ONLINE APPENDIX

Appendix A: Robustness and Extensions

Our main conclusions are robust to different ways of estimating establishment premiums and match quality, as well as to alternative definitions of displacement. For easier exposition, we present the robustness checks in the pooled sample using our full sample, pooled across all worker types. Columns (1.1) and (2.2) of Table A.6 report the baseline results for the full sample.

A.1. Match Quality. In our decompositions, we interpret the residual displacement wage loss that is not explained by losses in establishment premiums or losses in general and specific human capital as being due to valuable match quality. We also estimate match quality for each worker-establishment pair more directly, closely following Lachowska *et al.* (2020) and Woodcock (2015). In a nutshell, log wages net of year effects, returns to potential experience, and establishment and occupation tenure are averaged within worker-establishment matches and then regressed on establishment and worker fixed effects.[1] The residuals of this regression are then defined as match quality, capturing variation in (net) average worker-establishment wages after accounting for worker and establishment effects. This procedure continues to assume that match quality is orthogonal to worker and establishment fixed effects. It does, however, allow match quality to be correlated with potential experience, occupational tenure, and establishment tenure.

We then assess the role of losses in match quality in accounting for the overall displacement wage loss by estimating regression equation (3) with estimated match effects as the dependent variable. We report results for low- and high-wage workers in Tables A.4 and A.5 (columns (1.7) and (2.7)). Whereas low-wage workers experience an increase in match quality following displacement, losses in match quality amount to 2.1 percent for high-wage workers four years after displacement. Although (absolute) changes in match quality are smaller in magnitude than the residual wage loss displayed in column (1.6), these findings corroborate the notion that the job ladder operates along the match quality margin for high-wage workers and along the establishment premium margin for low-wage workers.

A.2. Establishment Premiums from a Standard AKM Regression. Table A.6, column (1.3), shows establishment premium losses when using standard AKM establishment fixed effects estimated

[1] Log wages net of year effects, potential experience, occupation and establishment tenure are estimated in two steps. We first regress log wages on year fixed effects to obtain log wage residuals net of year effects (step 1). We then regress the residual log wages from step 1 on the square and cube of potential experience, the square of (capped) occupation and establishment tenure, indicator variables whether occupation and establishment tenure are capped at ten years, as well as a match-specific fixed effect. We then subtract predicted returns to potential experience and occupation and establishment tenure from individual residual log wages to obtain log wages net of year effects, potential experience, occupation and establishment tenure (step 2). Note that the linear terms of potential experience, occupation and establishment tenure are absorbed by the match-specific fixed effects.

without controls for establishment and occupation tenure. The estimated loss is somewhat larger than in our baseline estimates (Table A.6, column (1.2)). For example, six years after the layoff, losses in establishment premiums result in wage losses of 6.7 percent when using establishment fixed effects from the standard AKM regression, but these shrink to 4.5 percent when occupational and establishment tenure are included in the AKM regression. Thus, omitting controls for establishment and occupation tenure in AKM regressions appears to overstate the importance of establishment premiums in overall displacement wage losses somewhat.

A.3. Establishment Premiums Using Six-Year Rolling Windows. Our baseline specification estimates AKM establishment fixed effects in a single regression using observations over a 27-year period from 1984 to 2010. In Table A.6, column (1.4), we show establishment premium losses when AKM establishment fixed effects are estimated over six-year rolling periods, thus allowing establishment fixed effects to change slowly over time. Estimated displacement losses in establishment premiums are of roughly similar magnitude to our baseline estimates, in line with Lachowska *et al.* (2023) and Engbom *et al.* (2023), who find that establishment fixed effects tend to be stable over time.

A.4. Displacement Effects Due to Plant Closures. Since workers who separated from the establishment in a mass layoff event may differ from workers who continue to work in the establishment, we repeat our baseline analysis for the subset of workers who were displaced because of an establishment closure as a robustness check. Following Hethey and Schmieder (2010), we define establishment closures as events where at least 80 percent of the workforce separates from the establishment. Plant closures comprise around 58 percent of our pooled mass layoff sample. Wage losses (Table A.6, column (2.1)) and declines in establishment premiums (Table A.6, column (2.2)) are similar for plant closures and mass layoffs, indicating that there is little within-establishment selection.

A.5. Pre-treatment Establishment Tenure. Our main sample focuses on workers employed full-time at the mass layoff establishment for at least four years. In columns (3.1) and (3.2) of Table A.6, we relax this restriction and include workers with at least two years of tenure in the layoff firm and a total of four years of employment in manufacturing prior to displacement. This has little impact on the wage and establishment premium losses, as the average tenure in the manufacturing sector is high (see Table A.2).

A.6. Alternative Matching Variables. Our main matching strategy applies coarsened exact matching on the following characteristics: wage vigintiles, age deciles, two-year bins of establishment

and occupation tenure, skill groups (low-, medium-, and high-skilled), citizenship (German or non-German), the broad industry of the workplace, and worker and establishment fixed effect terciles. In an extension, we additionally match on the commuting zone and quintiles of establishment size, thus restricting the control worker to be employed in the same local labor market and to work in an establishment of similar size. Table A.6, columns (4.1) and (4.2) report the wage and establishment premium losses. While standard errors are somewhat increasing (this procedure creates many more cells of displaced and control worker characteristics), the estimated effects are similar in magnitude.

A.7. Compositional Changes of Displaced Workers and Layoff Establishments over Time. The increasing wage losses and losses in establishment premiums among low-wage workers after displacement could, in principle, reflect changes in the composition of displaced workers or displacing establishments. That is, even among low-wage workers, displaced workers may become increasingly negatively selected with regard to their worker characteristics. Similarly, the composition of establishments may change over time. For example, high-wage establishments may account for an increasingly large share of mass layoff establishments. Such shifts would result in larger losses in establishment premiums over time.

We apply two approaches to assess the importance of such compositional changes. First, we categorize workers and establishments by the decile of their respective fixed effects distribution, resulting in a 10 x 10 matrix of cells. We then re-estimate our baseline regression for each two-year period, but we use the ratio between the number of displaced workers in a given worker-establishment cell in the initial 1988-1989 period and the number of workers in that cell in later periods as weights for later periods. This way, the reweighted sample of displaced and control workers in later periods resembles the sample in the first period in terms of the distribution of worker and establishment fixed effects. This approach has advantages as it non-parametrically and thus very flexibly controls for changes in the composition of worker and firm fixed effects in the full sample of displaced workers.

