Online Appendix

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Determinants of Wage (Dis-)Satisfaction. Trade Exposure, Export-Led Growth, and the Irrelevance of Bargaining Structure. MPIfG Discussion Paper 21/3.

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Appendix A.1   Cross-validation of our measure of wage preferences

We cross-validated the suitability of our proxy measure of wage preferences by examining how different items on wage preferences relate to each other, using the WageIndicator Survey (Tijdens et al. 2010).

The WageIndicator Survey is a non-representative survey covering a range of items on preferences towards working conditions and wages. For this comparison, we only use the waves from 2003 and 2004 for the Netherlands due to data availability. Unfortunately, this survey does not replicate exactly the item from the ISSP, but it contains items on whether the "wage is sufficient for my job," on "satisfaction with pay," and whether one "should earn more given performance." Bivariate correlations (see table below) show a strong positive correlation (r=0.73) between the variables "wage is sufficient for my job" and "satisfaction with pay." A low "satisfaction with pay," in turn, is closely associated with the perception that one "should earn more given performance." The correlation coefficient is r=–0.55. In brief, different operationalizations of wage satisfaction are correlated with each other in the WageIndicator Survey. This cross-validation increases our confidence in our measure of wage preferences from the ISSP.

Correlations across items on wage preferences in the WageIndicator survey

	Wage is sufficient for my job (0: No; 1: Yes)	Should earn more given performance (1: Fully disagree; 5: Fully agree)
Satisfaction with pay (0: No; 1: Yes)	0.7247 0.00 3824	
Satisfaction with pay (1: Highly dissatisfied; 5: Highly satisfied)		–0.5501 0.00 2735

Note: Data is from the Netherlands for the years 2003 and 2004; cells display bivariate correlation coefficients, levels of significance, and number of observations. The variables "wage is sufficient for my job" and "should earn more given performance" were measured in different waves. The measurement scales for the "satisfaction with pay" variable varied between these waves (0–1 between December 2003 and April 2004; 1–5 between October and December 2004).
Source: Tijdens et al. (2010).

Appendix A.2   Operationalization of our measure of the import-adjusted contribution of exports to GDP growth

In the following, we describe in more detail how we arrive at our measure of the import-adjusted contribution of exports to GDP growth. We begin with the standard GDP (Y) accounting identity:

$$Y = C + I + G + E - I$$

For simplicity, we group the demand components related to domestic demand

$$D = C + I + G$$

Thus

$$Y = D + E - I$$

The growth contributions of domestic and foreign demand is generally calculated as follows:

$$\frac{Y_t - Y_{t-1}}{Y_t} = \frac{D_t - D_{t-1}}{D_{t-1}} \times \frac{D_{t-1}}{Y_{t-1}} + \frac{(E_t - I_t) - (E_{t-1} - I_{t-1})}{(E_{t-1} - I_{t-1})} \times \frac{(E_{t-1} - I_{t-1})}{Y_{t-1}}$$

This is the approach used by Baccaro and Pontusson (2016). The problem with this approach is that by subtracting imports solely from exports, it leads to underestimation of the contribution of exports to growth, and conversely to overestimation of the contribution of domestic demand components. In fact, some imports are used for consumption purposes; others for investment purposes; still others for government consumption. Only a portion of imports are incorporated into exports. A correct evaluation of growth components should divide imports into domestically-consumed imports (ID) and imports used for exports (IE). In symbols:

$$I = ID + IE$$

From this it follows:

$$Y = (D - ID) + (E - IE).$$

The growth contribution of import-adjusted domestic and foreign demand is as follows:

$$\frac{Y_t - Y_{t-1}}{Y_t} = \frac{(D_t - ID_t) - (D_{t-1} - ID_{t-1})}{(D_{t-1} - ID_{t-1})} \times \frac{(D_{t-1} - ID_{t-1})}{Y_{t-1}}$$
$$+ \frac{(E_t - IE_t) - (E_{t-1} - IE_{t-1})}{(E_{t-1} - IE_{t-1})} \times \frac{(E_{t-1} - IE_{t-1})}{Y_{t-1}}$$

National Accounts data do not provide a breakdown of imports by demand component. However, the OECD provides estimates of the import-intensity of exports based on Input-Output tables.[1] We use these OECD estimates to calculate the quantity of imports that is used by exports (IE), according to the following identity:

$$IE = \frac{IE}{E} \times \frac{E}{I} \times I$$

$\frac{IE}{E}$ is obtained from the OECD online database; $\frac{E}{I}$ is the ratio of exports to input, and I is the quantity of imports. E and I are from Ameco (2019).

