BARGAINING AND INEQUALITY IN THE LABOR MARKET
Appendices for Online Publication

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April 15, 2025

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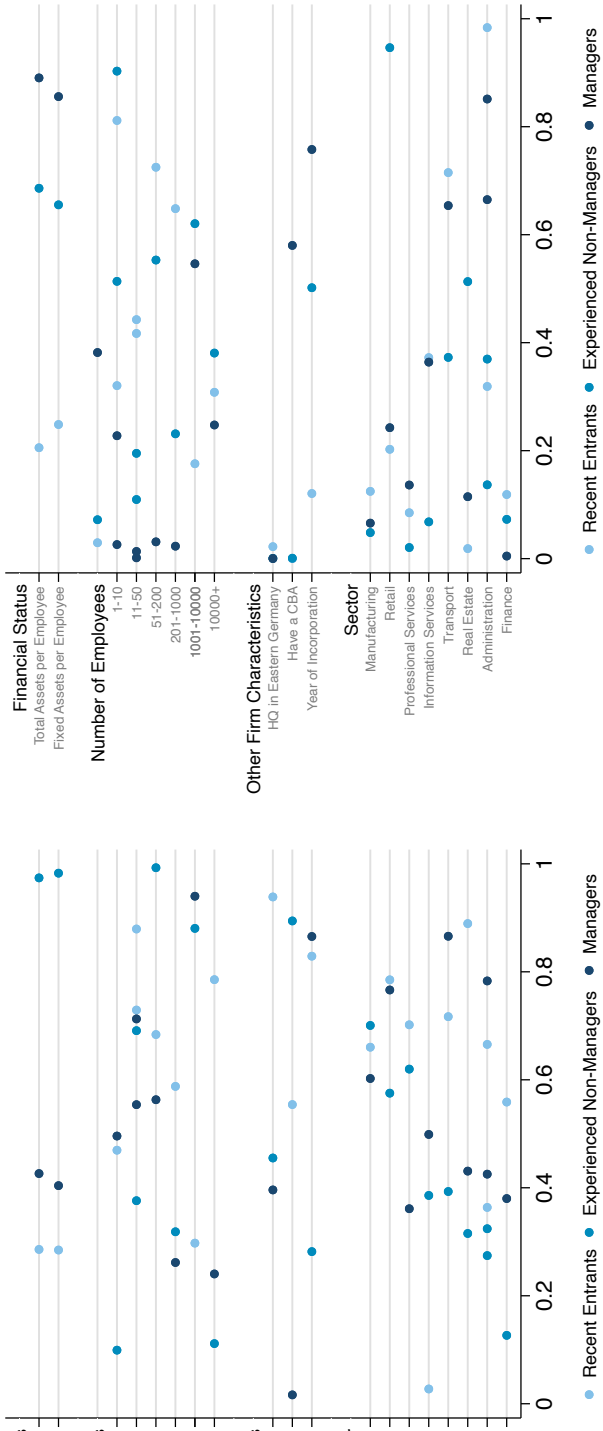
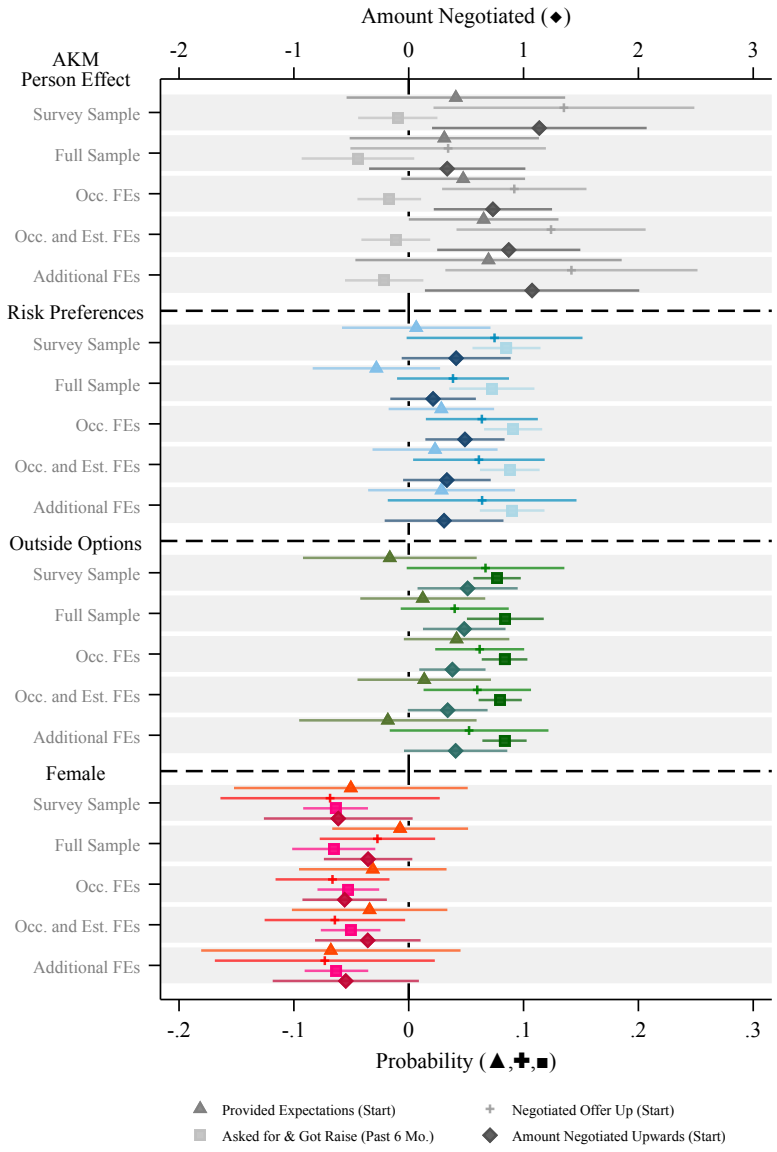
A Appendix Figures and Tables

Figure A1: Additional Comparisons Between Posting and Bargaining Firms



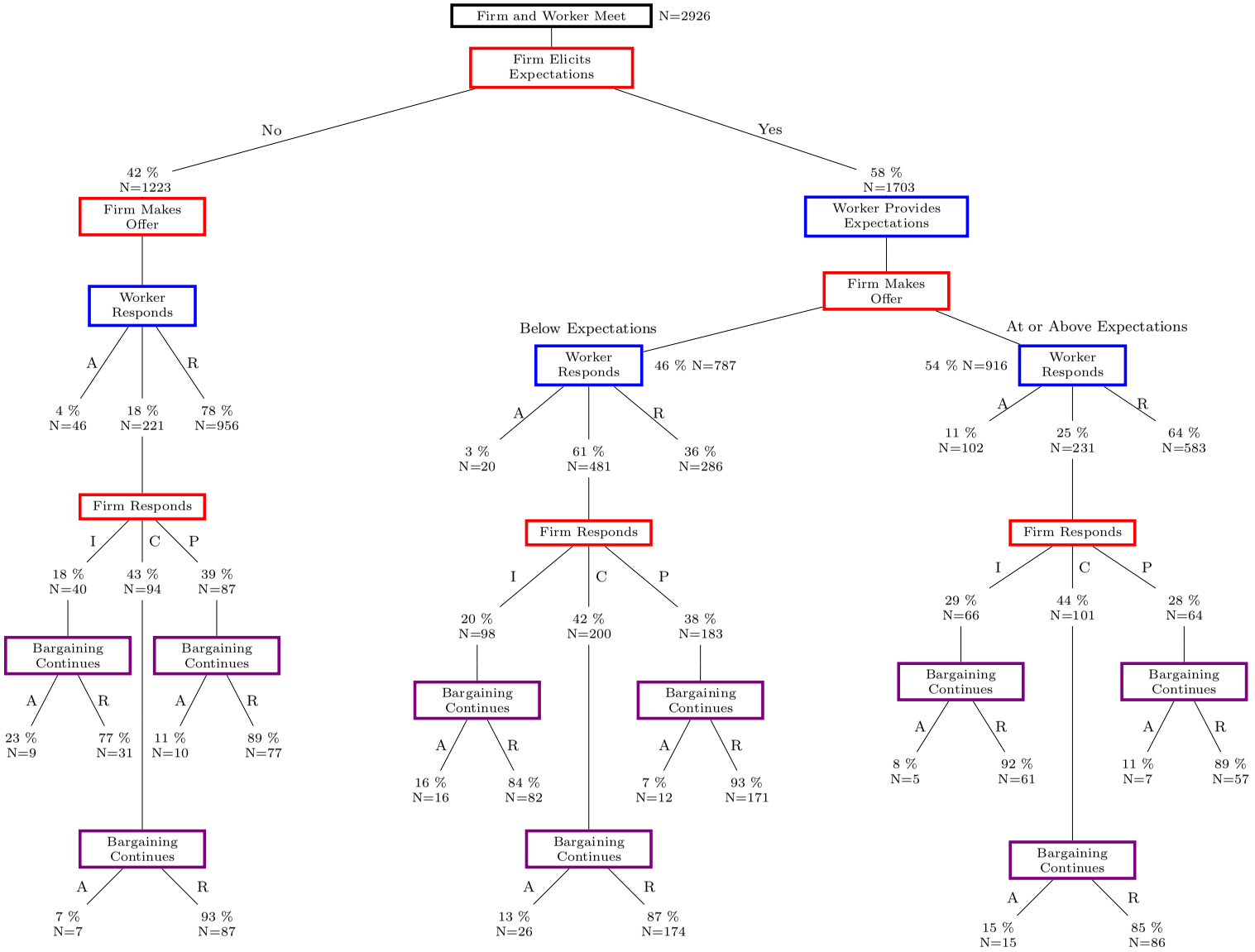
Note: This figure compares firms based on the bargaining protocol reported for three employee groups: recent labor market entrants, experienced non-managers, and managers. The dots are p-values from tests of heterogeneity on the extensive (Panel A) and intensive (Panel B) margins. In Panel A, each dot is the p-value from a test of equality between the means of posting and bargaining firms. Posting firms are those that report zero wage flexibility, while bargaining firms are those that report non-zero wage flexibility for a given employee group. In Panel B, the dots are p-values from tests of heterogeneity which allow firms to vary on the intensive margin. Each dot is the p-value from a regression of the bargaining protocol for a specific employee group on the firm characteristic indicated on the y-axis. The bargaining protocol for each firm and employee group is either 0%, 1-10%, 11-20%, 21-30%, 31-40%, or more than 40%. We elicit CBA-coverage and bargaining strategies in the firm survey. We obtain the remaining firm characteristics from Orbis. Additional comparisons are presented in Table II.

Figure A2: Worker Bargaining Behavior: Additional Specifications



Note: This figure presents additional specifications that test for differences in worker bargaining behavior based on the worker survey. We focus on heterogeneity along four worker dimensions: AKM person effect, risk tolerance, outside options, and gender. Each coefficient is based on a separate regression. The outcome variables are listed below the figure. Each regression controls for age, a quadratic in experience, and education dummies. Each panel (in grey) uses a different sample or specification. The first panel for each of the four worker dimensions presents our baseline estimates which control for occupation-by-establishment fixed effects. The second panel controls for occupation-by-establishment fixed effects and also includes the random sample of workers from non-surveyed firms. The third panel focuses on our baseline sample and uses coarser occupation fixed effects. The fourth panel focuses on our baseline sample and uses occupation-and-establishment fixed effects. The fifth panel focuses on our baseline sample and uses level-occupation-establishment fixed effects. Standard errors are clustered at the firm level. Whiskers denote 95% confidence intervals.

Figure A3: Dynamics of Bargaining Events



Note: This figure summarizes the worker-offer data elicited in the worker survey. The data include all surveyed workers who have received an offer in the previous six months. An accepted offer is one in which the respondent joined the firm as an external hire. A rejected offer is one in which the respondent remained at their incumbent firm. At each stage, workers can choose to accept an offer, counter an offer, or reject an offer. Firms can choose to improve the offer (match the worker's counter), counter the offer, or persist at their original offer.

Table A1: Worker Characteristics

	Social Security Sample		Surveyed Workers				Core with Bargaining Events	
			Core Sample		Random Sample			
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Demographics								
Female	0.21	(0.41)	0.27	(0.45)	0.41	(0.49)	0.27	(0.44)
Age	37.86	(7.26)	34.23	(6.40)	31.00	(5.09)	34.33	(6.30)
German Citizen	0.91	(0.29)	0.94	(0.24)	0.88	(0.32)	0.94	(0.24)
College Degree	0.39	(0.49)	0.63	(0.48)	0.52	(0.50)	0.72	(0.45)
Apprenticeship	0.54	(0.50)	0.32	(0.47)	0.37	(0.48)	0.23	(0.42)
Employment								
Daily Wage (Allocated)	181.03	(57.53)	184.69	(55.13)	134.09	(46.43)	189.61	(54.23)
Censored Wages	0.28	(0.45)	0.28	(0.45)	0.05	(0.23)	0.32	(0.47)
Hours (Survey)	---	---	40.23	(5.78)	40.37	(6.50)	41.30	(6.04)
CBA Covered (Survey)	---	---	0.63	(0.48)	0.48	(0.50)	0.52	(0.50)
Manufacturing Sector	0.68	(0.47)	0.57	(0.49)	0.20	(0.40)	0.50	(0.50)
Retail Sector	0.07	(0.26)	0.08	(0.28)	0.10	(0.29)	0.11	(0.32)
Professional Sector	0.08	(0.28)	0.12	(0.33)	0.16	(0.36)	0.14	(0.34)
Observations	254414		7079		2677		2926	

Note: This table describes the workers included in each of our main samples. Columns 1 and 2 describe all workers between the ages of 25 and 50 at the firms who participated in the firm survey and were in Social-Security-covered employment. Columns 3 and 4 describe the subset of these workers who were invited to and who responded to our worker survey; we use this sample to examine heterogeneity in bargaining behavior and the importance of bargaining for the gender gap in Section 5. Columns 5 and 6 describe surveyed workers drawn from the random set of workers who did not work at surveyed firms in 2020; we use this sample to probe the robustness of our results. Columns 7 and 8 describe the subset of surveyed workers at surveyed firms who had a bargaining event in the previous six months.

Table A2: Comparing Responses for Multi-Respondent Firms

	Share Agreement (1)
CBA Coverage	0.84
Announce Wages in Public Ads	0.96
Announce Wages in Internal Ads	0.89
Elicit Salary Expectations	0.92
Key Bargaining Definitions	
Bargaining with New Hires	0.92
Renegotiating with Incumbents	0.88
Auxiliary Questions	
Scope for Tailoring of First Offer	0.72
Scope for Negotiations	0.88

Note: This table assesses the validity of the firm survey by examining the agreement among respondents for the 37 firms in which we have multiple respondents. The rows indicate different questions within the firm survey. Column 1 presents the average share of agreement in the responses.

Table A3: Cross-Tabulation of Bargaining Strategies with Expected Variation in Final Offers

A. Recent Labor Market Entrants

Bargaining Policy \ Expected Variation in Final Offers	0%	1-10%	11-20%	21-30%	>30%
0%	80%	19%	1%	0%	0%
1-10%	29%	66%	5%	0%	0%
11-20%	25%	51%	24%	0%	0%
21-30%	--	--	--	--	--
31-40%	--	--	--	--	--
>40%	--	--	--	--	--

B. Experienced Non-Managers

Bargaining Policy \ Expected Variation in Final Offers	0%	1-10%	11-20%	21-30%	>30%
0%	82%	16%	2%	0%	0%
1-10%	20%	71%	9%	0%	0%
11-20%	10%	49%	38%	3%	0%
21-30%	0%	36%	64%	0%	0%
31-40%	--	--	--	--	--
>40%	--	--	--	--	--

C. Managers

Bargaining Policy \ Expected Variation in Final Offers	0%	1-10%	11-20%	21-30%	>30%
0%	70%	27%	3%	0%	0%
1-10%	16%	68%	15%	1%	0%
11-20%	4%	34%	54%	8%	1%
21-30%	7%	15%	43%	32%	3%
31-40%	0%	0%	33%	50%	17%
>40%	43%	29%	14%	0%	14%

D. Workers in Bottleneck Occupations

Bargaining Policy \ Expected Variation in Final Offers	0%	1-10%	11-20%	21-30%	>30%
0%	85%	15%	0%	0%	0%
1-10%	14%	71%	13%	2%	0%
11-20%	6%	28%	56%	9%	1%
21-30%	4%	14%	41%	33%	8%
31-40%	0%	6%	31%	31%	31%
>40%	19%	13%	0%	6%	63%

Note: This table presents the cross-tabulation between firms' bargaining protocols (rows) and expected variation in final offers (columns). For each group (panel) and bargaining protocol (row), we compute the share of firms that expect 0%, 1-10%, 11-20%, 21-30% or >30% variation in final offers to candidates in that group. The numbers in each row sum to 100% (subject to rounding). To comply with privacy regulations, we suppress rows with fewer than 4 observations.

Table A4: Bargaining Strategies at CBA and Non-CBA Firms

	Employee Groups			
	Recent Entrants (1)	Experienced Non-Managers (2)	Managers (3)	Workers in Bottleneck Positions (4)
	A. Firm Has a CBA			
0%	55%	20%	6%	6%
1-10%	39%	59%	25%	16%
11-20%	6%	19%	53%	42%
21-30%	0%	2%	12%	30%
31-40%	0%	0%	2%	4%
>40%	0%	0%	1%	3%
Firms	308	309	305	308
	B. Firm Does Not Have a CBA			
0%	40%	11%	5%	4%
1-10%	51%	66%	36%	21%
11-20%	9%	21%	44%	45%
21-30%	0%	1%	13%	23%
31-40%	0%	0%	1%	6%
>40%	0%	0%	1%	2%
Firms	430	428	423	422

Note: This table describes the bargaining strategies for new external hires in four employee groups—recent labor market entrants, experienced non-managers, managers, and employees in bottleneck occupations. Panel A presents the strategies for firms with a CBA that covers at least some workers within the firm. Panel B presents the strategies for firms without a CBA.

Table A5: Comparing Firm and Worker Responses

	CBA Coverage		New Hire Bargaining				
			Binary				Continuous
	All	Recent Entrants	Provided Salary Expectations	Asked for More	Asked for ≥6% More	Asked and Got More	Asked and Got More
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Firm Policy	0.604***	0.622***	0.175***	0.099***	0.112***	0.122***	0.956***
	(0.054)	(0.058)	(0.059)	(0.030)	(0.031)	(0.030)	(0.245)
Constant	0.121***	0.145***	0.490***	0.288***	0.159***	0.170***	0.817***
	(0.021)	(0.037)	(0.052)	(0.024)	(0.023)	(0.023)	(0.167)
Observations	5466	637	652	627	623	624	621
Firms (Clusters)	321	120	152	144	143	144	143

Note: This table validates firms' survey responses by comparing firms' responses with those of workers at the same firm. Each column presents results from a different regression of worker response indicators (indicated in the column) on indicators for the relevant firm strategy. Columns 1 and 2 include individuals who have not changed their firm in the previous two years (and who are still at the firm indicated in the firm survey). Because we only elicited bargaining histories for workers who had joined their firm within the previous three years, the remaining columns include individuals who have been at their firm for between two and three years. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A6: Variation in the Intensive Margin of Bargaining

	Employee Groups			
	Recent Entrants	Experienced Non-Managers	Managers	Workers in Bottleneck Positions
	(1)	(2)	(3)	(4)
	A. Bargaining over Base Wages with New Hires			
0%	46%	15%	5%	5%
1-10%	46%	63%	32%	19%
11-20%	7%	20%	48%	44%
21-30%	0%	1%	13%	25%
31-40%	0%	0%	2%	5%
>40%	0%	0%	1%	2%
Firms	740	739	730	732
	B. Bargaining over Base Wages or Special Pay with New Hires			
0%	39%	12%	3%	4%
1-10%	49%	61%	28%	17%
11-20%	9%	24%	47%	43%
21-30%	1%	2%	16%	26%
31-40%	0%	0%	3%	6%
>40%	1%	1%	3%	4%
Firms	747	748	744	742
	C. Bargaining over Base Wages with New Hires (Flexible-Amenities Firms)			
0%	43%	13%	4%	3%
1-10%	48%	63%	29%	16%
11-20%	8%	22%	49%	44%
21-30%	1%	2%	14%	27%
31-40%	0%	0%	2%	6%
>40%	0%	0%	1%	3%
Firms	591	591	585	585
	D. Renegotiating Base Wages			
0%	43%	18%	9%	7%
1-10%	51%	65%	46%	38%
11-20%	6%	16%	35%	37%
21-30%	1%	1%	7%	12%
31-40%	0%	0%	1%	3%
>40%	0%	0%	1%	2%
Firms	741	740	734	731

Note: This table describes the bargaining protocols for four groups of employees: recent labor market entrants, experienced non-managers, managers, and employees in bottleneck occupations. Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage strategies for new external hires in the subset of firms that indicated having a high flexibility with respect to any of the following non-wage amenities: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. The tabulations in Panel A are additionally depicted in Figure II.

Table A7: Explaining Variation in Bargaining Strategies

	Fixed Effects Only			Group Fixed Effects and Firm Characteristics					
	Group	Firm	Group + Firm	Size, Productivity	Norms	Size, Productivity, Norms	Size, Productivity, Norms	Size, Productivity, Norms	Size, Productivity, Norms, Group Interactions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				A. Bargaining with New Hires (Protocol Question)					
R-Squared	0.27	0.46	0.73	0.31	0.28	0.28	0.30	0.45	0.46
Adjusted R-Squared	0.27	0.19	0.59	0.30	0.28	0.28	0.29	0.37	0.38
				B.Bargaining with New Hires (Incidence Question)					
R-Squared	0.22	0.50	0.72	0.25	0.23	0.24	0.26	0.43	0.44
Adjusted R-Squared	0.22	0.24	0.58	0.25	0.23	0.23	0.25	0.35	0.35
				C. Renegotiating with Incumbent Workers					
R-Squared	0.17	0.56	0.73	0.20	0.18	0.19	0.21	0.39	0.39
Adjusted R-Squared	0.17	0.34	0.59	0.19	0.17	0.18	0.20	0.30	0.30
				D. Bargaining with New Hires (Special Pay)					
R-Squared	0.14	0.62	0.76	0.17	0.15	0.15	0.17	0.43	0.43
Adjusted R-Squared	0.14	0.43	0.63	0.16	0.15	0.15	0.16	0.34	0.34
Industry Dummies							1-digit	4-digit	4-digit

Note:This table presents the R-squared and adjusted R-squared from regressions of a continuous measure of the firm-group bargaining protocol for new external hires using the midpoint of the range selected by each firm (Panel A), the expected variation in final offers to new external hires (Panel B), the amount of possible adjustment for incumbent workers (Panel C), and firm-bargaining with respect to special pay (Panel D) in each firm-group, on the covariates indicated at the top of the table. To probe robustness, this table drops the strategies for workers in bottleneck occupations, which are harder to compare across firms. There are up to four observations for each firm. We use total assets to proxy firm productivity. We use indicators for whether the firm is covered by a collective bargaining agreement, whether its headquarters are in East Germany, and indicators for firm's legal form (e.g., whether it is listed on the stock market) as proxies for norms. Column 9 includes interaction terms of the firm characteristics indicated at the top of the table and employee groups. Results that include all four groups of workers are presented in Table III.

