Skilled occupations</i>	<i>Higher skilled occupations</i>
Unskilled manual occupations	Skilled manual occupation
Unskilled services	Skilled services
Unskilled commercial and admin. occupations	Skilled commercial and admin. occupations
Technicians	Engineers
Semiprofessions	Professions
Non-managerial code	Managers

Notes: A promotion is defined as switching from a less-skilled occupation to a direct higher qualification. The directly higher occupation code is in the same row, i.e. unskilled manual occupations to skilled manual occupations.

Table A 3. Further summary statistics by gender

	Total		Women		Men	
	mean	sd	mean	sd	mean	sd
<i>Policies promoting gender equality</i>						
Number of organizational policies	1.79	1.49	1.54	1.43	1.86	1.50
<i>Individual policies</i>						
Workplace childcare facilities	0.50	0.50	0.42	0.49	0.51	0.50
Parental leave	0.59	0.49	0.55	0.50	0.60	0.49
Specific promotion of women	0.42	0.49	0.32	0.47	0.44	0.50
Other measures	0.28	0.45	0.24	0.43	0.30	0.46
<i>Occupation codes</i>						
Agricultural occupations	0.01	0.08	0.01	0.09	0.01	0.08
Unskilled manual occupations	0.23	0.42	0.15	0.36	0.25	0.44
Skilled manual occupation	0.21	0.41	0.05	0.23	0.25	0.43
Technicians	0.08	0.27	0.06	0.24	0.09	0.28
Engineers	0.08	0.27	0.04	0.20	0.09	0.29
Unskilled services	0.09	0.28	0.07	0.26	0.09	0.28
Skilled services	0.02	0.14	0.04	0.19	0.02	0.13
Semiprofessionals	0.04	0.19	0.11	0.32	0.02	0.12
Professions	0.02	0.14	0.04	0.18	0.02	0.13
Unskilled commercial and admin. occupations	0.03	0.16	0.06	0.24	0.02	0.13
Skilled commercial and admin. occupations	0.15	0.36	0.33	0.47	0.10	0.31
Managers	0.05	0.21	0.04	0.20	0.05	0.22
Unclassifiable ^a	0.00	0.06	0.00	0.05	0.00	0.06
<i>1-digit industry code</i>						
Agriculture, mining, gas and water supply	0.04	0.19	0.03	0.18	0.04	0.19
Manufacture of food products and beverages	0.02	0.15	0.05	0.21	0.02	0.14
Manufacture of consumer products	0.01	0.11	0.02	0.13	0.01	0.10
Manufacture of industrial products	0.19	0.40	0.12	0.33	0.21	0.41
Manufacture of capital and consumer goods	0.45	0.50	0.29	0.45	0.49	0.50
Construction, hotels, and other services	0.03	0.18	0.02	0.12	0.04	0.19
Trade, maintenance and repair of motor vehicles, and other services	0.05	0.21	0.09	0.28	0.04	0.19
Storage, IT, real estate, renting and liberal professions	0.13	0.33	0.19	0.39	0.11	0.32
Education, health and social work, and non-industrial organizations	0.07	0.26	0.20	0.40	0.04	0.19
<i>Observations</i>						
Employee-year observations	956,447		200,391		756,056	
Employees	412,825		101,348		311,477	
Firms	1,415		1,415		1,415	

Notes: ^a Excluding unclassifiable occupations does not influence our results.

Source: Own calculations using LIAB QM2 9319.

Table A 4. Organizational Policies by Firm Size

Variable	Mean at the firm-level		Share of observations with changes	
	Small firms	Large firms	Small firms	Large firms
Number of organizational policies	0.32	0.76	56%	78%
Workplace childcare facilities	0.09	0.18	21%	33%
Parental leave	0.16	0.36	40%	66%
Targeted promotion of women	0.03	0.11	10%	24%
Other measures	0.05	0.11	15%	29%
Observations	3,756	1,904	939	476

Notes: Small firms are firms with on average at most 100 employees and large firms have on average more than 100 employees in the observed years. The observations for the column “Mean at the firm-level” are firm-years and the observations for the column “Share of observations with changes” is firms.