We use the following formula to arrive at our final measure of the import-adjusted contribution of exports to GDP growth, in short, export-led growth. In the formula, we distinguish between prices and quantities:

$$\frac{P_t^e IE_t - P_{t-1}^e IE_{t-1}}{P_{t-1} IE_{t-1}} x \frac{P_{t-1}^e IE_{t-1}}{P_{t-1} Y_{t-1}} x \frac{1}{\frac{P_t Y_t - P_{t-1} Y_{t-1}}{P_{t-1} Y_{t-1}}} = \frac{P_t^e IE_t - P_{t-1}^e IE_{t-1}}{P_t Y_t - P_{t-1} Y_{t-1}}$$

Where P^e is the price of exports, P is the price of GDP, IE is import-adjusted exports, and Y is GDP.

According to the formula, (import-adjusted) export-led growth increases if export quantities grow faster than output quantities, but also if export prices grow faster than output prices (which would indicate upgrading of exports).

The above measure of import-adjusted export-led growth weighs the absolute growth contribution of exports by total growth. In robustness check, we consider the impact of the absolute growth contribution of exports only (see appendix Table A9).

To avoid an excessive influence of year-to-year fluctuations in exports in our estimations, we calculate 5-year averages for the periods preceding data collection in the ISSP (i.e. 1994–1998 and 2004–2008).

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[1] These OECD estimates are based on the following formula as reported by the OECD website: Imports content of exports = u A*m* (I - A*d*)$^{-1}$ EX / Σ EX, where: **Am** and **Ad** are the input-output coefficient matrices for imported and domestic transactions, respectively; **I** is the identity matrix; **(I - Ad)$^{-1}$ is the** Leontief inverse matrix; **u** denotes an 1 x n vector each of whose components is 1 for corresponding import types; and **EX** is the export vector.

Table A.1 Average values of export orientation and wage dissatisfaction

Country	Import-adjusted contribution of exports to GDP growth		Wage dissatisfaction	
	1994–1998	2004–2008	1999	2009
Australia	0.14	0.47	0.46	0.61
Austria	0.65	0.70	0.45	0.43
Belgium	0.79	0.94	.	0.40
Denmark	0.26	0.43	0.53	0.50
Finland	0.39	0.34	.	0.64
France	0.50	0.24	0.60	0.69
Germany	0.77	0.71	0.54	0.53
Iceland	0.39	0.63	.	0.53
Italy	0.27	0.29	.	0.67
Japan	0.27	0.41	.	0.66
Korea	0.73	0.59	.	0.52
New Zealand	0.21	0.42	0.55	0.52
Norway	0.36	0.53	0.61	0.55
Portugal	0.39	0.29	0.80	0.67
Spain	0.55	0.17	0.62	0.63
Sweden	0.44	0.48	0.75	0.69
Switzerland	1.00	0.74	.	0.35
United Kingdom	0.22	0.46	0.61	0.52
United States	0.11	0.24	0.62	0.56
Mean	0.45	0.48	0.60	0.56
Standard deviation	0.25	0.20	0.31	0.10

Table A.2   Summary statistics of the measure of occupational trade exposure
by ISCO88 1-digit occupational categories

ISCO88 1 digit-level	Occupational trade exposure				
	N	mean	SD	min	max
1000 Legislators, senior officials & managers	1,300	0.07	0.19	0	1.36
2000 Professionals	2,689	0.02	0.05	0	0.55
3000 Technicians and associated professionals	2,975	0.04	0.13	0	2.47
4000 Clerks	1,918	0.02	0.04	0	0.44
5000 Service workers & shop & market sales workers	2,067	0	0	0	0.04
6000 Skilled agricultural & fishery workers	142	0.24	0.1	0.07	0.49
7000 Craft etc trades workers	1,470	0.22	0.31	0	4.75
8000 Plant & machine operators & assemblers	868	0.33	0.37	0	1.48
9000 Elementary occupations	853	0.06	0.13	0	0.63