Secondly, we adopt an alternative method proposed by Schmieder *et al.* (2023) to account for multiple dimensions of composition changes. We first obtain an individual "treatment effect" of job loss for each individual by comparing wage (or establishment premium) changes between four years before and three years after the layoff for each displaced worker with that of the matched control worker. In the second step, we regress these individual "treatment effects" on layoff year indicator variables in a single regression over all layoff years and account for compositional changes over time by controlling for worker fixed effects, levels of general experience (age and age squared), establishment- and occupation-specific tenure (linear and squared terms), education, establishment fixed effects, and the industry of the layoff establishment. Each of these controls is measured prior to the layoff. An advantage of this approach is that, in addition to accounting for changes in pre-

displacement characteristics over time, it also accounts for a changing selection into full-time employment (versus part-time employment or not working) after displacement based on observed characteristics.[2]

The results in Figure A.5 demonstrate that the increasing wage losses over time are not driven by compositional changes. The solid lines in Panel A and B of Figure A.5 depict our baseline estimates for the losses in wages and establishment premiums for low-wage workers; the long-dashed and dashed-dotted lines display reweighted losses that hold the composition of displaced workers and mass layoff establishments constant over time, and the short-dashed lines present results based on the method proposed by Schmieder *et al.* (2023). Both wage and establishment premium losses would have been somewhat larger if the composition of displaced workers and displacement establishments had remained constant over time. The increasingly large establishment premium losses, therefore, reflect lower establishment premiums of post-displacement establishments over time, and not higher establishment premiums of displacement establishments. Moreover, these findings cast strong doubt on the hypothesis that a changing selection of displaced workers into full-time employment is an important driver behind the increasing displacement losses over time.

A.8. Different Establishment Premiums by Worker Type. A key assumption behind the AKM model is that low- and high-wage workers are paid the same establishment premium; hence, there are no complementarities in wages. This assumption has been questioned by, for example, Bonhomme *et al.* (2019) since it does not allow for the possibility that high-wage workers are able to extract higher rents from the establishment than low-wage workers. Differential establishment premiums for low- and high-wage workers could, in principle, contribute to the larger estimated losses in establishment premiums for low-wage workers when these are, by construction, constrained to be the same for the two types of workers. To rule out this possibility, we re-estimate the extended AKM model and allow establishment fixed effects to vary by worker type.

In Figure A.6, we focus on the evolution of losses in establishment premiums following the displacement from a manufacturing firm over time, allowing establishment premiums to vary across worker types. The figure clearly demonstrates that establishment premium losses have increased over time, particularly among low-wage workers, aligning closely with our baseline findings.

A.9. Trends in Displacement Effects over Time: Worker Type Definition. In our baseline estimates, we have defined worker types via the estimated worker fixed effects in our augmented AKM regressions and defined low-wage workers as those in the bottom tercile and high-wage

[2] Note that the sample using this approach differs from our baseline sample, as it reduces our sample to pairs where both treated and control workers are employed three years after the layoff, while in the first approach only one displaced and one control worker in each matching cell has to be employed.

workers as those in the top tercile of the distribution of estimated AKM worker fixed effects in the augmented AKM regression, respectively. We show that the trends in displacement effects over time are also present when we distinguish workers based on their formal education. To that end, we divide workers into two groups: workers with a school-leaving degree that entitles them to attend university (*Abitur*) are classified as high-skilled, while workers without such a degree are considered to be low-educated (even if they completed an apprenticeship). Figure A.7 displays the sources of wage losses over time by skill type for workers displaced from a manufacturing establishment. Similar to our baseline results, wage losses and reductions in establishment premiums strongly increase over time among low-skilled workers, while losses are largely stable among high-skilled workers.

Appendix B: Within and Between Sector Decomposition

B.1. Differences between Low-Wage and High-Wage Workers. We can decompose the difference in establishment premium losses following displacement between low- and high-wage workers, $E_L[\Delta\psi_{J(i)}] - E_H[\Delta\psi_{J(i)}]$, into a within and a between-sector component as follows:

$$E_L[\Delta\psi_{J(i)}] - E_H[\Delta\psi_{J(i)}] = \underbrace{E_L[\Delta\psi_{J(i)}|d_i = M] - E_H[\Delta\psi_{J(i)}|d_i = M]}_{\text{within manufacturing}} + \underbrace{\begin{array}{r}\sum_{k\,\in \mathrm{LK,HK}} \Pr_L(d_i = \mathrm{k})\big(E_L\big[[\Delta\psi_{J(i)}|d_i = k\big] - E_L\big[\Delta\psi_{J(i)}|d_i = \mathrm{M}\big]\big) - \\ \Pr_H(d_i = \mathrm{k})\big(E_H\big[[\Delta\psi_{J(i)}|d_i = k\big] - E_H\big[\Delta\psi_{J(i)}|d_i = \mathrm{M}\big]\big).\end{array}}_{\text{between sectors}}$$

Here, $\Pr_L(d_i = \mathrm{k})$ and $\Pr_H(d_i = \mathrm{k})$ correspond to the shares of low- and high-wage workers who are employed in sector k after displacement, with *k=M, LK,* and *HK* (manufacturing, low-knowledge services, and high-knowledge services).

Calculations in Section 5.3.: We estimate an overall loss in establishment premiums of -0.066 for low-wage workers displaced from manufacturing, and of -0.031 for high-wage workers (see Tables A.4 and A.5). In Table 3, the low-wage within-sector component is -0.036 (the loss among those who remain employed in manufacturing) and the between-sector component is -0.026 (0.261×[-0.130-(-0.036)]+0.069×[-0.056-(-0.036)]). For high-wage workers, we obtain a within-sector component of -0.018 and a between-sector component of 0.009. Hence, 49 percent ((0.026-0.009)/(0.066-0.031)) of the overall difference in establishment premium losses between low- and high-wage workers is due to differences in the between-industry component.

B.2 Differences between the Manufacturing and the Service Sector. The difference in establishment premium losses between workers displaced from a manufacturing and service sector firm, $E_M[\Delta\psi_{J(i)}] - E_S[\Delta\psi_{J(i)}]$, can be decomposed in a similar manner:

$$E_M[\Delta\psi_{J(i)}] - E_S[\Delta\psi_{J(i)}] = \underbrace{E_M[\Delta\psi_{J(i)}|d_i = M] - E_S[\Delta\psi_{J(i)}|d_i = S]}_{\text{within sectors}} +$$
$$\underbrace{\begin{aligned}&\Pr_M(d_i = \mathrm{S})\big(E_M\big[[\Delta\psi_{J(i)}|d_i = S\big] - E_M\big[\Delta\psi_{J(i)}|d_i = \mathrm{M}\big]\big) - \\ &\Pr_S(d_i = \mathrm{M})\big(E_S\big[[\Delta\psi_{J(i)}|d_i = M\big] - E_S\big[\Delta\psi_{J(i)}|d_i = S\big]\big).\end{aligned}}_{\text{between sectors}}$$

Here, $\Pr_M(d_i = \mathrm{S})$ refers to the probabilities that a worker displaced from a manufacturing firm is reemployed in a service sector firm, while $\Pr_S(d_i = \mathrm{M})$ denotes the probability that a worker displaced from a service sector firm is reemployed in a manufacturing firm.

Calculations in Section 5.3.: As described above, the overall loss in establishment premiums of -0.066 for low-wage workers displaced from manufacturing can be decomposed into a within-sector component of -0.036 and a between-sector component of -0.026. A similar decomposition in the service sector reveals an overall loss of -0.016, a within-sector component of -0.025, and a between-industry component of 0.008 (0.129×(0.028-(-0.025)). Hence, for low-wage workers, 66 percent ((0.025+0.008)/(0.066-0.016)) of the overall difference in establishment premium losses in the two sectors is due to differences in the between-industry component.