Table A8: The Correlation Between Workers' Stated Outside Options and Objective Measures

	Easy to Find a Better Job (0/1)			Ease of Finding a Better Job (0-3)		
		Search in Past 6 Months?			Search in Past 6 Months?	
	Full Sample	Yes	No	Full Sample	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)
	A. Received an Offer in Previous 6 Months					
Any Offers	0.128***	0.124***	0.067***	0.230***	0.204***	0.173***
	(0.012)	(0.014)	(0.024)	(0.019)	(0.022)	(0.045)
Constant	0.373***	0.404***	0.311***	1.298***	1.370***	1.156***
	(0.007)	(0.009)	(0.012)	(0.012)	(0.014)	(0.022)
Observations	7018	5071	1947	7018	5071	1947
	B. Number of Job Offers in Previous Six Months					
Number of Offers	0.057***	0.057***	0.030***	0.102***	0.094***	0.073***
	(0.005)	(0.005)	(0.010)	(0.008)	(0.009)	(0.018)
Constant	0.371***	0.400***	0.311***	1.295***	1.362***	1.158***
	(0.007)	(0.009)	(0.012)	(0.012)	(0.014)	(0.021)
Observations	7000	5061	1939	7000	5061	1939
	C. Was Contacted with Job Information in Previous Six Months					
1{Contacted}	0.135***	0.134***	0.070***	0.244***	0.227***	0.143***
	(0.012)	(0.015)	(0.022)	(0.019)	(0.023)	(0.038)
Constant	0.341***	0.369***	0.299***	1.240***	1.307***	1.141***
	(0.009)	(0.012)	(0.014)	(0.015)	(0.019)	(0.025)
Observations	7023	5075	1948	7023	5075	1948

Note: This table examines the correlation between workers' stated outside options and other characteristics. The dependent variable in Columns 1 to 3 is an indicator for whether the worker said it would be "easy" or "very easy" to get an offer from a firm they preferred. The dependent variable in Columns 4 to 6 is a continuous measure, which ranges from 0-3 where 0 is "very difficult" and 3 is "very easy". Each panel presents results from a bivariate regression with robust standard errors. The sample in Columns 1 and 4 includes all workers at surveyed firms who participated in the worker survey. The remaining columns look at the subset of these workers who report they did (Columns 2 and 5) or did not (Columns 3 and 6) search for a job in the previous six months. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A9: Worker Bargaining Behavior: Additional Outcomes

		Outside Options		Risk Tolerance			AKM Worker
	Mean	Binary	Level	Binary	Level	Female	Effect
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Bargaining at the Start of the Spell							
Negotiated Bonuses or Stock Upward	0.23	-0.002	0.018	0.005	0.009	-0.063*	-0.027
		(0.039)	(0.030)	(0.030)	(0.007)	(0.035)	(0.063)
		849	849	851	851	854	608
Negotiated over Non-Wage Amenities							
Vacation Days or Remote Work	0.27	0.037	0.022	-0.023	-0.002	0.018	-0.076
		(0.040)	(0.028)	(0.042)	(0.010)	(0.048)	(0.061)
		849	849	851	851	854	608
Commuting	0.07	-0.025	-0.009	0.015	0.008	-0.012	0.011
		(0.017)	(0.011)	(0.020)	(0.007)	(0.023)	(0.031)
		849	849	851	851	854	608
Training	0.18	0.018	0.021	-0.031	-0.002	-0.004	-0.061
		(0.032)	(0.021)	(0.033)	(0.007)	(0.035)	(0.051)
		849	849	851	851	854	608
Childcare	0.02	-0.028**	-0.012	-0.017	-0.000	-0.020	0.002
		(0.013)	(0.008)	(0.014)	(0.003)	(0.015)	(0.014)
		849	849	851	851	854	608
B. Events in Previous Six Months							
Level of Increase | No Outside Offer	0.32	0.138*	0.087*	0.174**	0.037**	-0.070	0.127
		(0.071)	(0.049)	(0.078)	(0.015)	(0.062)	(0.080)
		2837	2837	2830	2830	2857	2444
Received a Raise Without Asking	0.32	-0.017	-0.015***	0.010	-0.001	-0.008	-0.018
		(0.011)	(0.005)	(0.017)	(0.004)	(0.020)	(0.015)
		5068	5068	5050	5050	5104	4334
Any Search Activity	0.72	0.091***	0.071***	0.062***	0.021***	-0.078***	0.007
		(0.013)	(0.007)	(0.012)	(0.003)	(0.017)	(0.024)
		5121	5121	5104	5104	5158	4380

Note: This table examines between-worker differences in bargaining behavior using additional outcomes for the specifications presented in Table V. Panel A uses data on individuals who joined their firm in the previous three years. Each outcome is an indicator for whether individuals negotiated over special payments or one of four non-wage amenities. Panel B focuses on all workers who have experienced a bargaining event in the previous six months. The first outcome captures the intensive margins of asking for more conditional on not having received an outside offer. The second outcome is an indicator for whether the worker said their firm offered them a salary increase in the previous six months without the worker asking for it. The third outcome is an indicator for whether an individual reported any job search activity. The sample includes workers at surveyed firms who participated in the worker survey. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A10: Worker Bargaining Behavior: Additional Dimensions of Worker Heterogeneity

	Mean	Above-Median AKM Worker	Patience	
			Binary	Level
	(1)	(2)	(3)	(4)
A. Bargaining at the Start of the Spell				
Provided Expectations	0.69	0.041	0.117*	0.007
		(0.047)	(0.067)	(0.012)
		603	230	230
Asked Firm to Increase Base Wage	0.36	0.041	0.021	-0.000
		(0.050)	(0.087)	(0.016)
		607	233	233
Negotiated Base Wage Upward				
Binary	0.26	0.135**	0.105	0.013
		(0.057)	(0.068)	(0.011)
		605	233	233
Percentage Points	1.46	1.137**	1.018*	0.206**
		(0.466)	(0.521)	(0.083)
		602	232	232
B. Events in Previous Six Months				
Asked for a Raise	0.36	-0.029	0.004	-0.004
		(0.020)	(0.028)	(0.005)
		4360	1620	1620
Asked for & Received a Raise	0.28	-0.010	0.005	-0.002
		(0.017)	(0.025)	(0.004)
		4360	1620	1620

Note: This table examines between-worker differences in bargaining behavior using additional dimensions of heterogeneity. Column 2 focuses on workers with an above-median AKM person effect. Columns 3 and 4 use information on worker patience, which we elicited in a follow-up survey (see Appendix D for details). The specifications we use and bargaining outcomes we examine follow those presented in Table V Panel A uses data on individuals who joined their firm in the previous three years. The first outcome is an indicator for whether the individual provided salary expectations during the application and hiring process. The second outcome is an indicator for whether the worker asked for a higher wage, independent of whether the worker was successful in her negotiation. The third outcome is an indicator for whether the worker negotiated successfully, that equals one if they asked the firm to increase the salary provided in their initial offer and the firm increased the offer. The fourth outcome captures the intensive margin of negotiating successfully, including zeros for those who do not successfully negotiate up. Panel B focuses on all workers who have experienced a bargaining event in the previous six months. The first outcome is an indicator for whether a worker asked for a higher wage. The second outcome is an indicator for whether a worker successfully negotiated a higher wage. The sample includes workers at surveyed firms who participated in the worker survey. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A11: Impact of the Randomized Range on Workers' Stated Salary Expectations

		Level of Expectations		
	Provided Expectations	Continuous	Top Half or Above Range	Above Range
	(1)	(2)	(3)	(4)
Saw 110-140% Range	-0.003	13.024***	-0.199***	-0.004
	(0.006)	(0.601)	(0.010)	(0.007)
Constant	0.930***	112.783***	0.826***	0.109***
	(0.004)	(0.389)	(0.006)	(0.005)
Observations	7079	6477	6982	6982

Note: This table documents the relationship between the randomly provided salary range that survey respondents saw in the hypothetical scenario and the answers they gave. Column 1 focuses on whether respondents indicated that they would provide their salary expectations. Columns 2 to 4 focus on the level of expectations respondents would provide. Each entry presents results from a separate regression of the hypothetical bargaining outcome indicated in the column on an indicator for whether the worker was shown the higher range (110-140% rather than 90-120%). Robust standard errors are in parentheses. The sample includes workers at surveyed firms who participated in the worker survey. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A12: Relationship Between Actual and Hypothetical Negotiations

		Level of Expectations		
	Provided Expectations	Continuous	Top Half or Above Range	Above Range
	(1)	(2)	(3)	(4)
Provided Expectations	0.179***	0.000	0.048*	0.020
	(0.047)	(0.000)	(0.026)	(0.034)
	1722	1566	1694	1694
Asked for More (Start of Spell)				
Binary	-0.043	-0.000	0.012	0.107***
	(0.045)	(0.000)	(0.027)	(0.037)
	1731	1573	1702	1702
Level	-0.030	0.003	0.271	1.787***
	(0.457)	(0.005)	(0.266)	(0.460)
	1725	1569	1697	1697
Negotiated for More (Start of Spell)				
Binary	0.008	0.000	0.015	0.115***
	(0.041)	(0.000)	(0.024)	(0.035)
	1728	1570	1699	1699
Level	0.096	0.003	0.119	0.858***
	(0.294)	(0.003)	(0.178)	(0.287)
	1723	1567	1695	1695
Asked for and Got a Raise in Previous 6 Months (Binary)	0.000	-0.000	0.012	0.054***
	(0.020)	(0.000)	(0.012)	(0.018)
	7054	6454	6957	6957

Note: This table presents results from regressions of hypothetical bargaining outcomes on actual bargaining behavior. Each entry presents results from a separate regression of the hypothetical bargaining outcome indicated in the column on an individual's historical bargaining choice (row) and controls (age, a quadratic in experience, education dummies). The sample includes workers at surveyed firms who participated in the worker survey. The outcome in Column 1 is an indicator for whether the respondent provided their salary expectations in the hypothetical scenario. The outcomes in Columns 2 to 4 measure the level of the provided expectations. The sample in Column 2 includes only the subset of workers who provided their expectations; the sample in Columns 3 and 4 includes all surveyed workers. Robust standard errors are in parentheses. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A13: Bargaining and the Gender Pay Gap

	Daily Pay		Daily Base Pay	
	Without Individual Bargaining	With Individual Bargaining	Without Individual Bargaining	With Individual Bargaining
	(1)	(2)	(3)	(4)
	A. All Workers			
Share Exposed	20%	80%	20%	80%
Gender Wage Gap	0.028	0.056	0.024	0.055
Overall Gender Wage Gap	0.050		0.049	
Wage Gap Associated with Bargaining	0.022		0.025	
% Wage Gap Associated with Bargaining	44%		51%	
	B. Surveyed Workers			
Share Exposed	23%	77%	23%	77%
Gender Wage Gap	0.013	0.051	0.008	0.050
Overall Gender Wage Gap	0.043		0.040	
Wage Gap Associated with Bargaining	0.030		0.032	
% Wage Gap Associated with Bargaining	70%		80%	

Note: This table examines the importance of individual bargaining for the gender pay gap. Panel A focuses on all workers at surveyed firms. Panel B includes only workers at surveyed firms who participated in the worker survey. Gender pay gaps come from regressions of log wages which control for demographic characteristics (age, a quadratic in experience, education dummies) and for occupation-establishment fixed effects. We calculate the population gender pay gap attributable to bargaining by multiplying the gap attributable to bargaining (difference in gaps at bargaining and non-bargaining firms) by the share exposed to bargaining. We calculate the percent share of the pay gap due to bargaining by dividing this number by the overall gender pay gap.

Table A14: The Gender Gap in Hours Worked

	Without Individual Bargaining			With Individual Bargaining		
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.046***	-0.071***	-0.076***	-0.047***	-0.056***	-0.057***
	(0.006)	(0.009)	(0.010)	(0.007)	(0.008)	(0.008)
p-value for equality	0.906	0.247	0.188	0.906	0.247	0.188
Adjusted R-Squared	0.039	0.092	0.088	0.032	0.123	0.122
Clusters	90	32	32	307	132	126
Observations	1617	1226	1181	5320	3820	3620
Fixed Effects	---	Occ-Est	Level-Occ-Est	---	Occ-Est	Level-Occ-Est

Note: This table presents results analogous to those in Table VI for specifications in which the dependent variable is log hours. Each column presents results from a separate regression of log hours on a female dummy, age, a quadratic in experience, education dummies, and on the fixed effects indicated in each column. Because hours are measured in the worker survey, this table only includes surveyed workers. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A15: Robustness of Gender Wage Gap Results

	All Workers		Surveyed Workers	
	(1)	(2)	(3)	(4)
	A. Baseline Definition			
Daily Pay	-0.027***	-0.026**	-0.039	-0.035
	(0.010)	(0.010)	(0.026)	(0.027)
	243002	240890	5046	4801
Daily Base Pay	-0.031**	-0.030**	-0.058*	-0.055*
	(0.014)	(0.015)	(0.031)	(0.032)
	242778	240665	5040	4797
Hourly Pay	---	---	-0.054**	-0.054*
			(0.026)	(0.027)
			5046	4801
Pay Is Censored	-0.014	-0.015	-0.057*	-0.051**
	(0.012)	(0.012)	(0.029)	(0.025)
	243002	240890	5046	4801
	B. Definition Based on Renegotiation			
Daily Pay	-0.043***	-0.039***	-0.071***	-0.060***
	(0.010)	(0.010)	(0.021)	(0.021)
	243002	240890	5136	4891
Daily Base Pay	-0.048***	-0.045***	-0.072***	-0.064***
	(0.016)	(0.015)	(0.020)	(0.019)
	244780	242665	5130	4887
Hourly Pay	---	---	-0.070***	-0.062***
			(0.019)	(0.019)
			5136	4891
Fixed Effects	Occ-Est	Level-Occ-Est	Occ-Est	Level-Occ-Est

Note: This table documents robustness for our estimates of the gender pay gap from a fully interacted version of equation 2. Each column presents the coefficient on the interaction between a female dummy and a dummy for whether pay is set via individual bargaining from a separate regression of log wage that uses age, a quadratic in experience, education dummies, and the fixed effects indicated in each column as controls. Panel A uses our baseline definition to characterize firms' bargaining strategies based on survey measures of bargaining with new hires. Panel B uses an alternative definition to identify firm bargaining strategies based on reported bargaining with incumbents. Columns 1 and 2 capture all workers at surveyed firms, while Columns 3 and 4 only include the subset of those workers who participated in the worker survey. In addition to using our main outcome measure of daily pay, the table also provides results for daily base pay (excluding special pay such as bonuses), hourly pay (dividing daily pay by hours worked for surveyed workers who report hours in the worker survey), and an indicator of whether pay is censored at the Social Security maximum. See Appendix C for more details on how these pay measures are constructed. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table A16: Gender Pay Gaps at Surveyed and Non-Surveyed Firms

	Non-Surveyed Firms		Surveyed Firms	
	(1)	(2)	(3)	(4)
Daily Pay	-0.073***	-0.071***	-0.051***	-0.051***
	(0.001)	(0.001)	(0.009)	(0.009)
	532949	507379	246014	243869
Daily Base Pay	-0.078***	-0.076***	-0.050***	-0.050***
	(0.001)	(0.001)	(0.012)	(0.011)
	532342	506798	245788	243642
Fixed Effects	Occ-Est	Level-Occ-Est	Occ-Est	Level-Occ-Est

Note: This table compares the gender pay gaps at the surveyed firms in our sample to those among a random set of workers at non-surveyed firms. Each column presents the female coefficient of a separate regression of log wages on a female dummy, age, a quadratic in experience, education dummies, and on the fixed effects indicated in each column. In addition to using our main outcome measure of daily pay, the table also provides results for daily base pay (excluding special pay such as bonuses). See Appendix C for more details on how these pay measures are constructed. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

B Firm Survey

This section provides additional information on the implementation and validation of the firm survey. We discuss selection into non-response and the extent to which the firm survey covers the different parts of the German labor market. We also provide detailed information about the elicited bottleneck occupations. See Appendix Section H.1 for the original questionnaire, as well as an English translation.

B.1 Implementation Details

Our firm survey was fielded by the ifo Institute and was pitched to participants as a new survey aimed at eliciting wage-setting strategies. The sampling frame included two survey panels housed at the ifo Institute. The first panel contains over 1,000 HR professionals which participate in quarterly HR surveys. Most of these HR professionals participate online, but some only participate via mail. Because our survey was a special edition survey, we conducted the survey online and invited participants via e-mail.[1] We included all HR professionals with regular online access as well as those HR professionals who typically respond via mail, but for whom e-mail addresses were available. From this first panel, we invited 1,061 HR professionals. The second panel contains 654 senior managers, all of whom normally participate online. The majority of these panelists hold higher-level management positions, such as company owner, CEO, or segment head.

We complemented these two existing panels (continuing respondents) with a second sample of HR professionals (new respondents) through a targeted outreach. We advertised the survey through HR newsletters, social media posts, articles, and HR events. We invited interested HR professionals to register online through the ifo Institute. In total, 126 individuals registered and received their invitation via e-mail together with the continuing respondents. 64% of newly registered individuals responded to the survey.

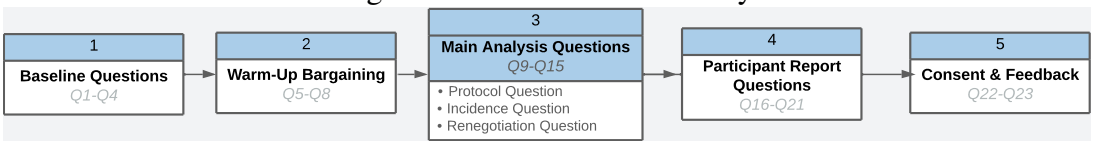
The ifo Institute sent the invitations to participate in the survey in two waves: in September 2021 and in January 2022. We invited a randomly selected half of HR professionals to participate in the first wave and invited the remainder in the second wave. We invited all managers in the second wave. The survey stayed open for two weeks, and we sent a reminder e-mail after 1.5 weeks.

The survey included 23 questions and we told practitioners that responding to the survey would take approximately 15 minutes. Appendix Figure B1 describes the organization of the firm survey. First, we asked participants a few simple questions about their firm's wage-setting strategies. Next, we used a series of warm-up questions to introduce the concept of wage bargaining. These questions were not intended to be used for our analysis. Instead, their purpose was to introduce our definition of bargaining and to make sure participants are familiar with answering this type of questions. For simplicity, these warm-up questions do not distinguish between employee groups and are therefore not used in our main analysis. The main questions used for our analysis—our protocol question, incidence question, and renegotiation question—are in the third survey block. To encourage individuals to participate, we also included several questions that practitioners had

[1] Participation via mail requires a specific question format that would have imposed severe limitations on the breadth and content of our questionnaire.

expressed interest in during piloting. In the survey invitation, we told potential participants that we would send aggregated survey results to participants after the we closed the survey. We included these questions in the survey and prepared a report using these questions. In the last module, we elicited participants' consent to have their responses linked to the IAB data. We also included a space for feedback, which is a standard practice at the ifo Institute.

Figure B1: Flow of Firm Survey



Note: This figure provides an overview over the modules in the firm survey. The main questions used for our analysis are elicited in the third survey block. See Appendix H.1 for the exact wording of our questions.

A total of 959 HR professionals and managers participated in the survey. We define a response as complete if a respondent saw all questions in the survey; the completion rate is 83%. For the majority of our analysis, we pool new respondents and respondents from both of the ifo Institute's panels. This decision was motivated by two findings. First, we do not detect meaningful differences in response behavior between these groups along several margins. Completion rates are similar: 82.05% of continuing and 83.93% of new respondents complete the survey. In addition, the shares of continuing (70.63%) and new respondents (73.53%) who provide linkage consent are similar. We also find that the share of responses that are missing throughout the survey and the amount of time it took respondents to complete the survey are similar. The median continuing respondent spent 10.67 minutes, while the median new respondent spent 10.32 minutes. Second, in unreported results, we find that our main results look similar across samples.

B.2 Non-Response and Linkage Consent

A standard concern in the survey literature is that of selection into response. While it is difficult to examine selection among new respondents (who came from a variety of channels), we are able to examine response behavior systematically for the 878 continuing respondents who were part of the ifo Institute's existing panels.

We first follow standard practices of the ifo Institute and use internal data that ifo collects as part of the maintenance of its survey panel to compare respondents and non-respondents. We conduct this exercise separately for three respondent subgroups: HR professionals who normally participate online, HR professionals who normally participate via mail, and managers (all of whom normally participate online). We distinguish between the two subgroups of HR professionals because participation in our survey is only possible online. HR professionals who normally respond via mail may be less likely to respond via e-mail.

Table B1: Selection into Response

	A. HR Panel Online Respondent			B. HR Panel Mail Respondent			C. Manager Panel		
	Non-Respondent (1)	Respondent (2)	p-value (3)	Non-Respondent (4)	Respondent (5)	p-value (6)	Non-Respondent (7)	Respondent (8)	p-value (9)
Sector									
Manufacturing	0.38	0.35	0.42	0.37	0.35	0.78	0.34	0.35	0.85
Service	0.42	0.41	0.83	0.41	0.44	0.63	0.10	0.07	0.18
Retail	0.20	0.23	0.23	0.23	0.21	0.80	0.16	0.11	0.03
Number of Employees									
1-49	0.40	0.32	0.02	0.46	0.45	0.89	0.43	0.58	0.08
50-249	0.36	0.44	0.01	0.39	0.38	0.82	0.41	0.26	0.06
250-449	0.14	0.13	0.46	0.06	0.09	0.48	0.02	0.14	0.02
Sales									
1-<5 M €	0.32	0.25	0.05	0.38	0.29	0.24	0.15	0.11	0.24
5-<25 M €	0.28	0.34	0.10	0.28	0.47	0.01	0.25	0.21	0.41
25-100 M €	0.21	0.23	0.59	0.20	0.07	0.04	0.33	0.35	0.65
Other									
In ifo panel >10 years	0.37	0.40	0.39	0.46	0.45	0.95	0.29	0.31	0.65
Family firm	0.63	0.64	0.86	0.64	0.78	0.08	-	-	-
Observations	375	435		185	66		277	377	

Note: This table compares the firm characteristics of respondents and non-respondents from the ifo Institute's HR panel and manager panel. The data used to construct this table come from the ifo Institute and are regularly used to examine selection into response. Panel A contains HR professionals who normally participate in surveys online. Panel B contains HR professionals who normally participate via mail, but for whom e-mail addresses are available. Panel C contains all individuals from the manager panel. Columns 3, 6, and 9 present p-values from tests of equality between the shares in the preceding two columns. Note that this table does not contain the 81 new respondents that were not part of the ifo panel at the time we conducted the survey.

Appendix Table B1 shows that there are no systematic patterns of selection into response. This table displays the means of non-respondents and respondents as well as p-values from a test of equality between those means, separately for the three subgroups. As the first three rows indicate, respondents and non-respondents work in similar sectors. We find that, among HR professionals who normally participate online, medium-sized firms are more likely to participate. However, the opposite is true for the manager panel. For HR professionals, we detect some differences in the likelihood to respond based on their firm's sales. In the manager panel, however, respondents and non-respondents work at firms with similar levels of sales. We also do not find any evidence that firms are more likely to respond if they have participated for longer in surveys conducted by the ifo Institute, which could have altered the sample of respondents. [2]

We also analyze selection into response by comparing the characteristics of respondents who participate before and after a reminder is sent. The goal of this exercise is to test whether firms' (unobservable) propensity to respond, as measured by whether they responded before we sent the reminders, is correlated with their bargaining strategy and other firm characteristics. Appendix Table B2 presents characteristics of respondents who respond before and after we sent the reminders, as well as p-values of a test for equality between the two means. We do not find any indication that our elicited bargaining strategies are correlated with firms' propensity to respond. We also do not find that firms with different propensities to respond differ in key observable characteristics.

Finally, we examine the extent to which respondents left questions blank. In this exercise, we focus on the 772 respondents who completed the survey, which we define based on whether a respondent has clicked through to the final question in the survey. Even though we did not enforce responses to individual questions, Appendix Table B3 shows that the share of respondents who leave an answer blank is low throughout the survey.

