

Trade Liberalization and Labor Market Institutions

Leonardo Baccini (McGill)

Mattia Guidi (SNS, Pisa)

Arlo Poletti (Trento)

Aydin Yildirim (EUI)

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Motivation

Backlash against globalization:

- ▶ Trade liberalization is under siege
 - ▶ NAFTA, TPP, CETA, TTIP, Brexit
 - ▶ support for protectionist parties rising in Western democracies
- ▶ Uneven gains from trade
 - ▶ few large corporations reaping the lion's share of the benefits
 - ▶ superstar firms acquiring massive market power
- ▶ Evidence of effect heterogeneity across countries, e.g. China shock affected the US economy differently from the German economy.

This Paper

Research question:

How do domestic institutions impact the distributional effects of trade liberalization?

- ▶ NNTT & VoC
- ▶ focus on labor market institutions (CMEs vs LMEs)
- ▶ analysis at the firm level and at the individual level
- ▶ combining micro- and macro-evidence.

Preview of the Findings

Firm-level analysis:

- ▶ More than 800,000 firms in EU countries (Amadeus)
- ▶ Novel measure of preferential tariff cuts (Baccini et al 2018)
- ▶ For productive firms, gains from trade are twice as large in LMEs as they are in CMEs.

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Individual-level analysis:

- ▶ Geo-locating firms at the level of NUTS-2 regions
- ▶ Novel geographical measure of trade liberalization weighted on share of workers employed in very productive firms
- ▶ Stronger demand for redistribution in LMEs compared to CMEs in case of preferential liberalization.

State of the Art

Firm-level effect of trade liberalization:

Pavcnik 2002; Trefler 2004; Bernard et al 2006; Amiti and Konings 2007; Topalova and Khandelwal 2011; Osgood et al 2016; Baccini et al 2017; Kim and Osgood 2019.

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Trade liberalization and individuals' preferences:

Margalit 2011, 2012; Autor et al. 2016; Ballard-Rosa et al. 2017, 2018; Jensen et al. 2017; Colantone and Stanig 2018a, 2018b; Walter 2010, 2017.

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The effect of globalization on inequality:

Ruggie 1982; Katzenstein 1985; Rodrik 1998; Hanson and Harrison 1999; Rudra 2002; Goldberg and Pavcnik 2004; Jensen and Rosas 2007; Topalova and Khandelwal 2011; Dix-Carneiro 2014.

Road Map

Introduction

Argument

Data

Firm-level Analysis

Individual-level Analysis

Conclusion

Three Building Blocks

1. New New Trade Theory
2. Varieties of Capitalism
3. Gains from trade and the labor market.

Melitz's Model (2003)

- ▶ Exporters and MNCs face larger fixed and variable costs compared to firms serving only the domestic market
- ▶ Only the most productive firms compete on both domestic and foreign markets
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 - ▶ As larger and more productive firms expand their sales, the demand for labor increases in the countries in which they operate; in turn, **real wages rise**
 - ▶ **The combination of decreasing profits and rising costs forces smaller and less productive firms to either contract or exit the market.**

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- ▶ The VoC literature focuses on systematic differences between advanced economies in the spheres of labor market. Two ideal-types ('varieties') are identified
 - ▶ liberal market economies (LMEs), in which firms coordinate their activities primarily via competitive market arrangements; wage bargaining takes place mostly at firm level, and workers' mobility is high
 - ▶ coordinated market economies (CMEs), in which firms depend more heavily on non-market relationships to coordinate with other actors (trade unions and other firms); wage bargaining is coordinated at industry level, through negotiations between employers' associations and trade unions.

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- ▶ Labour market frictions → wage cap → weaker reallocation effect from the least to the most productive firms.

Empirical Implications

Main hypothesis:

In case of trade liberalization, reallocation of revenues from the least to the most productive firms is higher in liberal market economies than in coordinated market economies.

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Corollary:

In case of trade liberalization, demand for redistribution is higher in liberal market economies than in coordinated market economies.

Data

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European Social Survey:

- ▶ Every other year, 2004-2016
- ▶ 25,000 respondents per wave.