Table A.3 Variable operationalization

Public sector worker	Do you work at present or did you work in your last job in the private or public sector? 1: working for the government or a publicly owned firm/nationalized industry; 0: working for the private sector	ISSP 1999, 2009
Occupational trade exposure (log)	Logarithm of trade exposure at the occupational level; derived from the likelihood of an occupation to pertain to a specific sector multiplied by sectoral trade exposure	ISSP 1999, 2009; ESS 2008; OECD STAN 2019
Occupational trade exposure (categorical coding)	1: Public sheltered, 2: Private sheltered, 3: Exposed; exposed workers are those with above-median occupational trade exposure; private sheltered workers are those with below-median occupational trade exposure who work in the private sector; public sheltered workers are those with below-median occupational trade exposure who work in the public sector; public sector includes working for the government or a publicly owned firm/nationalized industry.	ISSP 1999, 2009; ESS 2008; OECD STAN 2019
Union membership	Trade (labor) union membership; 1 "Currently member", 0 "Once member, not now" or "Never member".	ISSP 1999, 2009
Individual income	Respondent's earnings: Recoded in 10 categories	ISSP 1999, 2009
Part-time work	Current employment status: 1 "Employed-part time, main job" or "Employed, less than part-time"; 0 "Employed-full time, main job"	ISSP 1999, 2009
Educational attainment	Highest education level: 1 below upper secondary education; 2 upper secondary education; 3 above upper secondary education; 4 tertiary education	ISSP 1999, 2009
Age	Age of Respondent	ISSP 1999, 2009
Age squared	Age of Respondent (squared)	ISSP 1999, 2009
Female gender	Sex of Respondent: 0 male; 1 female	ISSP 1999, 2009
Export-contribution to growth	Import-adjusted contribution of exports to GDP growth; 5-year averages for the periods preceding data collection in the ISSP	AMECO (2019), OECD (2019) Input-Output tables
Wage bargaining coordination	Coordination of wage setting (coord); 1 Fragmented wage bargaining, confined largely to individual firms or plants; 5 Maximum or minimum wage rates/increases based on centralized bargaining; 5-year averages for the periods preceding data collection in the ISSP	ICTWSS, Visser (2019)

Level of wage bargaining	Predominant level of wage bargaining (level)	ICTWSS, Visser (2019)
Union centralization	Centralization of wage bargaining (cent)	ICTWSS, Visser (2019)
Real average wage levels	Average annual wages per full-time equivalent dependent employee; 5-year averages for the periods preceding data collection in the ISSP	OECD (2019) Employment outlook
Changes in real average wages	Average annual wages per full-time equivalent dependent employee; change over 5 years preceding data collection in the ISSP: 1998–1994 and 2008–2004	OECD (2019) Employment outlook
GDP growth	Growth of real GDP, percent change from previous year; 5-year averages for the periods preceding data collection in the ISSP	CPDS I, Armingeon et al. (2014)
Unemployment rate	Unemployment rate as a percentage of civilian labor force; 5-year averages for the periods preceding data collection in the ISSP	CPDS I, Armingeon et al. (2014)
Inflation	Growth of consumer price index (CPI), all items, percent change from previous year; 5-year averages for the periods preceding data collection in the ISSP	CPDS I, Armingeon et al. (2014)
EMU membership	0 no EMU member; 1 EMU member	
Education-specific unemployment rate	Unemployment rates of people according to their education levels: below upper secondary, upper secondary non-tertiary, or tertiary; 5-year averages for the periods preceding data collection in the ISSP	OECD (2019) Unemployment rates by education level
Disposable income inequality	Estimate of Gini index of inequality in equivalized (square root scale) household disposable (post-tax, post-transfer) income; 5-year averages for the periods preceding data collection in the ISSP	SWIID, Solt (2016)
Market income inequality	Estimate of Gini index of inequality in equivalized (square root scale) household market (pre-tax, pre-transfer) income; 5-year averages for the periods preceding data collection in the ISSP	SWIID, Solt (2016)
Offshorability index	Occupational offshorability indicating the potential of a job to be moved abroad with little or no decline in quality; ordinal measure ranging from 1: highly non-offshorable to 4: highly offshorable; transformed into a binary measure indicating 1 for a potentially offshorable job and 0 otherwise, following Walter (2017)	Blinder (2009); Walter (2017)