Some of our analysis relies on a linkage with the Social Security records housed at the IAB. Sample selection may also occur due to differential rates of linkage consent, which is necessary under German privacy laws to link firms' survey responses to Social Security records. Out of the 772 firms with complete responses, 553 (72%) respondents provided this consent.[3] Appendix Table B4 compares respondents who do not provide linkage consent (Column 1) to those who do (Column 2). Column 3 presents p-values from a test of equality between the two means. Both groups are similar with respect to the length of their participation in the ifo panel, whether they are covered by a CBA, firm size, firm age, and other measures of firm productivity.

The only differences we detect when it comes to the likelihood of providing linkage consent are with respect to sector. Manufacturing firms are somewhat under-represented among consenting firms, while professional services firms are somewhat over-represented among these firms. Because manufacturing firms are over-represented in our firm survey, this pattern has the effect of making the final sample more representative of the overall sectoral composition of Germany.

[2] In our main analysis we use more detailed information on firms (e.g., age, size, total assets sales) from Orbis. We do not use Orbis data for this exercise as we do not have permission to merge these data for non-respondents.

[3] To the best of our knowledge, our survey is the first external firm survey to explicitly ask for this consent and to link responses to the IAB records. We developed the consent language in collaborations with lawyers at the ifo Institute and the IAB. Other institutions in Germany have recently elicited consent to link survey responses to their own internal records. For instance, a 2020 Online Panel Survey of Firms conducted by the Bundesbank, elicited consent to link responses to other Bundesbank databases. Our consent rate is comparable to the 73% consent rate in that survey (Bundesbank 2021).

Table B2: Comparison Between Early and Late Responders

	Responded Before Reminder		
	No	Yes	p-value
	(1)	(2)	(3)
Financial Status			
Total Assets per Employee	197.18	692.15	0.50
Fixed Assets per Employee	70.50	505.07	0.44
Number of Employees			
1-10	0.06	0.09	0.20
11-50	0.23	0.27	0.20
51-200	0.33	0.33	0.97
201-1000	0.27	0.21	0.10
1001-10000	0.05	0.04	0.66
10000+	0.03	0.03	0.99
Other Firm Characteristics			
Year of Incorporation	1975.95	1970.99	0.15
HQ in Eastern Germany	0.11	0.13	0.37
Have a CBA	0.39	0.42	0.45
Stock Corporation	0.11	0.09	0.42
Sector			
Manufacturing	0.36	0.34	0.61
Retail	0.19	0.16	0.28
Professional Services	0.09	0.09	0.87
Information Services	0.08	0.07	0.55
Transport	0.06	0.06	0.81
Real Estate	0.02	0.06	0.02
Administration	0.03	0.05	0.18
Finance	0.04	0.04	0.71
Bargain With			
Recent Entrants	0.57	0.53	0.40
Experienced Non-Managers	0.86	0.84	0.51
Managers	0.97	0.94	0.14
First Year in ifo Panel	2014.72	2013.45	0.00
Observations	202	570	

Note: This table compares the characteristics of the firms who responded before we sent the reminders (Column 2) to those that only responded after we sent the reminders (Column 1). Column 3 presents the p-value from a test of equality of means. The ifo Institute provided information on length of time each respondent had been in the ifo Panel. We elicited CBA coverage and bargaining strategies in the firm survey. All other variables stem from Orbis. See Appendix Section C.2 for a detailed description of these variables. The sample contains 772 firms.

Table B3: Question Non-Response in Firm Survey

Question (1)	Non-Response Rate (2)
Collective Bargaining Agreement	0%
Policy for External Job Ads	0%
Policy for Internal Job Ads	0%
Elicit Salary Expectations	0%
Bargaining Policies (Base Wages)	
Recent Labor Market Entrants	4%
Experienced Non-Managers	4%
Managers	5%
Workers in Bottleneck Positions	5%
Bargaining Policies (Special Pay)	
Recent Labor Market Entrants	6%
Experienced Non-Managers	5%
Managers	6%
Workers in Bottleneck Positions	7%
Hypothetical Variation in First Offers	
Recent Labor Market Entrants	6%
Experienced Non-Managers	6%
Managers	7%
Workers in Bottleneck Positions	7%
Hypothetical Variation in Final Offers	
Recent Labor Market Entrants	7%
Experienced Non-Managers	7%
Managers	7%
Workers in Bottleneck Positions	8%
Renegotiation Policy	
Recent Labor Market Entrants	4%
Experienced Non-Managers	4%
Managers	5%
Workers in Bottleneck Positions	5%
Observations	772

Note: This table documents which share of the 772 respondents who completed the survey left the answer to a given question blank. We focus on the subset of questions that are most relevant for our analysis.

Table B4: Differences Between Consenting and Non-Consenting Firms

	Provided Consent		
	No	Yes	p-value
	(1)	(2)	(3)
Financial Status			
Total Assets per Employee	256.01	686.03	0.55
Fixed Assets per Employee	163.22	484.05	0.55
Number of Employees			
1-10	0.08	0.08	0.90
11-50	0.24	0.27	0.44
51-200	0.31	0.33	0.52
201-1000	0.23	0.22	0.75
1001-10000	0.06	0.04	0.09
10000+	0.03	0.03	0.81
Other Firm Characteristics			
Year of Incorporation	1970.85	1972.85	0.55
HQ in Eastern Germany	0.10	0.13	0.23
Have a CBA	0.42	0.41	0.68
Stock corporation	0.11	0.09	0.53
Sector			
Manufacturing	0.39	0.32	0.06
Retail	0.20	0.16	0.13
Professional Services	0.06	0.10	0.05
Information Services	0.04	0.08	0.05
Transport	0.05	0.07	0.27
Real Estate	0.03	0.06	0.14
Administration	0.04	0.05	0.65
Finance	0.03	0.05	0.26
Bargain With			
Recent Entrants	0.54	0.54	0.87
Experienced Non-Managers	0.81	0.86	0.10
Managers	0.92	0.96	0.05
First Year in ifo Panel	2013.47	2013.91	0.31
Observations	219	553	

Note: This table compares firm characteristics of respondents that did and did not provide consent for their responses to be linked to Social Security records out of our firm-level sample of 772 respondents. Column 1 describes the firms of non-consenting respondents. Column 2 describes the firms of consenting respondents. Column 3 presents the p-value from a test of equality of means. The ifo Institute provided us with information on how long each respondent had been in the ifo panel. We elicit CBA coverage in the survey. All other variables stem from Orbis. See Appendix Section C.2 for a detailed description of these variables.

Table B5: Comparison to Regional Distribution of German Firms

	Survey	Firm Register
	(1)	(2)
Baden-Württemberg	16.3	13.7
Bavaria	22.5	18.8
Berlin	1.8	5.0
Brandenburg	1.6	2.8
Bremen	1.1	0.7
Hamburg	2.7	2.8
Hesse	8.0	7.6
Lower Saxony	7.8	8.7
Mecklenburg Western Pomerenia	0.8	1.7
Northrhine-Westphalia	18.8	20.2
Rhineland Palatinate	5.3	4.7
Saarland	0.8	1.0
Saxony	4.3	4.4
Saxony-Anhalt	2.3	1.9
Schleswig Holstein	3.6	3.6
Thuringia	2.3	2.2

Note: This table compares the regional distribution of our 772 surveyed firms to that of all firms in Germany. Information on all German firms is based on the Statistical Business register and stems from Hiersemenzel, Sauer, and Wohlrabe (2022). The firm locations for firms in our survey stem from Orbis.

B.3 Coverage of German Labor Market

We assembled a sampling frame with the goal of eliciting bargaining strategies for a broad set of German firms. In the main text, we compare our sample to the set of all German firms (Table I). In this section, we assess the geographic coverage of our sample and compare the manufacturing firms in our sample to those that participated in the well-studied World Management Survey (Bender et al. 2018).

B.3.1 Geographic Coverage Relative to All German Firms

Appendix Table B5 compares the distribution of firms in the German labor market across regions to the firms in our firm-level sample of 772 respondents. We find that our firm survey is similar in terms of regional coverage to the overall labor market.

B.3.2 Comparison with World Management Survey Firms

To further probe the coverage of the firm survey, we next compare the manufacturing firms in our survey that we can link to the Social Security records to the manufacturing firms who participated in the well-studied World Management Survey and whose responses were linked to the same administrative records (Bender et al. 2018).

We collect the location of the firm's headquarters, the incorporation date, the amount of fixed assets, and material costs from Orbis. We use two industry-level measures from the OECD ISIC4 Database: the labor revenue share and the intermediate input revenue share. The former is based on the share of wage bill out of total revenue. The latter is constructed by dividing industry-level inputs by industry-level revenue. Both are available at the industry-level in 2019. We use the Social Security data to compare the number of employees, the median daily wages (in Euros), the share of female workers, and the share of workers with a university degree. Because only 19 firms in our sample are also contained in the 361 firms that Bender et al. (2018) study, we refrain from making comparisons using the World Management Survey itself.

Appendix Table B6 shows that the manufacturing firms in our sample (Columns 1 to 3) are not substantially different from the World Management Survey firms (Columns 4 to 6) studied by Bender et al. (2018). Given that the World Management Survey was fielded to different individuals in each firm (plant managers, rather than HR professionals), used a different interview technology (lengthy phone conversations, rather than an online questionnaire), and focused on different topics (primarily productivity-related, rather than bargaining-related), the similarity in the firm characteristics across these two different samples is reassuring. If there were systematic selection into our sampling frame based on the topics covered, we would not expect this similarity.

B.4 Validations of Survey-Based Measures

This appendix section provides additional information on the validity exercises that we conducted to gauge the reliability of our survey-based measures of firm bargaining practices. Beyond these exercises, the results in Section 6 suggest that our survey elicited meaningful information on firms' bargaining strategies.

Respondents Are Informed. If respondents are not informed, their responses will not accurately depict their firms' practices. Four pieces of evidence suggest that respondents are well-informed about bargaining at their firm, including both whether and how much their firm is willing to differentiate wages between workers with similar qualifications and fit. First, during our piloting phase, we explicitly asked HR representatives to what extent people in their position would be able to answer our questions about wage differentiation and negotiations, especially with respect to the intensive margin. Our pilot participants stated that within an organization, HR employees typically know what scope there is to differentiate pay.

Second, the nature of our sampling frame suggests that our respondents are informed about wage setting. The ifo Institute invites these respondents quarterly to participate in surveys, many of which require detailed knowledge of firm policies. The median respondent in our sample has been in the ifo panel for seven years. In the five-year window that includes our firm survey, the ifo Institute has asked detailed questions about how firms set wages in six other quarterly HR surveys (Schaller, Hennrich, and Wohlrabe 2025).[4] All of our respondents from the HR panel have participated in at least one of these recent wage-related surveys, 73% of HR respondents have

[4]The questions in those surveys were not targeted at wage flexibility and are thus not useful for our study. For instance, the ifo Institute has asked respondents how much their firm will adjust wages in the next quarter or how wages differ (in levels) across employee groups. Further, our study was the first to obtain consent to link to the administrative data at the IAB.

Table B6: Comparison to Linked World Management Survey Data

	Surveyed Manufacturing Firms			World Management Survey		
	Mean	Std. Dev.	Median	Mean	Std. Dev.	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Orbis Data						
HQ in East Germany	0.16	(0.37)	0.00	0.13	(0.34)	0.00
Log Fixed Assets	8.24	(2.80)	7.80	9.89	(1.69)	10.18
Log Materials Cost	9.82	(1.40)	9.54	11.29	(1.07)	11.78
Firm Age (Years)	55.15	(47.69)	35.00	64.34	(62.79)	42.50
OECD Data (Industry Level)						
Intermediate Input Revenue Share	0.64	(0.07)	0.64	0.67	(0.05)	0.67
Labor Revenue Share	0.20	(0.04)	0.21	0.23	(0.04)	0.23
IEB Data						
Number of Workers	1491.26	(6754.43)	181.00	440.02	(642.90)	238.00
Median Daily Wage (Euros)	123.05	(36.11)	116.62	101.58	(28.46)	99.51
Share Female Workers	0.24	(0.17)	0.19	0.27	(0.17)	0.22
Share Workers with University Degree	0.18	(0.15)	0.14	0.12	(0.13)	0.08
Observations		178			361	

Note: This table compares the manufacturing firms in our survey that are linked to the IAB data to the manufacturing firms analyzed by Bender et al. (2018) that are linked to the IAB data. The last three columns come from Bender et al. (2018). Bender et al. (2018) refer to fixed assets as the book value of capital and to material costs as intermediate inputs. We use the most recently available data from Orbis. The industry-level data in the OECD ISIC4 Database are from 2019. The IEB data are from 2020. The top panel includes the 178 manufacturing firms which provided consent to be linked to the IAB records; the estimates based on IEB data are based on the 173 firms that provided consent and we were able to link to the IEB records.

participated in more than three of these wage surveys, and 85% of HR respondents participated in a wage-related survey in the same year as our survey. Appendix Table B7 below shows that we see similar results for both the extensive margin (whether firms bargain) and intensive margin (how much they bargain) across samples defined by respondents' experience with these surveys.

Third, we included an open-text field at the end of the survey where respondents could leave comments. The ifo Institute always includes such a field to monitor how well surveys are received and to identify questions that are particularly difficult to answer. Of the 772 firm-level responses, there are only two cases in which a respondent stated that responding to our questions was difficult for them. Several respondents used the open-text field to provide additional information about their wage-setting practices. This pattern suggests that, for most respondents, our questions (which elicit both whether a firm bargains and the scope firms have to differentiate pay) are not outside of their area of expertise. Appendix Table B3 shows that the non-response rate to each question is low. Because we did not force respondents to provide answers to any of the questions, this suggests that respondents felt comfortable answering the questions, rather than skipping them.

Finally, because HR departments are typically small, relative to the size of an organization, it is unlikely that our respondents are only familiar with the policies which apply to a narrow subset of employees. On average, firms employ two HR representatives for 100 employees (Harbinger Consulting 2023). Because our typical firm employs between 50 and 249 workers, we should expect that they have at most five employees working in HR. Recent survey evidence by the ifo Institute corroborates that the average firm in our HR panel has five employees in HR (Schaller, Hennrich, and Wohlrabe 2025).

Respondents' Answers are Reliable. To directly test the validity of the provided survey responses, we first gauge intra-respondent reliability: whether respondents' answers to distinct questions within the survey align with each other.[5] When comparing the protocol and the incidence question, internal consistency would require that individuals report an expected variation in final offers (incidence question) that is weakly less than the amount of flexibility they have in giving these offers (protocol question).[6] Appendix Table A3 shows the cross-tabulations between the protocol and incidence question and finds that most of the mass is on or below the diagonal, corroborating internal consistency. As an additional test, we compare responses to the protocol question for firms that are covered by CBAs—and who should by design be restricted in their ability to set wages flexibly—to those who are not covered by a CBA. Appendix Table A4 shows that wages are less flexible for recent labor market entrants (who are most likely to be covered by CBAs) in CBA-covered firms.

Respondents Answered Truthfully. Even if respondents are well-informed, a natural concern is that they may not have an incentive to report truthfully. Because individual wage bargaining is

[5] In the protocol question, we asked for the maximum by which wages could be adjusted *upward*. This wording was motivated by the fact that HR professionals rarely reported wage offers—at the initial or final stage—being adjusted *downward.* One potential explanation for this pattern is that most firms, including those without CBAs, have formal pay structures that place lower bounds on the wages offered to workers of a given job title. Because the incidence question is not subject to this concern, we use this question to probe robustness.

[6] For instance, a firm that reports wages can be adjusted up to 20% upward should expect the gap between the highest and lowest offers to be at most 20%. If offers can also be adjusted downward, this need not be true. However, conversations with HR professionals suggest downward adjustments are rare.

Table B7: Individual Bargaining Strategies: Heterogeneity by Respondent Survey Experience

	All HR Respondents			Participated in Wage Surveys: More Than 3			Participated in Wage Surveys: Within 1 Year of Our Survey		
	Labor Market Entrants	Experienced Non-Managers	Managers	Labor Market Entrants	Experienced Non-Managers	Managers	Labor Market Entrants	Experienced Non-Managers	Managers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	A. Bargaining over Base Wages with New Hires								
Any Scope	0.51	0.84	0.95	0.47	0.83	0.94	0.49	0.83	0.95
> 10%	0.09	0.21	0.60	0.09	0.19	0.57	0.10	0.19	0.58
> 30%	0.00	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.02
	B. Bargaining over Base Wages or Special Pay with New Hires								
Any Scope	0.59	0.88	0.97	0.56	0.88	0.96	0.57	0.88	0.97
> 10%	0.13	0.26	0.66	0.14	0.26	0.64	0.14	0.26	0.65
> 30%	0.01	0.01	0.05	0.01	0.01	0.05	0.01	0.01	0.05
	C. Bargaining over Base Wages with New Hires (Flexible-Amenities Firms)								
Any Scope	0.53	0.85	0.96	0.49	0.85	0.96	0.51	0.85	0.96
> 10%	0.10	0.23	0.64	0.10	0.23	0.62	0.11	0.22	0.63
> 30%	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.03
	D. Renegotiating Base Wages								
Any Scope	0.57	0.82	0.90	0.55	0.80	0.89	0.56	0.82	0.90
> 10%	0.06	0.17	0.42	0.06	0.17	0.40	0.07	0.17	0.41
> 30%	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01

Note: This table examines heterogeneity in bargaining protocols between respondents with different amounts of experience with wage-related surveys at the ifo Institute. Each set of three columns describes protocols for the three employee groups listed at the top of the column. Columns 1 to 3 pool responses from all HR representatives (N=433). Columns 4 to 6 only include respondents who participated in more than three wage-related surveys in a five-year window (N=314). Columns 7 to 9 only include respondents who participated in wage-related surveys that were launched within a year of our survey (N=369). Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage protocols for new external hires in the subset of firms that indicated they had a high degree of flexibility on any of: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. Each row provides the share of firms that report a certain bargaining strategy. The first row in each panel focuses on any amount of flexibility. The second row shows the share of firms that report being able to adjust wages by more than 10%. The third row shows the share of firms that could adjust wages by more than 30%.

legal in Germany, respondents had no reason to lie. Further, the fact that our respondents regularly participate in ifo surveys (the average participant has been in the panel since 2014) suggests that trust in the survey is high. Previous research has also shown that these survey-based indicators have high predictive power (Lehmann 2023), suggesting that the quality of the ifo survey responses is high.

Respondents' answers to other questions on the survey confirm they provided accurate information in the survey. We collected publicly available data on (1) whether at least some workers were covered by a collective bargaining agreement, (2) whether pay information is posted in external job ads, and (3) whether the firm elicits salary expectations during the application process—align with our survey responses. For 90% of firms who report that no workers are covered by a CBA, we cannot find any evidence of a CBA. For 99% of firms that report that they do not provide pay information in job ads, we cannot find pay information in online job postings. For 82% of firms who report not eliciting candidates' salary expectations, we find no indication of such elicitations in their online application forms.

Construct Validity. A final concern is that, even if respondents are knowledgeable about their firm's practices and respond truthfully, they may interpret the questions differently than we do as researchers. Most of our piloting was designed to address this possibility. Our goal was to ensure that the wording made sense to the target audience and that their interpretation of the question matched the way we intended to use the question in our analysis.

We designed our main question (the "protocol question") to elicit whether it is possible to generate any variation in pay, after incorporating potential variation from the first or final stage. When designing the question, we made several design choices. First, we chose to use a standard term among HR practitioners to refer to base wages ("feste Vergütung", which we translate as "fixed compensation"). Second, we used a German expression, which we translate into "a person maximally receive", which refers to the final wage offered to a candidate. This wording indicates that this is not conditional on any particular stage of bargaining. Instead, the question unambiguously refers to the final wage offered to a candidate. Third, we wanted respondents to consider wage differentiation among candidates conditional on their qualifications and fit for a position. The German phrase we translate as qualifications and fit ("Qualifikation/Eignung für die Stelle") is what most closely aligned with HR managers' concepts of productivity. Fourth, when we elicited bargaining practices, we used the German word for compensation (Vergütung) which is a broad category that includes both salaries and wages. This design choice was important to clarify that we were not interested in bargaining practices for only a specific subset of employees. While we use the German term for salary negotiation ("Gehaltsverhandlung") because this is most commonly used among practitioners and no general term exists, our conversations with HR practitioners during piloting confirmed that this was nor perceived as overly restrictive.

We conducted a series of robustness tests to gauge the reliability of the main question we use in our analysis. These tests leverage practice questions we included in the warm-up module of the survey, as well as the auxiliary questions about incidence. First, we find that in 95% of cases in which respondents indicated—in the incidence questions—that there would be variation at either the first or the final stage, they also indicated this in our main protocol question. Second, we find that, in 85% of cases, firms' policies for non-managers as elicited in our protocol question agree with firms' responses to a simpler practice question about new hires. In this practice question

(which we did not intend to use in our main analysis, and which we did not pose separately for different groups of workers), we asked respondents: *Now, please think back to the last 10 external candidates that you have knowledge of and to whom your company made offers. What do you guess is the share of these external candidates who ultimately received a final compensation offer that was higher than your company's first offer?* Respondents had 11 response options ranging in increments of 10 from 0% to 100%. Though we would not expect full agreement in the answers to these questions, the high degree of consensus is comforting.[7]

Our final set of tests was designed to address the concern that respondents may provide their firms' policies for certain groups of workers for whom this type of wage differentiation is common and that, by grouping workers in different occupations, we miss important variation in firm policies. Because previous work has highlighted contrasts in the realized bargaining outcomes of blue-collar and white-collar workers, we conducted two tests which confirm we did not simply elicit the policies for white-collar workers.[8] First, as we show in the next section, the bottleneck positions provided by firms include both white- and blue-collar positions. Even when we focus on occupations that are blue-collar or do not require a college degree, we find that bargaining is extremely prevalent. Second, we assess heterogeneity by whether firms employ a high share of blue-collar workers. For this test, we use two proxies to identify blue-collar firms: 1) whether the share of unskilled workers following the Blossfeld (1984) qualification in a firm is in the top quartile and 2) whether the median pay at the firm is in the bottom quartile. Appendix Table B8 shows, we find similar bargaining patterns when we focus on firms whose employees are likely primarily blue-collar workers. For instance, while 54% of all firms report having a bargaining strategy for recent entrants, this is only reported by 49% of firms with a high share of unskilled workers and 52% of firms with low median pay.

B.5 Elicited Bottleneck Occupations

Our bargaining questions elicit strategies for four groups of employees: recent labor market entrants, experienced non-managers, managers, and workers in bottleneck occupations. The German Federal Employment Agency (Bundesagentur fuer Arbeit) has published official statistics about bottleneck occupations since 2011 (Bundesagentur fuer Arbeit 2021). Bottleneck occupations are defined as positions that are hard to fill. Official measures of bottleneck occupations include the time it takes to fill a vacancy, the ratio of job seekers to vacancies for a given occupation, and the occupation-level unemployment rates.

To capture bargaining strategies for this specific set of occupations, we prompted respondents to list the bottleneck occupation that is most relevant for their firm. Appendix Table B9 presents the most commonly named bottleneck occupations, categorized into narrow occupational groups. Respondents named a wide range of occupations, spanning both higher-level positions such as IT specialists, engineers, or management occupations, and lower-level positions including food and

[7] One difference between the questions is that the practice question focuses on realized negotiations that occur after the first offer has been made. We would not expect perfect alignment between the responses to this question and to our main question if workers do not always ask for more (as we document in the paper) or if, on occasion, the wage differentiation only occurs at the initial offer stage. Another potential reason for disagreement is if the previous 10 hires include workers in groups other than the experienced non-manager category (e.g., managers).

[8] We did not elicit policies separately for blue- and white-collar occupations due to the political sensitivity of this type of wording, which was emphasized in our initial pilots with HR professionals.

