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Exporters and wage inequality during the Great Recession: Evidence from Germany

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Exporters and Wage Inequality during the Great Recession - Evidence from Germany*

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April 28, 2015

We analyze the evolution of the exporter wage premium (EWP) during the Great Recession and the resulting impact on wage inequality in Germany. Our results show that the EWP declined sharply between 2007 and 2008 and stagnated afterwards. This pattern is due to exporters starting to adjust their wage-setting one year earlier than non-exporters, likely due to the sharp decrease of foreign orders starting in late 2007. Finally, our decomposition shows that the fall of the EWP had a notable negative and persistent effect on wage inequality.

JEL-Classification: F16, J31

Keywords: exporter wage premium, wage-inequality, Great Recession, international trade, matched employer-employee data.

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1 Introduction

The recent financial crisis went along with plummeting world trade and one of the worst recessions since World War II. Surprisingly, the German labor market proved to be relatively robust to the negative shocks associated with the global recession. Explanations for this so called “German Job Miracle” comprise institutional factors, such as working time accounts and short-time work, which created a strong buffering capacity among firms and allowed them to cushion the shock (cf. Moeller; 2010).

We argue that recent research on international trade suggests another margin of adjustment for firms that seek to decrease labor costs in times of low demand. In the model by Egger and Kreickemeier (2012), workers employed by exporters earn higher wages than workers employed by non-exporters since wages are linked to operating profits by a fair-wage mechanism. Empirical support for the existence of such an “Exporter Wage Premium” (EWP) in the case of Germany is given by Schank et al. (2007) and Baumgarten (2013). Hauptmann and Schmerer (2013) show that it mainly stems from a larger wage drift in exporting firms. Since cutting the wage drift (e.g. in the form of lower bonus payments) is a comparatively painless way to quickly reduce labor costs, German firms might have taken advantage of this instrument to compensate the costs of labor-hoarding. Given that export-oriented firms have been hit more intensively by the crisis than purely domestic firms (Moeller; 2010), one would expect the wage adjustment to be stronger for exporters and the EWP to fall. Since the upward-trend of the EWP during the 2000s has proven to be inequality-increasing (cf. Baumgarten; 2013), a decrease of the EWP should work in the opposite direction.

Our contribution to the existing literature is to characterize the evolution of the EWP during the financial crisis, the mechanism causing its reduction, and its impact on wage inequality. Our central result is that the EWP decreased already at the dawn of the crisis and stagnated thereafter. This pattern is due to exporting firms starting to adjust their wage-setting one year earlier than non-exporters, possibly as a reaction to the sharp decline in foreign orders, visible already in late 2007. Finally, our decomposition results show that the decline of the EWP had a negative and persistent impact on wage inequality

during the crisis, especially on residual wage inequality.

2 Data and Methods

For the empirical analysis, we use the LIAB (version LIAB QM2 9310 v1), a large matched employer-employee dataset provided by the Institute for Employment Research and replicate the specification of Baumgarten (2013), who uses the exact same dataset. We also restrict the sample to male full-time workers at the age between 18 and 65 in regular employment.¹ Censored wages are imputed following Gartner (2005) and all wages are converted into year-2010 euros. For the main analysis, we use the years 2007-2010.

Our specification, which we estimate separately for each year, is:

$$\ln(w)_{ift} = \beta_{0t} + \beta_{1t}exp_{ft} + X'_{ift}\beta_{2t} + P'_{ft}\beta_{3t} + I'_{ft}\beta_{4t} + F'_{ft}\beta_{5t} + \epsilon_{ift}, \quad (1)$$

where $\ln(w)_{ift}$ denotes the logarithm of worker i 's daily real wage including bonus payments, working in firm f in year t .² exp_{ft} is a dummy variable indicating firm f 's exporter status in t . X'_{ift} denotes a rich set of controls for worker characteristics, including 20 skill-group-age dummies, foreign nationality, a quadratic term in tenure and a dummy for being a master craftsman or foreman. The vector of firm characteristics P'_{ft} varies by specification: dummies for IT-investments and technological state (tech), firm or industry level wage agreements (bargain), a quadratic term of ln employment (size), and all plant controls jointly plus dummies for works council and 1-plant firm (full).³ The baseline specification does not include any firm-level controls apart from the export dummy. I'_{ft} and F'_{ft} denote industry- and federal state dummies and are included in all models.