B.3 Changes over Time. Similarly, we can decompose the increase in establishment premium losses following job displacement between the initial displacement period $t = 0$ and the final displacement period $t = 1$, $E_1[\Delta\psi_{J(i)}]$-$E_0[\Delta\psi_{J(i)}]$, into a within-sector and a between-sector component as follows:

$$E_1[\Delta\psi_{J(i)}] - E_0[\Delta\psi_{J(i)}] = \underbrace{E_1[\Delta\psi_{J(i)}|d_i = M] - E_0[\Delta\psi_{J(i)}|d_i = M]}_{\text{within manufacturing}} +$$
$$\underbrace{\begin{aligned}&\textstyle\sum_{k\,\in \mathrm{LK,HK}} \Pr_1(d_i = \mathrm{k})\big(E_1\big[[\Delta\psi_{J(i)}|d_i = k\big] - E_1\big[\Delta\psi_{J(i)}|d_i = \mathrm{M}\big]\big) - \\ &\Pr_0(d_i = \mathrm{k})\big(E_0\big[[\Delta\psi_{J(i)}|d_i = k\big] - E_0\big[\Delta\psi_{J(i)}|d_i = \mathrm{M}\big]\big).\end{aligned}}_{\text{between sectors}}$$

Here, $\Pr_t(d_i = k)$ refers to the probability of being employed in sector k after displacement in period $t = 0.1$ (*k=M, LK,* and *HK*). The between-sector component can be further decomposed into a component due to increased sectoral switching and a component due to increased gaps in establishment premiums across sectors:

$$\text{between} - \text{sector component} = \underbrace{\sum_{k \in LK,HK} \left(\Pr_1(d_i = \text{k}) - \Pr_0(d_i = \text{k})\right) \overline{\text{gap}}_k}_{\text{increased sectoral switching}} +$$

$$\underbrace{\sum_{k \in LK,HK} \overline{\Pr(d_i = \text{k})} \left(E_1\left[[\Delta\psi_{J(i)} | d_i = k\right] - E_1\left[\Delta\psi_{J(i)} | d_i = \text{M}\right]\right) - \left(E_0\left[[\Delta\psi_{J(i)} | d_i = k\right] - E_0\left[\Delta\psi_{J(i)} | d_i = \text{M}\right]\right)}_{\text{increased gaps in sectoral wage premiums}}$$

where

$$\overline{\text{gap}}_k = 0.5 * \left(E_1[\Delta\psi_{J(i)} | d_i = k] - E_1[\Delta\psi_{J(i)} | d_i = \text{M}]\right) + 0.5 * \left(E_0[\Delta\psi_{J(i)} | d_i = k] - E_0[\Delta\psi_{J(i)} | d_i = \text{M}]\right)$$

is the gap in establishment premiums between sector *k* and the manufacturing sector averaged over periods $t = 0$ and $t = 1$ and

$$\overline{\Pr(d_i = \text{k})} = 0.5 * \Pr_0(d_i = \text{k}) + 0.5 * \Pr_1(d_i = \text{k}))$$

is the probability of being re-employed in sector *k* after displacement averaged over periods $t = 0$ and $t = 1$.

We decompose the change in establishment premiums between the first two two-year estimation periods of our "time-series" sample, 1988-1989 and 1990-1991 ($t = 0$) and the final two two-year periods 2004-2005 and 2006-2007 ($t = 1$). The estimated switching probabilities and establishment premium losses in each period that are used to compute the various decomposition components are presented in Table B.1. The estimates are based on equation (3) and the reported coefficients are for the effects three years after displacement.

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Table A.1: Full Sample vs. Leave-One-Out Connected Set

	Full Sample	Leave-one-out Connected Set
Person/Year Observations	452,245,478	445,084,470
Number of Establishments	4,660,448	3,014,066
Movers	0.67	0.67
Moves	0.12	0.12
Ln Wage (Average)	4.29	4.30
Ln Wage (Std. Dev.)	0.49	0.48

Notes: The table reports summary statistics of the full sample of all full-time workers aged 16 to 65 in the years 1984 to 2010 and the leave-one-out largest connected set used in the AKM estimation.

Table A.2: Displaced vs. Control Workers by Worker Type - Manufacturing

	Low-wage Workers					High-wage Workers				
	Displaced Workers (Treatment)	Non-Displaced (Matched Control)	Non-Displaced (Random Control)	Treatment vs. Matched Control	Treatment vs. Random Control	Displaced Workers (Treatment)	Non-Displaced (Matched Control)	Non-Displaced (Random Control)	Treatment vs. Matched Control	Treatment vs. Random Control
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Worker Characteristics										
Ln Wage	4.040	4.040	4.138	-0.000	-0.099***	4.612	4.614	4.629	-0.002	-0.018***
Worker Fixed Effect	-0.197	-0.195	-0.168	-0.003***	-0.030***	0.156	0.170	0.177	-0.013***	-0.021***
Firm Tenure	7.263	7.207	7.122	0.056*	0.107***	6.758	6.755	7.103	0.002	-0.375***
Occupation Tenure	7.614	7.547	7.398	0.066**	0.196***	7.198	7.190	7.471	0.008	-0.280***
Age	35.443	35.441	35.398	0.003	0.024	35.648	35.636	35.786	0.013	-0.157***
Female	0.623	0.623	0.475	0.000	0.149***	0.073	0.073	0.089	0.000	-0.017***
Low Skilled	0.425	0.425	0.353	0.000	0.072***	0.054	0.054	0.066	0.000	-0.011***
Medium Skilled	0.573	0.573	0.638	0.000	-0.065***	0.780	0.780	0.755	0.000	0.027***
High Skilled	0.002	0.002	0.009	0.000	-0.007***	0.165	0.165	0.179	0.000	-0.015***
Non-German	0.177	0.177	0.148	0.000	0.028***	0.055	0.055	0.059	0.000	-0.005***
Panel B: Firm Characteristics										
Establishment Wage Premium	-0.037	-0.040	-0.024	0.003***	-0.013***	0.021	0.022	0.020	-0.001**	0.001
Sector:										
Food and Beverage	0.084	0.084	0.105	0.000	-0.022***	0.065	0.065	0.075	0.000	-0.010***
Consumer Goods	0.378	0.378	0.234	0.000	0.144***	0.180	0.180	0.167	0.000	0.013***
Producer Goods	0.182	0.182	0.245	0.000	-0.062***	0.199	0.199	0.233	0.000	-0.033***
Investment Goods	0.356	0.356	0.416	0.000	-0.060***	0.556	0.556	0.525	0.000	0.030***
N	60,623	60,623	760,471	121,246	822,756	42,902	42,902	818,229	85,804	862,362

Notes: The table reports, separately by worker type, summary statistics for workers displaced from the manufacturing sector between 1988 and 2007 as well as matched and random control workers. Low- and high-wage workers are defined as workers with worker fixed effects in the bottom and top terciles of the estimated AKM worker fixed effects distribution, respectively. Wages are log average daily wages in euros adjusted to 1995 prices. Establishment premiums and worker fixed effects are demeaned to have zero mean over the sample period. Tenure variables are reported in years and are capped at ten years. The random control group represents a 10 percent random sample of manufacturing workers. Both displaced and control workers are aged 25-50 with at least four years of establishment tenure and employed in establishments with at least 30 and up to 500 employees in West Germany. Levels of significance are * p<0.10, ** p<0.05, *** p<0.01.