Table B8: Bargaining Policy for Firms with High Share of Blue-Collar Workers

		Proxies for firms with high share of blue-collar workers	
	Baseline	Share Unskilled >=75th Percentile	Pay <25th Percentile
	(1)	(2)	(3)
	A. Bargaining Over Base Wages with New Hires		
Recent Entrants	0.54	0.49	0.52
Experienced Non-Managers	0.85	0.80	0.85
Managers	0.95	0.95	0.92
	B. Bargaining Over Base Wages or Special Pay with New Hires		
Recent Entrants	0.61	0.56	0.61
Experienced Non-Managers	0.88	0.85	0.89
Managers	0.97	0.96	0.94
	C. Bargaining Over Base Wages With New Hires (Flexible-Amenities Firms)		
Recent Entrants	0.57	0.48	0.51
Experienced Non-Managers	0.87	0.78	0.85
Managers	0.96	0.95	0.92
	D. Renegotiating Base Wages		
Recent Entrants	0.57	0.49	0.53
Experienced Non-Managers	0.82	0.86	0.86
Managers	0.91	0.95	0.94

Note: This table compares bargaining protocols of all surveyed firms (Column 1) against those with a high share of blue-collar workers (Columns 2 and 3). Column 2 restricts to firms whose share of workers in unskilled occupations per Blossfeld (1984) is in the top quartile. Column 3 restricts to firms whose median pay is in the bottom quartile. Each entry reports the share of firms willing to adjust pay per the bargaining protocol specified in the panel. Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage strategies for new external hires in the subset of firms that indicated having a high flexibility with respect to any of the following non-wage amenities: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. Each row provides the share of firms that report being able to adjust wages by a non-zero amount for the respective employee group. The first row in each panel focuses on the policy for recent labor market entrants. The second row focuses on experienced non-managers. The third row focuses on managers.

service workers, drivers, or machinists.

Table B9: Frequency of Reported Bottleneck Occupations

	Share
IT specialist	11%
Software developer	9%
Sales manager	8%
Engineer	7%
Technician	6%
Plant or branch manager	5%
Driver	3%
Food/service worker	3%
Craftsman	2%
HR professional	2%
Machinist	2%
Project manager	1%
Accountant	1%
Purchasing specialist	1%
Construction manager	1%
No occupation provided	15%
Observations	772

Note: This table shows the frequency with which different bottleneck occupations were named in our firm survey. We categorized bottleneck occupations that respondents reported as most relevant for their firm into different occupational groups. 13% of respondents did not provide a bottleneck occupation.

Because bottleneck occupations may fall into one of the other three categories (which are mutually exclusive), most of our analysis focuses on the distinction between labor market entrants, experienced non-managers, and managers. However, the provided bottleneck occupations identify which occupations respondents had in mind when they provided their firm's bargaining strategy. Our data on these occupations therefore allow us to conduct two additional tests. First, one potential concern is that—by focusing on bargaining—we prompted respondents to think about high-skilled, white-collar positions (rather than blue-collar positions). Previous work by Hall and Krueger (2012) suggests that—at the time they conducted their survey—there were large differences in bargaining policies associated with blue-collar and white-collar workers. To examine whether our results vary across blue-collar and white-collar workers, we classify the provided bottleneck positions into blue-collar and white-collar occupations. A team of research assistants classified the cleaned occupations into blue-collar and white-collar occupations. They classified occupations as blue-collar if the occupation typically involved manual labor, skilled trades, or work in production, construction, or transportation. They classified occupations as white-collar if the occupation generally involved professional, managerial, administrative, or office-based work. We use the Social Security records to divide occupations based on whether they typically require a college degree or whether they are managerial. Appendix Table B10 shows similar results when we focus on occupations that are or are not white-collar (Columns 2 and 3) and those with and

without a college degree requirement (Columns 4 and 5).

Second, we can leverage the fact that many of the provided occupations are managerial occupations to examine whether firms are more likely to bargain (or are willing to adjust pay by more) when they are having difficulty hiring for a position. When we compare the bargaining strategies that we elicit for management occupations in general to those that firms report for management positions they are having difficulty filling, we find that that bargaining is more prevalent when management occupations are difficult to fill (Appendix Table B11).

Table B10: Bargaining Strategies by Type of Bottleneck Occupation

	Any Bottleneck	White-Collar		College Degree		Managerial Occupation	
		No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	A. Bargaining over Base Wages with New Hires						
Any Scope	0.95	0.97	0.98	0.97	0.98	0.98	1.00
> 10%	0.77	0.73	0.80	0.75	0.81	0.78	0.85
> 30%	0.07	0.07	0.08	0.07	0.09	0.07	0.15
	B. Bargaining over Base Wages or Special Pay with New Hires						
Any Scope	0.96	0.98	0.99	0.98	0.99	0.98	1.00
> 10%	0.79	0.78	0.83	0.79	0.83	0.81	0.89
> 30%	0.10	0.08	0.12	0.09	0.12	0.10	0.22
	C. Bargaining over Base Wages with New Hires (Flexible-Amenities Firms)						
Any Scope	0.97	0.97	0.99	0.98	0.99	0.99	1.00
> 10%	0.80	0.75	0.84	0.78	0.85	0.81	0.89
> 30%	0.09	0.09	0.10	0.08	0.11	0.09	0.17
	D. Renegotiating Base Wages						
Any Scope	0.93	0.97	0.94	0.95	0.94	0.94	0.98
> 10%	0.54	0.54	0.55	0.54	0.55	0.55	0.59
> 30%	0.05	0.01	0.06	0.03	0.06	0.04	0.13

Note: This table describes heterogeneity in bargaining protocols by the type of bottleneck occupation reported by the respondent. Column 1 presents our baseline estimates, which pool all bottleneck occupations. Columns 2 and 3 split the sample based on whether the bottleneck position is a white-collar position (e.g., software engineer, sales manager) or not (e.g., driver, food worker). Columns 4 and 5 split the sample based on whether the bottleneck position is likely to require a college degree. Columns 6 and 7 split the sample based on whether the bottleneck position is managerial (e.g., branch manager) or not. Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage strategies for new external hires in the subset of firms that indicated having a high flexibility with respect to any of the following non-wage amenities: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. Each row provides the share of firms that report a certain bargaining strategy. The first row in each panel focuses on any amount of flexibility. The second row shows the share of firms that report being able to adjust wages by more than 10%. The third row shows the share of firms that could adjust wages by more than 30%.

Table B11: Bargaining Strategies for Managers

	All Managers	Bottleneck Managers
	(1)	(2)
	A. Bargaining over Base Wages with New Hires	
Any Scope	0.95	1.00
> 10%	0.63	0.85
> 30%	0.03	0.15
	B. Bargaining over Base Wages or Special Pay with New Hires	
Any Scope	0.97	1.00
> 10%	0.69	0.89
> 30%	0.06	0.22
	C. Bargaining over Base Wages with New Hires (Flexible-Amenities Firms)	
Any Scope	0.96	1.00
> 10%	0.67	0.89
> 30%	0.03	0.17
	D. Renegotiating Base Wages	
Any Scope	0.91	0.98
> 10%	0.45	0.59
> 30%	0.02	0.13

Note: This table compares bargaining strategies reported for all managers and for managers that are listed as bottleneck occupations. Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage strategies for new external hires in the subset of firms that indicated having a high flexibility with respect to any of the following non-wage amenities: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. Each row provides the share of firms that report a certain bargaining strategy. The first row in each panel focuses on any amount of flexibility. The second row shows the share of firms that report being able to adjust wages by more than 10%. The third row shows the share of firms that could adjust wages by more than 30%.

C Additional Data Sources

This section provides detailed descriptions of how we collect and construct variables from the IEB data, the Orbis database, and other publicly available data sources.

C.1 Social Security Records

Pay. We follow past work and use daily pay as our main outcome of interest. To create this outcome, we first account for the fact that earnings in the IEB data are censored at the social

security maximum. We therefore stochastically impute the upper tail of the wage distribution, following Dustmann, Ludsteck, and Schönberg (2009). Second, we calculate the average daily wage by dividing total earnings by the duration of the job spell. As a secondary outcome, we construct daily base pay, which more closely aligns with the survey-based bargaining measures we elicit in the firm survey. To do so, we distinguish between earnings comprised of base wages and earnings in the form of special payments based on the stated reason for the payment. We then again account for censoring and divide the base pay by the length of the spell to create our measure of daily base pay. For the subset of workers who participated in the worker survey, we also construct a measure of hourly pay that divides pay by hours worked.

Labor market experience. We define workers' labor market experience at each point in time by the cumulative duration that they have been observed as employed in the IEB data up to that point, excluding spells as student worker, intern, and apprentice. Part-time spells are counted as half spells. Our final variable is measured as experience in years.

Employee groups. We construct indicators for our three employee groups of interest—recent labor market entrants, experienced non-managers, and managers—using occupation codes and individuals' work experience in the IEB data. We identify employees as managers if the 4th digit of the 5-digit occupation code is a "9". We identify individuals as experienced non-managers if the 4th digit of the 5-digit occupation code is not a "9" and if they have at least three years of labor market experience. We identify individuals as recent labor market entrants if the 4th digit of the 5-digit occupation code is not a "9" and if they have less than three years of experience.

To validate whether our measure for manager is correct, we asked workers in a pilot survey, conducted through the IAB in Spring 2022, whether they have leadership responsibility over employees, for instance in the form of leading a team. When we compare our indicator for managers from the IEB occupation code to workers' survey responses, we find that 85% of manager assignments we make based on the IEB data align with workers' survey reports.

C.2 Orbis

We link our firm survey to information from the Orbis database, compiled by the Bureau van Dijk based on firm balance sheet information. To find our 772 firms in the Orbis database, we manually match every firm based on firm name and address to the firm records in Orbis. We are able to match 99% of the firms in our survey sample.

From Orbis we collect following firm characteristics: year of incorporation, sector based on the 4-digit NACE industry code, whether the firm's headquarters are based in East Germany using information about the zip-code of the headquarters, and the number of employees. Note that because Orbis draws on firms' balance sheet information, the number of employees may include employees outside of Germany.

The previous literature has used information in Orbis as proxies for firm productivity (Bender et al. 2018). We use information on firms' fixed assets per employee and total assets per employee as our preferred proxies for productivity because they have the lowest share of missing values.[9] Fixed

[9]Productivity measures from Orbis are typically characterized by a high share of missing values. For the sample of our 772 firms, we have information on total assets for 576 (75%) and fixed assets for 571 (74%), while alternative

assets refer to the total amount (after depreciation) of non-current assets (intangible assets, tangible assets, other fixed assets) and thus represent long-term assets that are not likely to be converted into cash anytime soon. Total assets are the sum of fixed assets and current assets (e.g., cash and any assets that will be converted into cash within the year). For each variable from Orbis, we select the last year that the data is available. For over 90% of our firms, the most recent information is not older than three years. For fixed and total assets, we CPI-adjust our variables.

C.3 Other Publicly Available Firm Data

To create an external benchmark that allows us to validate our firm survey, we also collected publicly available data on the 772 firms in our sample. We focused on three dimensions of firm strategies that are both relevant for the validity of our bargaining measures and feasible to collect using publicly available data. First, we manually collected information on whether a firm is covered by a CBA. To do so, we searched for whether the firm name is mentioned with respect to a CBA in the news or in any other online source. Firms for which we could (could not) find any such information are identified as (not) covered by a CBA.

Second, we collected information on whether firms ask applicants to provide their salary expectations. We searched for each firm's online application portal and set up an application account to receive access to the input screen that applicants are required to use. We then looked up the first five job ads that came up when we searched for the firm. For smaller firms that do not have online application systems, we looked for instructions for how to apply by email; these often prompt respondents to provide their salary expectations. We define a firm as not requiring salary expectations if none of the job openings we consider prompts applicants to provide such information. This measure of salary expectations is likely a lower bound, since it only captures whether expectations are elicited at the first step of applying, but does not include whether firms ask about expectations in the interview or in subsequent application rounds. In our firm survey, we asked whether firms elicited this information at any stage of the application or interview process.

Third, using the five ads we identified for each firm, we collected information on whether the firm provided wage information in its external job ads. For ads with pay information, we recorded how coarse the information was (e.g., salary group such as CBA group, salary range, precise salary). We define a firm as not providing any salary information if none of the job ads we collected provided any salary information.

productivity measures used in the literature, such as firms' operating revenue or profit-loss ratio, are only available for 294 (38%) and 318 (42%) of the firms, respectively.

D Worker Survey

In this paper we use data from a worker survey we conducted to (1) describe bargaining dynamics, (2) examine within-occupation-establishment heterogeneity in behavior, and (3) examine gender wage gaps among workers for whom hours are observed. This Appendix provides additional information on the implementation of the worker survey and discusses selection into non-response and linkage consent. See Appendix H.2 for the original survey questions and their English translation for the relevant bargaining modules.

Historically, it has been difficult to link survey data to IAB records. In recent years the German Socio-Economic Panel (GSOEP) has had annual open calls, which offer researchers the opportunity to embed questions into the panel. Recent waves of the GSOEP have contained around 600 individuals whose records could be matched to the IAB data (Jäger et al. 2024). We chose to conduct an independent survey, rather than embed questions into an established panel so that we could ensure a sufficient sample size among the firms in our survey. This approach also gave us more freedom to design our questionnaire, which includes multiple distinct modules.

D.1 Implementation Details and Response Patterns

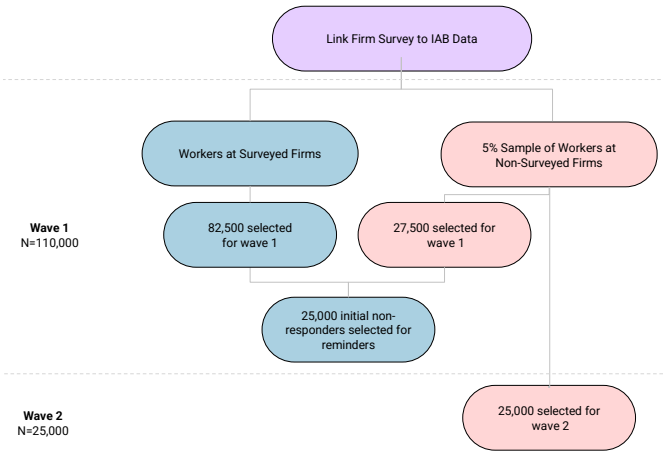
We used German Social Security records to identify participants for the survey. Our eligible pool consisted of workers who were—as of December 30, 2020—between the ages of 25 and 50, employed at a full-time job, and who had been at their current establishment for fewer than eight years.

We contacted workers via mail because the IAB does not have e-mail addresses or phone numbers for individuals who have not been recently unemployed. To manage the large number of letters, we mailed the survey in batches. For the first batch, we selected 75% of the sample (N=82,500) by randomly sampling from the set of eligible workers at firms in the matched IAB-firm survey sample (as of end of 2020). We over-sampled these workers so that we would have appropriate power for our main analysis. We selected the remaining 25% (N=27,500) at random from (a random 5% sample of) workers at non-surveyed firms. We selected all of the workers (N=25,000) for the second batch from the random 5% sample of eligible workers at non-surveyed firms. We mailed reminders to a random 25% subset of individuals in the first batch who had not responded to the initial invitation at the time of the second mailing. In spring 2024, we invited all respondents from the initial survey who provided panel consent to participate in a follow-up survey.

D.1.1 Invitations

After we identified workers for inclusion in the survey, a specialized department at the IAB pulled their addresses. This approach followed the standard protocol for surveys through the IAB. The IAB fielded the survey and the director of the IAB signed the invitation to participate. We mailed invitations to respondents between June 2022 and December 2022. We described the survey to potential respondents as a scientific study on salary progression in Germany. To manage the large number of letters, we staggered the mailings. Figure D1 describes the source of the workers in each batch.

Figure D1: Breakdown of Invited Workers



Note: This figure shows the breakdown of selected workers across batches and by whether the individual was in one of the surveyed firms.

We chose to invite respondents via mail instead of e-mail or phone because the Federal Employment Agency in Germany ("Bundesagentur für Arbeit") only has e-mail and phone numbers of individuals who have recently been unemployed or have participated in re-employment measures. Postal addresses are available for all workers. In the invitation we informed respondents that the survey would take approximately 10 minutes to complete. Appendix Figure D2 shows (a translation of) the wording of the invitation; the sample we include is for a worker randomized into one of the gift card treatments.

D.1.2 Exogenous Variation in Incentives to Participate

To analyze patterns of non-response, we introduced random variation in individuals' incentives to participate. We did this through (1) randomized financial incentives, (2) randomized endorsement letters, and (3) randomized follow-up.

Gift Card Lottery. We randomly assigned random subsets of the 110,000 workers selected for batch 1 to the gift card lottery. We selected 10,000 workers for the 5 euro gift card raffle and 20,000 workers for the 10 euro gift card raffle. We informed workers about the lottery in the cover letter, which stated:

> As a thank you for your participation, we are raffling off 1,500 vouchers, each with a value of 10 euros.
>
> As a thank you for your participation, we are raffling off 1,000 vouchers, each with a value of 5 euros.

After the survey closed in January 2023, the IAB conducted the gift card lottery by randomizing among participants who started the survey. The IAB informed winners either via e-mail or mail, according to the preferences indicated in the survey.

Figure D2: Original Invitation (English Translation)

INSTITUT FÜR ARBEITSMARKT- UND BERUFSFORSCHUNG
Die Forschungseinrichtung der Bundesagentur für Arbeit

Bei Rückfragen wenden Sie sich bitte an:
Dr. Jörg Heining
Regensburger Str. 104
90478 Nürnberg
E-Mail: lf-befragung@iab.de

Institut für Arbeitsmarkt- und Berufsforschung
Regensburger Str. 104 · Re100 407 · 90478 Nürnberg

«First name» «Last name»
«Street address»
«Zip code» «City»

Anschreiben-ID: «anschreiben_id»
Nürnberg, «date»

Scientific Study on Wage Flexibility in Germany

Hello «First name» «Last name»,

The Institute for Employment Research (IAB) is conducting a scientific study to understand how the salary progression of employees in Germany is changing. We are therefore interested in your experience in the labor market and would like to invite you to a survey. By participating, you support the IAB in advising political decision-makers and thus help to improve economic and social policy in Germany.

In a nutshell - we will interview you via the Internet

The survey will not take more than **10 minutes** of your time. Your participation is of course voluntary and anonymous. To get to the survey, you can use the display **QR code** or click on the following link: **https://umfragen.iab.de/goto/LF-befragung**

Your personal password for participation is: **«survey_password»**

Participating pays off

As a thank you for your participation, we are raffling off 1,500 vouchers, each with a value of 10 euros.

Your information is confidential

The safety of your personal data is important to us. We assure you that your information will be treated with strict confidentiality in accordance with the statutory data protection regulations and will only be used for scientific purposes. Your answers cannot be linked to your person. You will find additional data protection explanations attached.

Thank you for your cooperation and for your trust!

Kind regards

Prof. Bernd Fitzenberger Ph.D.
Direktor des Instituts für Arbeitsmarkt- und Berufsforschung (IAB)

Note: This is a screenshot of the translated cover letter sent to workers randomized to the high-gift-card treatment. The text in quotes was auto-filled with the relevant information for each respondent.

Endorsement Letters. We also sent a random subset of batch 1 workers an endorsement letter with the initial invitation. The letter was signed by one of the 2021 Nobel Prize winners in economics, identified both as one of the 2021 Laureates and as a previous collaborator of the IAB. The letter highlighted the importance of scientific labor market research and urged recipients to complete the survey. The letter stated:

> Hello «First name» «Last name», With this letter, I would like to ask for your support for a scientific study by the Institute for Employment Research (IAB), which examines how the current changes in the labor market will affect employees in Germany.
>
> As a labor economist, I've spent decades studying how wages react to changes in the labor market. From my research, I know that many of the labor market dynamics we see today –e.g. the pandemic and its consequences, the rising level of inflation, and the increased need for skilled workers – will be decisive for workers' long-term earnings progression and therefore also their job satisfaction. Now, in particular, it is important to understand now measures can be used to ensure a positive salary progression. To study how wages in Germany evolve and to identify the factors that contribute to rising income inequality, I've over the years collaborated with the IAB on several occasions. I am convinced that the work of the IAB makes an important contribution to understanding the labor market and provides politicians and the public with valuable insights into the situation of employers and employees.
>
> I therefore ask for your support and your participation in the ongoing survey. Because the more people participate in the survey, the more precise and comprehensive the picture of how the labor market changes affect long-term earnings progression in Germany. Thank you very much for your help!

We sent this letter to 82,500 of the 110,000 workers included in batch 1.

Reminder Mailings. There were 99,698 initial non-responders in batch 1. We randomly selected 25,000 of initial non-responders to receive a follow-up letter. The reminder letters had nearly identical wording to the initial invitations, but reminded individuals that they had previously been invited to participate in the survey. The letters included the same information on data protection as before. Individuals who had been included in the gift card raffle in the initial invitation received reminders of their offer to participate. Individuals who had been randomized to receive endorsement letters did not receive a second endorsement letter.

D.1.3 Balance Check

Appendix Table D1 describes the workers we invited for the survey. As Columns 2 and 3 indicate, conditional on the strata used for selection (whether an individual is at a surveyed firm), there is no difference in the characteristics of eligible workers and those invited to participate in our survey. Columns 4 and 5 compare those selected for the treatment and control groups for the endorsement letters and gift card treatments. Conditional on the strata used to assign these treatments, we find no difference in the characteristics of those selected and those not selected.[10] Column 6 shows that

[10] We grouped individuals into two groups based on their federal state of residence and randomly assigned gift cards within these strata. We randomly assigned endorsement letters without regard to state.

among those eligible to receive a reminder (initial non-responders in batch 1), there is no difference between those selected to receive a reminder and those not selected.

D.1.4 Response Rate and Consent

The survey was open until January 15, 2023. We received 13,680 total responses. Subtracting the number of letters that could not be delivered, the survey had an effective response rate of 11.4%.[11] This response rate is much higher than those of other surveys at the IAB that invite respondents for the first time (Haas et al. 2021). Among the 13,680 individuals who started the survey, 11,868 completed it; this represents a completion rate of 74%.[12] The median response time among individuals who completed the survey was 9 minutes.

We asked participants for their consent to link their answers to the employer-employee data at the IAB. We have 10,134 complete responses with linkage consent, which we link to the IAB records. While this direct consent is necessary under German privacy laws to link the survey data to other data sources, we are able to analyze the raw and unlinked data for both consenters and non-consenters. We also asked participants for their consent to participate in follow-up surveys. 8,416 respondents who provided consent for this linkage also provided consent to be contacted for future survey waves. Among the 11,868 complete responses, this represents a panel consent rate of 83%.

Appendix Table D2 shows that neither the gift cards nor the endorsement letter had a statistically significant (or economically meaningful) impact on response rates. By contrast, the reminder message increased response rates by 4 percentage points among workers who did not initially respond to the survey. Because both the endorsement letter and gift card information were only visible to individuals who opened the initial mailer, one plausible interpretation is that much of the initial non-response was driven by individuals simply ignoring our initial invitation.

We follow Dutz et al. (2021) in analyzing the characteristics of compliers. Because neither the endorsement letter nor gift card affected response rates, there are no compliers. Appendix Table D3 describes three populations of workers. Column 1 describes "early always takers": those who responded to the survey before we mailed the reminder. Column 2 describes the "late always takers": those who we randomized into not receiving a reminder, but who nonetheless responded after we mailed the reminders. Column 3 describes the reminder compliers. As Column 2 indicates, virtually all of the always takers responded before we mailed the reminder. Column 3 indicates that the reminder compliers are, relative to the early always takers, somewhat more likely to be male or covered by a collective bargaining agreement.