Table A.4   Multilevel logistic random intercept regressions: Determinants of wage dissatisfaction using Blinder's (2009) offshorability index; maximum likelihood estimates

	M1	M2
	Dependent variable: Wage dissatisfaction	
Offshorability	−0.199***	−0.207***
	(0.039)	(0.038)
Age	0.067***	0.067***
	(0.009)	(0.009)
Age squared	−0.001***	−0.001***
	(0.000)	(0.000)
Female	0.118**	0.139***
	(0.037)	(0.036)
Public sector	0.079*	
	(0.039)	
Union member	0.190***	0.205***
	(0.041)	(0.039)
Individual income	−0.249***	−0.246***
	(0.010)	(0.010)
Employed part-time	−0.620***	−0.603***
	(0.051)	(0.050)
Education: Upper secondary	−0.135**	−0.119*
(Reference group: Below upper sec.)	(0.050)	(0.049)
Above upper secondary	−0.035	−0.024
	(0.055)	(0.053)
Tertiary	−0.045	−0.030
	(0.051)	(0.050)
Year=2009	0.217	0.213
(Reference: 1999)	(0.133)	(0.129)
Random intercept variance (country)	0.072	0.077
	(0.058)	(0.058)
Random intercept variance (country-year)	0.111*	0.104*
	(0.049)	(0.046)
Constant	0.257	0.233
	(0.222)	(0.218)
N	16,526	17,031
N countries	19	19
N country-years	31	31

Standard errors in parentheses; *** $p<0.001$, ** $p<0.01$, * $p<0.05$.

Table A.5 Multilevel logistic random intercept regressions: Determinants of wage dissatisfaction; effects of macro-level covariates; maximum likelihood estimates

	M1	M2	M3	M4	M5	M6	M7	M8	M9
	Dependent variable: Wage dissatisfaction								
Age	0.063***	0.063***	0.064***	0.063***	0.064***	0.063***	0.065***	0.064***	0.064***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)
Age squared	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.103**	0.102**	0.102**	0.102**	0.101**	0.102**	0.093*	0.102**	0.101**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.042)	(0.039)	(0.039)
Occupational exposure: Public sheltered	0.291***	0.292***	0.292***	0.291***	0.291***	0.292***	0.277***	0.292***	0.292***
(Reference group: Exposed)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.051)	(0.047)	(0.047)
Private sheltered	0.104*	0.100*	0.100*	0.101*	0.100*	0.100*	0.075	0.099*	0.100*
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.048)	(0.045)	(0.045)
Union member	0.198***	0.197***	0.197***	0.196***	0.193***	0.199***	0.151**	0.196***	0.198***
	(0.042)	(0.043)	(0.043)	(0.042)	(0.043)	(0.042)	(0.046)	(0.043)	(0.042)
Individual income	−0.247***	−0.249***	−0.249***	−0.249***	−0.249***	−0.249***	−0.245***	−0.249***	−0.249***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)
Employed part-time	−0.614***	−0.617***	−0.618***	−0.617***	−0.618***	−0.616***	−0.582***	−0.618***	−0.618***
	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.057)	(0.053)	(0.053)
Education: Upper secondary	−0.192***	−0.191***	−0.190***	−0.189***	−0.188***	−0.189***	−0.079	−0.191***	−0.188***
(Reference group: Below upper sec.)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.081)	(0.053)	(0.053)
Above upper secondary	−0.069	−0.071	−0.067	−0.069	−0.068	−0.068	0.040	−0.070	−0.067
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.085)	(0.057)	(0.057)
Tertiary	−0.095	−0.093	−0.092	−0.091	−0.091	−0.090	0.066	−0.093	−0.089
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.103)	(0.054)	(0.054)
Year=2009	0.433	0.342*	0.493**	0.153	0.266*	0.306*	0.210	0.254	0.232
(Reference: 1999)	(0.224)	(0.135)	(0.162)	(0.158)	(0.126)	(0.130)	(0.160)	(0.148)	(0.165)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Export-led growth (mean)	−1.073***	−1.334***	−1.589***	−1.228***	−1.441***	−1.470***	−1.201**	−1.341***	−1.187***
	(0.309)	(0.362)	(0.384)	(0.337)	(0.370)	(0.359)	(0.400)	(0.407)	(0.353)
Export-led growth (delta)	0.123	−0.155	0.069	0.033	−0.488	−0.219	−0.034	−0.295	−0.426
	(0.685)	(0.628)	(0.588)	(0.617)	(0.649)	(0.640)	(0.694)	(0.673)	(0.675)
Real average wage levels (mean)	−0.000**								
	(0.000)								
Real average wage levels (delta)	−0.000								
	(0.000)								
Changes in real average wages (mean)		0.312							
		(1.960)							
Changes in real average wages (delta)		2.588							
		(2.592)							
GDP growth (mean)			−0.068						
			(0.074)						
GDP growth (delta)			0.243						
			(0.139)						
Unemployment rate (mean)				0.027					
				(0.022)					
Unemployment rate (delta)				−0.071					
				(0.045)					
Inflation (mean)					−0.041				
					(0.078)				
Inflation (delta)					0.158				
					(0.131)				
EMU membership						0.170			
						(0.132)			
Education-specific unemployment rate (mean)							0.026		
							(0.016)		
Education-specific unemployment rate (delta)							−0.032		
							(0.029)		