Table A.3: Displaced vs. Control Workers by Worker Type - Service Sector

	Low-wage Workers					High-wage Workers				
	Displaced Workers (Treatment)	Non-Displaced (Matched Control)	Non-Displaced (Random Control)	Treatment vs. Matched Control	Treatment vs. Random Control	Displaced Workers (Treatment)	Non-Displaced (Matched Control)	Non-Displaced (Random Control)	Treatment vs. Matched Control	Treatment vs. Random Control
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Worker Characteristics										
Ln Wage	4.004	4.006	4.143	-0.002	-0.140***	4.660	4.662	4.608	-0.001	0.052***
Worker Fixed Effect	-0.210	-0.209	-0.182	-0.001	-0.029***	0.165	0.179	0.165	-0.014***	0.000
Firm Tenure	5.039	5.072	6.277	-0.033	-1.252***	5.090	5.122	6.131	-0.032	-1.052***
Occupation Tenure	6.118	6.124	7.265	-0.005	-1.156***	6.602	6.604	7.412	-0.002	-0.817***
Age	34.363	34.342	34.987	0.020	-0.621***	35.646	35.648	35.823	-0.002	-0.187***
Female	0.567	0.567	0.561	0.000	0.008***	0.172	0.172	0.241	0.000	-0.069***
Low Skilled	0.224	0.224	0.173	0.000	0.051***	0.032	0.032	0.041	0.000	-0.010***
Medium Skilled	0.767	0.767	0.798	0.000	-0.030***	0.701	0.701	0.711	0.000	-0.008***
High Skilled	0.009	0.009	0.029	0.000	-0.020***	0.267	0.267	0.247	0.000	0.018***
Non-German	0.114	0.114	0.079	0.000	0.035***	0.027	0.027	0.037	0.000	-0.009***
Panel B: Firm Characteristics										
Establishment Wage Premium	-0.067	-0.064	-0.027	-0.004***	-0.041***	0.040	0.047	0.029	-0.008***	0.010***
Sector:										
Retail	0.430	0.430	0.279	0.000	0.149***	0.352	0.352	0.266	0.000	0.086***
Transport and Communication	0.132	0.132	0.094	0.000	0.038***	0.137	0.137	0.094	0.000	0.043***
Financial and Insurance Services	0.034	0.034	0.077	0.000	-0.044***	0.069	0.069	0.134	0.000	-0.065***
Hospitality	0.032	0.032	0.029	0.000	0.002**	0.007	0.007	0.012	0.000	-0.006***
Education	0.012	0.012	0.023	0.000	-0.011***	0.016	0.016	0.029	0.000	-0.013***
Health and Social Services	0.051	0.051	0.184	0.000	-0.132***	0.030	0.030	0.115	0.000	-0.084***
Business Services	0.209	0.209	0.107	0.000	0.104***	0.290	0.290	0.165	0.000	0.125***
Other Services	0.028	0.028	0.035	0.000	-0.007***	0.021	0.021	0.032	0.000	-0.011***
Non-Profit Organisations	0.011	0.011	0.023	0.000	-0.012***	0.019	0.019	0.030	0.000	-0.012***
Public Administration	0.061	0.061	0.148	0.000	-0.087***	0.059	0.059	0.124	0.000	-0.064***
N	35,075	35,075	956,645	70,150	992,835	44,953	44,953	1,319,753	89,906	1,365,999

Notes: The table reports, separately by worker type, summary statistics for workers displaced from the service sector between 1988 and 2007 as well as matched and random control workers. Low- and high-wage workers are defined as workers with worker fixed effects in the bottom and top terciles of the estimated AKM worker fixed effects distribution, respectively. Wages are log average daily wages in euros adjusted to 1995 prices. Establishment premiums and worker fixed effects are demeaned to have zero mean over the sample period. Tenure variables are reported in years and are capped at ten years. The random control group is a 10 percent random sample of service-sector workers. Both displaced and control workers are aged 25-50 with at least four years of establishment tenure and employed in establishments with at least 30 and up to 500 employees in West Germany. Levels of significance are * p<0.10, ** p<0.05, *** p<0.01.

Table A.4: Decomposition of Wage Losses - Low-wage Workers

	Manufacturing							Service Sector						
	Wage	Establishment Premium	Returns to Occupation Tenure	Returns to Establishment Tenure	Returns to Experience	Residual (Match Quality)	Match Quality (Lachowska et al., 2020)	Wage	Establishment Premium	Returns to Occupation Tenure	Returns to Establishment Tenure	Returns to Experience	Residual (Match Quality)	Match Quality (Lachowska et al., 2020)
	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)	(2.7)
τ=-6	0.003	0.001	0.000	0.000	0.000	0.002	-0.001	0.001	0.001	0.000	0.000	0.000	0.000	-0.002
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
τ=-5	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
τ=-4														
τ=-3	-0.006	0.000	0.000	0.000	0.000	-0.005	0.000	-0.003	0.000	0.000	0.000	0.000	-0.003	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
τ=-2	-0.014	0.000	0.000	0.000	0.000	-0.014	0.000	-0.009	0.000	-0.001	0.000	0.000	-0.009	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
τ=-1	-0.028	0.000	-0.001	0.000	0.000	-0.027	0.000	-0.026	0.000	-0.001	0.000	0.000	-0.024	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
τ=0	-0.082	-0.053	-0.060	-0.011	-0.005	0.047	0.010	-0.018	-0.011	-0.034	-0.012	-0.005	0.043	0.014
	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
τ=1	-0.084	-0.061	-0.059	-0.010	-0.008	0.054	0.009	-0.018	-0.014	-0.037	-0.010	-0.008	0.051	0.017
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.002)
τ=2	-0.084	-0.065	-0.049	-0.009	-0.011	0.051	0.008	-0.019	-0.015	-0.032	-0.009	-0.012	0.050	0.017
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.000)	(0.000)	(0.001)	(0.003)	(0.002)
τ=3	-0.079	-0.066	-0.039	-0.008	-0.013	0.047	0.007	-0.018	-0.016	-0.026	-0.008	-0.015	0.047	0.015
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.000)	(0.000)	(0.001)	(0.003)	(0.002)
τ=4	-0.072	-0.065	-0.030	-0.007	-0.015	0.044	0.006	-0.012	-0.016	-0.021	-0.007	-0.016	0.048	0.014
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.000)	(0.000)	(0.001)	(0.003)	(0.002)
τ=5	-0.070	-0.064	-0.022	-0.006	-0.016	0.039	0.005	-0.004	-0.012	-0.016	-0.006	-0.017	0.047	0.014
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.000)	(0.000)	(0.001)	(0.003)	(0.002)
τ=6	-0.064	-0.062	-0.016	-0.006	-0.018	0.038	0.002	-0.007	-0.014	-0.013	-0.005	-0.017	0.042	0.013
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.004)	(0.002)	(0.000)	(0.000)	(0.001)	(0.004)	(0.002)

Notes: The table reports event study estimates of the effects of job displacement for low-wage workers on wages and its sources (the establishment premium in column (2); returns to occupation tenure in column (3); returns to establishment tenure in column (4); returns to experience in column (5); the residual (match quality) in column (6); and match quality as estimated in Lachowska *et al.* (2020) in column (7)). Estimates are based on equation (3). The establishment wage premium refers to the AKM establishment fixed effect as estimated in equation (2) in Section 4.2. For the procedure to estimate wage losses due to occupation and establishment tenure and experience, see Section 4.3.3. The sample consists of low-wage workers displaced between 1990 and 2004 and their matched control workers. Both displaced and control workers are aged 25-50 with at least four years of establishment tenure at the time of layoff. Standard errors are in parentheses.