Despite the rich set of controls, estimating equation (1) with OLS does not ensure that we capture the causal effect of exporting on wages in a given year. On the one hand,

¹Because the facilitation of short time work (STW) in 2009 was an emergency measure, hours reductions and wage subsidies usually did not even enter social security records. Our data therefore does not allow to identify workers in STW. However, since the wage in our data is the stipulated wage before STW, any wage adjustment we observe is not mechanical.

²The data are sampled at the end of June and thus include all workers employed by the firm at this point in time.

³See table A1 for summary statistics of the main variables.

according to models with heterogeneous firms, more productive firms become exporters and grow larger at the same time and there should not be a premium conditional on size (cf. Melitz; 2003; Baumgarten; 2013). Controlling for plant size would thus yield a downwards biased estimate of the EWP. On the other hand, omitted variable bias can arise if size and technological status are not included. However, since we estimate the contribution of changes in the EWP to the overall change in wage inequality, we rely on the assumption that the bias (if there is one) is constant over time. Therefore, we provide estimates with various different specifications and show that the basic result is the same across all specifications.⁴

For our analysis of the EWP's impact on wage inequality, we employ the method described by Lemieux (2002), which decomposes the change in wage inequality (measured by the standard deviation) between two years t_0 and t_1 into different components. To this end, we construct several counterfactual distributions that allow us to disentangle the impact of changes of 1) the EWP, 2) other coefficients, 3) covariates, and 4) residuals on residual wage inequality by sequentially changing the components of the OLS models. Whereas a change of coefficients is easily obtained from the OLS estimates, a change of covariates is performed via reweighting.

3 The EWP during the financial crisis

3.1 Baseline Results

Figure 1 shows the EWP's change over time. Each line represents a different specification of equation (1).⁵ The estimates indicate that the EWP increased since the beginning of the 2000s, probably due to trade liberalization (cf. Baumgarten; 2013).⁶ Between 2007 and 2008, the premium fell by around two percentage points in all specifications. This timing is closely in line with the decline in incoming orders shown in figure 2. Interestingly, the

⁴We do not carry out panel regressions as in Schank et al. (2007), since cross-sectional OLS estimates are needed for the subsequent decomposition.

⁵Tables A2-A5 in the web appendix present the full tables for all covariates.

⁶When controlling for plant size, the rise of the EWP starts in 2005 and is insignificant before. However, as argued in the last section, the point estimates likely are downwards biased in these specifications.

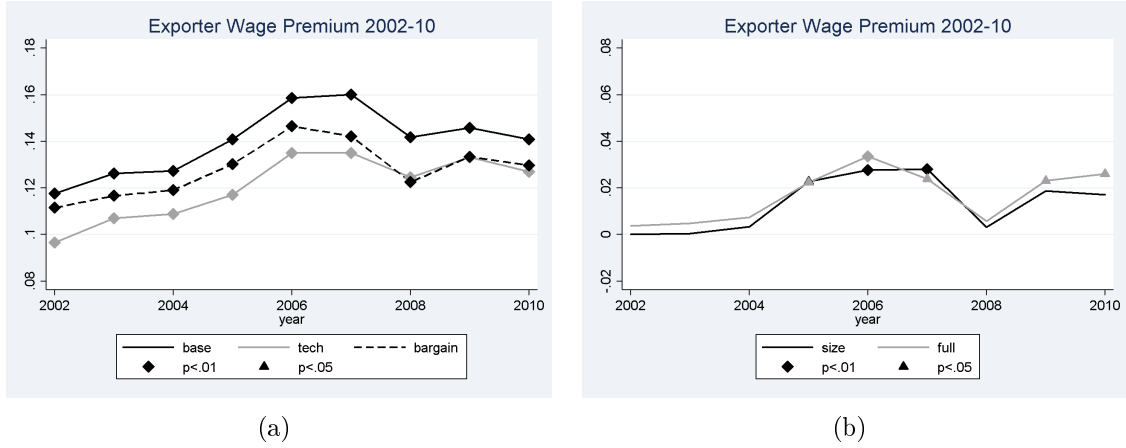


Figure 1: Baseline Results: Coefficients of the exporter dummy in various specifications, 2002-2010

EWP did not further decline during the peak of the crisis, between 2008 and 2009. The pooled estimates in the next section shed light on statistical significance of the changes and, more importantly, the reason for the observed pattern during the crisis.