Appendix Table D4 describes the characteristics of invited individuals (Column 1) to those who completed the survey and provided linkage consent (Column 2) and to those who additionally pro-

[11] While surveys in which individuals are invited via mail typically have lower response rates than surveys in which individuals are contacted through other means, our response rate is comparable to recent e-mail-based surveys. For instance, a recent e-mail-based survey that Statistics Denmark sent to the official government inboxes of Danish citizens yielded a response rate of 15% (Caplin et al. 2023). Because we fielded a new survey, our response rate is not directly comparable to the response rates of panels such as the GSEOP, for which response rates are calculated among individuals who responded to previous survey waves. However, the 50% response rate to our follow-up survey is comparable to that of panel waves of the GSEOP, such as that analyzed in Jäger et al. (2024).

[12] We define a response as complete if a respondent clicked through to the (second to last) question eliciting consent for participating in a follow-up survey. We do not require respondents to have answered every question to be counted as complete responses. The survey did not require individuals to respond to particular questions.

Table D1: Randomization Assessment

		Selection		Batch 1 Randomization		
	Eligible Mean	Batch 1 - Eligible (p)	Batch 2 - Eligible (p)	Lottery - No Lottery (p)	Letter - No Letter (p)	Reminder - No Reminder (p)
	(1)	(2)	(3)	(4)	(5)	(6)
Demographics						
Female	0.32	0.63	0.33	0.48	0.41	0.32
	(0.47)					
Age	33.02	0.29	0.94	0.75	0.73	0.82
	(6.49)					
German Citizen	0.77	0.22	0.65	0.75	0.67	0.22
	(0.42)					
College Education	0.34	0.59	0.47	0.06	0.35	0.39
	(0.47)					
Apprenticeship	0.45	0.90	0.67	0.64	0.51	0.69
	(0.50)					
Daily Earnings	129.12	0.22	0.39	0.23	0.47	0.09
	(58.15)					
Occupation Group						
Manager	0.04	0.96	0.45	0.95	0.71	0.57
	(0.20)					
Recent Entrant	0.34	0.86	0.84	0.95	0.06	0.01
	(0.47)					
Sector						
Manufacturing	0.32	0.86	0.72	0.01	0.74	0.44
	(0.47)					
Retail	0.10	0.47	0.40	0.53	0.47	0.41
	(0.31)					
Professional	0.10	0.95	0.42	0.08	0.44	0.70
	(0.29)					
Firms		513	1	383	509	459
Establishments		24928	21248	7253	19600	7204
Workers		110000	25000	30000	82500	25000
F-test p-value		0.747	0.937	0.104	0.460	0.408

Note: Column 1 describes workers eligible for inclusion in our worker survey. Columns 2 and 3 show that, conditional on the strata used for selection (i.e. whether an individual worked at a surveyed firm in 2020), selected individuals are not statistically distinguishable from non-selected individuals. Columns 4 to 6 show that, conditional on the strata used for random assignment, individuals selected to receive each of the three types of incentives, are not distinguishable from those who were not selected. We only randomized these incentives to workers in batch 1.

Table D2: Impact of Randomized Incentives on Response Rates

	Endorsement	Gift Card		
	Letter	Continuous	Binary	Reminder
	(1)	(2)	(3)	(4)
Treatment	0.000	-0.000	-0.002	0.040***
	(0.002)	(0.000)	(0.002)	(0.001)
Observations	109995	109995	109995	99698

Note: This table analyzes the effect of the randomized incentives on the likelihood that invited individuals completed the survey and provided linkage consent. Each coefficient stems from a separate regression of an indicator for survey completion on an indicator for the respective incentive, conditional on the strata used for random assignment. Column 1 focuses on endorsement letters. Columns 2 and 3 focus on gift cards. Column 4 focuses on the survey reminder. Robust standard errors are presented in parentheses. Levels of significance: * 10%, ** 5%, and *** 1%.

vided consent to participate in future surveys (Column 4). Columns 3 and 5 compare the samples in Columns 2 and 4 to the samples in Columns 1 and 2, respectively. We find modest differences in respondent characteristics with respect to gender, age, occupation type, and sector. For instance, while the female share is 30% among invited individuals, it is 32% among those who responded and provided consent. German citizens on the other hand were much more likely to respond than non-citizens. This is not surprising: these workers are likely more comfortable with the German language (we fielded our survey in German) and may feel more of an obligation to contribute to research on the German labor market. We also find meaningful differences with respect to education and earnings: more educated workers were more likely to respond to the survey. This may reflect the fact that they are more likely to be familiar with the IAB.

D.1.5 Survey Logistics and Flow

In one set of the invitations, a printing issue led to some cases where endorsement and cover letters were mixed up. This meant that two different addresses (endorsement person a, cover person b) ended up in one envelope. Letters were sent to the addresses provided on the endorsement letter, but the cover letter information included the name and password of a different individual. If an individual who received an incorrect mailing participated in the survey they therefore would have been linked to the wrong survey. Based on inspection of the frequency of this error in letters that were returned due to incorrect addresses (which is an independent issue, but allows us to analyze the frequency of the error), we calculate that at most 431 people among the 17,772 recipients in this set of invitations were likely affected (2.4%), assuming the share among returns is the same as in the overall sample. People may likely have realized the mix-up and may not have participated. Since this only affected people with endorsement letters, this may have reduced the response rate for this group. In unreported results, we have found the results are robust to excluding the entire group of 17,772 respondents with endorsement letters from our analyses.

Table D3: Characteristics of Reminder Compliers and Always Takers

	Always Takers		Reminder
	Early	Late	Compliers
	(1)	(2)	(3)
Shares	0.05	0.000	0.03
Female	0.27	0.50	0.24
Age	33.85	34.36	34.02
German	0.94	0.93	0.91
College Degree	0.63	0.64	0.60
Apprenticeship	0.31	0.21	0.34
Daily Wage (allocated)	186.04	202.40	184.97
Censored Wage	0.26	0.29	0.29
Hours Worked	40.63	41.39	40.37
CBA	0.61	0.71	0.65
Sector			
Manufacturing	0.56	0.64	0.56
Retail	0.07	0.00	0.05
Professional	0.17	0.14	0.20
AKM Fixed Effects			
Person Effect	4.47	4.33	4.44
Firm Effect	0.52	0.58	0.54
Risk Tolerance	6.22	5.57	6.19
Outside Options	1.41	1.14	1.41

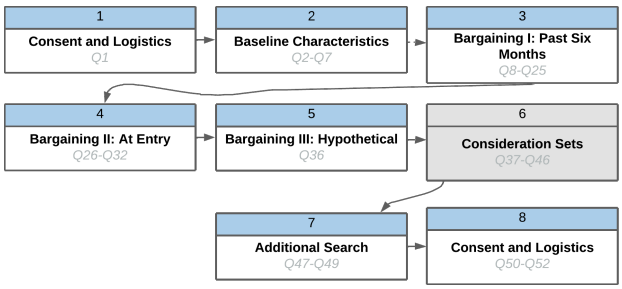
Note: This table compares the characteristics of early and late always takers to reminder compliers. Early always takers are workers in the control group who responded before we mailed the (randomized) reminders. Late always takers are workers in the control group who responded after we mailed the reminders. Reminder compliers are workers who responded after being mailed a reminder. Following Dutz et al. (2021), we estimate the reminder compliers' average characteristics via an instrumental variables regression with $Y_i(1-R_{i1})R_{i2}$ as the outcome variable, $(1-R_{i1})R_{i2}$ as the endogenous variable, and $Z_i$as the instrument. $Y_i$is the characteristic of interest (e.g., person effect), $R_{i1}$is an indicator for responding before we mailed the reminders, $R_{i2}$is an indicator for responding after we mailed the reminders, and $Z_i$is an indicator for having (randomly) received a reminder.

Table D4: Non-Response and Consent in the Worker Survey

		Linkage Consent			Panel and Linkage Consent		
	Invited Mean	Mean	Difference Rel. Invited		Mean	Difference Rel. Linked	
	(1)	(2)	(3)		(4)	(5)	
Demographics							
Female	0.30	0.32	0.02	***	0.32	0.01	
	(0.46)	(0.46)	(0.00)		(0.47)	(0.01)	
Age	33.63	33.33	-0.32	***	33.33	-0.02	
	(6.59)	(6.23)	(0.06)		(6.14)	(0.17)	
German Citizen	0.81	0.92	0.12	***	0.92	0.03	***
	(0.39)	(0.27)	(0.00)		(0.26)	(0.01)	
College Education	0.39	0.59	0.22	***	0.60	0.07	***
	(0.49)	(0.49)	(0.01)		(0.49)	(0.01)	
Apprenticeship	0.45	0.33	-0.12	***	0.32	-0.05	***
	(0.50)	(0.47)	(0.00)		(0.47)	(0.01)	
Daily Earnings	146.03	169.79	25.69	***	170.92	6.61	***
	(60.77)	(56.71)	(0.59)		(56.67)	(1.50)	
Occupation Group							
Manager	0.05	0.06	0.02	***	0.06	0.01	*
	(0.21)	(0.24)	(0.00)		(0.24)	(0.01)	
Recent Entrant	0.26	0.20	-0.06	***	0.20	-0.02	*
	(0.44)	(0.40)	(0.00)		(0.40)	(0.01)	
Sector							
Manufacturing	0.44	0.46	0.03	***	0.46	0.00	
	(0.50)	(0.50)	(0.01)		(0.50)	(0.01)	
Retail	0.10	0.09	-0.01	***	0.09	0.01	
	(0.30)	(0.28)	(0.00)		(0.28)	(0.01)	
Professional	0.10	0.13	0.04	***	0.13	0.01	
	(0.29)	(0.34)	(0.00)		(0.34)	(0.01)	
Surveyed Firms	513	363			339		
Establishments	42705	3556			2983		
Observations	134995	10134			8416		

Note: This table describes the characteristics of workers we invited to complete the survey (Column 1) to workers who completed the survey and provided consent to link their responses to the administrative data (Column 2), to the subset of these workers who additionally provided consent to participate in follow-up surveys (Column 4). Columns 3 and 5 present the strata-adjusted differences between the samples indicated in the header and sub-header. For instance, Column 3 reports the difference between workers who completed the survey and provided linkage consent to the set of invited workers. Levels of significance: * 10%, ** 5%, and *** 1%.

Figure D3: Flow of Worker Survey



Note: This figure provides an overview over the modules in the worker survey. The main questions used for our analysis are elicited in the three bargaining modules. See Appendix H.2 for the questionnaire.

While the survey includes several distinct modules, the focus of this paper is on the three bargaining modules of the worker survey (see Appendix Figure D3 for an overview). The first of these modules elicited the sequence of bargaining events for workers who had received an outside offer in the previous six months. The second elicited the sequence of bargaining events that occurred when individuals started their first job at their current firm. The third asked individuals to provide their salary expectations in response to a hypothetical prompt. At the end of the survey we collected additional worker characteristics, such as risk tolerance.

D.1.6 Follow-Up Survey

We fielded a follow-up survey in spring 2024. Roughly 50% of workers we invited to this survey completed it. We elicited worker patience following Falk et al. (2023). In particular, we asked respondents "how willing are you to give up something that is beneficial for you today to benefit more from that in the future?". We define someone as having high patience if they selected seven or above (on a ten point scale). This measure is used in Appendix Table A10.

We also used this survey to validate one of the key findings: that most outside offers are rejected. While we did not include the full bargaining modules in this survey, we did ask all workers whether they had received an outside offer in the previous six months. We also asked workers whether they had switched firms since the previous survey wave.

E Robustness to Re-Weighting

This section shows that our findings are robust to re-weighting our firm and worker samples to match the overall distribution of firms and workers in the German labor market.

E.1 Firm Survey

E.1.1 Data Collection

We use three distinct data sources to characterize German firms: (1) the Statistical Business register provided by the German Federal Statistical Office, (2) the Orbis database compiled by the Bureau van Dijk, and (3) the Establishment History Panel (BHP) housed at the IAB. These data have different definitions of what constitutes a firm. Because we conducted our firm survey in 2021 and 2022, we use records from this time period.

Statistical Business Register. The German Statistical Business register ("Unternehmensregister") contains all entities with a German address. These data have the advantage that they are based on official government records, implying a high level of data quality. The Statistical Business register defines a firm as a distinct legal entity: a firm is the smallest unit that maintains financial records, complies with tax regulations, manages accounts, and prepares balance sheets. From the database of the German Statistical Office (www-genesis.destatis.de), we download the number of all German firms by firm size, industry, and state in 2022. The disadvantage of these data is that they contain a limited set of variables. In total, there are 3.4 million firms in these data.

Orbis Database. The Orbis database, compiled by the Bureau van Dijk, contains detailed information on companies across the world. From Orbis, we download all firms that are active in Germany and have been incorporated as of 2022. The advantage of this data source is that it contains a large number of firm characteristics, including the proxies for firm productivity we use in the main text. A disadvantage is that, in many instances, the data are incomplete or outdated, especially for small and medium firms, which are not required to report their data (publicly listed stock corporations are required to publicize financial information).

Another disadvantage is that the individual observations are not necessarily at the firm level: different entities within a corporate network sometimes have separate records. To best account for this possibility, we only keep observations that represent the parent company (i.e., for which the Orbis ID of the parent company is the same as the Orbis ID of the company). We also drop all observations for which all our key variables of interest—other than the firm name and Orbis ID—are missing.

We collect the following firm characteristics from Orbis: year of incorporation, sector based on the 4-digit NACE industry code, whether the firm's headquarters are based in East Germany, the number of employees, the number of total and fixed assets, and information about whether the firm is traded on the stock market based on the legal form in the firm name. In total, this dataset contains 1.8 million firms.

Establishment History Panel (BHP). The Establishment History Panel (BHP) data contain all establishments in Germany that have at least one employee who is liable to social security as of June 30th in a given year. We access the BHP through the IAB and use the latest available year, 2021. The advantage of these data is that they are based on the Social Security records that we use in our main analysis and that we use to characterize our worker sample. The disadvantage of these data is that they are at the establishment, not firm, level. They also exclude all establishments that do not have workers with Social Security contributions. In total, this dataset contains 2.9 million establishments.

E.1.2 Re-Weighting

Appendix Table E1 shows the share of firms that we classify as having a bargaining strategy for each respective employee group. We define a firm as having a bargaining strategy for a group of workers if they are able to differentiate pay between workers with similar qualifications and fit for a position. Panel A focuses on new hires bargaining over base wages; Panel B also includes bargaining over special pay; Panel C restricts to the 591 firms with flexibility with respect to non-wage amenities; and Panel D focuses on renegotiation with incumbents. Columns 2 to 4 show that we obtain similar results when we re-weight our sample to match the characteristics of the firms included in each of the firm databases (indicated in the relevant column). The unweighted results in Column 1 are in some instances slightly higher than the re-weighted results, but the differences are small.

Appendix Table E2 focuses on our key descriptive findings—such as the prevalence of providing wages in job ads or eliciting salary expectations—and shows that these findings are robust to re-weighting. Column 1 represents our baseline estimates. Columns 2 to 4 re-weight our estimates to match the distribution of firm size and sector in the German labor market. After re-weighting, we find a very similar prevalence of these firm strategies relative to our baseline estimates.

Together, our results document that our finding that bargaining strategies are prevalent in the labor market is indeed robust to re-weighting our estimates to match the overall distribution of German firms with respect to size and sector.

E.2 Worker Survey

E.2.1 Data Collection

We use a random 2% sample of the population of German workers covered by Social Security records to compare the workers who participated in our worker survey to the overall German workforce in Social Security-covered employment. Because we surveyed full-time workers, we use both the full (2%) sample and the subsample of full-time workers in this sample.

Appendix Table E3 compares the characteristics of workers in our Social Security sample (Columns 1 and 2) to a random 2% sample of all workers in Germany (Columns 3 and 4) and to the subset of these workers who work full-time (Columns 5 and 6). The average age in our sample is 38 years old; the average age in the overall market is 39. Workers in our sample are slightly less likely to be German (91% vs 95%). The over-representation of manufacturing firms in our firm survey naturally translates to the sample of workers employed at these firms. Relative to a

Table E1: Share of Firms with Individual Bargaining Strategies: Robustness to Re-Weighting

		Weighted		
	Unweighted	Business Register	Orbis	BHP
	(1)	(2)	(3)	(4)
	A. Bargaining over Base Wages with New Hires			
Recent Entrants	0.54	0.58	0.57	0.59
Experienced Non-Managers	0.85	0.85	0.83	0.85
Managers	0.95	0.89	0.89	0.87
	B. Bargaining over Base Wages or Special Pay with New Hires			
Recent Entrants	0.61	0.70	0.67	0.71
Experienced Non-Managers	0.88	0.90	0.89	0.90
Managers	0.97	0.95	0.95	0.94
	C. Bargaining over Base Wages with New Hires (Flexible-Amenities Firms)			
Recent Entrants	0.57	0.63	0.61	0.65
Experienced Non-Managers	0.87	0.85	0.83	0.85
Managers	0.96	0.92	0.90	0.91
	D. Renegotiating Base Wages			
Recent Entrants	0.57	0.49	0.52	0.48
Experienced Non-Managers	0.82	0.76	0.76	0.75
Managers	0.91	0.85	0.87	0.82

Note: This table shows that our results on the prevalence of individual bargaining strategies are robust to re-weighting. Column 1 reports our baseline estimates. Columns 2 to 4 re-weight our estimates to match the distribution of firms in Germany using three different data sources. Column 2 uses the firm data from the Statistical Business register. Column 3 uses data from Orbis. Column 4 uses data from the BHP. Panel A presents the bargaining protocols for new external hires with respect to base wages. Panel B presents bargaining protocols that include flexibility in either base wages or special payments for new external hires. Panel C presents the base wage strategies for new external hires in the subset of firms that indicated having a high flexibility with respect to any of the following non-wage amenities: flexible work, commute and moving costs, further education and training, and childcare subsidies. Panel D presents the renegotiation protocols for incumbent workers who have received an external offer. Each row provides the share of firms that report being able to adjust wages by a non-zero amount for the respective employee group. The first row in each panel focuses on the policy for recent labor market entrants. The second row focuses on experienced non-managers. The third row focuses on managers. Appendix Section E provides details on re-weighting.

Table E2: Descriptive Statistics on Wage Setting: Robustness to Re-Weighting

		Weighted		
	Unweighted	Business Register	Orbis	BHP
	(1)	(2)	(3)	(4)
Provided Pay Information				
Exact Amount (Public Ad)	0.02	0.01	0.01	0.01
Range (Public Ad)	0.04	0.01	0.02	0.01
Exact Amount (Internal Ad)	0.04	0.03	0.05	0.03
Rigid Wages for at Least Some Employees	0.49	0.47	0.48	0.47
Any Pay Information in Job Ads If Rigid	0.14	0.19	0.17	0.20
Initial Bargaining Stage Is Important	0.44	0.45	0.48	0.41
Salary Expectations Optional	0.62	0.61	0.59	0.62
Salary Expectations Mandatory	0.29	0.27	0.30	0.27

Note: This table shows that the stylized facts on bargaining we document in the main text are robust to re-weighting. Rows 1 to 3 report the share of firms that announce pay information in external and internal job ads. Row 4 reports the share of firms that have rigid wages for at least some employees. Row 5 reports the share of firms with rigid wages that also post wages in job ads. Row 6 reports the share of firms that report that variation in offers at the first stage is at least as important as variation at the final stage. Row 7 reports the share of firms that elicit salary expectations, but do not require candidates to report them. Row 8 reports the share of firms that require candidates to state their salary expectations. Column 1 reports our baseline estimates. Columns 2 to 4 re-weight our estimates to match the distribution of firms in Germany using three different data sources. Column 2 uses the firm data from the Statistical Business register. Column 3 uses data from Orbis. Column 4 uses data from the BHP. Appendix Section E provides details on re-weighting.

Table E3: Comparison of Surveyed Workers to the German Workforce

	Analysis Sample		Random Sample of Workers: All		Random Sample of Workers: Full-Time	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)
Demographics						
Female	0.21	(0.41)	0.45	(0.50)	0.35	(0.48)
Age	37.86	(7.26)	39.16	(13.20)	39.39	(11.80)
German Citizen	0.91	(0.29)	0.95	(0.22)	0.95	(0.22)
College Degree	0.39	(0.49)	0.15	(0.36)	0.15	(0.36)
Apprenticeship	0.54	(0.50)	0.73	(0.45)	0.75	(0.44)
Employment						
Daily Wage (Allocated)	181.03	(57.53)	87.25	(53.87)	107.35	(47.53)
Censored Wages	0.28	(0.45)	0.04	(0.19)	0.05	(0.23)
Manufacturing Sector	0.68	(0.47)	0.25	(0.43)	0.31	(0.46)
Retail Sector	0.07	(0.26)	0.15	(0.36)	0.14	(0.34)
Professional Sector	0.08	(0.28)	0.05	(0.22)	0.05	(0.22)
Observations	254414		29214127		20339174	

Note: This table compares workers in our Social Security sample to the overall German workforce. Columns 1 and 2 describe all workers between the ages of 25 and 50 at the firms who participated in the firm survey and were in Social-Security-covered employment. Columns 3 and 4 describe a random 2% sample of all workers in Germany. Columns 5 and 6 describe the subset of workers in the 2% sample who work full-time.

random sample of full-time workers, our sample under-represents women, over-represents workers with college degrees, and those in higher-paying occupations.

E.2.2 Re-Weighting

A natural concern is whether our results are robust to alternative weighting schemes. In this section, we perform re-weighting exercises that use the following variables to match the distribution of a random 2% sample of all workers (full-time workers) in Germany: female, occupational group (i.e., labor market entrant, manager), sector dummies (i.e., manufacturing, retail, professional), and pay quartiles. We use these variables because they represent dimensions in which our sample most differs from the overall distribution of German workers. We focus these exercises on two sets of results which might reasonably be most susceptible to differences in underlying worker characteristics: the results on heterogeneity in bargaining behavior and the results on the gender pay gap. Alternative re-weighting procedures produce similar results.

Appendix Table E4 shows we find patterns of heterogeneity in bargaining actions across our four dimensions of interest—outside options, risk tolerance, gender, and AKM worker effect—that are similar to our baseline estimates (Column 1) when we re-weight the sample (Columns 2 and 3). The standard errors are naturally larger in our re-weighted samples. Section 5 provides additional details on the underlying data and estimation strategy.

Appendix Table E5shows that we attribute a similar gender pay gap to bargaining when we re-weight our sample. Column 1 reports our unweighted baseline estimates from Table VI; Column 2

(Column 3) provides results after re-weighting our sample to match the distribution of a random 2% sample of all workers (full-time workers) in Germany. Both the sign and magnitude of our effects are robust to re-weighting. If anything, the gender pay gap for workers exposed to bargaining becomes larger after re-weighting.

Table E4: Heterogeneity in Worker Bargaining Actions: Robustness to Re-Weighting

		Weighted	
	Unweighted	All	Full-Time
	(1)	(2)	(3)
	A. Provided Expectations		
Outside Options	-0.016	-0.055	-0.034
	(0.038)	(0.050)	(0.042)
Risk Tolerance	0.007	0.023	0.030
	(0.032)	(0.054)	(0.052)
Female	-0.050	-0.093	-0.125
	(0.051)	(0.075)	(0.091)
AKM Worker Effect	0.118**	0.101	0.086
	(0.054)	(0.104)	(0.098)
	B. Negotiated Base Wage Upward		
Outside Options	0.067*	0.111*	0.124**
	(0.034)	(0.061)	(0.051)
Risk Tolerance	0.075*	0.040	0.053
	(0.038)	(0.063)	(0.058)
Female	-0.068	-0.077	-0.052
	(0.048)	(0.063)	(0.059)
AKM Worker Effect	0.187**	0.104	0.159**
	(0.073)	(0.069)	(0.068)
	C. Asked for and Received a Raise		
Outside Options	0.077***	0.053	0.067**
	(0.010)	(0.043)	(0.028)
Risk Tolerance	0.085***	0.000	0.030
	(0.015)	(0.051)	(0.036)
Female	-0.064***	0.008	-0.014
	(0.014)	(0.061)	(0.046)
AKM Worker Effect	0.005	-0.047	0.017
	(0.021)	(0.064)	(0.041)
	D. Provided Hypothetical Salary Expectation above Range		
Outside Options	-0.002	0.031**	0.027**
	(0.006)	(0.013)	(0.013)
Risk Tolerance	0.025*	0.009	0.009
	(0.014)	(0.015)	(0.015)
Female	-0.057***	-0.053***	-0.051***
	(0.008)	(0.019)	(0.018)
AKM Worker Effect	0.050***	0.040	0.050*
	(0.014)	(0.031)	(0.027)

Note: This table presents estimates of β from equation 1 under alternative weighting schemes. Column 1 displays our baseline estimates from Table V. Column 2 re-weights the sample to match the distribution of a random 2% sample of all German workers. Column 3 re-weights the sample to match the distribution of full-time workers. See Section 5.2 for more details on the estimation strategy. Appendix Section E provides details on re-weighting.