Table A.5: Decomposition of Wage Losses - High-wage Workers

	Manufacturing							Service Sector						
	Wage (1.1)	Establishment Premium (1.2)	Returns to Occupation Tenure (1.3)	Returns to Establishment Tenure (1.4)	Returns to Experience (1.5)	Residual (Match Quality) (1.6)	Match Quality (Lachowska et al., 2020) (1.7)	Wage (2.1)	Establishment Premium (2.2)	Returns to Occupation Tenure (2.3)	Returns to Establishment Tenure (2.4)	Returns to Experience (2.5)	Residual (Match Quality) (2.6)	Match Quality (Lachowska et al., 2020) (2.7)
τ=-6	0.007	0.002	0.000	0.000	0.000	0.005	-0.003	0.005	0.002	0.000	0.000	0.000	0.003	-0.008
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
τ=-5	0.000	0.001	0.000	0.000	0.000	-0.001	-0.001	0.003	0.001	0.000	0.000	0.000	0.002	-0.005
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
τ=-4														
τ=-3	-0.012	0.000	0.000	0.000	0.000	-0.012	0.001	-0.004	0.000	0.000	0.000	0.000	-0.004	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
τ=-2	-0.023	0.000	0.000	0.000	0.000	-0.023	0.001	-0.011	0.000	-0.001	0.000	0.000	-0.011	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
τ=-1	-0.035	0.000	0.000	0.000	0.000	-0.035	0.001	-0.031	0.000	-0.001	0.000	0.000	-0.030	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
τ=0	-0.114	-0.030	-0.035	-0.024	-0.006	-0.018	-0.018	-0.062	0.006	-0.023	-0.023	-0.004	-0.017	-0.024
	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
τ=1	-0.119	-0.032	-0.033	-0.019	-0.009	-0.026	-0.019	-0.068	0.006	-0.022	-0.017	-0.007	-0.027	-0.023
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
τ=2	-0.121	-0.032	-0.027	-0.015	-0.012	-0.035	-0.018	-0.070	0.004	-0.019	-0.013	-0.009	-0.033	-0.021
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)
τ=3	-0.122	-0.031	-0.020	-0.012	-0.014	-0.045	-0.020	-0.074	0.003	-0.015	-0.010	-0.011	-0.041	-0.021
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)
τ=4	-0.123	-0.029	-0.015	-0.010	-0.016	-0.053	-0.021	-0.077	0.004	-0.011	-0.008	-0.013	-0.049	-0.023
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.002)
τ=5	-0.124	-0.029	-0.011	-0.008	-0.018	-0.058	-0.022	-0.076	0.004	-0.009	-0.007	-0.014	-0.051	-0.025
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.002)
τ=6	-0.123	-0.028	-0.009	-0.007	-0.019	-0.061	-0.023	-0.078	0.004	-0.007	-0.006	-0.015	-0.054	-0.026
	(0.002)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.000)	(0.000)	(0.001)	(0.003)	(0.002)

Notes: The table reports event study estimates of the effects of job displacement for high-wage workers on wages and its sources (the establishment premium in column (2); returns to occupation tenure in column (3); returns to establishment tenure in column (4); returns to experience in column (5); the residual (match quality) in column (6); and match quality as estimated in Lachowska *et al.* (2020) in column (7)). Estimates are based on equation (3). The establishment wage premium refers to the AKM establishment fixed effect as estimated in equation (2) in Section 4.2. For the procedure to estimate wage losses due to occupation and establishment tenure and experience, see Section 4.3.3. The sample consists of workers displaced between 1990 and 2004 and their matched control workers. Standard errors are in parentheses.

Table A.6: Robustness: Displacement from Manufacturing

	Baseline Sample				Plant Closure Sample		2-years Tenure before Layoff		Matching within Commuting Zone and Establishment Size Quintile	
	Wage	Est. Premium Extended AKM	Est. Premium Standard AKM	Est. Premium Six-year Rolling	Wage	Est. Premium	Wage	Est. Premium	Wage	Est. Premium
	(1.1)	(1.2)	(1.3)	(1.4)	(2.1)	(2.2)	(3.1)	(3.2)	(4.1)	(4.2)
τ=-6	0.005	0.001	0.001	0.003	0.006	0.001	0.005	0.001	0.003	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.001)
τ=-5	0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.000	-0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)
τ=-4										
τ=-3	-0.008	0.000	0.000	0.000	-0.008	0.000	-0.007	0.000	-0.009	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
τ=-2	-0.016	0.000	0.000	-0.001	-0.017	0.000	-0.017	-0.001	-0.017	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
τ=-1	-0.028	0.000	0.000	-0.003	-0.027	0.000	-0.029	-0.001	-0.029	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.000)
τ=0	-0.101	-0.047	-0.067	-0.033	-0.098	-0.045	-0.101	-0.048	-0.093	-0.040
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
τ=1	-0.103	-0.051	-0.072	-0.035	-0.101	-0.050	-0.103	-0.052	-0.096	-0.044
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
τ=2	-0.102	-0.053	-0.073	-0.037	-0.099	-0.052	-0.102	-0.054	-0.099	-0.046
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
τ=3	-0.100	-0.053	-0.072	-0.038	-0.098	-0.052	-0.099	-0.053	-0.094	-0.045
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)
τ=4	-0.097	-0.051	-0.071	-0.037	-0.095	-0.051	-0.097	-0.052	-0.096	-0.043
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)
τ=5	-0.095	-0.050	-0.069	-0.038	-0.094	-0.050	-0.094	-0.050	-0.092	-0.041
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)
τ=6	-0.091	-0.049	-0.067	-0.038	-0.090	-0.048	-0.092	-0.049	-0.088	-0.039
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)

Notes: The table reports various event study estimates of the effects of job displacement on wages and the establishment premium. Estimates are based on equation (3). The sample consists of low-, medium-, and high-wage workers. Columns (1.1) and (1.2) present the baseline estimates for wage and establishment premium losses presented in Figure 4, Panel A. Column (1.3) displays coefficients estimated based on the baseline sample but with establishment premiums estimated in a standard AKM model without controls for establishment and occupation tenure as the dependent variable. The sample in columns (2.1) and (2.2) consists only of plant closures defined as mass layoff establishments in which at least 80 percent of employees left the establishment. The sample in columns (3.1) and (3.2) consists workers displaced with at least two years of tenure in the mass layoff firm (and 4 years in manufacturing) prior to the layoff. In columns (4.1) and (4.2), we match on the commuting zone and establishment size quintiles in addition to our baseline matching variables. The sample consists of workers displaced from manufacturing between 1990 and 2004 and their matched control workers.