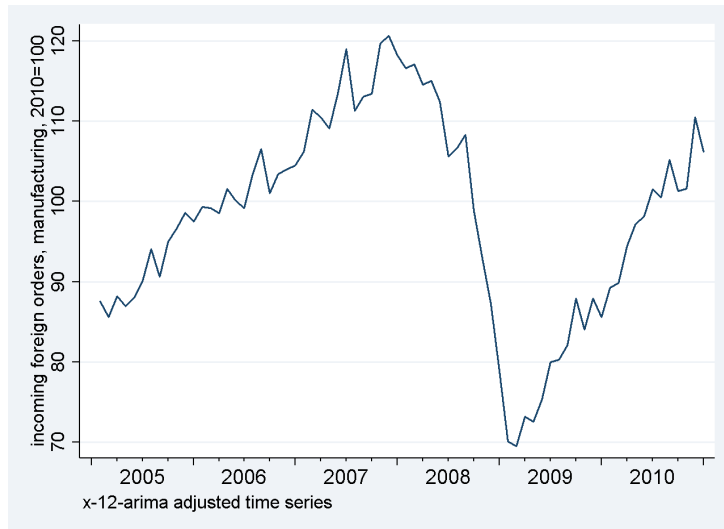


Figure 2: Foreign Incoming Orders 2005-2010

3.2 Mechanics of EWP changes

In order to analyze whether wage changes in exporting, non-exporting, or both firm types are responsible for the evolution of the EWP during the crisis, we pool the data for two subsequent years and re-estimate the baseline and full specifications of equation 1 with a dummy indicating the latter year and an interaction with the exporter dummy. Having

included all the control variables from equation (1), the time dummy reflects the change in the average wage-setting in non-exporting firms, whereas the interaction term indicates, by how much more or less exporting firms have changed their average wage-setting as compared to non-exporters. Whereas the choice between nominal and real wages does not matter for the estimated EWP, it is crucial to use nominal wages in this specification, since it is the relevant measure from the firm's perspective.

The coefficient on the interaction term indicates that the decrease of the EWP between 2007 and 2008 is statistically significant and the subsequent increase is not. The first two columns of table 1 show that between 2007 and 2008, wages in non-exporting firms rose by about 2.5p.p. However, wages in exporting firms (time dummy plus interaction term) remained constant and this is in stark contrast to the wage increases since 2004, which are shown in table A6 in the web appendix. This suggests that exporters did not further increase wages due to the decline in foreign orders and likely also in expectation of a long-lasting negative shock.⁷ The estimates in columns 3 and 4 suggest that between 2008 and 2009, wages declined in exporting and non-exporting firms. Apparently, non-exporters have been hit by the crisis one year later, possibly via input/output linkages. Between 2009 and 2010, a period of economic recovery, nominal wages increased in both firm types. In general, the results provide evidence that exporters and non-exporters reacted to the adverse shock by adjusting their wage-regime and the main difference is that exporters started to adjust their wage-setting one year earlier.⁸

4 Impact on Residual Wage Inequality

In order to disentangle the impact the fall of the EWP had on residual wage inequality, we apply the decomposition outlined in section 2. The results in table 2 suggest that overall residual wage inequality first decreased between 2007 and 2008 and then remained constant afterwards. Alternatively, summing up the total effects over all years yields

⁷Table A9 shows that in real terms, wages declined in exporting firms and remained constant in non-exporting firms.

⁸One concern might be that these effects stem from firms exiting or entering the sample. In appendix table A7, we therefore restrict the sample to firms that are observed in two consecutive years, which does not qualitatively alter our results.