Table E5: Gender Pay Gaps and Firm Bargaining Strategies: Robustness to Re-Weighting

		Weighted	
	Unweighted	All	Full-Time
	(1)	(2)	(3)
	A. Daily Pay (Occ-Est)		
Without Individual Bargaining	0.008	0.060	0.006
	(0.032)	(0.052)	(0.029)
With Individual Bargaining	-0.053**	-0.221***	-0.198***
	(0.023)	(0.069)	(0.058)
	B. Daily Pay (Occ-Est), Controlling for Hours		
Without Individual Bargaining	0.020	0.069	0.014
	(0.034)	(0.050)	(0.021)
With Individual Bargaining	-0.045**	-0.204***	-0.182***
	(0.021)	(0.064)	(0.055)
	C. Daily Base Pay (Occ-Est)		
Without Individual Bargaining	0.008	0.060	0.006
	(0.032)	(0.052)	(0.029)
With Individual Bargaining	-0.049**	-0.156***	-0.148***
	(0.022)	(0.046)	(0.040)

Note: This table presents estimates of the gender pay gap separately by whether workers are exposed to individual bargaining. Column 1 displays our baseline estimates from Table VI. Column 2 re-weights the sample to match the distribution of a random 2% sample of all German workers. Column 3 re-weights the sample to match the distribution of full-time workers. See Section 6 for details on the estimation strategy. Appendix Section E provides details on re-weighting.

F Additional Analysis: AKM Person Effects and Negotiation

In the main text, we document that workers with higher AKM person effects are more likely to negotiate, and are more likely to provide their expectations and state higher expectations (as a fraction of their current salary) in response to a hypothetical bargaining scenario. One concern is that, for some workers, behavior during wage bargaining may reflect productive skills. For instance, workers who negotiate for a living likely signal how effective they are at negotiating through the process of negotiating their own offer.

To address the concern that bargaining simply reveals an individual will be more productive at their job tasks, we conduct a robustness test that focuses on individuals that are less likely to negotiate as part of their job. Identifying whether a worker's job performance is reliant on their ability to negotiate is challenging. We use three distinct approaches to proxy for the extent to which individuals negotiate as part of their job. First, we exclude managers from our sample of interest since employees in management roles are more likely to negotiate with other parties. Second, we use the 5-digit occupation code in the administrative data and exclude all workers from our sample who work in a sales-related occupation. These workers likely negotiate (either prices or quantities) as part of their job tasks. Third, to directly identify exposure to sales tasks we also use data from the Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung, or BIBB), which conducts joints surveys of German workers every six years with the Federal Institute for Occupational Safety and Health (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, or BAuA).[13] The 2018 BIBB survey asked workers whether they were often involved in selling, purchasing, or procuring items. We use this question to calculate the probability a worker in each occupation is engaged in sales. We focus on workers in occupations with below-median experience in sales. In our sample, this corresponds to occupations for which at most 11% of workers in the BIBB participate in such activities.

[13] Like the O*NET in the United States, this survey asks respondents questions related to organizational information, job tasks, job skill requirements, health and working conditions and links these data to their occupation and industry. These data have been used by other researchers studying the German labor market (e.g., Gathmann and Schönberg 2010).

We follow the empirical strategy outlined in Section 5 and run regressions of our hypothetical bargaining outcomes y_i on the AKM person effects X_i, age, a quadratic in experience, education dummies, and three-digit occupation-establishment fixed effects:

$$y_i = \beta X_i + \delta \text{age}_\text{i} + \alpha \text{exp}_i + \gamma \text{exp}_i^2 + \zeta_{educ(i)} + \lambda_{o(i),est(i)} + \epsilon_i. \quad (1)$$

We include occupation-establishment fixed effects ($\lambda_{o(i),est(i)}$) to ensure that heterogeneity in bargaining behavior is not driven by heterogeneity in firm bargaining strategies. We cluster the standard errors at the firm level.

Appendix Table F1 shows the coefficient on the AKM person effect for our baseline specification including all surveyed workers (Column 1), for non-managers (Column 2), workers outsides of sales (Column 3), and workers in jobs that are unlikely to involve sales tasks (Column 4). Our results suggest that even when we focus on these workers, we find that workers with higher AKM person effects are more likely to state salary expectations above the provided range than their same occupation-establishment peers. For those workers in non-sales occupations and non-managers, we also find an effect on providing salary expectations at the midpoint or above. The fact that we see this effect for workers for whom an ability to negotiate is likely not a job skill (i.e., is not likely to indicate productivity), is consistent with the idea that these AKM person effects capture a fixed bargaining type (in addition to fixed productivity differences).

Table F1: Hypothetical Bargaining Behavior: Workers Unlikely to Negotiate at Work

	Baseline	Non-Managers	Non-Sales Occupations	Below-Median P(Selling)
	(1)	(2)	(3)	(4)
Level of Expectations				
Midpoint of Range or Above	0.039**	0.038**	0.036**	-0.032
	(0.015)	(0.016)	(0.017)	(0.031)
	4303	4072	4072	2190
Above Range	0.050***	0.050***	0.051***	0.048*
	(0.014)	(0.015)	(0.017)	(0.026)
	4303	4072	4072	2190
Provided Expectations	0.006	0.003	0.004	-0.019
	(0.011)	(0.011)	(0.011)	(0.014)
	4380	4145	4147	2222

Note: This table tests robustness of workers' hypothetical bargaining behavior. Each entry provides the coefficient on the AKM person effect from a model which regresses a binary outcome in the hypothetical bargaining scenario, indicated in the row, on the AKM person effect, and on an individual's level of education, a quadratic in experience, age, and three-digit occupation-establishment fixed effects. Column 1 presents our baseline estimates from Column 7 of Table V. Column 2 restricts to non-managers, and Column 3 restricts to workers in non-sales occupations. Column 4 uses the BIBB survey data to restrict to workers unlikely to make sales for work (Column 4). Standard errors, presented in parentheses, are clustered at the firm level. Rows are a subset of the outcomes in Table V. Levels of significance: * 10%, ** 5%, and *** 1%.

G Additional Analysis: Gender Differences in Bargaining

This section provides additional results focused on gender. Our analysis is motivated by the large literature on gender differences in negotiations (e.g., Babcock and Laschever 2009; Dittrich, Knabe, and Leipold 2014; Exley, Niederle, and Vesterlund 2020) and by previous work by Biasi and Sarsons (2022), which documents a causal link between bargaining and the gender pay gap in the context of public schoolteachers. We first show that men and women are, within an occupation and sector, equally likely to be in firms which individually bargain over pay. We then test to what extent men and women also differ in the positions they fall in the earnings distribution. In addition, we analyze gender differences in outside options and risk tolerance as potential drivers of the observed gender differences in bargaining. Finally, we analyze reasons women may be less likely to negotiate (as documented in Section 5.2). We examine gender differences in workers' stated reasons for not negotiating and use data from a vignette experiment we embedded in the follow-up survey.

G.1 Gender Differences in Exposure to Firm Bargaining Strategies

As described in the main text, we classify a firm as using a bargaining strategy if they report that they differentiate pay between workers they believe are equally productive. We use the Social Security records of workers at surveyed firms to examine whether women and men are differentially exposed to this type of pay policy.

Column 1 of Appendix Table G1 documents that, roughly 80% of workers are exposed to individual bargaining. Column 2 of Appendix Table G1 shows that, without controlling for any covariates, women are less likely to be in positions where their firms sets pay via bargaining. This reflects two opposing factors: men are more likely to be in managerial positions (where bargaining is more common) but, due to a variety of gender norms, full-time work is more common among women in East Germany (where bargaining is less common). These factors explain why the gender gap reverses once we control only for occupation fixed effects (Column 4). The gender gap in exposure disappears completely once we control for occupation-sector fixed effects (Column 5). This suggests that, within a labor market, women are not more likely to sort into firms with rigid pay policies. Panel B reports similar results for the subset of surveyed workers at surveyed firms.

G.2 Gender Differences in Earnings Rank

Previous research has documented gender and race gaps in where workers fall in the earnings distribution (Blau and Kahn 2017; Bayer and Charles 2018). We estimate gender gaps in earnings ranks by running regressions of the following form:

$$rank_i = \beta \text{Female}_i + \delta \text{age}_\text{i} + \alpha \text{exp}_i + \gamma \text{exp}_i^2 + \zeta_{educ(i)} + \lambda_{o(i),est(i)} + \epsilon_i. \quad (2)$$

where $rank_i$ is the percentile rank of the individual i's daily pay within their employee group (i.e., job entrant, experienced non-manager, manager) and establishment. Appendix Table G2 presents the results separately for workers who are and are not exposed to individual bargaining. Our

Table G1: Exposure to Individual Bargaining Strategies

	Overall Mean	Female-Male Difference			
	(1)	(2)	(3)	(4)	(5)
		A. Workers at Surveyed Firms			
Bargaining Definition					
Strategy for New Hires	0.78	-0.032***	0.007***	0.021***	0.003**
		(0.002)	(0.002)	(0.002)	(0.001)
		221766	221766	221766	219913
Strategy for Incumbent Workers	0.60	-0.009***	0.006**	-0.026***	-0.009***
		(0.003)	(0.003)	(0.002)	(0.002)
		223761	223761	223761	221901
		B. Surveyed Workers			
Bargaining Definition					
Strategy for New Hires	0.74	-0.011	0.009	0.020*	0.000
		(0.012)	(0.011)	(0.012)	(0.008)
		6290	6290	6290	5556
Strategy for Incumbent Workers	0.60	-0.020	-0.007	-0.041***	-0.004
		(0.014)	(0.013)	(0.013)	(0.010)
		6391	6391	6391	5656
Demographic Controls		No	Yes	Yes	Yes
Fixed Effects		---	---	Occ	Occ-Sector

Note: This table compares the exposure of men and women to individual bargaining. Column 1 presents the overall level of exposure (pooling men and women). The remaining columns present the coefficient on a female dummy from regressions of indicators for whether an individual is exposed to bargaining on a dummy for whether they are female, on demographic controls (Columns 2 to 5), and on occupation fixed effects (Column 4) or occupation-sector fixed effects (Column 5). The demographic controls include age, a quadratic in experience, and education dummies. Panel A includes all workers at surveyed firms. Panel B includes only those who participated in the worker survey. Each panel presents results for two definitions of exposure, indicated at the far left: (1) whether a firm bargains with new hires and (2) whether a firm bargains with incumbent workers. Robust standard errors are presented in parentheses. Levels of significance: * 10%, ** 5%, and *** 1%.

Table G2: Gender Differences in Earnings Rank

	Without Individual Bargaining			With Individual Bargaining		
	(1)	(2)	(3)	(4)	(5)	(6)
	A. Workers at Surveyed Firms					
Female	-4.914***	-4.171***	-4.186***	-5.051***	-7.112***	-7.064***
	(1.178)	(0.717)	(0.677)	(1.109)	(1.120)	(1.103)
p-value for equality	0.922	0.002	0.003	0.922	0.002	0.003
Adjusted R-Squared	0.212	0.457	0.466	0.252	0.506	0.514
Clusters	223	179	178	480	453	451
Observations	49115	47155	46763	172651	166812	165262
	B. Surveyed Workers					
Female	-2.026	-1.424	-1.117	-4.320***	-6.186***	-5.927***
	(2.015)	(1.801)	(1.875)	(1.379)	(2.135)	(2.050)
p-value for equality	0.312	0.064	0.075	0.312	0.064	0.075
Adjusted R-Squared	0.120	0.375	0.380	0.135	0.430	0.439
Clusters	90	32	32	304	130	124
Observations	1617	1226	1181	4673	3381	3220
Fixed Effects	---	Occ-Est	Level-Occ-Est	---	Occ-Est	Level-Occ-Est

Note: This table examines gender differences in workers' earnings rank. Columns 1 to 3 include workers in positions at firms which do not engage in individual bargaining, while Columns 4 to 6 include workers at firms which engage in individual bargaining. Each column presents results from a separate regression of the workers' percentile in the earnings distribution in their employee group at their establishment on a female dummy, age, a quadratic in experience, education dummies, and on the fixed effects indicated in each column. Panel A focuses on all workers at surveyed firms. Panel B includes only workers at surveyed firms who participated in the worker survey. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

preferred specification (Columns 2 and 5) controls for occupation-establishment fixed effects. We cluster the standard errors at the firm level.

We find that women have lower earnings ranks than men in the same occupation and establishment. This gender gap is significantly higher for workers who are exposed to individual bargaining (Column 5 versus Column 2 of Appendix Table G2, Panel A).

G.3 Gender Differences in Risk Tolerance and Outside Options

Next, we test for potential gender differences in risk tolerance and outside options, which could explain why men and women differ in their bargaining actions. Appendix Table G3 shows that we find a statistically significant and economically meaningful gender gap in risk tolerance. This gap persists even when we control for fine level-occupation-establishment fixed effects and arises across different subsamples of workers. Similarly, we find significant gender differences in three complementary measures of outside options: whether workers perceived it would be easy for them

to get a better job, whether they received a job offer in the previous six months, and the extent of their geographic search radius. Appendix Table G4 shows that despite the correlation of risk tolerance and outside options with gender, the documented gender gap in worker bargaining persists even after we control for their risk tolerance and their outside options.

G.4 Reasons Workers Do Not Ask for More

To best understand why workers often do not not ask for more, we asked workers who did not negotiate their pay why they failed to do so. Appendix Tables G5 and G6 describe respondents' stated reasons for why they did not attempt to negotiate either at the beginning of or during an employment spell. We allowed respondents to select multiple reasons. Appendix Table G5 includes workers who joined their firm in the previous three years and report they did not ask for more when they initially negotiated. Appendix Table G6 includes incumbent workers who report they did not receive an outside offer or ask for a raise in the preceding six months.[14]

At the Beginning of an Employment Spell. There are several plausible reasons new hires may not ask for more. For instance, someone may not ask for more if they are satisfied with the offered salary (first row) or if they do not think that asking for more will pay off (second row). Indeed, these are the most highly cited reasons among men who did not negotiate. Seventy percent of men who did not negotiate say they did not do so because they were satisfied with the offered salary (first entry in Appendix Table G5); 34% say that they did not think that asking for more would have resulted in a meaningful increase.

Women are much less likely to cite these financial factors as driving their decision not to ask for more. Relative to men in the same occupation, women are 11 percentage points less likely to say that they did not negotiate because they were satisfied with the offered salary. We see a similar pattern when we compare men and women in the same occupation-establishment (Column 3), or when we add controls for workers' perceived outside options. Adding controls for whether a worker has children or is married closes the gap somewhat (Column 5), but an 11 percentage point gap remains. The second row shows that women are, if anything, less likely to say that the reason they did not negotiate was that they did not think it would pay off.

A related reason workers may not negotiate is that they do not think that it is possible at their firm. While Section G.1 documents that we do not find gender differences in exposure to bargaining, it is possible that workers have imperfect information about their firms' policies. However, the fourth row of Appendix Table G5 suggests this is not a plausible driver of gender differences in behavior.

Our results are most supportive of the idea that women fail to negotiate because they find it uncomfortable to do so. While only 15% of men say that this deterred them from asking for more, 24% of women (after adjusting for occupation fixed effects) say that this deterred them. Across all columns of Appendix Table G5 we see evidence that women are more likely to say they did not ask for more because it would have been uncomfortable to ask.

[14]Given the length of the questionnaire for workers who received an outside offer (we elicited a complete bargaining history for these workers), we did not ask workers who received an outside offer why they did not ask for a raise in the previous six months.

Table G3: Gender Differences in Risk Tolerance and Outside Options

				Bargaining Samples			
	Male Mean	All Workers		New Hire		Raise	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Risk Tolerance							
Binary	.32	-0.090***	-0.104***	-0.116***	-0.100*	-0.090***	-0.104***
		(0.015)	(0.021)	(0.029)	(0.052)	(0.015)	(0.021)
		7054	5158	1694	851	7029	5138
Continuous (0-10)	6.27	-0.482***	-0.524***	-0.514***	-0.401**	-0.485***	-0.530***
		(0.068)	(0.086)	(0.119)	(0.196)	(0.068)	(0.086)
		6981	5104	1680	848	6959	5085
Perceived Outside Options: How Easy Is It to Get a Better Job?							
Binary	.44	-0.061***	-0.065***	-0.041	0.002	-0.060***	-0.064***
		(0.015)	(0.014)	(0.031)	(0.049)	(0.015)	(0.014)
		7013	5121	1677	846	6992	5103
Continuous (0-3)	1.42	-0.114***	-0.125***	-0.049	-0.083	-0.114***	-0.124***
		(0.024)	(0.022)	(0.048)	(0.071)	(0.023)	(0.022)
		7013	5121	1677	846	6992	5103
Received A Job Offer in Previous Six Months							
Binary	.41	-0.080***	-0.068***	-0.060**	-0.039	-0.080***	-0.068***
		(0.012)	(0.013)	(0.026)	(0.035)	(0.012)	(0.013)
		7034	5141	1687	849	7013	5123
Continuous (0-2)	0.96	-0.226***	-0.218***	-0.219***	-0.275**	-0.226***	-0.218***
		(0.031)	(0.033)	(0.064)	(0.105)	(0.031)	(0.033)
		7015	5124	1678	847	6994	5106
Geographic Search Radius							
Kilometers	68	-12.961***	-8.242	-20.050**	-3.227	-12.936***	-8.290
		(4.234)	(5.020)	(9.358)	(15.603)	(4.233)	(5.037)
		6930	5054	1662	827	6908	5035
Fixed Effects		Occ	Occ-Est	Occ	Occ-Est	Occ	Occ-Est

Note: This table examines gender differences in risk tolerance and outside options. Column 1 presents the male mean. Columns 2 to 7 report estimates of the coefficient on a female dummy from regressions of different measures of workers' risk tolerance or outside options (as indicated in each row) on a female dummy, on demographic controls, and on the fixed effects indicated at the bottom of the table. The demographic controls include age, a quadratic in experience, and education dummies. Standard errors are clustered at the firm level. Columns 4 and 5 (6 and 7) include workers who recently joined their firm (incumbents who asked for a raise) in the previous six months. Levels of significance: * 10%, ** 5%, and *** 1%.

Table G4: Gender Differences in Worker Bargaining Behavior

	(1)	(2)	(3)	(4)
A. Asked for and Received More at the Start of the Spell				
Female	-0.073	-0.066	-0.073	-0.066
	(0.050)	(0.047)	(0.051)	(0.048)
Easy to Find a Better Job			0.066*	0.063*
			(0.035)	(0.033)
High Risk Tolerance		0.075*		0.073*
		(0.038)		(0.037)
Observations	843	843	843	843
B. Asked for and Received a Raise in the Previous Six Months				
Female	-0.066***	-0.058***	-0.062***	-0.055***
	(0.015)	(0.015)	(0.015)	(0.015)
Easy to Find a Better Job			0.074***	0.067***
			(0.011)	(0.012)
High Risk Tolerance		0.081***		0.073***
		(0.015)		(0.015)
Observations	5057	5057	5057	5057
C. Provided Salary Expectations (Hypothetical)				
Female	-0.020***	-0.020***	-0.020***	-0.020***
	(0.007)	(0.007)	(0.007)	(0.007)
Easy to Find a Better Job			-0.000	-0.000
			(0.007)	(0.007)
High Risk Tolerance		0.000		0.000
		(0.007)		(0.007)
Observations	5075	5075	5075	5075
D. Salary Expectations are Above Range (Hypothetical)				
Female	-0.057***	-0.055***	-0.057***	-0.055***
	(0.008)	(0.008)	(0.008)	(0.008)
Easy to Find a Better Job			-0.003	-0.005
			(0.006)	(0.006)
High Risk Tolerance		0.021		0.021
		(0.014)		(0.014)
Observations	5001	5001	5001	5001

Note: This table reports regressions that shed light on gender differences in worker bargaining behavior. Each entry provides the coefficient on the variable indicated in the row from a model which regresses the binary outcome indicated in the panel on the row characteristic, and on an individual's level of education, a quadratic in experience, age, and three-digit occupation-establishment fixed effects. Standard errors, presented in parentheses, are clustered at the firm level. Panel A focuses on whether the worker asked for and received a higher wage at the start of the spell. Panel B focuses on whether a worker successfully negotiated a higher wage in the previous six months. Panels C and D examine how workers respond to a hypothetical scenario which asks them to provide their salary expectations in response to a stated salary range. Panel C focuses on whether an individual did provide their expectation. Panel D focuses on whether the level workers provided is above the stated range. Levels of significance: * 10%, ** 5%, and *** 1%.

Table G5: Reasons for Not Asking a Firm to Improve Its Initial Offer

	Male Mean	Female-Male Difference				
	(1)	(2)	(3)	(4)	(5)	(6)
I was satisfied with the offered salary						
	.7	-0.117***	-0.165***	-0.165***	-0.111**	-0.066*
		(0.028)	(0.051)	(0.052)	(0.051)	(0.038)
I did not think I would receive a meaningful increase						
	.34	-0.074**	-0.045	-0.049	-0.065	0.027
		(0.036)	(0.063)	(0.063)	(0.059)	(0.039)
I did not think to ask						
	.08	0.052**	0.060**	0.057*	0.045	0.007
		(0.021)	(0.029)	(0.029)	(0.033)	(0.024)
I did not think the company typically negotiated						
	.21	-0.017	0.025	0.024	-0.113***	0.042
		(0.024)	(0.051)	(0.052)	(0.039)	(0.032)
I wanted to avoid a potentially uncomfortable situation						
	.15	0.086**	0.114*	0.116*	0.080	0.089***
		(0.034)	(0.059)	(0.059)	(0.052)	(0.032)
Fixed Effects		Occ	Occ-Est	Occ-Est	Occ-Est	Occ
Outside Options Controls		No	No	Yes	Yes	Yes
Family Status Controls		No	No	No	Yes	Yes
Including Non-Surveyed Firms		No	No	No	Yes	Yes
Observations		1076	445	442	407	1845

Note: This table analyzes workers' stated reasons for not negotiating. The sample includes workers who joined their firm in the previous three years, and report they did not ask the firm to improve its initial offer at the time they joined. Column 1 reports the mean among male workers. The remaining columns report regression-adjusted gender gaps. Each regression controls for demographic characteristics and for the fixed effects indicated at the bottom of each column. The demographic controls include age, a quadratic in experience, and education dummies. The outside options controls are dummies for whether a worker said it would be "difficult", "easy", or "very easy" to find a job they preferred more. The family status controls include dummies for whether a worker is married and has children; we elicited this information in the follow-up survey. We allowed workers to select multiple reasons they failed to ask for more. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

Table G6: Reasons for Not Asking for a Raise in the Previous Six Months

	Male Mean	Female-Male Difference				
	(1)	(2)	(3)	(4)	(5)	(6)
I was satisfied with my salary						
	.32	-0.030	0.019	0.014	-0.035	-0.031
		(0.023)	(0.024)	(0.022)	(0.034)	(0.027)
I did not think I would receive a meaningful increase						
	.28	0.046**	0.020	0.016	0.054	0.006
		(0.020)	(0.023)	(0.025)	(0.035)	(0.030)
I did not think to ask						
	.14	0.033**	0.057***	0.057***	0.008	-0.027
		(0.013)	(0.015)	(0.015)	(0.017)	(0.023)
I did not think the company typically negotiated						
	.18	-0.071***	-0.095***	-0.091***	-0.084***	-0.062***
		(0.014)	(0.017)	(0.017)	(0.023)	(0.021)
I wanted to avoid a potentially uncomfortable situation						
	.1	0.014	0.026	0.030	0.001	-0.013
		(0.014)	(0.022)	(0.023)	(0.018)	(0.024)
Not enough time had elapsed since my last salary increase						
	.38	-0.053***	-0.017	-0.016	-0.095***	-0.025
		(0.020)	(0.026)	(0.028)	(0.035)	(0.030)
Fixed Effects		Occ	Occ-Est	Occ-Est	Occ-Est	Occ
Outside Options Controls		No	No	Yes	Yes	Yes
Family Status Controls		No	No	No	Yes	Yes
Including Non-Surveyed Firms		No	No	No	Yes	Yes
Observations		3024	1935	1909	1097	4225

Note: This table analyzes workers' stated reasons for not asking for a raise in the previous six months. The sample includes workers who did not receive an outside offer in the previous six months and report they did not ask for a raise. Column 1 reports the mean among male workers. The remaining columns report regression-adjusted gender gaps. Each regression controls for demographic characteristics and for the fixed effects indicated at the bottom of each column. The demographic controls include age, a quadratic in experience, and education dummies. The outside options controls are dummies for whether a worker said it would be "difficult", "easy", or "very easy" to find a job they preferred more and an indicator for whether the worker reported that, in the previous six months, someone reached out to them to provide them with information on job opportunities. The family status controls include dummies for whether a worker is married and has children; we elicited this information in the follow-up survey. We allowed workers to select multiple reasons. Standard errors are clustered at the firm level. Levels of significance: * 10%, ** 5%, and *** 1%.