Table B.1: Within-Between Decomposition over Time: Switching Probabilities and Establishment Premium Losses by Destination Sector

Switching Probabilities		Establishment Premium Losses	
$\Pr_0(d_i = M)$	-0.299	$E_0\left[\Delta\psi_{J(i)} \mid d_i = M\right]$	-0.003
$\Pr_0(d_i = LK)$	0.199	$E_0\left[\Delta\psi_{J(i)} \mid d_i = LK\right]$	-0.066
$\Pr_0(d_i = HK)$	0.062	$E_0\left[\Delta\psi_{J(i)} \mid d_i = HK\right]$	-0.011
$\Pr_1(d_i = M)$	-0.416	$E_1\left[\Delta\psi_{J(i)} \mid d_i = M\right]$	-0.060
$\Pr_1(d_i = LK)$	0.318	$E_1\left[\Delta\psi_{J(i)} \mid d_i = LK\right]$	-0.207
$\Pr_1(d_i = HK)$	0.064	$E_1\left[\Delta\psi_{J(i)} \mid d_i = HK\right]$	-0.079

Notes: The switching probabilities and establishment premium loss estimates are based on equation (3). Reported coefficients are for the effects three years after displacement. *M* denotes the manufacturing sector, *LK* the low-knowledge service sector and *HK* the high-knowledge service sector. Period 0 represents the two two-year periods 1988-1989 and 1990-1991, and period 1 denotes the final two two-year periods 2004-2005 and 2006-2007.

Table C.1: List of Low- and High-knowledge Industries

Panel A: Low-knowledge Service Industries

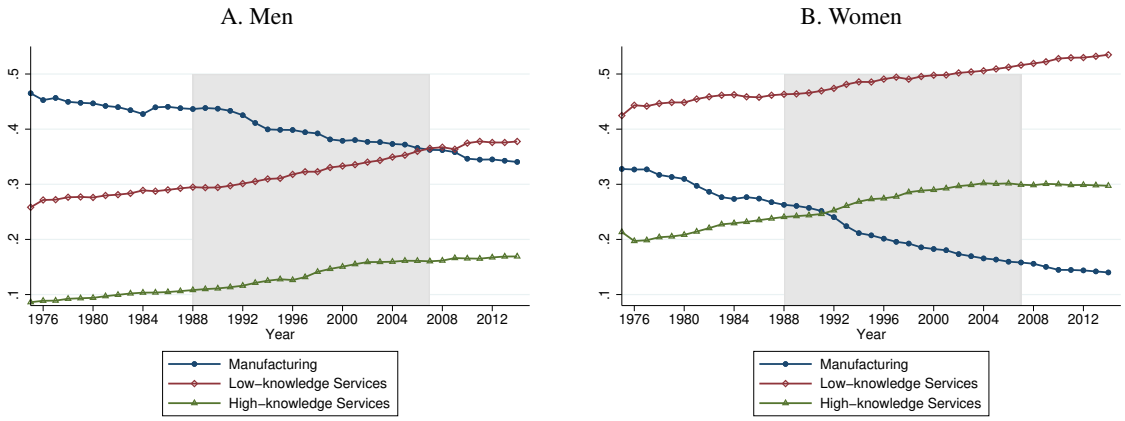
Code	Label	Code	Label
501	Sale of motor vehicles	634	Activities of other transport agencies
502	Maintenance and repair of motor vehicles	641	Post and courier activities
503	Sale of motor vehicle parts and accessories	671	Activities auxiliary to financial intermediation, except insurance and pension funding
504	Sale, maintenance and repair of motorcycles and related parts and accessories	672	Activities auxiliary to insurance and pension funding
505	Retail sale of automotive fuel	711	Renting of automobiles
512	Wholesale of agricultural raw Materials and live animals	712	Renting of other transport equipment
513	Wholesale of food, beverages and tobacco	714	Renting of personal and household goods n.e.c.
514	Wholesale of household goods	745	Labour recruitment and provision of personnel
515	Wholesale of non-agricultural intermediate products, waste and scrap	746	Investigation and security activities
517	Other wholesale	747	Industrial cleaning
521	Retail sale in non-specialized stores	748	Miscellaneous business activities n.e.c.
522	Retail sale of food, beverages and tobacco in specialized stores	751	Administration of the state and the economic and social policy of the community
524	Other retail sale of new goods in specialized stores	752	Provision of services to the community as a whole
525	Retail sale of second-hand goods in stores	753	Compulsory social security activities
526	Retail sale not in stores	801	Primary education
527	Repair of personal and household goods	802	Secondary education
551	Hotels	803	Higher education
552	Camping sites and other provision of short-stay	804	Adult and other education
553	Restaurants	853	Social work activities
554	Bars	900	Sewage and refuse disposal, sanitation and similar activities
555	Canteens and catering	911	Activities of business, employers' and professional organizations
601	Transport via railways	912	Activities of trade unions
602	Other land transport	913	Activities of other membership organizations
611	Sea and coastal water transport	926	Sporting activities
612	Inland water transport	927	Other recreational activities
621	Scheduled air transport	930	Other service activities
622	Non-scheduled air transport	950	Private households with employed persons
631	Cargo handling and storage	953	Rehabilitation centres
632	Other supporting transport activities	954	Sheltered workshops
633	Activities of travel agencies and tour operators; tourist assistance activities n.e.c.	990	Extra-territorial organizations and bodies

Panel B: High-knowledge Service Industries

Code	Label	Code	Label
623	Space transport	726	Other computer related activities
642	Telecommunications	731	Research and experimental development an natural sciences and engineering
651	Monetary intermediation	732	Research and experimental development an social sciences and humanities
652	Other financial intermediation	741	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings
660	Insurance and pension funding, except compulsory social security	742	Architectural and engineering activities and related technical consultancy
701	Real estate activities with own property	743	Technical testing and analysis
702	Letting of own property	744	Advertising
703	Real estate activities an a fee or contract basis	851	Human health activities
713	Renting of other machinery and equipment	852	Veterinary activities
721	Hardware consultancy	921	Motion picture and video activities
722	Software consultancy and supply	922	Radio and television activities
723	Data processing	923	Other entertainment activities
724	Database activities	924	News agency activities
725	Maintenance and repair of office, accounting and computing machinery	925	Library, archives, museums and other cultural activities

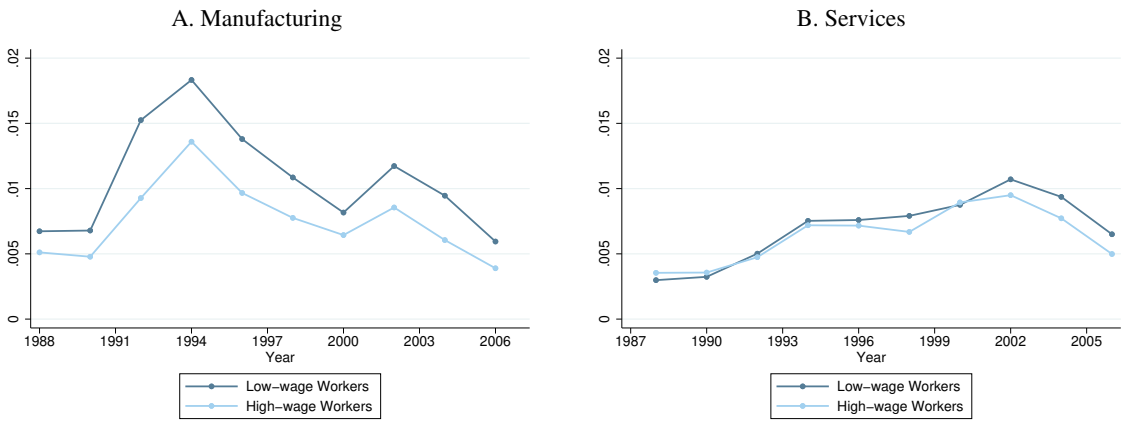
Notes: The table reports three-digit WZ93 industries within the broad sectors low-knowledge services (Panel A) and high-knowledge services (Panel B). We use the definitions provided in Grupp *et al.* (2000) to define the low- and high-knowledge service sectors.

