

Globalization and Populism: The Last Sixty Years

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Introduction

Populism has been on the rise in recent decades (Guriev and Papaioannou, 2021; Guiso et al., 2017; Rodrik, 2021; Funke et al., 2020)

Among the several **determinants**, the literature in Economics highlights the role of **globalization** in its two dimensions:

- Imports – Becker et al. (2017); Colantone and Stanig (2018); Autor et al. (2020); Colantone et al. (2021); Aksoy et al. (2022); etc.
- Immigration – Barone et al. (2016); Guiso et al. (2017); Halla et al. (2017); Mayda et al. (2022); Moriconi et al. (2022); etc.

Introduction

Existing studies: How is populism usually defined?

- Narrow ideology splitting society between pure people and corrupted elite (Mudde, 2004) + Commitment to protect (Guiso et al., 2017; Rodrik, 2018; Morelli et al., 2021) + Other dimensions
- Measured with volume of populism = vote share of populist parties (dichotomous classifications based on expert views)

Existing studies: How is globalization analyzed?

- Imports and immigration usually studied *separately*: many studies!
- With some exceptions (Autor et al. (2020); Aksoy et al. (2022) for imports, Edo et al. (2019); Moriconi et al. (2019, 2022) for immig), lack of *skill-specific* dimension
- More generally, lack of *cultural* (or diversity) dimension

Contributions

RQ: what are the long-term trends in populism? How populism is linked to skill-specific dimension of globalization?

Two main objectives:

- 1 Describe long-term evolution of populism
 - Large sample: 55 countries, 628 elections, 1206 parties, 60-y span
 - Richer and comparable measures of populism along different margins (volume vs. mean + left-right dimension)
- 2 Unified analysis of populism response to globalization:
 - Skill structure of both trade & migration shocks
 - Gravity-based IV using origin-year sources of variation
 - Interaction with potential amplifiers: recessions, social media, diversity/cultural distance

Contributions

Preview of the results:

- Trends: fluctuations since 1960s, surge since 2007-08 (RW/EU)
- Closely linked to skill structure of imports and immigration
- Imports of LS labor intensive goods
 - Increase total/RW populism along mean & volume margins
 - Effect increases with de-industrialization and internet coverage
 - Effect is smaller if origin mix of goods is more diverse
 - No effect on LW populism (exc. severe crisis, EU, prop. repr.)
- Immigration of LS workers
 - Substitution of LW for RW populism along volume margin
 - No effect on volume of total populism and mean margin
 - No amplifying effect of cultural distance (or diversity)

Populism score

Data – Manifesto Project Database (MPD)

- Content analysis of parties' manifesto (salience, position)
- Coverage: 55 countries, 628 national election campaigns, 1,206 parties (at least one seat), 3,860 party-election pairs (1960-2018)
- Unbalanced sample of countries: breaks in 1973 and 1990

[▶ Sample](#)

Populism Score (party-level + mean margin) – Unsupervised and theory-based approach (PCA) + Cluster analysis with k-means

- Anti-establishment stance (**AES**) as in Mudde (2004)
- Commitment to protect (**CTP**) as in Morelli et al. (2021), etc.

Populism score - Definition

Populism Score – MPD variables

- Anti-establishment stance (**AES**)
 - AES1 (+): Corruption (need to eliminate corruption & clientelism)
 - AES2 (+): Anti-pluralism view (lack of competence of others)
- Commitment to protect (**CTP**)
 - CTP1 (+): Protection of internal market
 - CTP2 (-): Favorable mentions of internationalism
 - CTP3 (-): Favorable mentions of EU
 - CTP4 (+): Government ownership of industries
- Two-step PCA based on correlation matrix
⇒ $S_{i,e,t}^p$ Parties' populism score

▶ Populism Score

Populism score - Properties

Parties' Populism Score ($S_{i,e,t}^p$)