Source: Own calculations using LIAB QM2 9319.

Table A 5. Average marginal effects by gender

	(1) Upper Bound	(2) Lower Bound
<i>Males</i>		
Organizational policies	0.025* (0.011)	0.004 (0.003)
<i>Females</i>		
Organizational policies	0.043 † (0.008)	0.015 † (0.004)
Controls	No	Yes
Firm fixed Effects	Yes	Yes

Notes: The average marginal effects have been calculated using results from columns (1) and (2) of Table 4. The standard errors are calculated using the delta-method. Significance levels: *5% †1%

Source: Own calculations using LIAB QM2 9319.

Table A 6. Upper bound estimations for disentangling the effect of organizational policies on current staff and new hires

	(1) Wage for new hires	(2) Female gender of new hires	(3) Wages for current staff	(4) Promotions for current staff	(5) Female gender of an outflow
Organizational policies	0.010 (0.011)	-0.002 (0.008)	0.026* (0.011)	-0.007 (0.016)	-0.001 (0.006)
Female X Organizational policies	-0.009 (0.015)		0.022 † (0.005)	0.010* (0.005)	
Controls Firm fixed effects	No Yes	No Yes	No Yes	No Yes	No 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: The regressions are similar to the regression in Table 5 excluding control variables. For column (1), the dependent variable is the log daily wage and the sample is restricted to new hires with a tenure of less than 365 days. For column (2), the dependent variable is the female gender, which is 1 for females and 0 for males. The sample is restricted to new hires with a tenure of less than 365 days. The interaction effects with female are not included because female is the dependent variable. For column (3), the dependent variable is the log daily wage and the sample is restricted to employees with a tenure of more than 365 days. For column (4), the dependent variable is the dummy variable promotion of an employee and the sample is restricted to employees with a tenure of more than 365 days. In column (5), the dependent variable is the female gender dummy, and the sample focuses on current staff, i.e., employees with more than 365 days of tenure who leave the firm during the next 365 days. The interaction effects with the female dummy are not included because the female dummy is the dependent variable.

^a The number of firms is lower than 1,415 in the hires specification because some firms did not hire a fulltime employee in the last 365 days for 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 fulltime 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. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 7. Female inflows by qualification level

	(1) Non-highly-qualified hires	(2) Highly-qualified hires
Organizational policies	-0.002 (0.006)	-0.002 (0.005)
Controls	Yes	Yes
Firm fixed effects	Yes	Yes
Observations	38,128	16,237
Firms	1,325 ^a	894 ^a

Notes: The regressions are similar to the regression in column (2) of Table 5. For columns (1) and (2), the dependent variable is the female gender, which is 1 for females and 0 for males. The sample is restricted to new hires with a tenure of less than 365 days. The interaction effects with female are not included because female is the dependent variable. For column (1) the sample is restricted to not highly-qualified new hires, i.e., new hires without university education. In column (2), the sample focuses on highly qualified hires according to education, i.e., new hires with university education.

^a The number of firms is lower than 1,415 in the hires specification because some firms did not hire a (highly-qualified) fulltime worker in the last 365 days for the observed years.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 8. Inflows at the firm-level

	(1) Female share of inflows	(2) Female share of full-time inflows	(3) Female share of part-time inflows	(4) Share of part- time inflows
Organizational policies	0.002 (0.004)	0.007 (0.007)	-0.002 (0.009)	-0.001 (0.004)
Firm-level controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	5,383	4,760	2,374	5,383
Firms ^a	1,414	1,394	1,003	1,414

Notes: The dependent variable in column (1) is the female share of inflows. The dependent variable in column (2) is the female share of full-time inflows. The dependent variable in column (3) is the female share of part-time inflows. The dependent variable in column (4) is the share of part-time inflows. These fixed-effect regressions at the firm-level include control variables at the firm-level. See Table 4 for a list of firm-level control variables.