Figure A.1: Employment Shares by Sector and Gender



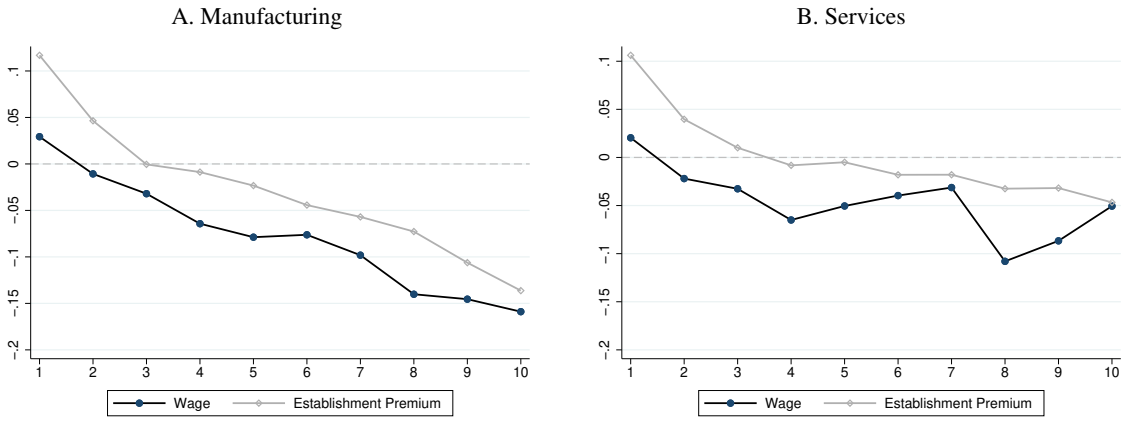
Notes: The figure shows the evolution of employment shares of the manufacturing sector, the low-knowledge sector, and the high-knowledge sector in West Germany by gender.

Figure A.2: Mass Layoff Risk by Sector



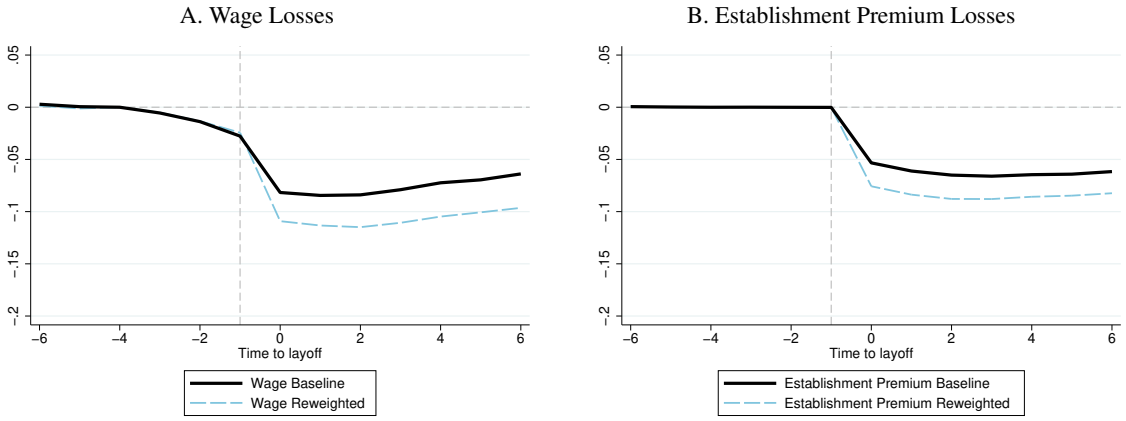
Notes: The figure shows the mass layoff risk in the manufacturing (Panel A) and the service sector (Panel B). The mass layoff risk is measured among workers aged 25-50 with at least four years of establishment tenure and employed in establishments with at least 30 and up to 500 employees in West Germany.

Figure A.3: Displacement Losses by Establishment Premium Decile



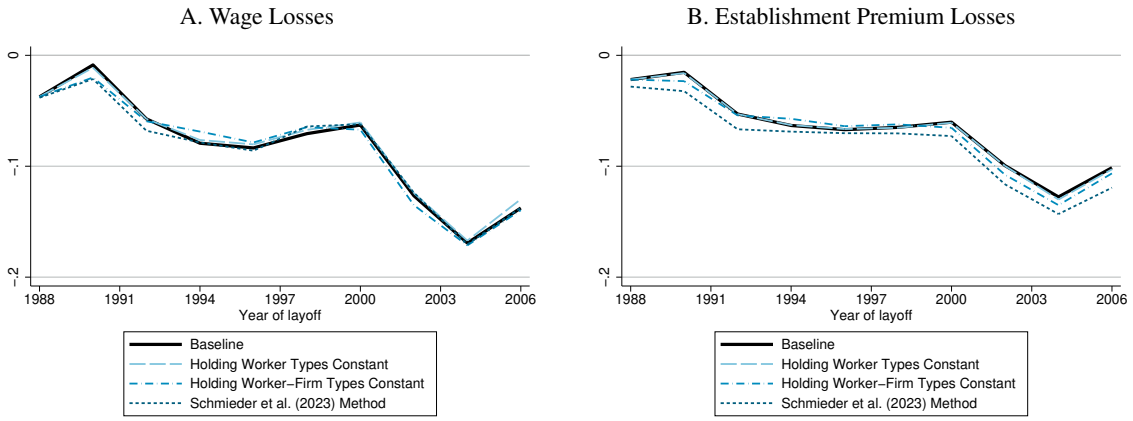
Notes: The figure reports event study estimates of the effects of job displacement on wages and establishment premiums by displacement establishment premium decile and sector. Estimates for the manufacturing sector are reported in Panel A and for the service sector in Panel B. Estimates are based on equation (3). Reported coefficients are for the effects three years after displacement. The establishment premium refers to the AKM establishment fixed effect as estimated in equation (2) in Section 4.2. Deciles are defined over the universe of establishments and workers. The sample consists of workers displaced between 1990 and 2004 and their matched control workers.