- Average of AES and CTP (standardized)
 - Mean = 0 ; SD = 0.81
 - Distinctive features
 - ① Self-determined by parties' manifesto
 - ② Continuous (extent) and time-varying
 - ③ Well correlated with existing data
- [▶ Correlations](#)
- i Van Kessel (2015) - Dummy, time-invariant, 2000-2013
 - ii Swank (2018) - RW Dummy, time-invariant, 1960-2015
 - iii PopuList (Rooduijn et al., 2019) - Dummy, time-invariant, 1989-2018
 - iv Gpop 1 (Grzymala-Busse and McFaul, 2020) - Dummy, time-invariant, 1960-2018
 - v Gpop 2 (Hawkins et al., 2019) - Continuous, based on electoral speeches
 - vi Chapell Hill Expert Survey (Bakker et al., 2015) - Continuous, 2018

Populism score - Properties

- **Populist party** ($\mathbf{1}_{i,e,t}^p = 1$ if $S_{i,e,t}^p \geq \eta \times SD$) ▶ Thresholds
 - $\eta = 1$ “maximizes” partial correlation with alternative definitions
 - $\eta = 1$ “maximizes” RAF with most alternative definitions
- Can be combined w. **Left-Right** index (Budge and Laver, 2016)
 - (LW, Centrist, RW) = (1st, 2nd, 3rd) terciles of left-right distr.
- **Discussion:**
 - Adding more MPD components reduces partial correlations with existing measures
 - $S_{i,e,t}^p$ is highly correlated with attitudes towards immig., cultural conservatism, multiculturalism (post-2006) in centrist/RW parties
 - The 1-SD threshold justified by unsupervised clustering ▶ K-means

Margins of populism

Volume Margin – Votes gained by all populist parties

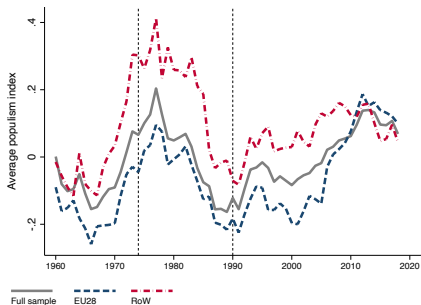
$$\Pi_{e,t}^V = \frac{\sum_{i=1}^I \sum_{i=1}^P \mathbf{1}_{i,e,t}^p \pi_{i,e,t}^p}{\sum_{i=1}^I \sum_{i=1}^P \pi_{i,e,t}^p}, \quad (1)$$

Mean Margin – Vote-weighted mean score of all parties

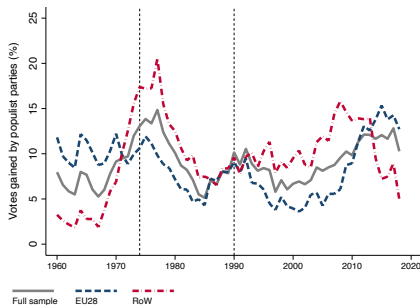
$$\Pi_{e,t}^M = \frac{\sum_{i=1}^I \sum_{i=1}^P S_{i,e,t}^p \pi_{i,e,t}^p}{\sum_{i=1}^I \sum_{i=1}^P \pi_{i,e,t}^p}, \quad (2)$$

These variables are also computed at the country level (dependent)

Populism's trends - Mean and Volume Margins



(a) Mean Margin



(b) Volume Margin

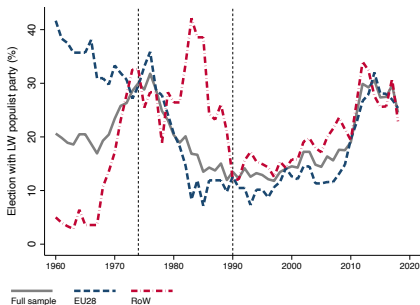
▶ Balanced sample Mean

▶ Nb pop. parties

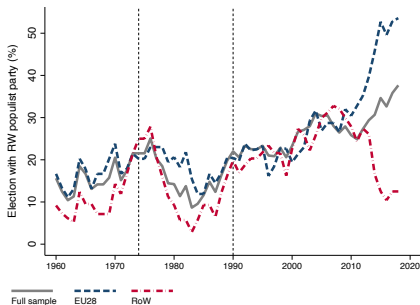
▶ Balanced sample Volume

▶ Rodrik (2020)