Disposable income inequality (mean)									0.058
									(0.094)
Disposable income inequality (delta)									0.003
									(0.018)
Market income inequality (mean)									0.077
									(0.079)
Market income inequality (delta)									0.025
									(0.016)
Constant	1.613***	0.736*	0.950**	0.613	0.917**	0.751**	0.454	0.702	−0.459
	(0.391)	(0.301)	(0.344)	(0.315)	(0.342)	(0.263)	(0.313)	(0.670)	(0.845)
Random intercept variance (country)	0.000	0.012	0.027	0.007	0.020	0.003	0.004	0.008	0.000
	(0.000)	(0.032)	(0.034)	(0.028)	(0.034)	(0.030)	(0.036)	(0.032)	(0.000)
Random intercept variance (country-year)	0.079***	0.097*	0.076*	0.089*	0.087*	0.104*	0.112*	0.103*	0.103***
	(0.023)	(0.040)	(0.034)	(0.037)	(0.038)	(0.041)	(0.049)	(0.042)	(0.029)
N	14,945	14,945	14,945	14,945	14,945	14,945	12,615	14,945	14,945
N countries	19	19	19	19	19	19	16	19	19
N country-years	31	31	31	31	31	31	26	31	31

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05.

Table A.6 Multilevel logistic random intercept regressions: Determinants of wage dissatisfaction; effects of wage bargaining centralization and union centralization; maximum likelihood estimates

	M1	M2	M3	M4	M5	M6	M7	M8
	Dependent variable: Wage dissatisfaction							
Occupational exposure: Public sheltered	0.292***	0.293***	0.211	0.291***	0.279***	0.282***	0.105	0.279***
(Reference group: Exposed)	(0.047)	(0.047)	(0.136)	(0.047)	(0.048)	(0.048)	(0.091)	(0.048)
Private sheltered	0.101*	0.100*	0.069	0.101*	0.093*	0.092*	0.095	0.095*
	(0.045)	(0.045)	(0.116)	(0.045)	(0.045)	(0.045)	(0.084)	(0.045)
Union member	0.198***	0.077	0.199***	0.197***	0.193***	0.065	0.196***	0.189***
	(0.043)	(0.118)	(0.043)	(0.043)	(0.043)	(0.081)	(0.043)	(0.043)
Age	0.064***	0.064***	0.064***	0.064***	0.057***	0.057***	0.058***	0.057***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Age squared	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.102**	0.101**	0.102**	0.102**	0.085*	0.085*	0.084*	0.086*
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Individual income	−0.250***	−0.249***	−0.249***	−0.249***	−0.249***	−0.248***	−0.248***	−0.248***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Employed part-time	−0.620***	−0.619***	−0.619***	−0.618***	−0.613***	−0.610***	−0.609***	−0.611***
	(0.053)	(0.053)	(0.053)	(0.053)	(0.054)	(0.054)	(0.054)	(0.054)
Education: Upper secondary	−0.183***	−0.183***	−0.184***	−0.184***	−0.186***	−0.184***	−0.188***	−0.187***
(Reference group: Below upper sec.)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Above upper secondary	−0.060	−0.059	−0.061	−0.060	−0.062	−0.061	−0.067	−0.063
	(0.057)	(0.057)	(0.057)	(0.057)	(0.058)	(0.058)	(0.058)	(0.058)
Tertiary	−0.083	−0.083	−0.084	−0.085	−0.086	−0.085	−0.087	−0.089
	(0.054)	(0.054)	(0.054)	(0.054)	(0.055)	(0.055)	(0.055)	(0.055)
Year=2009	0.234	0.232	0.235	0.329*	0.266	0.269	0.270	0.324*
(Reference: 1999)	(0.157)	(0.157)	(0.157)	(0.158)	(0.159)	(0.158)	(0.158)	(0.152)
Level of wage bargaining (mean)	−0.067	−0.083	−0.077	−0.329				
	(0.079)	(0.081)	(0.081)	(0.170)				
Level of wage bargaining (delta)	0.042	0.038	0.042	0.173				
	(0.391)	(0.390)	(0.390)	(0.367)				