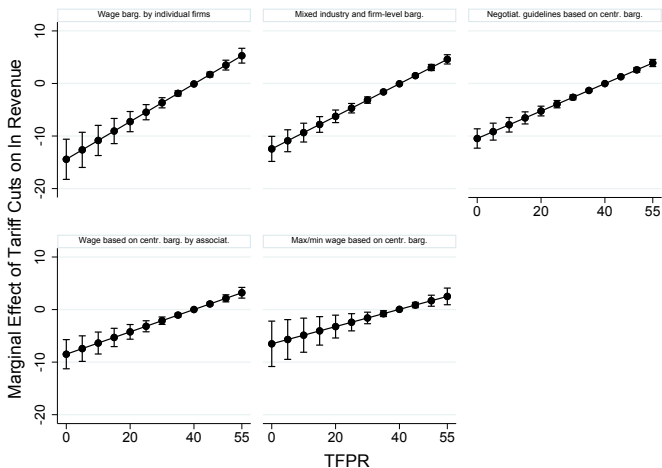
Empirical Strategy

- ▶ Triple difference-in-difference specification:

$$\begin{aligned} \text{Revenue}_{fict} = & \beta_0 + \beta_1 \text{TFPR}_{fic} + \beta_2 \Delta\tau_{it} + \beta_3 \text{CME}_{ct} + \\ & \beta_4 \text{TFPR}_{fic} \times \Delta\tau_{it} + \beta_5 \text{TFPR}_{fic} \times \text{CME}_{ct} + \beta_6 \Delta\tau_{it} \times \text{CME}_{ct} + \\ & \beta_7 \text{TFPR}_{fic} \times \Delta\tau_{it} \times \text{CME}_{ct} + \beta_8 X_{fict} + \beta_9 W_{ict} + \delta_t + \delta_i + \delta_c + \epsilon_{fict} \end{aligned}$$

- ▶ *TFPR*: Solow's residuals (robust to other measures) ▶ Distribution
- ▶ $\Delta\tau$: *de jure* preferential tariff cuts ▶ Descriptive
- ▶ *CME*: ordinal measure of wage setting coordination ▶ Sample
- ▶ OLS regression with country, industry, and year fixed effects
- ▶ Controls at the firm (size, age, age²) and industry level (MFN, $\frac{K}{L}$, HHI)
- ▶ Country-year FE, industry-year FE, country-industry specific trends.

Main Results



▶ Table



Identification Strategy

- ▶ Quality of institutions and electoral system
- ▶ Unemployment and inflation
- ▶ Market structure: GDPpc, government expenditure, social welfare expenditure, size of the service sector, fiscal capacity, FDI outflows (and inflows), and the presence of the Euro
- ▶ Access to credit: domestic credit to private sector by banks (% of GDP), domestic credit provided by financial sector (% of GDP), domestic credit to private sector (% of GDP)
- ▶ Others: presence of state-owned companies in an economy, other-than-tariff barriers to trade and investment, targeted funds to firms.
- ▶ **Interacting these variables with TFPR and $\Delta\tau$ and include them together with our main triple interaction term.**

Identification Test

	OLS					
	ln Revenue					
	(1)	(2)	(3)	(4)	(5)	(6)
TFPR	0.30** (0.006)	0.41*** (0.007)	0.13** (0.007)	-0.69** (0.078)	0.26** (0.006)	-1.19** (0.079)
$\Delta\tau$	-18.92** (2.143)	-11.17*** (2.620)	-24.75** (1.966)	-64.27** (18.672)	-25.76** (2.539)	-121.26** (0.241)
CME	-0.75** (0.084)	-1.68*** (0.101)	-1.05** (0.087)	4.99** (0.174)	-0.82** (0.080)	4.00** (0.171)
TFPR* $\Delta\tau$	0.50** (0.057)	0.30*** (0.070)	0.66** (0.053)	1.69** (0.499)	0.69** (0.069)	3.24** (0.625)
TFPR*CME	0.02** (0.002)	0.05*** (0.003)	0.03** (0.002)	0.13** (0.005)	0.03** (0.002)	0.11** (0.005)
$\Delta\tau$ *CME	1.68** (0.647)	3.02*** (0.815)	2.72** (0.675)	4.20** (0.823)	-2.25** (0.638)	5.41** (1.093)
TFPR*$\Delta\tau$*CME	-0.04** (0.017)	-0.08*** (0.022)	-0.07*** (0.018)	-0.11** (0.022)	-0.06** (0.018)	-0.14** (0.030)
Constant	3.24** (0.099)	-11.95*** (0.276)	4.80** (0.032)	-4.75** (0.135)	4.11** (0.028)	14.74** (0.190)
Observations	4,053,929	2,420,535	4,053,929	3,217,585	4,044,630	3,212,608
R-squared	0.767	0.767	0.767	0.803	0.766	0.804
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Corruption	Yes	No	No	No	No	No
Electoral system	No	Yes	No	No	No	No
Unemployment	No	No	Yes	No	No	No
Market structure	No	No	No	Yes	No	No
Access to credit	No	No	No	No	Yes	No
All	No	No	No	No	No	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