Dichotomous class. – Elections with populists



(a) LW Populist



(b) RW Populist

▶ Mean score LW/RW

Empirical specification - Baseline Model

$$\left\{ \begin{array}{l} \Pi_{i,e,t}^M = \alpha^M + \beta^M \mathbf{X}_{i,e,t} + \sum_S \gamma_S^M \mathbf{Mig}_{i,e,t}^S \\ \quad + \sum_S \zeta_S^M \mathbf{Imp}_{i,e,t}^S + \theta_i^M + \theta_t^M + \epsilon_{i,e,t}^M, \\ \\ \Pi_{i,e,t}^V = \exp \left[\alpha^V + \beta_S^V \mathbf{X}_{i,e,t} + \sum_S \gamma_S^V \log(\mathbf{Mig}_{i,e,t}^S) \right. \\ \quad \left. + \sum_S \zeta_S^V \log(\mathbf{Imp}_{i,e,t}^S) + \theta_i^V + \theta_t^V + \epsilon_{i,e,t}^V \right] \end{array} \right. \quad (3)$$

- OLS for $\Pi_{i,e,t}^M$, and PPML $\Pi_{i,e,t}^V$ (non-negative variable, 60% of zeroes)
- Full set of country and year FEs
- $\mathbf{Mig}_{i,e,t}^S$: LS and HS immigration flows
- $\mathbf{Imp}_{i,e,t}^S$: LS and HS imports of manuf. goods
- $\mathbf{X}_{i,e,t}$ includes GDPpc + Hum Cap + Empl. rate + Nb. parties
- All variables = Averages of t and $t - 1$

Empirical specification - IV strategy

IV Approach - **Gravity-model** in "stage-zero"

► Gravity Model

- Strategy in line with China shock (Autor et al., 2020), weather shocks at origin (Munshi, 2003), or other shocks (Boustan, 2010; Monras, 2020; Klemans and Magruder, 2018)
- Predict skill-specific flows w. origin-time and dyadic FEs

$$Y_{ij,t} = \exp \left[\alpha + \theta'_{ij} + \theta_{ij} * Post_{1990} + \theta_{j,t} + \epsilon_{ij,t} \right]$$

Implementation

- IV/2SLS for $\Pi_{i,e,t}^M$
- Reduced-form IV for $\Pi_{i,e,t}^V$

Baseline results

	Volume ($\Pi_{i,e,t}^V$)			Mean ($\Pi_{i,e,t}^M$)		
	All	RW	LW	All	RW	LW
	(1)	(2)	(3)	(4)	(5)	(6)
(log) $\text{Imp}_{i,t-1 \rightarrow t}$ (LS)	0.83*** (0.30)	1.33** (0.56)	1.49* (0.62)	3.78** (1.65)	4.28*** (1.47)	-0.11 (0.70)
(log) $\text{Imp}_{i,t-1 \rightarrow t}$ (HS)	-0.71 (0.44)	-1.30*** (0.49)	-1.25 (0.86)	-0.21 (0.43)	-0.50* (0.28)	0.36 (0.23)
(log) $\text{Mig}_{i,t-1 \rightarrow t}$ (LS)	0.14 (0.34)	1.52*** (0.55)	-1.78*** (0.59)	-0.17 (1.93)	1.73 (2.45)	-1.28 (1.28)
(log) $\text{Mig}_{i,t-1 \rightarrow t}$ (HS)	-0.28 (0.29)	-1.32*** (0.48)	1.17* (0.64)	1.86 (4.99)	-2.63 (4.74)	3.65 (3.49)
Observations	575	575	575	578	461	470
(Pseudo-)R ²	0.40	0.37	0.51	0.50	0.41	0.48
Year & Country FE	✓	✓	✓	✓	✓	✓
Controls FE	✓	✓	✓	✓	✓	✓