Table 1: Mechanics of EWP changes

	Dependent variable: ln daily wage (imputed)					
	(t=2007)		(t=2008)		(t=2009)	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy, exporter	0.1618*** (0.014)	0.0247** (0.010)	0.1456*** (0.014)	0.0099 (0.010)	0.1451*** (0.016)	0.0217** (0.011)
Dummy, t+1	0.0269*** (0.009)	0.0241*** (0.007)	-0.0172 (0.011)	-0.0167** (0.007)	0.0269** (0.012)	0.0215*** (0.007)
Exporter in t+1	-0.0239** (0.011)	-0.0203** (0.008)	-0.0042 (0.012)	0.0079 (0.009)	-0.0032 (0.015)	0.0059 (0.009)
Firm controls	-	yes	-	yes	-	yes
F (dummy+interaction)	0.20	0.67	16.21***	2.88*	8.80***	22.19***
N	1003074	997413	970022	963954	842753	835206
plants	4006	3993	4030	4017	3991	3978
adj. R2	0.509	0.581	0.499	0.570	0.493	0.564

Notes: Estimates are based on the baseline specification in columns 1, 3, 6, and the full specification in columns 2, 4, 6. “t” denotes the earlier one of the two years in the estimation. Standard errors in parentheses, clustered at plant level. Levels of significance: *** 1 %, ** 5 %, * 10 %.

a negligible change of inequality between 2007 and 2010. Both is in stark contrast to the strong increase during the decade before (cf. Baumgarten; 2013). Our decomposition shows that between 24% and 40% of the initial decline in wage inequality can be attributed to the simultaneous decline of the EWP between 2007 and 2008. After 2008, the changes of the EWP had a negligible and insignificant effect on wage inequality which is not surprising since the magnitude of the EWP-changes between 2008 and 2010 was low. The results in general suggest that the decrease of the EWP contributed to the fact that residual wage inequality did not further increase during the crisis.⁹

5 Conclusion

Our analysis provides first evidence on the contribution of the exporter wage premium to changes in wage inequality during the financial crisis. The EWP decreased significantly at the beginning of the crisis but stagnated afterwards. We are able to shed light on the reason behind this pattern, which appears to be the consequence of exporting firms

⁹Table A10 in the web appendix shows the same decomposition for total inequality rather than residual inequality. It turns out that the EWP also had a notable impact on overall inequality. However, the results are not as large and statistically significant.

Table 2: Impact on Residual Wage Inequality

	Base	Tech	Bargain	Size	Full
Change in residual wage inequality, 2007-2008					
Total Effect	−0.0074*	−0.0074*	−0.0074*	−0.0074*	−0.0074*
	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
EWP Effect	−0.0023	−0.0018	−0.0026*	−0.0032***	−0.0028**
	(0.0015)	(0.0014)	(0.0013)	(0.0012)	(0.0012)
% of Total	31.1	24.3	35.1	43.2	37.8
Change in residual wage inequality, 2008-2009					
Total Effect	0.0060	0.0060	0.0060	0.0060	0.0060
	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
EWP Effect	0.0006	0.0010	0.0015	0.0019	0.0020
	(0.0015)	(0.0016)	(0.0015)	(0.0013)	(0.0013)
% of Total	10.0	16.7	25.0	31.7	33.3
Change in residual wage inequality, 2009-2010					
Total Effect	0.0031	0.0031	0.0031	0.0031	0.0031
	(0.0051)	(0.0051)	(0.0051)	(0.0051)	(0.0051)
EWP Effect	−0.0005	−0.0008	−0.0000	−0.0002	0.0006
	(0.0019)	(0.0017)	(0.0017)	(0.0014)	(0.0013)
% of Total	−16.1	−25.8	−2.3	−6.5	19.4

Notes: 'Total Effect' denotes the change of overall residual wage inequality (measured by the standard deviation) between two periods. 'EWP Effect' denotes the change in residual wage inequality which can be attributed to the change of the EWP. Standard errors in parentheses, based on 200 bootstrap replications. Levels of significance: *** 1 %, ** 5 %, * 10 %.

reacting to the sharp decline in foreign orders at the end of 2007, whereas purely domestic producers reacted one year later. Our analysis thus provides evidence that both, exporters and non-exporters, have reduced wage payments in order to cushion the negative demand shock. This result motivates our final analysis on the exporter wage premium's role for wage inequality. We find evidence that residual wage inequality declined significantly between 2007 and 2008 and remained constant afterwards. 25%-40% of the initial decline can be explained by the drop of the EWP.