^a Some firms did not have any hires to calculate the dependent variable in the observed period. Thus, the number of firms might be lower than the number of total firms.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 9. Alternative measurement for promotions

	(1) Promotions according to wages	(2) Promotions according to occupation and wages
Organizational policies	-0.031* (0.012)	-0.008† (0.003)
Female X Organizational policies	0.029† (0.007)	0.003* (0.001)
Controls	Yes	Yes
Firm fixed effects	Yes	Yes
Observations	673,519	673,519
Firms	1,415	1,415

Notes: For column (1) the dependent variable is the main measurement for promotions which restricts promotions to a 10% wage increase. In column (2), the dependent variable is an alternative measurement for promotions which restricts promotions to a 10% wage increase that coincides with an occupational change to a more skilled occupation. The control variables for columns (1) and (2) are like column (4) in Table 5 except occupations because promotions in column (2) are measured using occupation codes.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 10. Female outflows by qualification

	(1) Non-highly-qualified hires	(2) Highly-qualified hires
Organizational policies	-0.000 (0.007)	-0.001 (0.005)
Controls	Yes	Yes
Firm fixed effects	Yes	Yes
Observations	67,542	17,000
Firms	1,351 ^a	857 ^a

Notes: The regressions are similar to the regression in column (5) of Table 5. For columns (1) and (2), the dependent variable is the female gender, which is 1 for females and 0 for males. The sample is restricted to current staff with a tenure of at least 365 days. The interaction effects with female are not included because female is the dependent variable. For column (1) the sample is restricted to not highly-qualified new hires, i.e., new hires without university education. In column (2), the sample focuses on highly qualified hires according to education, i.e., new hires with university education.

^a The number of firms is lower than 1,415 in the current staff specification because some firms did not have a (highly-qualified) fulltime worker outflow in 365 days after the observed period for the observed years.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 11. Outflows at the firm-level

	(1) Female share of outflows	(2) Female share of full-time outflows	(3) Female share of part-time outflows	(4) Share of part- time outflows
Organizational policies	0.003 (0.005)	0.004 (0.006)	-0.036 (0.056)	0.002 (0.004)
Firm-level controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	5,421	4,938	2,348	5,421
Firms*	1,414	1,399	992	1,414

Notes: The dependent variable in column (1) is the female share of outflows. The dependent variable in column (2) is the female share of full-time outflows. The dependent variable in column (3) is the female share of part-time outflows. The dependent variable in column (4) is the share of part-time outflows. These fixed-effect regressions at the firm-level include control variables at the firm-level. See Table 4 for a list of firm-level control variables.

* Some firms did not have any outflows to calculate the dependent variable in the observed period. Thus, the number of firms might be lower than the number of total firms.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 12. Heterogeneity in firm-size for female X firm and match fixed effects

	(1) Small firms (<= 100 employees)	(2) Large firms (> 100 employees)	(1) Small firms (<= 100 employees)	(2) Large firms (> 100 employees)
Organizational policies	0.002 (0.003)	0.004 (0.003)	0.002 (0.002)	0.004 (0.003)
Female X Organizational policies	-0.002 (0.002)	0.007* (0.004)	-0.004 (0.002)	0.006* (0.004)
Controls	Yes	Yes	Yes	Yes
Female X Firm fixed effects	Yes	Yes	No	No
Match fixed effects	No	No	Yes	Yes
Observations	99,808	856,639	99,808	856,639
Firms	939	476	939	476

Notes: For columns (1) to (4), the dependent variable is the log daily wage. The regressions include the same control variables as column (2) of Table 4. The sample in columns (1) and (3) is restricted to firms with on average at most 100 employees in the observed years. We restrict the sample in columns (2) and (4) to firms with on average more than 100 employees in the observed years. For columns (1) and (2), we use female x firm fixed effects and for columns (3) and (4), we use match fixed effects.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 13. Reverse causality for female negotiation power and worker codetermination at the firm-level