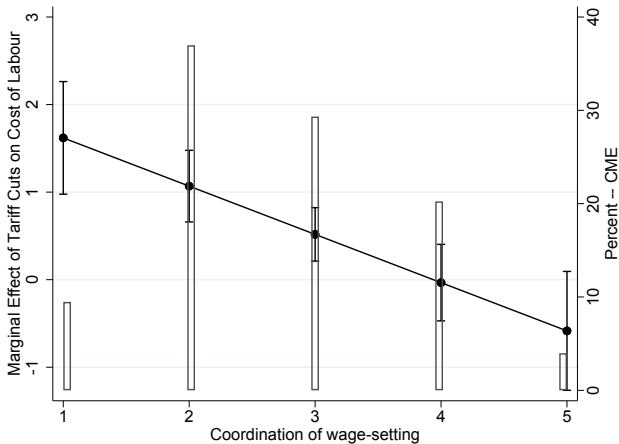


Mechanisms

	(1)	(2)	(3)	(4)	(5)
	OLS				
	ln Revenue				
TFPR* $\Delta\tau$ *CME	-0.00 (0.017)	0.00 (0.020)	0.03 (0.024)	0.04* (0.024)	0.04* (0.027)
TFPR* Δ Trade*CME	-0.004*** (0.000)				
TFPR* $\Delta\tau$ *Wage		-0.34*** (0.045)		0.02 (0.039)	0.04 (0.039)
TFPR* $\Delta\tau$ *Wage Ceiling			-0.47*** (0.050)	-0.50*** (0.050)	-0.49*** (0.058)
TFPR* $\Delta\tau$ *Minimum Wage					0.00 (0.030)
Constant	4.29*** (0.099)	-8.43*** (0.225)	-9.04*** (0.233)	-9.19*** (0.234)	-10.48*** (0.376)
Observations	4,069,519	3,918,518	3,918,518	3,918,518	3,918,518
R-squared	0.767	0.774	0.775	0.775	0.775
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Cost of Labor



▸ Wages

From Firms to Individuals

Recap:

- ▶ Key finding: Gains from trade are more uniform in CMEs than in LMEs
- ▶ Assumption: Workers share the same destiny as their firms, i.e. when firms gain, so do workers
- ▶ Test: Differential effect of trade liberalization on the demand for redistribution depending on the labor market.

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Logic:

1. Very productive firms gain disproportionately more than less productive firms and so do workers
2. Uneven gains from trade trigger demand for redistribution
3. This demand is weaker in CMEs compared to LMEs because gains from trade are more uniform in CMEs.

Instrument for Trade Liberalization

- ▶ Main independent variable:

$$\text{Instrument for PRF Liberalization}_{crt} = \sum_j \frac{L_{rjf}}{L_r} \times \frac{\Delta\tau_{jt}}{\text{Import}_{cj}}$$

- ▶ $\frac{\Delta\tau_{jt}}{\text{Import}_{cj}}$ is the yearly change in preferential tariff cuts in country c and industry j
- ▶ $\frac{L_{rjf}}{L_r}$ measures the share of workers employed in firms belonging to the upper quartile of the productivity distribution in industry j in region r

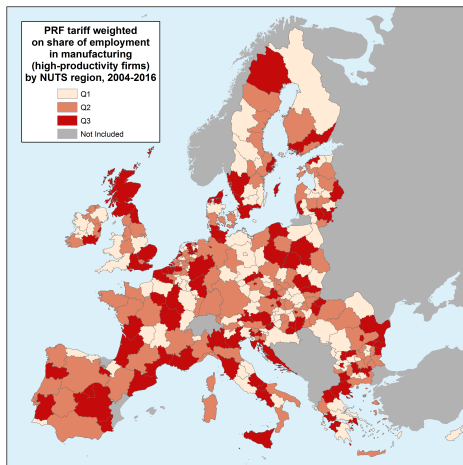
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- ▶ $\frac{L_{rjf}}{L_r}$ measures the share of workers employed in firms belonging to the upper quartile of the productivity distribution in industry j in region r
- ▶ Logic: larger preferential liberalization shocks are attributed to regions characterized by larger shares of workers employed in very productive firms, who should gain disproportionately more from tariff cuts than workers employed in any other firms.

Geographical Distribution of the Instrument



► Distribution outcome



Empirical Strategy

- ▶ Triple difference-in-difference specification:

$$\begin{aligned} \text{Redistribution}_{prcw} = & \gamma_0 + \gamma_1 \text{PRF Liberalization}_{rcw} + \gamma_2 \text{CME}_{cw} + \\ & \gamma_3 \text{PRF Liberalization}_{rcw} \times \text{CME}_{cw} + \gamma_4 X_{prcw} + \gamma_5 X_{prcw} \times \text{CME}_{cw} \\ & + \delta_w + \delta_r + \epsilon_{prcw} \end{aligned}$$

- ▶ *Redistribution*: scoring 1 if respondents answer 'strongly agree' or 'agree' to the following sentence: *The government should take measures to reduce differences in income levels*
- ▶ OLS regression with region and year fixed effects
- ▶ Controls: industry in which respondents are employed (NACE 2-digit), level of income, level of education, gender, whether respondents are unemployed, whether respondents are members of a trade union, and ideology.