Union member * Level of wage bargaining (mean)	0.045 (0.041)							
Public sheltered * Level of wage bargaining (mean)		0.030 (0.047)						
Private sheltered * Level of wage bargaining (mean)			0.012 (0.043)					
Changes in real average wages (mean)				−14.319 (9.824)				−16.122* (8.192)
Changes in real average wages (delta)				3.330 (2.954)				2.961 (3.553)
Level of wage bargaining (mean) * Changes in real average wages (mean)				5.097 (3.028)				
Union centralization (mean)					−0.405 (0.264)	−0.511 (0.268)	−0.488 (0.270)	−1.844** (0.645)
Union centralization (delta)					−2.839 (3.327)	−2.941 (3.307)	−2.906 (3.298)	−3.233 (2.985)
Union member * Union centralization (mean)						0.262 (0.141)		
Public sheltered * Union centralization (mean)							0.350* (0.156)	
Private sheltered * Union centralization (mean)							−0.017 (0.160)	
Union centralization (mean) * Changes in real average wages (mean)								27.129* (11.760)
Constant	0.378 (0.308)	0.413 (0.310)	0.402 (0.311)	1.065 (0.579)	0.536* (0.268)	0.575* (0.268)	0.565* (0.269)	1.310** (0.472)
Random intercept variance (country)	0.031 (0.057)	0.032 (0.057)	0.031 (0.057)	0.038 (0.045)	0.005 (0.059)	0.005 (0.059)	0.006 (0.059)	0.000 (0.000)
Random intercept variance (country-year)	0.136* (0.061)	0.135* (0.061)	0.135* (0.061)	0.107* (0.046)	0.152* (0.071)	0.151* (0.070)	0.149* (0.070)	0.124*** (0.035)
N	14,945	14,945	14,945	14,945	14,463	14,463	14,463	14,463
N countries	19	19	19	19	18	18	18	18
N country-years	31	31	31	31	30	30	30	30

Standard errors in parentheses; M5-M8 exclude Iceland due to missing data; *** $p<0.001$, ** $p<0.01$, * $p<0.05$.

Table A.7 Multilevel logistic random intercept regressions: Determinants of wage dissatisfaction; effects of wage bargaining structures and export-led growth; maximum likelihood estimates