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Appendix

Table A1: Summary statistics

year exporter	2007		2008		2009		2010	
	no	yes	no	yes	no	yes	no	yes
ln daily wage	4.45 (0.45)	4.74 (0.43)	4.48 (0.44)	4.74 (0.42)	4.45 (0.44)	4.72 (0.43)	4.50 (0.48)	4.74 (0.43)
Age	41.86 (10.88)	42.98 (10.44)	41.85 (10.91)	43.08 (10.63)	42.25 (11.08)	43.57 (10.54)	42.71 (11.20)	43.98 (10.57)
Tenure	9.75 (8.08)	12.04 (8.97)	9.62 (8.25)	12.22 (9.27)	10.28 (8.49)	12.67 (9.31)	10.32 (8.46)	12.94 (9.27)
Foreign	0.06 (0.23)	0.08 (0.27)	0.06 (0.23)	0.08 (0.27)	0.06 (0.23)	0.08 (0.27)	0.05 (0.22)	0.08 (0.27)
Skill miss.	0.11 (0.31)	0.06 (0.23)	0.12 (0.32)	0.06 (0.24)	0.13 (0.33)	0.07 (0.25)	0.12 (0.33)	0.07 (0.25)
Skill low	0.09 (0.29)	0.12 (0.33)	0.09 (0.28)	0.12 (0.33)	0.08 (0.28)	0.12 (0.32)	0.08 (0.27)	0.12 (0.32)
Skill med.	0.75 (0.44)	0.70 (0.46)	0.75 (0.43)	0.70 (0.46)	0.74 (0.44)	0.69 (0.46)	0.73 (0.45)	0.70 (0.46)
Skill high	0.05 (0.23)	0.12 (0.33)	0.05 (0.21)	0.12 (0.33)	0.05 (0.21)	0.12 (0.33)	0.07 (0.25)	0.12 (0.33)
plant size	222.54 (525.33)	2446.96 (6030.41)	269.37 (615.27)	2802.91 (7479.77)	269.34 (631.08)	2538.91 (7605.47)	403.71 (910.13)	2121.68 (5958.33)
N	64795	439256	64842	474944	56493	409203	48666	361621
plants	1780	1627	1706	1606	1635	1748	1608	1678

Average values, standard errors in parentheses.

Table A2: Baseline Results: 2007

	Dependent variable: ln daily wage (imputed)				
	Base	Tech	Bargain	Size	Full
dummy, exporter	0.1601*** (0.014)	0.1350*** (0.013)	0.1422*** (0.012)	0.0281*** (0.011)	0.0238** (0.010)
dummy, foreign	-0.0268*** (0.007)	-0.0283*** (0.007)	-0.0330*** (0.007)	-0.0464*** (0.007)	-0.0479*** (0.006)
tenure	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)
tenure squared	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)
dummy, foreman	0.1779*** (0.012)	0.1792*** (0.011)	0.1798*** (0.011)	0.2064*** (0.009)	0.2066*** (0.009)
dummy, technology state of the art		0.0614*** (0.020)			0.0490*** (0.014)
dummy, investments in IT		0.0992*** (0.013)			0.0189* (0.010)
dummy, industry level coll. agreement			0.1545*** (0.014)		0.0526*** (0.011)
dummy, firm level coll. agreement			0.1169*** (0.018)		0.0121 (0.015)
ln plant size				0.1213*** (0.013)	0.0762*** (0.014)
ln plant size squared				-0.0048*** (0.001)	-0.0029** (0.001)
dummy, not part of larger group					0.0497*** (0.011)
dummy, works council					0.0796*** (0.013)
N	483639	482024	483413	483639	481832
plants	3385	3376	3379	3385	3371
adj. R2	0.513	0.524	0.533	0.570	0.582