Demand for Redistribution

	OLS			
	Support for Redistribution			
	(1)	(2)	(3)	(4)
Instrument for PRF Liberalization	0.05*	0.04*	0.08**	0.12**
	(0.020)	(0.021)	(0.022)	(0.038)
CME	-0.00	-0.00		0.01
	(0.010)	(0.010)		(0.018)
Instrument for PRF Liberalization*CME	-0.02**	-0.02*	-0.04**	-0.06**
	(0.010)	(0.010)	(0.011)	(0.019)
Constant	0.74**	0.74**	0.76**	0.49**
	(0.045)	(0.044)	(0.052)	(0.078)
Observations	176,209	176,209	183,800	157,028
R-squared	0.075	0.075	0.072	0.089
Controls*CME	Yes	Yes	Yes	Yes
Wave FE	No	Yes	No	Yes
Region FE	Yes	Yes	No	Yes
Country-Wave FE	No	No	Yes	No
Trends	No	No	No	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Conclusion

Key findings:

- ▶ Reallocation effect is stronger in LMEs than in CMEs
- ▶ As a result of trade liberalization, the demand for redistribution is stronger in LMEs compared to CMEs
- ▶ Effects are twice as high in the UK as they are in Germany.

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- ▶ Effects are twice as high in the UK as they are in Germany.

Policy implications:

- ▶ Micro-level analysis of the effect of trade liberalization on a large number of firms across several countries
- ▶ Labor market frictions mitigate the winner-take-all effect produced by trade liberalization
- ▶ Variation in labor institutions leads to variation in levels of inequality once trade liberalization kicks in.



Many thanks!

Main Results (firm-level)

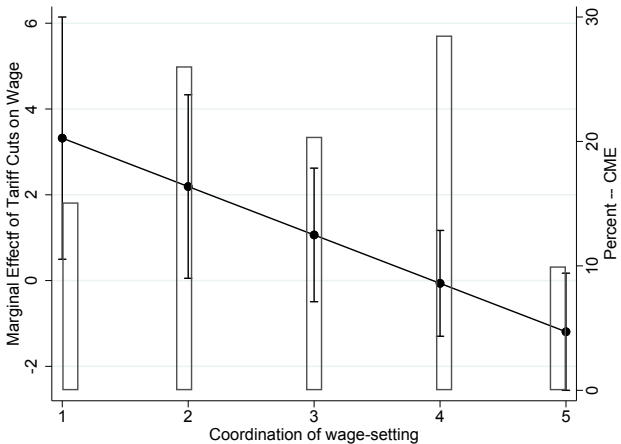
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS					
	ln Revenue					
TFPR	0.33** (0.002)	0.30** (0.006)	0.30** (0.006)	0.30** (0.006)	0.31** (0.007)	0.30** (0.006)
$\Delta\tau$	-15.13** (0.683)	-16.94** (1.961)	-17.01** (1.969)	-17.53** (1.983)	-16.45** (1.960)	-16.95** (1.961)
CME		-0.83** (0.087)			-0.85** (0.086)	-0.84** (0.087)
TFPR* $\Delta\tau$	0.40** (0.018)	0.45** (0.052)	0.45** (0.053)	0.46** (0.053)	0.44** (0.052)	0.45** (0.052)
TFPR*CME		0.02*** (0.002)	0.02*** (0.002)	0.03** (0.003)	0.02** (0.002)	0.02*** (0.002)
$\Delta\tau$ *CME		1.85** (0.648)	1.83** (0.650)	1.84** (0.653)	1.67** (0.648)	1.85** (0.648)
TFPR*$\Delta\tau$*CME		-0.05** (0.017)	-0.05** (0.017)	-0.05** (0.017)	-0.05** (0.017)	-0.05** (0.017)
Constant	-8.31** (0.069)	4.73** (0.032)	5.33** (0.201)	10.96** (1.139)	6.47** (0.239)	-80.05 (154.60)
Observations	5,135,314	4,053,929	4,053,929	4,053,929	4,053,929	4,053,929
R-squared	0.754	0.765	0.766	0.763	0.768	0.792
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	Yes	Yes
Country FE	Yes	Yes	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	No	Yes	Yes
Country Year FE	No	No	Yes	Yes	No	No
Industry Year FE	No	No	No	Yes	No	No
Country Industry FE	No	No	No	No	Yes	No
Trends	No	No	No	No	No	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