	(1) Lagged gender wage gap	(2) Lagged share women	(3) Lagged works council	(4) Lagged collective agreement
Lagged gender wage gap	0.007 (0.047)			
Lagged share of women		0.102 (0.225)		
Lagged works council			-0.047 (0.065)	
Lagged firm collective agreement				-0.048 (0.040)
Lagged sectoral collective agreement				-0.008 (0.057)
Firm-level controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	3,924 ^a	4,245	4,245	4,245
Firms	1,357 ^a	1,415	1,415	1,415

Notes: The dependent variable in columns (1) to (4) is the number of organizational policies. These fixed-effect regressions at the firm-level include control variables at the firm-level. See Table 4 for a list of firm-level control variables. When a lagged variable is controlled for, we do not control for the non-lagged variable. Thus, the share of females is excluded in column (2), the existence of a works council is excluded in column (3), and in column (4), the availability of a collective agreement at the firm- or sectoral-level is excluded from the control variables. For column (1), the lagged gender wage gap is calculated as the mean fulltime wage of females in a firm in the previous period divided by the mean fulltime wage of males in a firm in the previous period. The result is robust to alternative specifications of the gender wage gap, i.e., the lagged median gender wage gap, the lagged log mean gender wage gap, and the lagged log median gender wage gap.

^a In some firms or firm years, firms do not have both a female and a male full-time employee. For these firms, the gender wage gap cannot be calculated. Thus, the number of firms and firm-year observations is lower for this independent variable.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1% Source: Own calculations using the LIAB QM2 9319.

Table A 14. Reverse causality for success and growth of a firm

	(1) Lagged log mean wage	(2) Lagged number of employees	(3) Lagged profitability
Lagged log mean wage	-0.024 (0.152)		
Lagged number of employees		0.044 (0.045)	
Lagged profitability			0.059* (0.027)
Firm-level controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Observations	4,245	4,245	4,245
Firms	1,415	1,415	1,415

Notes: The dependent variable in columns (1) to (4) is the number of organizational policies. These fixed-effect regressions at the firm-level include control variables at the firm-level. See Table 4 for a list of firm-level control variables. When a lagged variable is controlled for, we do not control for the non-lagged variable. Thus, the number of employees is excluded in column (2), and a firm's profitability is excluded in column (3). For column (1), the lagged average wage is calculated as the log mean fulltime wage of employees in a firm in the previous period. The result is robust to alternative specifications of the lagged log mean wage, i.e., the lagged log median wage. The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 15. Alternatives for organizational policies

	(1) Single organizational policies	(2) Six organizational policies	(3) Only work-life balance policies
Female X Workplace childcare facilities	0.014 (0.008)		
Female X Parental leave	0.003 (0.006)		
Female X Targeted promotion of women	0.011 (0.009)		
Female x Other measures	0.019 [†] (0.007)		
Female X Extended number of organizational policies		0.010 [†] (0.002)	
Female X Number work-life balance policies			0.011 [†] (0.003)
Controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Observations	956,447	480,464	480,464
Firms	1,415	1,415	1,415

For columns (1) to (4), the dependent variable is the log daily wage. The fixed effects regressions include the same control variables as column (2) of Table 4. For columns (2) and (3), the sample is restricted to 2012 and 2016. In column (2), the extended number of organizational policies include in total six policies: The four policies from the equality index and two additional policies that are only surveyed in 2012 and 2016. In column (3), the Number of work-life balance policies includes four work-life balance policies in total. Two work-life balance policies from 2004 to 2016, i.e., workplace childcare facilities and parental leave, as well as two additional work-life balance policies that are only surveyed in 2012 and 2016, i.e., flexible working hours and support for employees with relatives who require care.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 16. Heterogeneity in firm-size and robustness to the financial crisis 2008

	(1) Small firms	(2) Large firms	(3) 2004 and 2008	(4) 2012 and 2016
Organizational policies	0.002 (0.003)	0.003 (0.003)	0.004 (0.004)	-0.003 (0.002)
Female X Organizational policies	0.000 (0.004)	0.012 [†] (0.004)	0.010 (0.005)	0.013 [†] (0.003)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Observations	99,808	856,639	475,818	480,629
Firms	939	476	1,415	1,415