In the Previous Six Months. We see a similar pattern among incumbent workers: men are most likely to say they did not ask for a raise either because they were satisfied with their pay (32%), because they did not think it would result in a meaningful increase (28%) or because not enough time had lapsed since they had last done so (38%). As at the beginning of the spell, women are more likely to state that it did not occur to them to ask. They are much less likely to say that they did not think that their company typically re-negotiated pay, suggesting that information is not a plausible reason women fail to negotiate.

Discussion. Together these results suggest that women do not fail to negotiate because they think that they will be unsuccessful or because they are more likely to think that their firm does not negotiate. Rather, they are less likely to ask for more because they find it uncomfortable to do so or because they do not think to ask. The results suggest that increasing the salience of negotiations, or increasing workers' comfort in negotiations, may be effective ways to close the gender gap in asking for more. Future work could do more to tease apart the different mechanisms.

G.5 Vignette Experiment in the Follow-Up Survey

To understand whether women are hesitant to negotiate because they anticipate they will be less successful, we embedded a series of vignettes into the follow-up survey. The results of these experiments are consistent with workers' stated reasons for not negotiating: we find no evidence that either men or women think that women are more likely to face backlash if they ask for more. If anything, women are more likely to suggest that the hypothetical worker should negotiate (regardless of gender).

Vignettes. Following the methodology in Haegele (2024), we prompted respondents that we were interested in the career advice they would give others and then randomized whether we asked them about "Sophie" or "Matthias", which are common female and male names. We chose to ask about Sophie or Matthias instead of asking about the workers themselves to avoid concerns relating to desirability bias. All vignettes focused on on-the-job renegotiation because, as documented in Section 4.3, workers are more likely to receive and reject an outside offer than they are to receive an outside offer and move to that firm.

The first vignette told workers:

> "Imagine you are approached by {Sophie/Matthias} who has been working at a similar company and in a similar position as you. {Sophie/Matthias} tells you that {she/he} received an offer from another company that is {10%/20%} above {her/his} current wage.
>
> Suppose {Sophie/Matthias} would prefer to stay at their current company, what do you think they should do?"

Workers could select from four options: (a) Nothing, (b) Tell their employer about this without explicitly asking about a raise, (c) Bring up the possibility of a salary increase, aiming for a partial match with the outside offer, (d) Definitely request a salary increase, aiming for a full match with the outside offer.

To avoid the concern that workers may make different inferences about Sophie and Matthias' outside offers, we specified the gap in wages to be either 10% or 20% above the worker's current wage. We set a maximum of 20% as our initial results revealed that workers rarely ask for wage increases of more than this amount. To avoid the concern that workers may believe there are gender differences in willingness to move, we specified that both Sophie and Matthias want to stay at the incumbent firm.

After workers provided their advice, we informed them that Sophie/Matthias had decided to ask their firm to match the {10%/20%} increase associated with the outside offer. To test whether workers believe there are gender differences in the likelihood of success, we then asked:

> "If {Sophie/Matthias} asks {her/his} current employer to adjust {her/his} current salary to match the outside offer, how large do you think is the probability that the company would match the request? "

We prompted workers to type in a number between 0% and 100%.

Finally, we elicited whether workers believe that asking for more has negative repercussions by asking: "Suppose {Sophie/Matthias} asks {her/his} current employer to adjust {her/his} current salary to their outside offer. How likely do you think it is that their current employer will perceive this negotiation attempt negatively?" Workers could select from four options: (a) Very unlikely, (b) Unlikely, (c) Likely, (d) Very likely.[15]

Randomization Assessment and Validity. Appendix Table G7 confirms that the randomization of both the wage offer and the provided name was successful. Appendix Table G8 suggests that the variation we introduced in the scenarios was indeed salient to respondents: workers are more hesitant to ask and are more negative about success probabilities and potential repercussions when we prompt them with a higher offer (20% vs 10% of the current wage).

Empirical Results. Appendix Table G8 summarizes the results of this vignette experiment. Columns 1 to 4 report results which pool workers who saw the Sophie and Matthias vignettes; Column 5 reports results for workers who saw the Sophie vignette; and Column 6 reports results for workers who saw the Matthias vignette.

Panel A shows that most workers think that Sophie or Matthias should bring up the possibility of a salary increase, asking for a partial or full match (89%), and that workers give the same advice, regardless of the gender of the hypothetical worker. Panel B shows that a reasonable share of workers believe that Sophie or Matthias should explicitly ask for a full salary match; workers are somewhat less likely to recommend this if the vignette specifies that the outside offer is 20% above Sophie/Matthias' current salary. This does not reflect the fact that workers think that it would be less likely the worker's request would be successful (Panel C). Rather, Panel D shows that workers are more likely to say that the larger ask (matching an outside offer with a 20% raise) is more likely to be perceived in a negative light (relative to the smaller ask).

There is no evidence that women are less likely to recommend negotiation (either overall or to Sophie in particular) or that men and women think that Sophie will be less successful in her attempts to increase her salary. Panel A shows that women are significantly more likely to say that

[15]To avoid priming workers, we randomized the order of the second and third vignette in the survey. We did not see significant differences across randomization groups.

Table G7: Vignette Experiment: Randomization Assessment

	Outside Offer Wage	Sophie	N
	(1)	(2)	(3)
Demographics			
Female	0.92	0.83	3692
Age	0.30	0.48	3692
German Citizen	0.51	0.65	3692
College Degree	0.92	0.09	3692
Apprenticeship	0.71	0.26	3692
Employment			
Daily Wage (Allocated)	0.93	0.85	3690
Hours (Survey)	0.82	0.07	3692
CBA Covered (Survey)	0.63	0.39	3585
Manufacturing Sector	0.78	0.62	3692
Retail Sector	0.04	0.70	3692
Professional Sector	0.70	0.29	3692

Note: This table assesses the randomization of (1) the provided wages and (2) the provided name within the vignette included in the follow-up survey. We separately regress each characteristic indicated in the left column on either (1) an indicator for whether the worker saw that the fictional individual received a 20% (rather than 10%) offer from the outside firm or (2) an indicator for whether the worker saw Sophie rather than Matthias. We then test whether the included indicator is equal to zero. This table reports the p-values from these tests.

the worker should ask for a raise than men (Column 3 shows a 5 percentage point gap). Panel B shows that this is also true when considering whether to advise the worker to explicitly ask for a full match. Panel C shows that neither men nor women think that Sophie has a lower probability of success if she were to ask. Panel D further shows that neither men nor women think that Sophie is more likely to have her request seen in a negative light.

Discussion. These results are consistent with workers' stated reasons for not negotiating. In particular, we found that women were not more likely (if anything they were less likely) to say that they chose not to negotiate because they thought they would be unsuccessful. The vignette experiments confirm that men and women do not think that Sophie will be less successful, and that women are not generally more pessimistic about the probability of success. If anything, women are more likely to suggest that negotiation is the best course of action. The fact that many fail to negotiate, due to a desire to avoid "uncomfortable" situations, suggests that efforts to change how bargaining interactions occur or efforts to teach workers how to negotiate may be effective. Such interventions would need to be targeted at workers for whom bargaining is relevant: workers who are not at the start of their careers. This is an interesting direction for future work.

Table G8: Experimental Results from the Vignette Experiment

	Pooled Vignettes				Sophie	Matthias
	(1)	(2)	(3)	(4)	(5)	(6)
	A. Bring Up Possibility of a Salary Increase or Ask for a Match (0/1)					
1{20% Outside Offer}	0.010			0.010	0.000	0.019
	(0.010)			(0.010)	(0.014)	(0.014)
1{Sophie}		-0.000		-0.000		
		(0.010)		(0.010)		
Female			0.048***	0.048***	0.055***	0.041***
			(0.010)	(0.010)	(0.013)	(0.014)
Constant	0.894***	0.900***	0.884***	0.879***	0.882***	0.876***
	(0.007)	(0.007)	(0.006)	(0.010)	(0.012)	(0.012)
Observations	3655	3655	3655	3655	1871	1784
	B. Ask Employer to Match the Outside Offer (0/1)					
1{20% Outside Offer}	-0.030**			-0.030**	-0.019	-0.041**
	(0.013)			(0.013)	(0.018)	(0.019)
1{Sophie}		0.022*		0.022*		
		(0.013)		(0.013)		
Female			0.042***	0.042***	0.029	0.056***
			(0.015)	(0.015)	(0.020)	(0.022)
Constant	0.221***	0.195***	0.192***	0.197***	0.195***	0.220***
	(0.010)	(0.009)	(0.008)	(0.012)	(0.014)	(0.015)
Observations	3655	3655	3655	3655	1871	1784
	C. Probability of Success If Ask for a Match (0-100)					
1{20% Outside Offer}	-0.885			-0.892	-0.897	-0.890
	(0.840)			(0.839)	(1.166)	(1.210)
1{Sophie}		-0.052		-0.062		
		(0.840)		(0.840)		
Female			1.926**	1.929**	2.137*	1.712
			(0.894)	(0.895)	(1.231)	(1.302)
Constant	44.125***	43.702***	43.071***	43.552***	43.490***	43.558***
	(0.598)	(0.583)	(0.511)	(0.789)	(0.933)	(0.953)
Observations	3641	3641	3641	3641	1862	1779
	D. Asking for a Match Will Be Perceived Negatively (0/1)					
1{20% Outside Offer}	0.039**			0.039**	0.037	0.041*
	(0.017)			(0.017)	(0.023)	(0.024)
1{Sophie}		-0.026		-0.025		
		(0.017)		(0.017)		
Female			0.008	0.008	0.011	0.005
			(0.018)	(0.018)	(0.025)	(0.025)
Constant	0.461***	0.493***	0.478***	0.471***	0.471***	0.445***
	(0.012)	(0.012)	(0.010)	(0.015)	(0.018)	(0.019)
Observations	3652	3652	3652	3652	1869	1783

Note: This table presents regressions which analyze the vignette experiment included in the follow-up survey. The outcome variables are indicated in the panel titles. The regressions include only the covariates indicated in the rows. Robust standard errors are in parentheses. Levels of significance: * 10%, ** 5%, and *** 1%.

H Survey Instruments

H.1 Firm Survey

H.1.1 English Translation of Questionnaire

We'll begin by asking you general questions about compensation strategies at your company. For the entire survey, please focus your responses on full-time positions only.

1. Are there some positions at your company that are covered by a collective bargaining agreement?

   (a) Yes
   (b) No

2. When your company advertises a job, what type of compensation information is usually included in the public job posting?

   (a) No information is provided
   (b) Compensation level (e.g. CBA group)
   (c) Compensation range (in Euros)
   (d) Exact compensation amount (in Euros)

3. When your company advertises a job, what type of compensation information is usually included in the internal job posting?

   (a) Not applicable: we do not have a separate internal job board
   (b) No information is provided
   (c) Compensation level (e.g. CBA group)
   (d) Compensation range (in Euros)
   (e) Exact compensation amount (in Euros)

4. Are external candidates usually asked to specify their salary expectations in the application/interview process?

   (a) Yes, it is mandatory for candidates to specify their salary expectations
   (b) Yes, but it is optional for candidates to specify their salary expectations
   (c) No

5. Companies use different compensation strategies to determine the fixed compensation for external candidates. First, we are interested in how your company usually determines the first salary offer made to a candidate for a specific position. We are only interested in positions not covered by collective bargaining agreements. Can you make a higher-than-usual first salary offer if the person has high qualifications/fit for the position?

   (a) Yes
   (b) No

6. Can you make a higher-than-usual first salary offer if the recruitment appears difficult (e.g. because the person states high compensation expectations or has offers from other companies) ?

   (a) Yes

(b) No

7. Is there usually scope for negotiation after your company has made the first offer

   (a) Yes
   (b) No

8. Now, please think back to the last 10 external candidates that you have knowledge of and to whom your company made offers. What do you guess is the share of these external candidates who ultimately received a final compensation offer that was higher than your company's first offer?

   (a) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

9. Now we'll focus on how your company conducts salary negotiations.

   We are interested in four specific employee groups:

   1. Labor market entrants with no or little prior work experience
   2. Employees with work experience, but without managerial responsibility
   3. Managers
   4. Employees in hard-to-fill bottleneck occupation (excluding top executives)

   Since the definition of group 4 is very company-specific, we would like to know which position in your company is most likely to represent a hard-to-fill bottleneck occupation (e.g. IT specialists, sales management). Please indicate the job title of that position: _____

   We ask you to answer the following four questions separately for each group. Please focus your answers only on full-time positions.

   We are first interested in the scope of salary negotiations with external candidates.

10. How much more could a person maximally receive compared to the fixed compensation you would have offered based on the person's qualification/fit for the position alone?

	0% No adjustment possible	1-10%	11-20%	21-30%	31-40%	More than 40%
Labor market entrants						
Employees without managerial responsibility						
Managers						
Employees in bottleneck occupations([Q9])						

11. What is the most your company could possibly offer in terms of an additional special payment to recruit external candidates (e.g. bonus, stock grant)? Please exclude any such special payments that are typically provided to all candidates. Please indicate the maximum amount of the special payment in percent, compared to the annual fixed compensation of the position.

	0% No special payment	1-10%	11-20%	21-30%	31-40%	More than 40%
Labor market entrants						
Employees without managerial responsibility						
Managers						
Employees in bottleneck occupations([Q9])						

12. Now, we are interested in how much wage offers for a given position differ at your company. For each employee group, imagine 10 candidates. All of the candidates have the same qualification and fit. However, they differ in their stated salary expectations and in offers from other companies. What do you think the gap would be between the highest and lowest first offer your company would make to these candidates?

	0% All offers are the same	Highest offer is 1-10% higher than the lowest	Highest offer is 11-20% higher than the lowest	Highest offer is 21-30% higher than the lowest	Highest offer is more than 30% higher than the lowest
Labor market entrants					
Employees without managerial responsibility					
Managers					
Employees in bottleneck occupations([Q6])					

13. What do you think the gap would be between the highest and lowest final compensation offer your company would make to these candidates (i.e. after incorporating potential negotiations)?

	0% All offers are the same	Highest offer is 1-10% higher than the lowest	Highest offer is 11-20% higher than the lowest	Highest offer is 21-30% higher than the lowest	Highest offer is more than 30% higher than the lowest
Labor market entrants					
Employees without managerial responsibility					
Managers					
Employees in bottleneck occupations([Q9])					

14. In your opinion, what contributes the most to the differences between final compensation offers for equally qualified candidates? We are only interested in experienced employees without managerial responsibility. The majority of differences in final offers result ...

    (a) from differences in first offers
    (b) from negotiations following the first offer

(c) equally from differences in first offers and from negotiations
(d) There usually are no differences in final offers.

15. At your company, are the following job benefits more negotiable than fixed compensation? If a benefit is not relevant for your company, please choose "Not applicable."

	Yes, more negotiable than fixed compensation	No, not more negotiable than fixed compensation	Not applicable
Flexible work/ vacation days			
Commute and moving costs/ company car			
Further education and training			
Childcare subsidy			

Now we'll focus on salary negotiations with existing employees.

16. Suppose an employee at your company receives an external offer from another company and requests a salary increase. What is the maximum percentage by which your firm could possibly increase the fixed compensation (without changing the person's tasks) in order to retain the person?

	0% No adjustment possible	1-10%	11-20%	21-30%	31-40%	More than 40%
Labor market entrants						
Employees without managerial responsibility						
Managers						
Employees in bottleneck occupations([Q9])						

In the final part of the survey, we are interested in how your company adjusts compensation in practice.

17. Suppose your company's financial situation has not changed relative to the preceding year, but prices are rising relatively quickly (i.e. inflation is high). In this situation, how would your company adjust the fixed compensation for employees not covered by collective bargaining agreements? Fixed compensation is ...

(a) not adjusted
(b) adjusted at the next date specified in a pre-determined schedule
(c) adjusted as soon as possible
(d) only adjusted if other firms in your sector/region adjust their compensation

18. When determining compensation for new hires, how much information do decision makers at your company have about how much your competitors pay? The decision makers ...

(a) do not know how our compensation ranges compare to competitors
(b) have information on whether our compensation ranges are high or low relative to the market
(c) have information on whether our compensation ranges are high or low relative to specific competitors

(d) have detailed information on compensation ranges for specific competitors

19. Which sources does your company regularly use to collect information on compensation paid in your industry or region? Please select all that apply.

- We do not compare our compensation to other companies
- Informal discussions with previous coworkers or industry contacts
- Free sources (e.g. Glassdoor, kununu)
- Paid sources (e.g. consulting companies)
- Internal research

20. Which of the following describes common practices at your company? Please select all that apply.

- Employees are asked to treat their salary as confidential (e.g. in interactions with colleagues)
- At the request of employees, HR provides information about the procedures / rules used to determine compensation in the company
- At the request of employees, HR provides information on the compensation structure in the company (e.g. compensation amount in certain salary ranges)
- At the request of employees, HR provides specific figures on compensation in certain positions

21. Does your company have a company-wide compensation structure used to systematically grade positions?

(a) Yes
(b) No

22. Does your company regularly evaluate the internal compensation structure?

(a) Yes
(b) No, not yet but planned
(c) No, and also not planned

23. In order to complete the information collected, the Ifo Institute would like to include data in the evaluation of the survey that is already available at the Institute for Employment Research (IAB) in the form of company and personal data. The IAB is a special department of the Federal Employment Agency (BA) which, as part of its statutory mandate, examines the functioning of the labor market, as well as employment opportunities and living conditions in a dynamically changing world from a purely scientific point of view. The linking of the data shortens the scope of this survey. All information is treated with strict confidentiality and statutory data protection is fully guaranteed at all times, even when the data is linked. I agree to the linking of my details with company and personal data available at the Institute for Employment Research (IAB).

(a) Yes
(b) No

24. If you have any suggestions or criticism about the survey, you can insert them here: : _____

H.1.2 Original German Questionnaire

Wir beginnen mit allgemeinen Fragen zu Vergütungsstrategien in Ihrem Unternehmen. Bitte beachten Sie, dass sich die gesamte Umfrage ausschließlich auf Vollzeitstellen bezieht.

1. Gibt es Stellen in Ihrem Unternehmen, die eine Tarifbindung haben?

   (a) Ja
   (b) Nein

2. Wenn Ihr Unternehmen eine Stelle ausschreibt, welche Art von Vergütungsinformationen enthält die öffentliche Stellenausschreibung üblicherweise?

   (a) Es werden keine Informationen bereitgestellt
   (b) Vergütungsstufe (z.B. Tarifgruppe)
   (c) Vergütungsspanne (in Euro)
   (d) Konkrete Vergütung (in Euro)

3. Wenn Ihr Unternehmen eine Stelle ausschreibt, welche Art von Vergütungsinformationen enthält die interne Stellenausschreibung üblicherweise?

   (a) Nichtzutreffend: Wir haben keine interne Jobbörse
   (b) Es werden keine Informationen bereitgestellt
   (c) Vergütungsstufe (z.B. Tarifgruppe)
   (d) Vergütungsspanne (in Euro)
   (e) Konkrete Vergütung (in Euro)

4. Werden in Ihrem Unternehmen externe Kandidat*innen in der Regel im Bewerbungs-/Interviewprozess gebeten, ihre Gehaltsvorstellungen anzugeben?

   (a) Ja, die Angabe von Gehaltsvorstellungen ist verpflichtend
   (b) Ja, aber die Angabe von Gehaltsvorstellungen ist optional
   (c) Nein

5. Unternehmen verfolgen unterschiedliche Strategien, um die feste Vergütung für externe Kandidat*innen zu bestimmen. Zunächst interessiert uns, wie Ihr Unternehmen in der Regel das erste Vergütungsangebot ermittelt, das einer Person für eine bestimmte Stelle gemacht wird. Wir interessieren uns hierbei nur für Stellen ohne Tarifbindung. Ist es möglich, ein überdurchschnittliches erstes Vergütungsangebot zu machen, falls die Person eine hohe Qualifikation/Eignung für die Stelle hat?

   (a) Ja
   (b) Nein

6. Ist es möglich, ein überdurchschnittliches erstes Vergütungsangebot zu machen, falls die Rekrutierung schwierig erscheint (z.B. weil die Person hohe Gehaltserwartungen äußert oder der Person Angebote anderer Unternehmen vorliegen).

   (a) Ja
   (b) Nein

7. Besteht nach dem ersten Angebot Ihres Unternehmens in der Regel noch Verhandlungsspielraum? Wir interessieren uns hierbei nur für Stellen ohne Tarifbindung.

(a) Ja
(b) Nein

8. Denken Sie nun bitte an die letzten 10 externen Kandidat*innen, von denen Sie Kenntnis haben und denen Ihr Unternehmen ein Angebot gemacht hat. Was schätzen Sie, welcher Anteil der externen Kandidat*innen hat letztendlich ein finales Vergütungsangebot erhalten, das höher war als das erste Angebot Ihres Unternehmens?

   (c) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

9. Jetzt geht es darum, wie Ihr Unternehmen Gehaltsverhandlungen führt. Wir interessieren uns dabei für vier bestimmte Mitarbeitergruppen:

   1. Berufsanfänger ohne oder mit wenig vorheriger Berufserfahrung
   2. Mitarbeiter mit Berufserfahrung, aber ohne Führungsverantwortung
   3. Führungskräfte
   4. Mitarbeiter in schwer besetzbaren Engpassberufen (außer Top Management)

   Da die Definition von Gruppe 4 sehr unternehmensspezifisch ist, möchten wir gerne wissen, welche Stelle in Ihrem Unternehmen am ehesten einen schwer besetzbaren Engpassberuf darstellt (z.B. Fachinformatik, Vertriebsleitung).

   Bitte geben Sie den Job-Titel dieser Stelle an: _____

   Wir bitten Sie, die folgenden vier Fragen separat für jede Gruppe zu beantworten. Bitte beziehen Sie Ihre Antworten dabei ausschließlich auf Vollzeitstellen.