Figure A.4: Composition-Adjusted Displacement Losses - Low-wage Workers



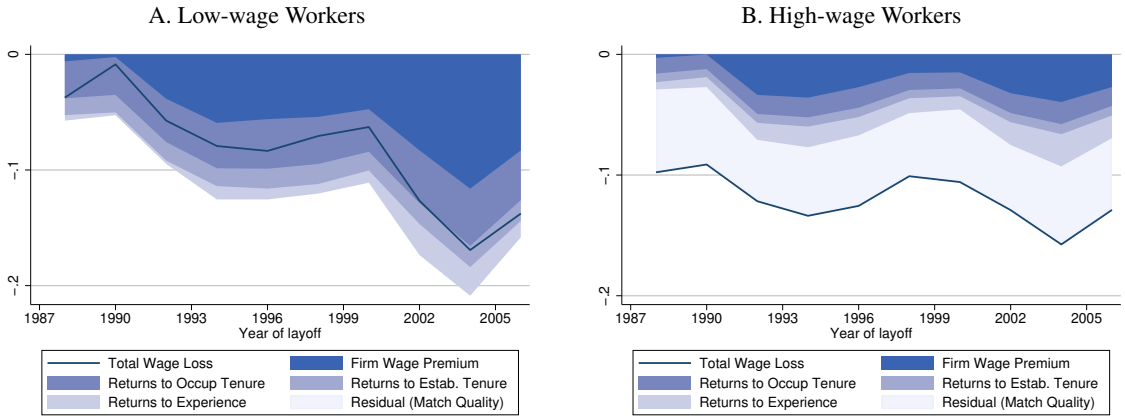
Notes: The figure reports event study estimates of the effects of job displacement on wages in Panel A and on the establishment premium in Panel B for low-wage workers. Estimates are based on equation (3). The solid lines show the baseline wage and establishment premium losses equivalent to those presented in columns (1.1) and (1.2) of Table A.4. The long-dashed lines reweight the low-wage worker observations to reflect the establishment premium distribution of high-wage workers' displacement establishments. The sample consists of workers displaced between 1990 and 2004 and their matched control workers.

Figure A.5: Composition-Adjusted Displacement Losses over Time - Low-wage Workers



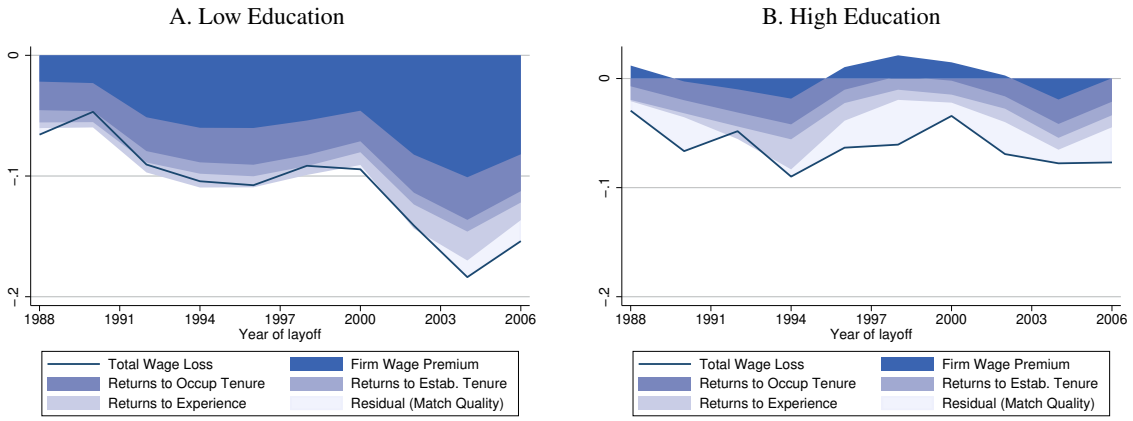
Notes: The figures show event study estimates of the effects of job displacement on wages in Panel A and on the establishment premium in Panel B for low-wage workers. Estimates are based on Equation (3), estimated separately for each two-year period of layoffs taking place between 1988 and 2007. Reported coefficients are for the effects three years after displacement. The solid lines show the baseline wage and establishment premium losses equivalent to those presented in Figure 5. The long-dashed lines reweight the composition of workers in each of the two-year periods to reflect the worker-type distribution in the first two-year estimation period (i.e. 1988-1989). The dashed-dotted line reweights the composition of workers to reflect the worker and establishment distribution in the first two-year estimation period. The short-dashed line is estimated using the method proposed by Schmieder *et al.* (2023) to account for changes in observable characteristics over time. Both methods are described in more detail in Appendix A.7.

Figure A.6: Displacement Wage Losses over Time When Establishment Premiums Are Allowed to Vary by Worker Type



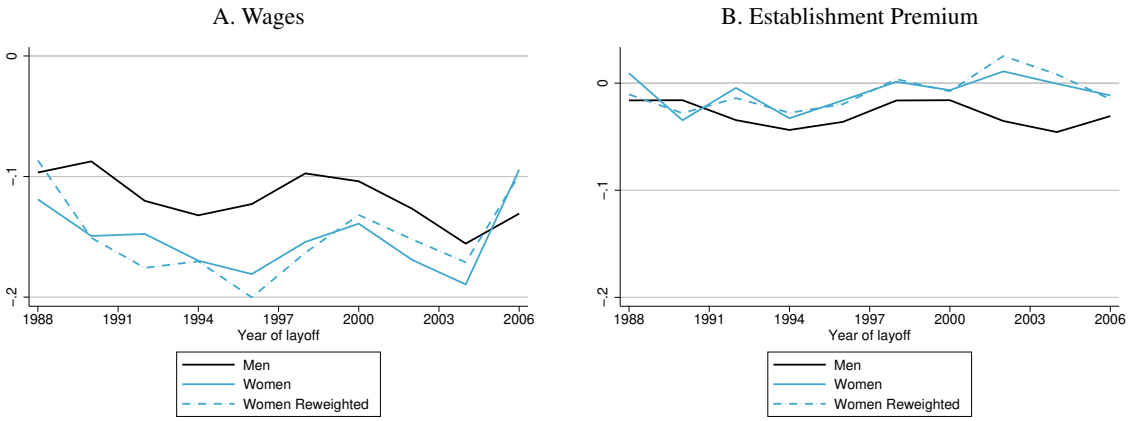
Notes: The figure reports event study estimates of the effects of job displacement on wages and on five potential sources of wage losses (establishment premium, returns to establishment and occupation tenure, returns to experience, and match quality) by worker type. variable. The establishment premium refers to the AKM establishment fixed effect as estimated using a variant of equation (2) that allows the establishment fixed effects to vary by worker type. Estimates are based on equation (3), estimated separately for each two-year period of layoffs taking place between 1988 and 2007, and with the respective source of losses as the dependent variable. Reported coefficients are for the effects three years after displacement. Panel A reports estimates for low-wage workers and Panel B for high-wage workers.

Figure A.7: Displacement Wage Losses over Time by Education



Notes: The figure shows, separately for workers with low and high education, event study estimates of the effects of job displacement on wages, and on five potential sources of wage losses (establishment premium, returns to establishment and occupation tenure, returns to experience, and match quality). Estimates are based on equation (3), estimated separately for each two-year period of layoffs taking place between 1988 and 2007, and with the respective source of losses as the dependent variable. Reported coefficients are for the effects three years after displacement. Workers without a high school degree (*Abitur*) (including those with a vocational degree but no high school degree) are considered to have low education. Workers with a high-school degree or higher are defined as workers with high education.

Figure A.8: Displacement Losses over Time by Gender - High Wage Workers



Notes: The figure shows event study estimates of the effects of job displacement on wages in Panel A and on the establishment premium in Panel B for high-wage workers by gender. The dashed lines display the results when the sample of women is reweighted to reflect the male distributions of worker fixed effects and establishment premiums, as described in Section 6.5. Estimates are based on equation (3), estimated separately for each two-year period of layoffs taking place between 1988 and 2007. Reported coefficients are for the effects three years after displacement.