IV results

	Volume ($\Pi_{i,e,t}^V$)			Mean ($\Pi_{i,e,t}^M$)		
	All	RW	LW	All	RW	LW
	(1)	(2)	(3)	(4)	(5)	(6)
(log) $\text{Imp}_{i,t-1 \rightarrow t}$ (LS)	0.91*	1.82**	0.97	4.99**	4.06**	1.29
	(0.50)	(0.84)	(0.84)	(2.33)	(1.77)	(1.42)
(log) $\text{Imp}_{i,t-1 \rightarrow t}$ (HS)	-1.22*	-2.14**	-0.72	-0.22	-0.59	0.45
	(0.66)	(0.87)	(0.83)	(0.54)	(0.38)	(0.37)
(log) $\text{Mig}_{i,t-1 \rightarrow t}$ (LS)	0.53	1.97***	-1.70*	0.52	0.74	-0.75
	(0.43)	(0.58)	(0.92)	(3.13)	(3.01)	(1.53)
(log) $\text{Mig}_{i,t-1 \rightarrow t}$ (HS)	-1.04*	-2.02**	0.60	0.99	3.15	3.34
	(0.56)	(0.89)	(1.23)	(10.12)	(7.90)	(4.75)
Observations	575	575	575	578	461	470
(Pseudo)-R ²	0.40	0.36	0.50	0.06	0.09	0.01
K-Paap F-stat				12.05	11.36	9.45
Year & Country FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Summary of the results (in normal times)

- Skill dimension is instrumental!
- Imports in LS intensive goods
 - Increase volume & mean margins of total and RW populism
 - Supp (vol): increasing share of votes for populists (intensive)
 - Supp (mean): incr. score of moderately populist parties only
- Immigration of LS workers
 - Substitution of LW by RW populism
 - Supp (vol): along the extensive margin (nb. of parties > one seat)
 - Supp (mean): No impact on the mean margin
- If anything, HS intensive shocks reduce volume of RW populism
- Robust effects to export, emigration, turnout, political system, etc.

▶ Robustness

Are these effect amplified by other events?

Interactions with potential amplifiers of LS shocks (dummies)

- Economic crisis (negative growth spells)
- De-industrialization (Δ Manuf in bottom decile)
- Spread of social media (internet coverage in top decile)
- Diversity of goods vs. cultural distance (in top decile)

Results

▶ Amplifiers Results

- 1 LS import effect Volume Margin
 - \uparrow De-industrialization and internet coverage
 - \downarrow Diversity import basket
- 2 LS import effect Mean Margin
 - \uparrow Economic Crisis and internet coverage
 - \downarrow Diversity import basket
- 3 LS migration effect Volume Margin
 - \uparrow Economic Crisis on LW
 - \emptyset Cultural distance

Concluding remarks

- ① New continuous measures of populism (vol. and mean margins)
- ② Populist parties have gained ground for 20 years (RW in EU!)
- ③ Link with size and structure of globalization shocks
 - Heterogeneous effects on margins of populism
 - Skill structure matters!
 - Populism response to LS import shocks (de-indust., internet)
 - Trade diversification reduces populism responses
 - LS migration shocks induce a substitution of LW for RW populism
 - We find no amplifying effect of cultural distance
- ④ Perspective to work at party level (entry/exit, electoral compet.)
- ⑤ And to study the reverse causal impact of populism on the size and skill structure of trade and migration shocks (vicious circles)

Thanks for your attention!

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Our sample

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Populism score - PCA [▶ Back](#)

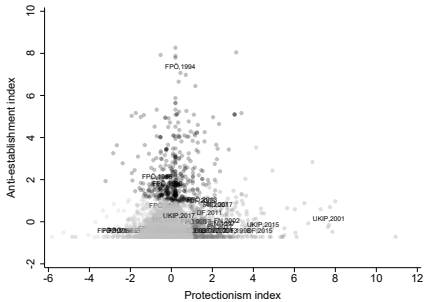
	I. PCA (AES/CTP)			II. Corr. btw. AES & CTP			
	EV	Score	Corr.	AES	CTP	L-R	R ²
	(1)	(2)	(3)	(4)	(5)	(7)	(8)
Anti-establishment (AES):				-	.09† (.02)	.01† (.00)	0.27
- Pol. corruption	1.07	.71	.73‡				
- Anti-pluralism	.93	.71	.73‡				
Commitment to Protect (CTP):				.13** (.04)	-	-.01* (.00)	0.11
- Protectionism	1.29	.41	.48‡				
- Internationalism	.96	-.41	-.46‡				
- EU institutions	.92	-.60	-.67‡				
- Nationalization	.83	.55	.63‡				

Level of significance: * p<0.05 ; ** p<0.01 ; † p<0.001 ; ‡ p<0.00001.