Models include dummy variables for industries and federal states. Standard errors, clustered at the firm-level, in parentheses. Regressions employ sample weights. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A3: Baseline Results: 2008

	Dependent variable: ln daily wage (imputed)				
	Base	Tech	Bargain	Size	Full
dummy, exporter	0.1419*** (0.014)	0.1246*** (0.013)	0.1225*** (0.012)	0.0031 (0.011)	0.0057 (0.010)
dummy, foreign	-0.0347*** (0.008)	-0.0345*** (0.008)	-0.0398*** (0.007)	-0.0538*** (0.007)	-0.0529*** (0.006)
tenure	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)
tenure squared	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)
dummy, foreman	0.1804*** (0.011)	0.1843*** (0.010)	0.1883*** (0.010)	0.2061*** (0.009)	0.2080*** (0.009)
dummy, technology state of the art		0.0646*** (0.017)			0.0422*** (0.013)
dummy, investments in IT		0.0855*** (0.011)			0.0231** (0.011)
dummy, industry level coll. agreement			0.1648*** (0.013)		0.0631*** (0.010)
dummy, firm level coll. agreement			0.1489*** (0.020)		0.0457*** (0.015)
ln plant size				0.1311*** (0.012)	0.0851*** (0.013)
ln plant size squared				-0.0055*** (0.001)	-0.0036*** (0.001)
dummy, not part of larger group					0.0517*** (0.011)
dummy, works council					0.0678*** (0.013)
N	519435	516162	518819	519435	515581
plants	3283	3272	3275	3283	3265
adj. R2	0.507	0.518	0.532	0.568	0.581

Models include dummy variables for industries and federal states. Standard errors, clustered at the firm-level, in parentheses. Regressions employ sample weights. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A4: Baseline Results: 2009

	Dependent variable: ln daily wage (imputed)				
	Base	Tech	Bargain	Size	Full
dummy, exporter	0.1458*** (0.016)	0.1332*** (0.015)	0.1335*** (0.014)	0.0187* (0.011)	0.0232** (0.011)
dummy, foreign	-0.0541*** (0.010)	-0.0545*** (0.009)	-0.0585*** (0.009)	-0.0747*** (0.008)	-0.0773*** (0.008)
tenure	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)
tenure squared	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)
dummy, foreman	0.1875*** (0.012)	0.1871*** (0.012)	0.1932*** (0.012)	0.2184*** (0.009)	0.2181*** (0.009)
dummy, technology state of the art		0.0603*** (0.018)			0.0317** (0.012)
dummy, investments in IT		0.0698*** (0.012)			0.0149 (0.010)
dummy, industry level coll. agreement			0.1449*** (0.013)		0.0470*** (0.011)
dummy, firm level coll. agreement			0.1394*** (0.023)		0.0279 (0.018)
ln plant size				0.1038*** (0.012)	0.0549*** (0.013)
ln plant size squared				-0.0032*** (0.001)	-0.0007 (0.001)
dummy, not part of larger group					0.0556*** (0.011)
dummy, works council					0.0698*** (0.014)
N	450587	448381	450546	450587	448373
plants	3362	3349	3359	3362	3347
adj. R2	0.492	0.501	0.512	0.550	0.561

Models include dummy variables for industries and federal states. Standard errors, clustered at the firm-level, in parentheses. Regressions employ sample weights. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A5: Baseline Results: 2010