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Wages

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Wages

VARIABLES	OLS							
	Wage (f.d.)			Cost of employees/revenue				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta\tau$	4.45*	4.39**	2.17**	8.67**	6.89**	-1.84	8.44**	17.34**
	(1.875)	(0.369)	(0.360)	(0.402)	(0.390)	(4.249)	(0.447)	(5.978)
CME	-0.05**	-0.76**	5.23**	-0.78**	-0.74**	-0.87**	-0.83**	0.33**
	(0.009)	(0.020)	(0.191)	(0.020)	(0.020)	(0.027)	(0.020)	(0.030)
$\Delta\tau$ *CME	-1.13*	-1.41**	-0.60**	-1.41**	-0.28*	-2.96**	-0.61**	1.94**
	(0.417)	(0.118)	(0.116)	(0.117)	(0.136)	(0.206)	(0.129)	(0.313)
Constant	0.19**	110.71**	95.30**	86.19**	121.19**	-47.21**	108.41**	55.65**
	(0.045)	(0.534)	(0.751)	(0.336)	(0.724)	(4.314)	(0.574)	(0.761)
Observations	1,202	3,629,212	3,629,212	3,629,212	3,629,212	2,903,748	3,628,568	2,903,105
R-squared	0.220	0.318	0.320	0.319	0.319	0.320	0.321	0.251
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

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Additional Evidence (firm-level)

- ▶ Driven by differentiated industries
- ▶ Productivity: increases more in LMEs than in CMEs in the short term, whereas it grows more in CMEs than in LMEs in the long term
- ▶ Results are robust to the use of alternative measures of the labor market frictions
- ▶ Labor flexibility matters too

Product Differentiation

VARIABLES	OLS		
	ln Revenue		
	Differentiated	Referenced	Homogeneous
	(1)	(2)	(3)
TFPR	0.29** (0.008)	0.36** (0.014)	0.44** (0.031)
$\Delta\tau$	-15.78** (2.495)	-9.37* (3.961)	-30.07* (12.794)
CME	-0.03** (0.002)	-0.20 (0.211)	-0.02 (0.476)
TFPR* $\Delta\tau$	0.42** (0.067)	0.25* (0.106)	0.80* (0.341)
TFPR*CME	2.09** (0.830)	0.01 (0.006)	-0.00 (0.013)
$\Delta\tau$ *CME	0.04** (0.008)	-0.00 (0.017)	1.22 (4.091)
TFPR*$\Delta\tau$*CME	-0.05** (0.022)	-0.01 (0.035)	-0.03 (0.109)
Constant	4.67** (0.180)	5.01** (0.098)	4.21* (1.828)
Observations	2,532,064	790,678	115,223
R-squared	0.783	0.795	0.757
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Firm Productivity

VARIABLES	ECM	
	TFPR (f.d.)	
	(1)	(2)
$\Delta\tau$	-0.00 (0.012)	0.01 (0.009)
ΔCME	-0.09** (0.003)	-0.17** (0.002)
$\Delta\tau*\Delta\text{CME}$	-0.13** (0.012)	-0.15** (0.010)
τ	-0.23** (0.029)	-0.18** (0.025)
CME	-0.12** (0.003)	-0.27** (0.002)
$\tau * \text{CME}$	0.08** (0.009)	0.08** (0.008)
TFPR (lagged)	-0.32** (0.001)	-0.37** (0.003)
Long-term multiplier	0.25** (0.01)	0.22** (0.01)
Constant	0.43** (0.014)	0.90** (0.018)
Observations	3,326,937	3,012,646
R-squared	0.162	0.208
Controls	No	Yes
Year FE	Yes	Yes
Country FE	Yes	Yes
Industry FE	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Alternative Measures of Labor Frictions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS						
	In Revenue						
TFPR*Ar*Union Density	0.00 (0.001)						
TFPR*Ar*Centralization		-0.08 (0.232)					
TFPR*Ar*Govt. Intervention			-0.07** (0.017)				
TFPR*Ar*Sectoral Organiz.				-0.02 (0.024)			
TFPR*Ar*Authority of Union over Local Branches					-0.05 (0.158)		
TFPR*Ar*Authority of Confederation over its Affiliates						-0.48** (0.138)	
TFPR*Ar*Mandatory Extension of Collective Agreements to Non-organised Employers							-0.15** (0.014)
Constant	5.06** (0.033)	4.98** (0.083)	4.07** (0.026)	1.69** (0.039)	3.87** (0.054)	4.32** (0.046)	4.27** (0.027)
Observations	2,897,046	2,470,583	4,032,150	3,956,669	3,934,890	3,934,890	4,043,566
R-squared	0.782	0.780	0.766	0.768	0.769	0.769	0.767
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Labor Flexibility