10. Wir interessieren uns zuerst für den Spielraum bei Gehaltsverhandlungen mit externen Kandidat*innen. Wie viel mehr könnte eine Person maximal erhalten, verglichen mit der festen Vergütung, die Sie allein aufgrund der Qualifikation/Eignung der Person für die Stelle angeboten hätten?

	0% Keine Anpassung möglich	1-10%	11-20%	21-30%	31-40%	Mehr als 40%
Berufsanfänger						
Mitarbeiter ohne Führungsverantwortung						
Führungskräfte						
Mitarbeiter in Engpassberufen ([Q9])						

11. Was könnte Ihr Unternehmen maximal als zusätzliche Sonderzahlung (z.B. Bonus, Aktienpaket) bieten, um externe Kandidat*innen zu rekrutieren? Bitte beziehen Sie nicht solche Sonderzahlungen mit ein, die üblicherweise allen Kandidat*innen angeboten werden. Bitte geben Sie die maximale Höhe der Sonderzahlung in Prozent, bezogen auf die jährliche feste Vergütung der Stelle, an.

	0% Keine Anpassung möglich	1-10%	11-20%	21-30%	31-40%	Mehr als 40%
Berufsanfänger						
Mitarbeiter ohne Führungsverantwortung						
Führungskräfte						
Mitarbeiter in Engpassberufen ([Q9])						

12. Nun interessiert uns, wie sehr sich Vergütungsangebote für eine bestimmte Stelle in Ihrem Unternehmen unterscheiden.

    Stellen Sie sich bitte 10 Kandidat*innen pro Mitarbeitergruppe vor. Alle Kandidat*innen haben die gleiche Qualifikation und Eignung. Sie unterscheiden sich jedoch in den angegebenen Gehaltsvorstellungen und in Angeboten anderer Unternehmen.

    Wie groß wäre Ihrer Meinung nach wohl der Abstand zwischen dem höchsten und niedrigsten ersten Vergütungsangebot, das Ihr Unternehmen diesen Kandidat*innen machen würde?

	0% All Angebote sind gleich hoch	Das höchste Angebot ist 1-10% höher als das niedrigste	Das höchste Angebot ist 11-20% höher als das niedrigste	Das höchste Angebot ist 21-30% höher als das niedrigste	Das höchste Angebot ist mehr als 30% höher als das niedrigste
Berufsanfänger					
Mitarbeiter ohne Führungsverantwortung					
Führungskräfte					
Mitarbeiter in Engpassberufen ([Q9])					

13. Wie groß wäre Ihrer Meinung nach der Abstand zwischen dem höchsten und niedrigsten finalen Vergütungsangebot, das Ihr Unternehmen diesen Kandidat*innen machen würde (d.h. nach Abschluss potentieller Verhandlungen)?

	0% All Angebote sind gleich hoch	Das höchste Angebot ist 1-10% höher als das niedrigste	Das höchste Angebot ist 11-20% höher als das niedrigste	Das höchste Angebot ist 21-30% höher als das niedrigste	Das höchste Angebot ist mehr als 30% höher als das niedrigste
Berufsanfänger					
Mitarbeiter ohne Führungsverantwortung					
Führungskräfte					
Mitarbeiter in Engpassberufen ([Q9])					

14. Welche Ursachen sind Ihrer Meinung nach für den Großteil der Unterschiede zwischen finalen Vergütungsangeboten für gleichermaßen geeignete Kandidat*innen verantwortlich? Wir interessieren uns

hierbei nur für erfahrene Mitarbeiter ohne Führungsverantwortung. Der Großteil der Unterschiede in finalen Angeboten entsteht ...

(a) durch Unterschiede zwischen den Erstangeboten
(b) durch Verhandlungen im Anschluss an das Erstangebot
(c) gleichermaßen durch Unterschiede zwischen den Erstangeboten und durch Verhandlungen
(d) Es gibt normalerweise keine Unterschiede zwischen finalen Angeboten.

15. Sind folgende sonstige Vergütungsbestandteile und Nebenleistungen in Ihrem Unternehmen verhandelbarer als die feste Vergütung? Wenn ein Bestandteil für Ihr Unternehmen nicht relevant ist, wählen Sie bitte "Nicht zutreffend".

	Ja, verhandelbarer als feste Vergütung	Nein, nicht verhandelbarer als feste Vergütung	Nicht zutreffend
Flexible Arbeitszeiten/ Urlaubstage			
Fahrt- und Umzugskosten/ Firmenwagen			
Fort- und Weiterbildung			
Kinderbetreuungszuschuss			

16. Jetzt geht es um Gehaltsverhandlungen mit bestehenden Mitarbeiter*innen. Angenommen, ein Mitarbeiter oder eine Mitarbeiterin Ihres Unternehmens erhält ein externes Angebot eines anderen Unternehmens und fordert eine Gehaltserhöhung. Um wie viel Prozent könnte Ihr Unternehmen die feste Vergütung maximal erhöhen (ohne die Aufgaben der Person zu ändern), um die Person zu halten?

	0% Keine Anpassung möglich	1-10%	11-20%	21-30%	31-40%	Mehr als 40%
Berufsanfänger						
Mitarbeiter ohne Führungsverantwortung						
Führungskräfte						
Mitarbeiter in Engpassberufen ([Q9])						

17. Im letzten Teil der Umfrage interessieren wir uns dafür, wie Ihr Unternehmen Vergütung in der Praxis anpasst. Angenommen, die finanzielle Situation Ihres Unternehmens hat sich im Vergleich zum Vorjahr nicht verändert, aber die Preise steigen relativ schnell (d.h. die Inflation ist hoch). Wie würde Ihr Unternehmen in dieser Situation die feste Vergütung für Mitarbeiter*innen ohne Tarifbindung anpassen? Die feste Vergütung wird ...

(a) nicht angepasst
(b) zum nächsten Termin im vorgegebenen Zeitplan angepasst
(c) so schnell wie möglich angepasst
(d) nur angepasst, falls andere Unternehmen in der Branche/Region ihre Vergütung anpassen

18. Wenn die Vergütung für Neueinstellungen festgelegt wird, wie viele Informationen haben Entschei-

dungsträger*innen in Ihrem Unternehmen darüber, wie viel Ihre Wettbewerber bezahlen? Die Entscheidungsträger*innen ...

(a) wissen nicht, wie unsere Vergütungsspannen im Vergleich zu Wettbewerbern abschneiden
(b) wissen, ob unsere Vergütungsspannen im Verhältnis zum Markt hoch oder niedrig sind
(c) wissen, ob unsere Vergütungsspannen im Vergleich zu spezifischen Wettbewerbern hoch oder niedrig sind
(d) haben detaillierte Informationen zu Vergütungsspannen spezifischer Wettbewerber

19. Welche Quellen nutzt Ihr Unternehmen regelmäßig, um Informationen über Vergütung in Ihrer Branche oder Region zu sammeln? Bitte wählen Sie alle zutreffenden Antworten aus.

- Wir vergleichen unsere Vergütung nicht mit anderen Unternehmen
- Informelle Gespräche mit früheren Mitarbeiter*innen oder Branchenkontakten
- Kostenlose Quellen (z.B. Glassdoor, kununu)
- Kostenpflichtige Quellen (z.B. Beratungsunternehmen)
- Interne Recherche

20. Welche Aussagen beschreiben gängige Praktiken in Ihrem Unternehmen? Bitte wählen Sie alle zutreffenden Antworten aus.

- Mitarbeiter*innen werden gebeten, ihre Vergütung vertraulich zu behandeln (z.B. im Umgang mit Kollegen)
- Auf Anfrage teilt HR Informationen mit Mitarbeiter*innen darüber, mit welchen Verfahren/Regeln Vergütung im Unternehmen festgelegt wird
- Auf Anfrage gibt HR Mitarbeiter*innen Auskunft zur Vergütungsstruktur im Unternehmen (z.B. Informationen zu Gehaltsspannen)
- Auf Anfrage stellt HR Mitarbeiter*innen konkrete Zahlen zur Verfügung, wie hoch Gehälter für bestimmte Stellen sind

21. Existiert in Ihrem Unternehmen eine unternehmensweite Vergütungsstruktur, mit der Stellen systematisch bewertet werden?

(a) Ja
(b) Nein

22. Führt Ihr Unternehmen regelmäßig Bewertungen der internen Vergütungsstruktur durch?

(a) Ja
(b) Nein, noch nicht, aber geplant
(c) Nein, und auch nicht geplant

23. Zur Vervollständigung der erhobenen Informationen möchte das ifo Institut Betriebs- und Personendaten einbeziehen, die bereits am Institut für Arbeitsmarkt- und Berufsforschung (IAB) vorliegen. Das IAB ist dabei eine besondere Dienststelle der Bundesagentur für Arbeit (BA), die im Rahmen ihres gesetzlichen Auftrags die Funktionsweise des Arbeitsmarkts, sowie die Erwerbschancen und Lebensbedingungen in einer sich dynamisch verändernden Welt aus rein wissenschaftlicher Sicht untersucht. Durch die Verknüpfung der Daten verkürzt sich der Umfang dieser Befragung. Alle

Angaben werden streng vertraulich behandelt und der gesetzliche Datenschutz ist auch bei Verknüpfung der Daten zu jedem Zeitpunkt in vollem Umfang gewährleistet. Ich stimme der Verknüpfung meiner Angaben mit Betriebs- und Personendaten, die am Institut für Arbeitsmarkt- und Berufsforschung (IAB) vorliegen, zu.

(a) Ja
(b) Nein

24. Was möchten Sie uns noch mitteilen? Hier finden Sie Platz für Anregungen oder Kritik zur Befragung: _____

H.2 Worker Bargaining Modules

H.2.1 English Translation of Questionnaire

Background Questions [The following questions were asked of individuals who reported they were not self-employed or non/un-employed]

1. When did you first join your current company?

   (a) In the past 6 months
   (b) 6-12 months ago
   (c) 1-2 years ago
   (d) 2-3 years ago
   (e) >3 years ago

2. Is your current position covered by a CBA agreement (i.e. are you paid according to CBA)?

   (a) Yes
   (b) No
   (c) I don't know

3. How many hours do you work in a typical week?

   (a) {fill in}

4. During the past six months ...

   ... have you done any of the following? Please select all that apply.

   (a) Looked at job postings
   (b) Updated public resume or employment information (e.g. Xing, LinkedIn)
   (c) Reached out to people in my network for information about potential job opportunities
   (d) Applied to a job at another company

5. During the past six months ...

   ... did anyone reach out to you to provide information about potential job opportunities (e.g. sent you a job opening or offered to provide a referral)?

   (a) Yes
   (b) No

6. During the past six months ...

   ... did you receive any job offers from other companies?

   (a) Yes
   (b) No

7. During the past six months ...

   ... did your company offer you a salary increase without you asking?

   (a) Yes
   (b) No

8. During the past six months ...

   ... did you actively ask for an increase in salary?

   (a) Yes
   (b) No

9. In your opinion, how easy would it be for you to obtain a job offer from a different company that you would prefer to your current position?

   (a) a. Very Easy
   (b) b. Easy
   (c) c. Difficult
   (d) d. Very difficult

10. Finally, we would like to ask you to assess yourself. Are you generally a person who is willing to take risks or do you try to avoid taking risks?

    Please choose a value on the scale below, where the value 0 means "not at all willing to take risks" and the value 10 means "very willing to take risks".

    (a) 0 (Not at all willing to take risks) 1 2 3 4 5 6 7 8 9 10 (Very willing to take risks)

New Hire Module [The following questions were asked of individuals who reported they were not self-employed or non/un-employed and who had been in their current company for 3 or fewer years.]

We are now interested in how you started your **first** position at your **current** company.

1. During the application and hiring process, who suggested a concrete salary first?

   (a) I mentioned my salary expectations first without the company asking me to
   (b) I mentioned my salary expectations after the company asked me to
   (c) The company suggested a concrete salary first

2. [Q1==a | Q1==b] Once the company made a first offer, how did the offer compare to your salary expectations?

   (a) Lower
   (b) The same
   (c) Higher

3. After the company made you a salary offer, did you ask them to increase the salary?

   (a) Yes
   (b) No

4. [Q3 == Yes] By how much did you ask them to increase the salary (compared to the company's offer)?

   (a) 1-5%
   (b) 6-10%
   (c) 11-20%
   (d) More than 20%

5. [Q3 == Yes] Did the company implement the salary increase you asked for?

   (a) Yes, fully
   (b) Yes, but only partially
   (c) No

6. [Q3 == No] Why didn't you ask for a salary increase? Please select all that apply.

   (a) I haven't thought about asking for a salary increase
   (b) I had the impression that the company does not typically negotiate
   (c) I was pretty sure I would not have been successful in getting a meaningful salary increase
   (d) I wanted to avoid a potentially uncomfortable situation
   (e) I was satisfied with the offered salary

7. Did your company improve your position in other ways (relative to the company's first offer)? Please select all that apply

   (a) Vacation days or remote work
   (b) Company car or commuting subsidy
   (c) Training
   (d) Childcare subsidy
   (e) Bonus payment or stock options
   (f) **No**, my position was not improved

Outside Offer Module [The following questions were asked of individuals who were not self-employed or non/-unemployed and who reported they had received an outside offer in the previous six months.]

1. How many job offers from other companies did you receive in the past six months?

   (a) 1
   (b) 2
   (c) 3 or more

2. Think about the most recent offer from another company that you received. Who suggested a specific salary first?

   (a) I mentioned my salary expectations first without the company asking me to
   (b) I mentioned my salary expectations after the company asked me to
   (c) The company made the first salary offer

3. [Q2==a | Q2==b] How did the first offer the company made you compare to your salary expectations?

   (a) Lower
   (b) The same
   (c) Higher

4. How did the first offer compare to your salary at the time?

   (a) Lower
   (b) The same
   (c) Higher

5. After that company made you a salary offer, did you ask them to increase the salary?

   (a) Yes
   (b) No

6. [Q5 == Yes] By how much did you ask them to increase the salary (compared to the company's offer)?

   (a) 1-5%
   (b) 6-10%
   (c) 11-20%
   (d) More than 20%

7. [Q5 == Yes] Did the company implement the salary increase you asked for?

   (a) Yes, fully
   (b) Yes, but only partially
   (c) No

8. Did you ask your employer at the time to increase your salary?

   (a) Yes
   (b) No

9. [Q8==Yes] Did that company then increase your salary?

   (a) Yes, my employer at the time offered more than the other company
   (b) Yes, my employer at the time matched the offer of the other company
   (c) Yes, but my employer at the time offered less than the other company
   (d) No

Hypothetical Module [The following was asked of all workers. The range was randomized across workers.]

1. Suppose you wanted to change jobs and were applying to a new position in a different company. The job ad lists a salary range, which goes from {90/110}% to {120/140}% of your current salary.

   You are asked for your salary expectations. Relative to your salary, what do you say?

   (a) {fill in}%
   (b) I would not provide my salary expectations, even if asked

H.2.2 Original German Questionnaire

Background Questions [The following questions were asked of individuals who reported they were not self-employed or non/un-employed]

1. Seit wann sind Sie in Ihrem jetzigen Unternehmen beschäftigt?

   (a) Seit weniger als 6 Monaten
   (b) Seit 6-12 Monaten
   (c) Seit 1-2 Jahren
   (d) Seit 2-3 Jahren
   (e) Seit mehr als 3 Jahren

2. Ist Ihre Stelle tarifgebunden (d.h. werden Sie nach Tarifvertrag bezahlt)?

   (a) Ja
   (b) Nein
   (c) Ich weiß nicht

3. Wie viele Stunden arbeiten Sie in einer typischen Woche?

   (a) {fill in}

4. In den vergangenen sechs Monaten...

   ... haben Sie Folgendes getan? Bitte wählen Sie alle zutreffenden Antworten aus.

   (a) Stellenausschreibungen angesehen
   (b) Aktualisierten Lebenslauf oder Beschäftigungsinformationen online gestellt (z.B. über Xing, LinkedIn)
   (c) Personen in meinem Netzwerk kontaktiert, um Informationen zu potentiellen Jobangeboten zu erhalten
   (d) Sich auf eine Stelle in einem anderen Unternehmen beworben

5. In den vergangenen sechs Monaten ...

   ... hat Sie jemand mit Informationen zu potentiellen Jobangeboten kontaktiert (z.B. Stellenausschreibungen zugeschickt oder Ihnen angeboten, eine Empfehlung für Sie auszusprechen)?

   (a) Ja
   (b) Nein

6. In den vergangenen sechs Monaten ...

   ... haben Sie Stellenangebote von anderen Unternehmen erhalten?

   (a) Ja
   (b) Nein

7. In den vergangenen sechs Monaten ...

   ... hat Ihr Unternehmen Ihnen eine Gehaltserhöhung angeboten, ohne dass Sie danach gefragt haben?

   (a) Ja
   (b) Nein

8. In den vergangenen sechs Monaten ...

... haben Sie proaktiv nach einer Gehaltserhöhung gefragt?

(a) Ja
(b) Nein

9. Was glauben Sie, wie einfach wäre es für Sie, ein Stellenangebot von einem anderen Unternehmen zu erhalten, das Sie Ihrer jetzigen Stelle vorziehen würden?

   (a) Sehr einfach
   (b) Einfach
   (c) Schwierig
   (d) Sehr schwierig

10. Abschließend interessiert uns Ihre Selbsteinschätzung. Sind Sie generell ein risikobereiter Mensch oder versuchen Sie Risiken zu vermeiden?

    Verwenden Sie dazu bitte eine Skala von 0 bis 10. Der Wert 0 bedeutet „gar nicht risikobereit“ und der Wert 10 „sehr risikobereit“. Mit den Werten dazwischen können Sie Ihre Einschätzung abstufen.

    (a) 0 (gar nicht risikobereit) 1 2 3 4 5 6 7 8 9 10 (sehr risikobereit)

New Hire Module [The following questions were asked of individuals who reported they were not self-employed or non/un-employed and who had been in their current company for 3 or fewer years.]

Jetzt geht es darum, wie Sie Ihre **erste** Stelle in Ihrem **jetzigen** Unternehmen angetreten haben.

1. Wer hat im Bewerbungs- und Einstellungsprozess zuerst ein konkretes Gehalt vorgeschlagen?

   (a) Ich habe zuerst Gehaltsvorstellung geäußert, **ohne** dass mich das Unternehmen darum gebeten hat.
   (b) Ich habe Gehaltsvorstellung geäußert, **nachdem** mich das Unternehmen darum gebeten hat.
   (c) Das Unternehmen hat zuerst ein konkretes Gehalt vorgeschlagen.

2. [Q1==a | Q1==b] Als das Unternehmen Ihnen ein erstes Angebot gemacht hat, wie hoch war das Angebot im Vergleich zu Ihren Gehaltsvorstellungen?

   (a) Niedriger
   (b) Gleich hoch
   (c) Höher

3. Nachdem das Unternehmen Ihnen ein Gehaltsangebot gemacht hat, haben Sie nach einem höheren Gehalt gefragt?

   (a) Ja
   (b) Nein

4. [Q3 == Ja] Wie hoch war die Gehaltserhöhung, nach der Sie gefragt haben (im Vergleich zum Angebot des Unternehmens)?

   (a) 1-5%
   (b) 6-10%
   (c) 11-20%
   (d) Mehr als 20%

5. [Q3 == Ja] Hat das Unternehmen die Gehaltserhöhung umgesetzt, nach der Sie gefragt haben?

   (a) Ja, vollständig
   (b) Ja, aber nur teilweise
   (c) Nein

6. [Q3 == Nein] Warum haben Sie nach keiner Erhöhung des Gehalts gefragt? Bitte wählen Sie alle zutreffenden Antworten aus.

   (a) Ich habe nicht darüber nachgedacht, nach einer Gehaltserhöhung zu fragen.
   (b) Mein Eindruck war, dass das Unternehmen normalerweise nicht verhandelt.
   (c) Ich war mir ziemlich sicher, dass ich keine wesentliche Erhöhung bekommen hätte.
   (d) Ich wollte eine womöglich unangenehme Situation vermeiden.
   (e) Ich war mit dem angebotenen Gehalt zufrieden.

7. Hat das Unternehmen Ihre Stelle in anderer Weise verbessert (im Vergleich zum ersten Angebot des Unternehmens)? Bitte wählen Sie alle zutreffenden Antworten aus.

   (a) Urlaubstage/Homeoffice
   (b) Firmenwagen/Fahrtkostenzuschuss
   (c) Training/Weiterbildung
   (d) Zuschuss zur Kinderbetreuung
   (e) Bonuszahlung/Aktienoptionen
   (f) **Nein,** meine Stelle wurde nicht verbessert.

Outside Offer Module [The following questions were asked of individuals who were not self-employed or non/-unemployed and who reported they had received an outside offer in the previous six months.]

1. Wie viele Stellenangebote von anderen Unternehmen haben Sie in den vergangenen sechs Monaten erhalten?

   (a) 1
   (b) 2
   (c) 3 oder mehr

2. Denken Sie nun an das letzte Stellenangebot, das Sie von einem anderen Unternehmen erhalten haben. Wer hat zuerst ein konkretes Gehalt vorgeschlagen?

   (a) Ich habe zuerst Gehaltsvorstellung geäußert, **ohne** dass mich das Unternehmen darum gebeten hat.
   (b) Ich habe Gehaltsvorstellung geäußert, **nachdem** mich das Unternehmen darum gebeten hat.
   (c) Das Unternehmen hat zuerst ein konkretes Gehalt vorgeschlagen.

3. [Q2==a | Q2==b] Wie hoch war das erste Angebot des Unternehmens im Vergleich zu Ihren Gehaltsvorstellungen?

   (a) Niedriger
   (b) Gleich hoch
   (c) Höher

4. Und wie hoch war das erste Angebot des Unternehmens im Vergleich zu Ihrem damaligen Gehalt?

(a) Niedriger
(b) Gleich hoch
(c) Höher

5. Nachdem das Unternehmen Ihnen ein Gehaltsangebot gemacht hat, haben Sie nach einem höheren Gehalt gefragt?

   (a) Ja
   (b) Nein

6. [Q5 == Ja] Wie hoch war die Gehaltserhöhung, nach der Sie gefragt haben (im Vergleich zum Angebot des Unternehmens)?

   (a) 1-5%
   (b) 6-10%
   (c) 11-20%
   (d) Mehr als 20%

7. [Q5 == Ja] Hat das Unternehmen die Gehaltserhöhung umgesetzt, nach der Sie gefragt haben?

   (a) Ja, vollständig
   (b) Ja, aber nur teilweise
   (c) Nein

8. Haben Sie Ihren damaligen Arbeitgeber nach einer Gehaltserhöhung gefragt

   (a) Ja
   (b) Nein

9. [Q8==Ja] Konnten Sie eine Gehaltserhöhung bei Ihrem damaligen Arbeitgeber erreichen?

   (a) Ja, mein damaliger Arbeitgeber hat das andere Unternehmen überboten.
   (b) Ja, mein damaliger Arbeitgeber hat gleichviel geboten wie das andere Unternehmen.
   (c) Ja, aber mein damaliger Arbeitgeber hat weniger geboten als das andere Unternehmen.
   (d) Nein

Hypothetical Module [The following was asked of all workers. The range was randomized across workers.]

1. Angenommen, Sie wollten den Job wechseln und bewerben sich auf eine neue Stelle in einem anderen Unternehmen. Die Stellenanzeige listet eine Gehaltsspanne, die von {90/110}% bis {120/140}% Ihres aktuellen Gehalts reicht.

   Sie werden nach Ihren Gehaltsvorstellungen gefragt. Was geben Sie an, relativ zu Ihrem aktuellen Gehalt?

   (a) {fill in}%
   (b) Ich würde meine Gehaltsvorstellungen nicht angeben, auch wenn ich danach gefragt werde.

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