	Dependent variable: ln daily wage (imputed)				
	Base	Tech	Bargain	Size	Full
dummy, exporter	0.1410*** (0.017)	0.1270*** (0.016)	0.1298*** (0.016)	0.0172 (0.013)	0.0261** (0.012)
dummy, foreign	-0.0436*** (0.008)	-0.0423*** (0.008)	-0.0480*** (0.008)	-0.0607*** (0.008)	-0.0630*** (0.007)
tenure	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)	0.0000*** (0.000)
tenure squared	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)
dummy, foreman	0.1906*** (0.013)	0.1906*** (0.013)	0.1987*** (0.012)	0.2066*** (0.010)	0.2105*** (0.010)
dummy, technology state of the art		0.0426** (0.019)			0.0315*** (0.012)
dummy, investments in IT		0.0710*** (0.012)			0.0113 (0.009)
dummy, industry level coll. agreement			0.1687*** (0.013)		0.0525*** (0.011)
dummy, firm level coll. agreement			0.1459*** (0.019)		0.0230 (0.017)
ln plant size				0.1381*** (0.013)	0.0866*** (0.013)
ln plant size squared				-0.0062*** (0.001)	-0.0040*** (0.001)
dummy, not part of larger group					0.0714*** (0.010)
dummy, works council					0.0835*** (0.015)
N	392166	389117	389848	392166	386833
plants	3258	3249	3201	3258	3193
adj. R2	0.495	0.502	0.519	0.555	0.568

Models include dummy variables for industries and federal states. Standard errors, clustered at the firm-level, in parentheses. Regressions employ sample weights. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A6: Mechanics of EWP changes

	Dependent variable: ln daily wage (imputed)					
	(t=2004)		(t=2005)		(t=2006)	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy, exporter	0.1268*** (0.012)	0.0069 (0.010)	0.1404*** (0.012)	0.0223** (0.010)	0.1519*** (0.012)	0.0229** (0.010)
Dummy, t+1	0.0036 (0.009)	-0.0007 (0.007)	0.0065 (0.009)	0.0126* (0.007)	0.0228** (0.010)	0.0180** (0.007)
Exporter in t+1	0.0138 (0.011)	0.0177** (0.008)	0.0193* (0.012)	0.0139 (0.009)	0.0150 (0.012)	0.0107 (0.009)
Firm controls	-	yes	-	yes	-	yes
F (dummy+interaction)	9.17***	14.41***	16.19***	24.56***	29.51***	42.40***
N	1086973	1082841	1021948	1017483	971297	967459
plants	4199	4187	4037	4027	4030	4021
adj. R2	0.484	0.551	0.487	0.554	0.504	0.572

Notes: Estimates are based on the baseline specification in columns 1, 3, 6, and the full specification in columns 2, 4, 6. “t” denotes the earlier one of the two years in the estimation. Standard errors in parentheses, clustered at plant level. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A7: Mechanics of EWP changes - Balanced Firm Panel

	Dependent variable: ln daily wage (imputed)					
	(t=2007)		(t=2008)		(t=2009)	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy, exporter	0.1616*** (0.015)	0.0316*** (0.011)	0.1431*** (0.016)	0.0071 (0.011)	0.1411*** (0.017)	0.0242* (0.012)
Dummy, t+1	0.0204*** (0.007)	0.0220*** (0.006)	-0.0198** (0.009)	-0.0149** (0.007)	0.0331** (0.013)	0.0231*** (0.007)
Exporter in t+1	-0.0175* (0.010)	-0.0191** (0.008)	0.0083 (0.011)	0.0110 (0.009)	-0.0001 (0.014)	0.0115 (0.008)
Firm controls	-	yes	-	yes	-	yes
F (dummy+interaction)	0.27	0.47	6.37***	0.65	45.94***	66.87***
N	793375	788195	773919	770422	619861	613073
plants	2670	2667	2623	2620	2634	2632
adj. R2	0.519	0.585	0.506	0.576	0.496	0.565

Notes: Estimates are based on the baseline specification in columns 1, 3, 6, and the full specification in columns 2, 4, 6. Firms that are not observed in both years of a regression are dropped. “t” denotes the earlier one of the two years in the estimation. Standard errors in parentheses, clustered at plant level. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A8: Mechanics of EWP changes - Real Wages