Notes: For columns (1) to (4), the dependent variable is the log daily wage. The fixed-effects regressions include the same control variables as column (2) of Table 4. The sample in column (1) is restricted to firms with on average at most 100 employees in the observed years. We restrict the sample in column (2) to firms with on average more than 100 employees in the observed years. The sample in column (3) is restricted to 2004 and 2008 and the sample in column (4) focuses on the years 2012 and 2016.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% †1%
Source: Own calculations using the LIAB QM2 9319.

Table A 17. Heterogeneity across the wage-distribution and part-time employment

	(1) Not highly-qualified employees	(2) Highly-qualified employees	(3) Full- and part-time employment
Organizational policies	0.006 (0.003)	-0.001 (0.002)	0.005 (0.003)
Female X Organizational policies	0.010 [†] (0.004)	0.007 (0.004)	0.007* (0.004)
Controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Observations	768,884	187,563	1,078,289
Firms	1,414 ^a	1,259 ^a	1,415

Notes: For columns (1) to (3), the dependent variable is the log daily wage. The fixed effects regressions include the same control variables as column (2) of Table 4. For column (3), we focus on not-highly qualified employees, i.e., employees without university education. In column (4), we focus on highly qualified employees, i.e., employees with a university degree. For column (3), we also include part-time employees and additionally control for part-time work as well as its interaction with female.

^a The number of firms in for columns (3) and (4) are lower than 1415 because some firms do not employ (not-) highly-qualified employees in the observed periods.

The standard errors are clustered at the firm level and shown in parentheses. Significance levels: *5% [†]1%
Source: Own calculations using the LIAB QM2 9319.