	(1)	(2)	(3)
	OLS		
	ln Revenue		
TFPR* $\Delta\tau$ *CME	-0.07*** (0.018)		0.02 (0.024)
TFPR* $\Delta\tau$ *Wage Ceiling		-0.50*** (0.034)	-0.52*** (0.050)
TFPR* $\Delta\tau$ *Labor Flexibility	-0.09*** (0.012)	-0.08*** (0.012)	-0.08*** (0.012)
Constant	4.15*** (0.097)	4.32*** (0.097)	4.31*** (0.097)
Observations	4,069,519	3,942,465	3,934,108
R-squared	0.766	0.775	0.775
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Robustness Checks (firm-level)

- ▶ Results hold if we use different measures of productivity
- ▶ Results are unchanged if we double-cluster the standard errors by firms and industries
- ▶ Results are robust to the inclusion of firm fixed effects
- ▶ Results hold if we include a lagged dependent variable on the right-hand side
- ▶ Results hold if we use (the log of) profit instead of (the log of) revenue
- ▶ Placebo with post-2016 tariffs
- ▶ Results are similar with export tariffs.

Alternative Measures of Productivity

	(1)	(2)	(3)	(4)	(5)
	OLS				
	ln Revenue				
Labour Product*$\Delta\tau$*CME	-0.002**				
	(0.001)				
TFP*$\Delta\tau$*CME		-0.01**			
		(0.003)			
TFPR*$\Delta\tau$*CME (Olley and Pakes)			-0.001*		
			(0.0003)		
TFPR*$\Delta\tau$*CME (Levinsohn and Petrin)				-0.001*	
				(0.0003)	
TFPR*$\Delta\tau$*CME (Wooldridge)					-0.001*
					(0.0003)
Constant	6.18**	4.89**	4.06***	3.70**	3.69**
	(0.006)	(0.037)	(0.042)	(0.043)	(0.046)
Observations	4,008,342	2,321,574	1,806,661	1,806,661	1,806,661
R-squared	0.993	0.818	0.876	0.838	0.877
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Alternative Model Specifications

	(1)	(2)	(3)	(4)
	OLS			
	ln Revenue			lnProfit
TFPR*$\Delta\tau$*CME	-0.05**	-0.09**	-0.05*	-0.02**
	(0.016)	(0.020)	(0.022)	(0.001)
ln Revenue (lagged)			0.47**	
			(0.004)	
Constant			2.52**	6.32**
			(0.299)	(0.510)
Observations	4,053,929	3,941,169	1,900,636	2,275,573
R-squared	0.765	0.882	0.820	0.306
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Double clustering (firms and industry)	Yes	No	No	No
Firm FE	Yes	Yes	No	No

Robust standard errors in parentheses ** p<0.01, * p<0.05

Alternative Measures of Tariff Cuts

	(1)	(2)	(3)	(4)
	OLS			
	ln Revenue			
TFPR*$\Delta\tau$*CME (cumulative & weighted)	-0.004*			
	(0.002)			
TFPR*$\Delta\tau$*CME (cumulative & non-weighted)		-0.003**		
		(0.002)		
TFPR*$\Delta\tau$*CME (placebo)			2.33e+09	
			(3.499e+09)	
TFPR*$\Delta\tau$*CME (export)				-0.002**
				(0.000)
Constant	-6.56**	-5.76**	-7.37**	-6.45**
	(0.339)	(0.354)	(0.215)	(0.248)
Observations	4,053,929	4,053,929	3,966,589	4,053,929
R-squared	0.765	0.765	0.764	0.765
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05,