	M1	M2	M3	M4
	Dependent variable: Wage dissatisfaction			
Occupational exposure: Public sheltered	0.292***	0.292***	0.279***	0.292***
(Reference group: Exposed)	(0.047)	(0.047)	(0.048)	(0.047)
Private sheltered	0.101*	0.101*	0.092*	0.102*
	(0.045)	(0.045)	(0.045)	(0.045)
Union member	0.190***	0.194***	0.190***	0.190***
	(0.043)	(0.043)	(0.043)	(0.043)
Age	0.064***	0.064***	0.057***	0.063***
	(0.010)	(0.010)	(0.010)	(0.010)
Age squared	−0.001***	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.101**	0.102**	0.085*	0.101**
	(0.039)	(0.039)	(0.039)	(0.039)
Individual income	−0.249***	−0.249***	−0.248***	−0.249***
	(0.010)	(0.010)	(0.010)	(0.010)
Employed part-time	−0.616***	−0.617***	−0.609***	−0.616***
	(0.053)	(0.053)	(0.054)	(0.053)
Education: Upper secondary	−0.192***	−0.191***	−0.193***	−0.191***
(Reference group: Below upper sec.)	(0.053)	(0.053)	(0.053)	(0.053)
Above upper secondary	−0.070	−0.070	−0.071	−0.068
	(0.057)	(0.057)	(0.058)	(0.057)
Tertiary	−0.093	−0.093	−0.095	−0.092
	(0.054)	(0.054)	(0.055)	(0.054)
Year=2009	0.235	0.310*	0.316*	0.226
(Reference: 1999)	(0.126)	(0.139)	(0.140)	(0.127)
Export-led growth (mean)	−1.673***	−1.478***	−1.288**	−0.969
	(0.431)	(0.393)	(0.409)	(1.148)
Export-led growth (delta)	−0.003	−0.178	−0.176	0.107
	(0.624)	(0.676)	(0.672)	(0.647)
Wage bargaining coordination (mean)	0.346			0.699
	(0.271)			(0.601)
Wage bargaining coordination (delta)	1.127			1.243
	(0.788)			(0.805)
Level of wage bargaining (mean)		0.054		
		(0.070)		
Level of wage bargaining (delta)		0.068		
		(0.362)		
Union centralization (mean)			−0.047	
			(0.256)	
Union centralization (delta)			−1.494	
			(2.854)	
Export-led growth (mean) * Wage bargaining coordination (mean)				−1.062
				(1.610)

Constant	0.798**	0.685*	0.898**	0.583
	(0.265)	(0.287)	(0.278)	(0.418)
Random intercept variance (country)	0.017	0.004	0.005	0.015
	(0.028)	(0.031)	(0.034)	(0.028)
Random intercept variance (country-year)	0.085*	0.106*	0.109*	0.085*
	(0.034)	(0.042)	(0.045)	(0.034)
N	14,945	14,945	14,463	14,945
N countries	19	19	18	19
N country-years	31	31	30	31

Standard errors in parentheses; M3 excludes Iceland due to missing data; *** p<0.001, ** p<0.01, * p<0.05.

Table A.8 Multilevel ordered logistic random intercept regressions: Determinants of wage dissatisfaction; maximum likelihood estimates

	M1	M2	M3
	Dependent variable: Wage dissatisfaction		
Age	0.067***	0.066***	0.066***
	(0.009)	(0.009)	(0.009)
Age squared	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)
Female	0.053	0.071*	0.071*
	(0.036)	(0.036)	(0.035)
Occupational trade exposure (log)	−0.036***		
	(0.006)		
Public sector	0.031		
	(0.039)		
Union member	0.165***	0.160***	0.159***
	(0.039)	(0.039)	(0.039)
Individual income	−0.264***	−0.263***	−0.262***
	(0.009)	(0.009)	(0.009)
Employed part-time	−0.593***	−0.589***	−0.587***
	(0.049)	(0.049)	(0.049)
Education: Upper secondary	−0.151**	−0.140**	−0.148**
(Reference group: Below upper sec.)	(0.048)	(0.048)	(0.048)
Above upper secondary	−0.055	−0.035	−0.046
	(0.052)	(0.052)	(0.052)
Tertiary	−0.062	−0.041	−0.051
	(0.050)	(0.049)	(0.049)
Year=2009	0.267	0.268	0.336*
(Reference: 1999)	(0.145)	(0.147)	(0.132)
Occupational exposure: Public sheltered		0.292***	0.292***
(Reference group: Exposed)		(0.042)	(0.042)
Private sheltered		0.115**	0.113**
		(0.041)	(0.041)
Export-led growth (mean)			−1.295***
			(0.355)
Export-led growth (delta)			−0.030
			(0.649)
cut1	-6.148***	-5.837***	-6.375***
	(0.265)	(0.263)	(0.293)
cut2	-4.057***	−3.746***	-4.284***
	(0.228)	(0.226)	(0.260)
cut3	−0.499*	−0.189	−0.726**
	(0.222)	(0.220)	(0.254)
cut4	2.075***	2.385***	1.848***
	(0.223)	(0.221)	(0.255)

Random intercept variance (country)	0.025	0.024	0.004
	(0.058)	(0.060)	(0.032)
Random intercept variance (country-year)	0.139*	0.142*	0.109*
	(0.064)	(0.065)	(0.043)
N	14,945	14,945	14,945
Number of groups	19	19	19

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05.