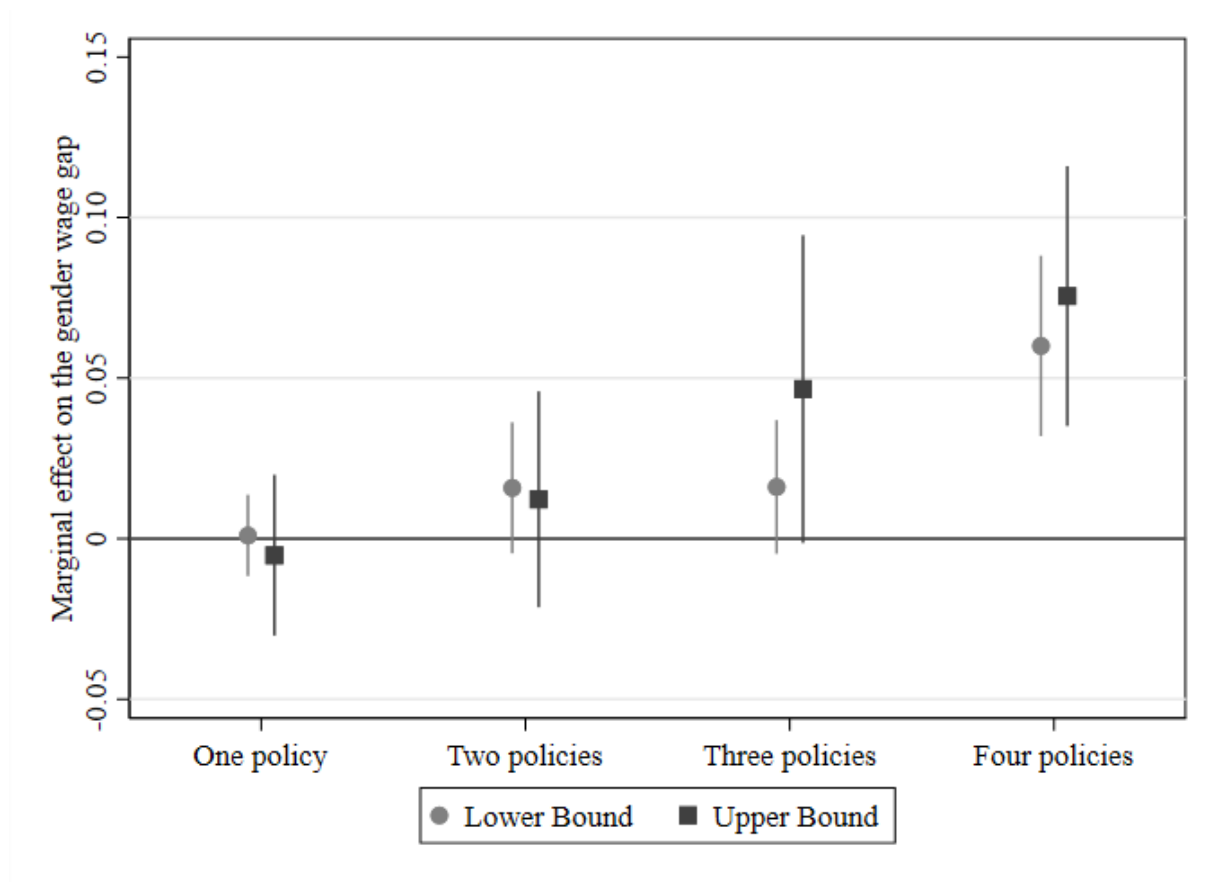


Figure A 1. Effect of the number of organizational policies on the gender wage gap

Notes: The regressions are specified like in Table 4 for the upper and lower bound specifications using fixed effects (columns 2 and 4). Instead of the metric number of organizational policies, the regressions include dummies for each number of organizational policies. The plot shows the coefficient and the 95% confidence interval using two-tailed t-tests. The standard errors are clustered at the firm-level.

B Sample Selection

After we link the individual employment histories of every employee liable to social security to these data, 2,732 unique firms remain with observations in 2004, 2008, 2012, and 2016. Civil servants, family workers, students, and self-employed individuals are not part of this dataset because they do not contribute to social security in Germany. Next, we restrict the data to firms in the private sector (2,474 firms left) with at least ten employees in 2004, 2008, 2012 and 2016 (1,522 firms left). We remove firms with missing values in the firm-level survey variables, which can be found in the variable description in section control variables (1,428 firms left). Finally, we restrict the dataset to firms with at least one full-time female employee and one full-time male employee between the age of 20 and 60, and firms without missing observations in 2004, 2008, 2012, or 2016 (1,415 left). After completing these steps, we have a balanced panel dataset with 1,415 firms and 411,878 unique full-time employees between the age of 20 and 60 and 956,447 employee-year observations.

As a robustness check, we construct an unbalanced panel with at least 3 observations in 2004, 2008, 2012, and 2016. This sample unbalanced panel comprises 3,445 firms with 906,305 unique full-time employees between the age of 20 and 60 and 1,904,393 employee-year observations, thus more than twice as large as the balanced panel dataset. In Appendix Table A 1, we show selected results for the unbalanced panel and focus on the lower-bound regressions including control variables. Column (1) shows that our main results are robust to this less restrictive sample, but the coefficients are smaller. However, the difference between the coefficients is not statistically significant (Table 4, column 2). For the wages for current staff (Appendix Table A 1, column 2) and promotions (Appendix Table A 1, column 3) we again find similar results as in the balanced panel (Table 5, columns 3 and 4). Finally, for our most restrictive estimation, the matched fixed effects estimation, we find a statistically significant narrowing effect of organizational policies on the gender wage gap (Appendix Table A 1, column 4). This coefficient was barely not statistically significant in the balanced panel

regressions ($P=0.091$) (Table 6, column 2). The coefficients' sizes in the balanced (Table 6, column 2) and unbalanced panel (Appendix Table A 1, column 4) are also very similar for the match fixed effects model. In summary, an unbalanced panel, with more than twice as many firms as the balanced panel, yields similar results as the balanced panel specification. Thus, we assume that our results are not driven by the restrictive sample of the balanced panel specification.