Analysis by Country

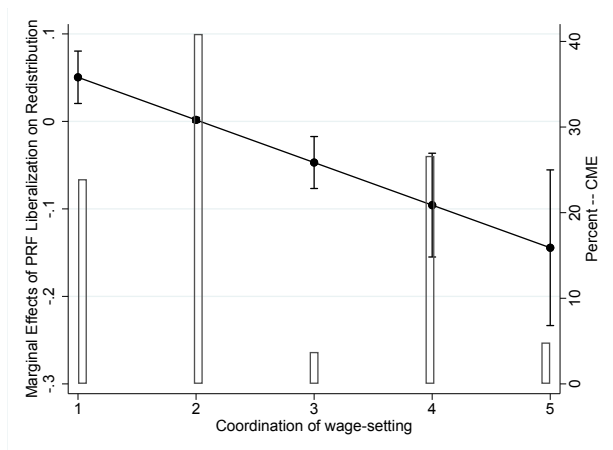
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OLS														
In Revenue														
	Austria CME=4	Belgium CME=5	Bulgaria CME=2	Cyprus CME=2	Czech Rep. CME=2	Germany CME=4	Denmark CME=4	Estonia CME=1	Spain CME=3	Finland CME=4	France CME=2	UK CME=1	Greece CME=3	Croatia CME=2
TFPR*Δr	1.76* (0.71)	0.38** (0.16)	1.03** (0.10)	1.91* (0.92)	0.59** (0.10)	0.12 (0.08)	0.45 (0.24)	0.12 (0.08)	0.19** (0.02)	0.31* (0.13)	0.23** (0.09)	0.25** (0.07)	0.44* (0.22)	0.53 (0.46)
Observations	24,332	146,189	232,351	810	165,732	182,317	4,158	73,765	848,850	74,545	344,662	143,098	36,857	44,747
R-squared	0.92	0.51	0.69	0.62	0.51	0.93	0.81	0.78	0.86	0.8	0.92	0.82	0.75	0.64
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
OLS														
In Revenue														
	Hungary CME=1	Ireland CME=2	Italy CME=3	Lithuania CME=1	Luxembourg CME=3	Latvia CME=1	Malta CME=2	Netherlands CME=4	Poland CME=1	Portugal CME=2	Romania CME=3	Sweden CME=4	Slovenia CME=3	Slovakia CME=2
TFPR*Δr	0.21 (0.16)	0.11 (0.13)	0.32** (0.06)	0.29** (0.10)	-0.03 (0.68)	1.09** (0.16)	1.79* (0.75)	0.06 (0.15)	-0.01 (0.04)	0.27** (0.06)	0.54** (0.04)	0.71** (0.13)	0.35** (0.06)	0.60** (0.13)
Observations	236,654	5,822	889,828	17,096	978	86,397	1,380	9,745	65,285	394,769	647,420	303,197	56,332	97,998
R-squared	0.77	0.91	0.7	0.84	0.69	0.65	0.77	0.82	0.86	0.6	0.53	0.73	0.9	0.62
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

Additional Evidence (individual-level)

- ▶ Results are robust if we interact possible confounders at the country level with our instrument for PRF liberalization and include these interactions on the right-hand side of our main model
- ▶ Results are driven by low-income respondents, who are less likely to be employed in very productive firms and more likely to lose out from trade liberalization
- ▶ Results remain unchanged if we include other instruments for PRF liberalization with the lower quartile of firm productivity.

PRF Liberalization and Individual Attitude toward Redistribution



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Identification (individual-level)

	OLS				
	Support for Redistribution				
	(1)	(2)	(3)	(4)	(5)
Instrument for PRF Liberalization	0.05** (0.017)	0.06** (0.017)	0.07** (0.017)	0.06** (0.018)	0.06** (0.018)
CME	-0.01 (0.014)	-0.06* (0.026)	-0.36 (0.234)	-0.01 (0.016)	-1.03 (0.630)
Instrument for PRF Liberalization*CME	-0.03** (0.008)	-0.03** (0.008)	-0.03** (0.008)	-0.03** (0.009)	-0.03** (0.009)
Constant	0.06 (0.062)	1.53** (0.094)	0.75** (0.186)	0.57** (0.106)	-0.42 (0.485)
Observations	189,847	189,847	141,833	184,877	137,883
R-squared	0.076	0.076	0.079	0.077	0.081
Controls*CME	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes
Corruption	Yes	No	No	No	No
Unemployment	No	Yes	No	No	No
Market structure	No	No	Yes	No	No
Access to credit	No	No	No	Yes	No
All	No	No	No	No	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

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Mechanism (individual-level)

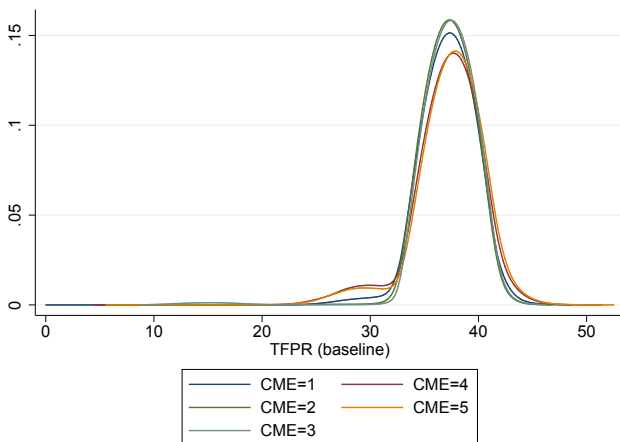
VARIABLES	OLS		
	Support for Redistribution		
	Low Income	High Income	Whole Sample
	(1)	(2)	(6)
Instrument for PRF Liberalization	0.06*	0.00	0.03
	(0.024)	(0.026)	(0.023)
CME	0.02*	-0.02	-0.00
	(0.011)	(0.020)	(0.010)
Instrument for PRF Liberalization*CME	-0.03*	-0.00	-0.03*
	(0.012)	(0.013)	(0.011)
Constant	0.67**	0.82**	0.73**
	(0.046)	(0.080)	(0.044)
Observations	77,462	61,264	189,847
R-squared	0.057	0.080	0.076
Controls*CME	Yes	Yes	Yes
Including other instr. of PRF liberal.	No	No	Yes
Region FE	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes