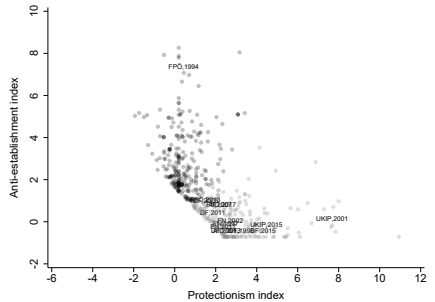
Populism score - Correlations ▶ Back

	I. Van Kessel (2000-2013)			II. Swank (1960-2015)			III. PopuList (1989-2018)			
	Populist party (PRB)			RW Populist party (PRB)			Populist party (PRB)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
$S_{i,e,t}^P$	0.699*** (0.161)			0.460*** (0.112)			0.550*** (0.094)			
AES		0.247*** (0.091)			0.252** (0.100)			0.156*** (0.054)		
CTP			0.474*** (0.093)			0.234*** (0.045)			0.428*** (0.069)	
Obs.	650	650	650	1658	1658	1658	1635	1635	1635	
Countries	25	25	25	16	16	16	28	28	28	
	IV. GPop 1 (1960-2018)			V. GPop 2 (1998-2017)			VI. CHES (1998-2018)			
	Populist party (PRB)			Average Populism Speeches (OLS)			People vs. Elite (OLS)			
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
$S_{i,e,t}^P$	0.376*** (0.081)			0.120** (0.052)			1.262*** (0.210)			
AES		0.093* (0.050)			0.057* (0.032)			0.933*** (0.257)		
CTP			0.277*** (0.053)			0.087* (0.046)			0.668*** (0.130)	
Obs.	2847	2847	2847	100	100	100	176	176	176	
Countries	36	36	36	31	31	31	28	28	28	

Populism Score - K-means clustering ▶ Back

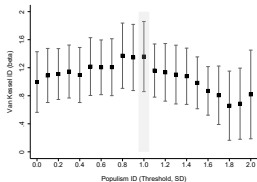


(a) All parties

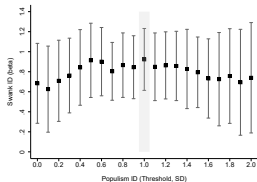


(b) Populist parties only

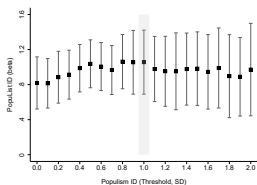
Populist parties - Threshold selection w. partial corr