	Dependent variable: ln daily wage (imputed, measured in 2010 Euros)					
	(t=2004)		(t=2005)		(t=2006)	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy, exporter	0.1268*** (0.012)	0.0069 (0.010)	0.1404*** (0.012)	0.0223** (0.010)	0.1519*** (0.012)	0.0229** (0.010)
Dummy, t+1	-0.0128 (0.009)	-0.0171** (0.007)	-0.0085 (0.009)	-0.0024 (0.007)	-0.0003 (0.010)	-0.0052 (0.007)
Exporter in t+1	0.0138 (0.011)	0.0177** (0.008)	0.0193* (0.012)	0.0139 (0.009)	0.0150 (0.012)	0.0107 (0.009)
Firm controls	-	yes	-	yes	-	yes
F (dummy+interaction)	0.03	0.02	2.83*	4.63**	4.43**	1.57
N	1086973	1082841	1021948	1017483	971297	967459
plants	4199	4187	4037	4027	4030	4021
adj. R2	0.483	0.550	0.486	0.553	0.503	0.571

Notes: Estimates are based on the baseline specification in columns 1, 3, 6, and the full specification in columns 2, 4, 6. “t” denotes the earlier one of the two years in the estimation. Standard errors in parentheses, clustered at plant level. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A9: Mechanics of EWP changes - Real Wages

	Dependent variable: ln daily wage (imputed, measured in 2010 Euros)					
	(t=2007)		(t=2008)		(t=2009)	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy, exporter	0.1618*** (0.014)	0.0247** (0.010)	0.1456*** (0.014)	0.0099 (0.010)	0.1451*** (0.016)	0.0217** (0.011)
Dummy, t+1	0.0012 (0.009)	-0.0016 (0.007)	-0.0203* (0.011)	-0.0197*** (0.007)	0.0159 (0.012)	0.0104 (0.007)
Exporter in t+1	-0.0239** (0.011)	-0.0203** (0.008)	-0.0042 (0.012)	0.0079 (0.009)	-0.0032 (0.015)	0.0059 (0.009)
Firm controls	-	yes	-	yes	-	yes
F (dummy+interaction)	11.87***	22.75***	21.14***	5.21**	2.50	7.88***
N	1003074	997413	970022	963954	842753	835206
plants	4006	3993	4030	4017	3991	3978
adj. R2	0.509	0.581	0.499	0.570	0.492	0.563

Notes: Estimates are based on the baseline specification in columns 1, 3, 6, and the full specification in columns 2, 4, 6. “t” denotes the earlier one of the two years in the estimation. Standard errors in parentheses, clustered at plant level. Levels of significance: *** 1 %, ** 5 %, * 10 %.

Table A10: Impact on Wage Inequality

	Base	Tech	Bargain	Size	Full
Change in wage inequality, 2007-2008					
Total Effect	−0.0124** (0.0063)	−0.0122* (0.0064)	−0.0122* (0.0064)	−0.0124** (0.0063)	−0.0132** (0.0065)
EWP Effect	−0.0024 (0.0016)	−0.0019 (0.0016)	−0.0015 (0.0014)	−0.0029** (0.0013)	−0.0027** (0.0013)
% of Total	19.4	15.6	12.3	23.4	20.6
Change in wage inequality, 2008-2009					
Total Effect	0.0089* (0.0050)	0.0089* (0.0050)	0.0089* (0.0050)	0.0089* (0.0050)	0.0089* (0.0050)
EWP Effect	0.0007 (0.0017)	0.0011 (0.0018)	0.0016 (0.0017)	0.0021 (0.0015)	0.0021 (0.0014)
% of Total	7.9	12.4	18.0	23.6	23.6
Change in wage inequality, 2009-2010					
Total Effect	0.0040 (0.0091)	0.0040 (0.0091)	0.0040 (0.0091)	0.0040 (0.0091)	0.0040 (0.0091)
EWP Effect	−0.0006 (0.0021)	−0.0010 (0.0020)	−0.0001 (0.0019)	−0.0002 (0.0015)	0.0006 (0.0015)
% of Total	15.0	25.0	2.5	5.0	15.0

Notes: 'Total Effect' denotes the change of overall wage inequality (measured by the standard deviation) between two periods. 'EWP Effect' denotes the change in wage inequality which can be attributed to the change of the EWP. Standard errors in parentheses, based on 200 bootstrap replications. Levels of significance: *** 1 %, ** 5 %, * 10 %.