Robust standard errors in parentheses ** p<0.01, * p<0.05

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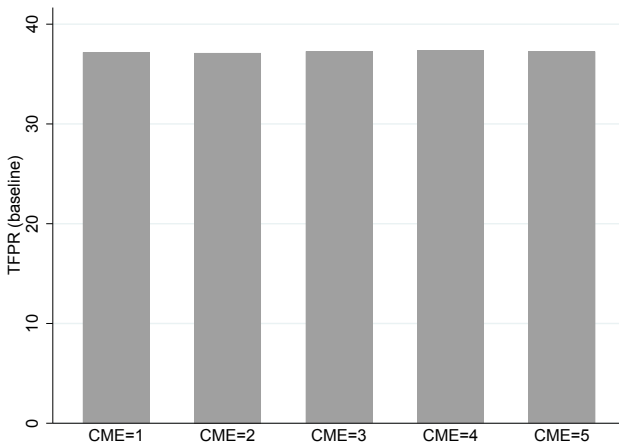


TFPR by Labor Institutions (kdensity)



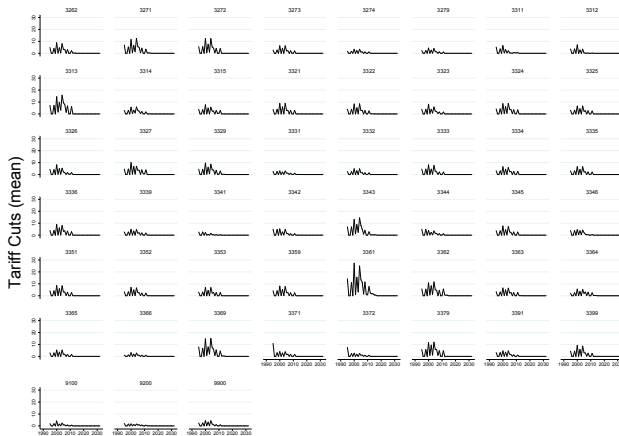
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TFPR by Labor Institutions (histogram)

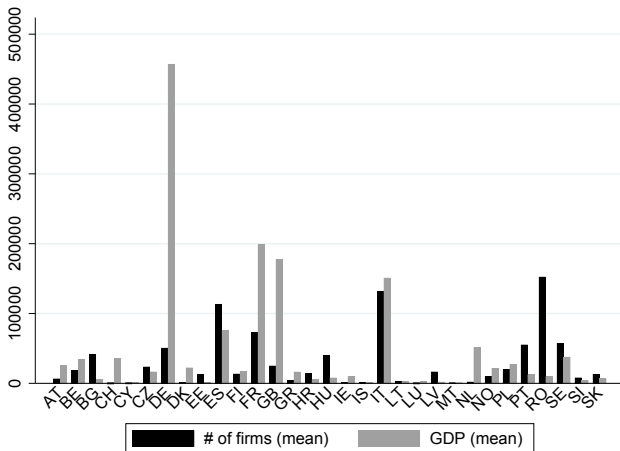


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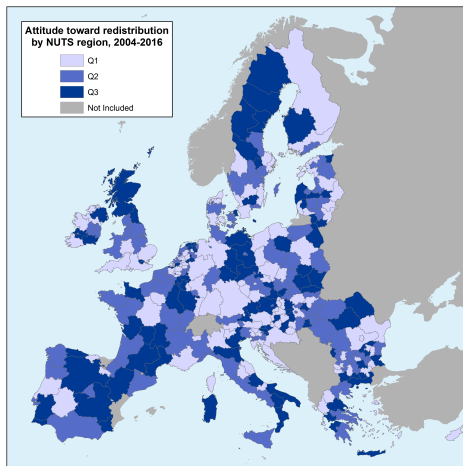
Descriptive (tariffs)

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Descriptive (sample)

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Geographical Distribution of the Outcome



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