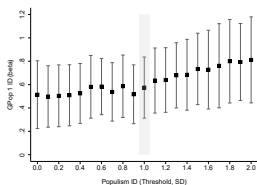
(a) Van Kessel



(b) Swank



(c) PopuList

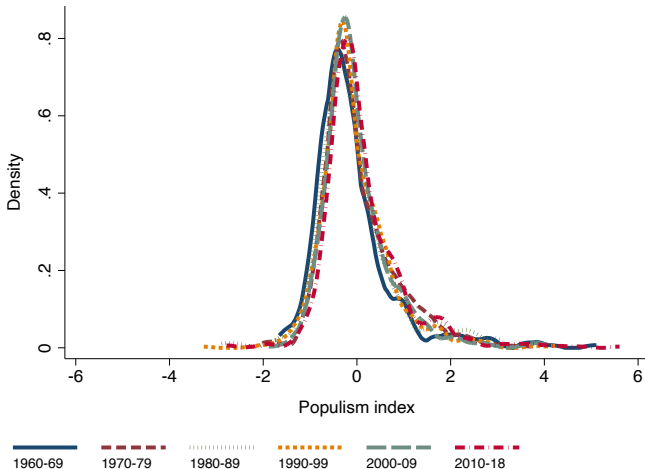


(d) Gpop 1

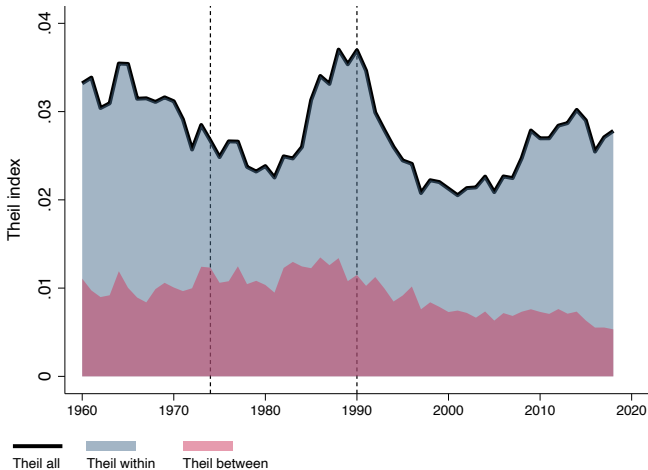
Gravity model - First-stage [▶ Back](#)

	(1)	(2)	(3)	(4)
	$\widehat{\text{Imp}}_{i,e,t}^{HS}$	$\widehat{\text{Imp}}_{i,e,t}^{LS}$	$\widehat{\text{Mig}}_{i,e,t}^{HS}$	$\widehat{\text{Mig}}_{i,e,t}^{LS}$
$\widehat{\text{Imp}}_{i,e,t}^{HS}$	1.100*** (0.100)			
$\widehat{\text{Imp}}_{i,e,t}^{LS}$		1.139*** (0.112)		
$\widehat{\text{Mig}}_{i,e,t}^{HS}$			1.235*** (0.113)	
$\widehat{\text{Mig}}_{i,e,t}^{LS}$				1.137*** (0.083)
Observations	575	575	575	575
Countries	52	52	52	52
Adj. R ²	0.94	0.93	0.86	0.86
Year & country FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓

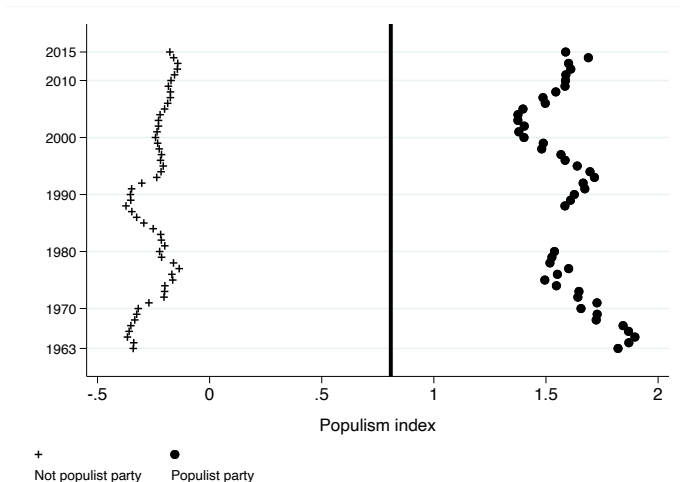
Continuous score – Distribution



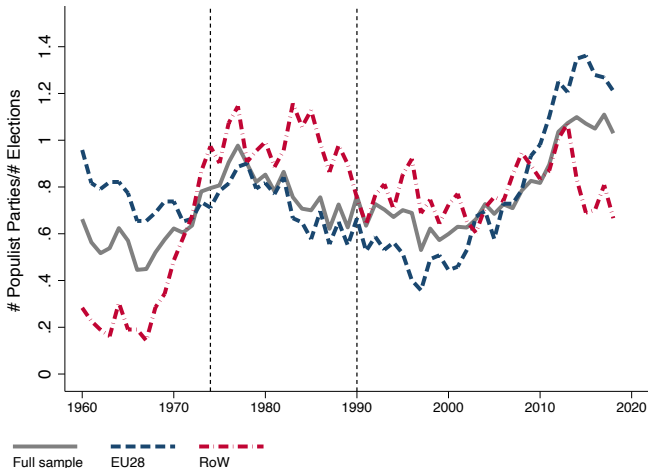
Continuous score – Theil



Dichotomous class. – dist. never-populists vs. others



Nb of populist parties - evolution [▶ Back](#)