Table A.9   Multilevel logistic random intercept regressions: Determinants of wage dissatisfaction; alternative specifications of export-led growth; maximum likelihood estimates

	M1	M2	M3	M4	M5	M6	M7	M8
	Dependent variable: Wage dissatisfaction							
Occupational exposure: Public sheltered	0.292***	0.091	0.291***	0.300***	0.292***	0.314***	0.287***	0.345**
(Reference group: Exposed)	(0.047)	(0.115)	(0.047)	(0.080)	(0.047)	(0.084)	(0.047)	(0.117)
Private sheltered	0.100*	0.001	0.100*	0.025	0.099*	0.038	0.091*	−0.111
	(0.045)	(0.103)	(0.045)	(0.073)	(0.045)	(0.066)	(0.046)	(0.102)
Union member	0.202***	0.204***	0.200***	0.200***	0.198***	0.198***	0.198***	0.198***
	(0.043)	(0.043)	(0.042)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
Age	0.063***	0.063***	0.063***	0.063***	0.064***	0.064***	0.063***	0.063***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Age squared	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.102**	0.101**	0.101**	0.100**	0.102**	0.102**	0.111**	0.110**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Individual income	−0.249***	−0.249***	−0.249***	−0.249***	−0.249***	−0.249***	−0.252***	−0.251***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Employed part-time	−0.619***	−0.620***	−0.618***	−0.617***	−0.619***	−0.617***	−0.617***	−0.613***
	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.054)	(0.054)
Education: Upper secondary	−0.184***	−0.184***	−0.188***	−0.187***	−0.189***	−0.190***	−0.187***	−0.186***
(Reference group: Below upper sec.)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Above upper secondary	−0.061	−0.060	−0.066	−0.065	−0.067	−0.068	−0.060	−0.058
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.058)	(0.058)
Tertiary	−0.083	−0.083	−0.088	−0.087	−0.090	−0.090	−0.087	−0.086
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.055)
Year=2009	0.305*	0.305*	0.341*	0.338*	0.116	0.117	0.329*	0.324*
(Reference: 1999)	(0.154)	(0.153)	(0.140)	(0.140)	(0.144)	(0.144)	(0.159)	(0.159)
Export-led growth (mean)	−0.241**	−0.279**	−0.372***	−0.392***	−1.039**	−1.073**	−1.379***	−1.502***
	(0.089)	(0.091)	(0.093)	(0.096)	(0.377)	(0.380)	(0.388)	(0.400)

Export-led growth (delta)	−0.060	−0.061	−0.092	−0.089	1.381**	1.350**	−0.937	−0.945
	(0.125)	(0.125)	(0.160)	(0.160)	(0.445)	(0.445)	(1.039)	(1.041)
Public sheltered * Export-led growth		0.107		−0.009		−0.061		−0.160
(mean)		(0.056)		(0.068)		(0.180)		(0.291)
Private sheltered * Export-led growth		0.055		0.082		0.147		0.576*
(mean)		(0.052)		(0.062)		(0.116)		(0.260)
Constant	0.614*	0.681*	0.505*	0.525*	0.629*	0.646*	0.656*	0.708**
	(0.277)	(0.279)	(0.236)	(0.237)	(0.266)	(0.267)	(0.262)	(0.265)
Random intercept variance (country)	0.016	0.016	0.002	0.002	0.000	0.000	0.006	0.005
	(0.040)	(0.039)	(0.029)	(0.030)	(0.000)	(0.000)	(0.032)	(0.032)
Random intercept variance	0.118*	0.117*	0.105*	0.106*	0.128***	0.127***	0.104*	0.105*
(country-year)	(0.049)	(0.048)	(0.041)	(0.041)	(0.035)	(0.035)	(0.043)	(0.043)
N	14,945	14,945	14,945	14,945	14,945	14,945	14,521	14,521
N countries	19	19	19	19	19	19	18	18
N country-years	31	31	31	31	31	31	30	30

Standard errors in parentheses; replication of Table 1, Models 3 and 4; as measures of export-led growth, Models 1 and 2 use the absolute growth contribution of exports and Models 3 and 4 use the absolute growth contribution of exports * the share of export growth contribution in total growth; Models 5 to 8 use GDP growth in national currency instead of PPP; Models 7 and 8 exclude Japan.
*** p<0.001, ** p<0.01, * p<0.05