Rodrik (2020) - 19 countries, 31 parties [▶ Back](#)

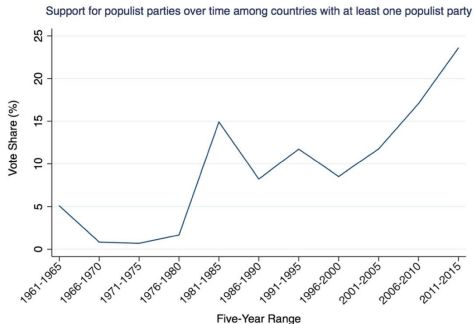
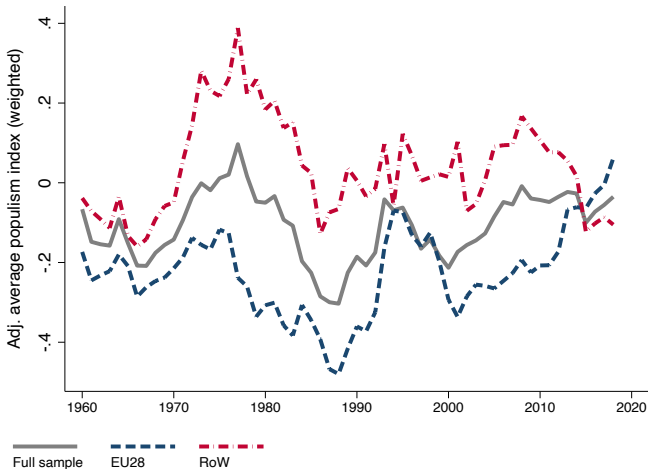
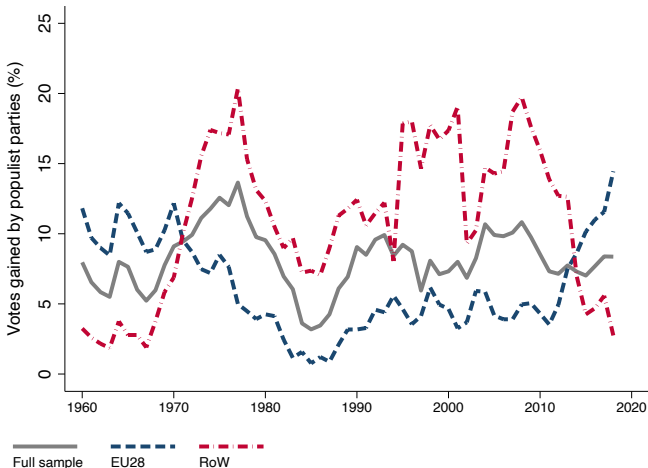


Figure 1 The global rise of populism. *Notes:* see Appendix for sources and methods.

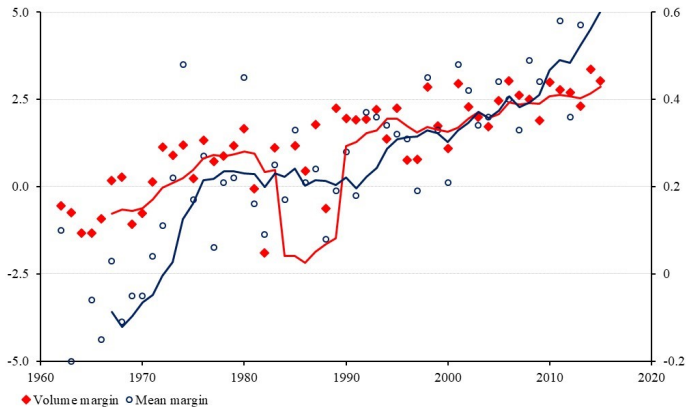
Mean margin - Balanced sample ▶ Back



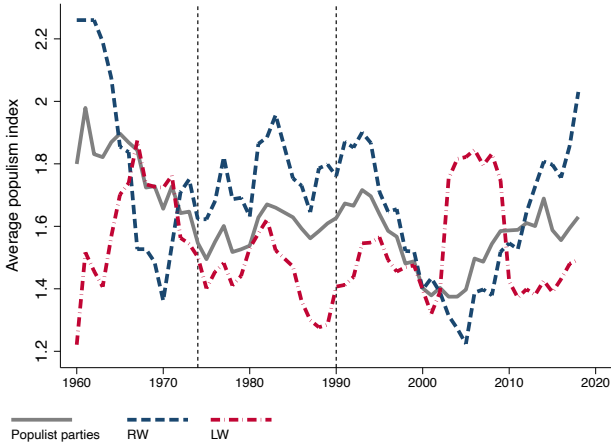
Volume margin - Balanced sample

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IV results – Time FE's



Dichotomous class. – Mean score LW/RW populists



Robustness

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① Lag structure of glob. shocks

- Robust if shocks in t , in $t - 1$, since $t - 2$ or $e - 1$
- Effect of Imports on LW if shocks measured on longer periods

② Exports/Emigration (RHS) and Turnout (RHS/LHS)

- No significant effect (or response)
- No effect on the estimates for imports and immigration

③ Representative political system

- No effect on estimates, except LW response to LS imports

④ Classification of populist parties (lax vs. strict def.)

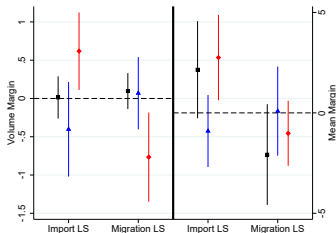
- Less significant with stricter def (key parties exit the list)

⑤ Sub-samples

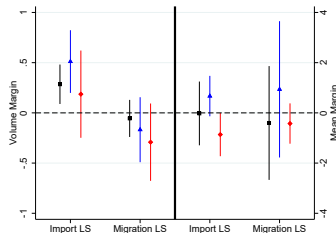
- Robust to post-1990 dummy (attenuates responses to imports)
- In EU_{28} : stronger effects + LW populism response to imports

⑥ Robust to imputation of skill-specific flows

Amplifiers ▶ Back



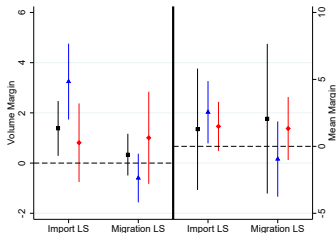
(a) Economic crisis



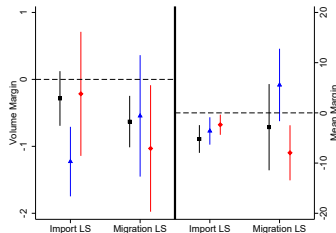
(b) De-industrialization

- ① Linear terms are insignificant
- ② Effect of Imp on vol. reinforced in times of de-industrialization + LW response in times of crisis along volume and mean margins
- ③ Effect of LS immig is unaffected (except a drop in LW responses in crisis)

Amplifiers ▶ Back



(a) Internet coverage



(b) Diversification/Culture

- 1 Linear effect of internet (+) and div (-) can be significant
- 2 Effect of Imp reinforced when internet coverage is large, attenuated if origin mix is more diverse (both margins for RW populism)
- 3 Cultural distance does not boost the populist response (drop in LW)

Bibliography I

- Aksoy, C. G., Guriev, S., and Treisman, D. S. (2022). Globalization, government popularity, and the great skill divide. *CEPR DP*, 12897:1–53.
- Autor, D., Dorn, D., Hanson, G., and Majlesi, K. (2020). Importing political polarization? the electoral consequences of rising trade exposure. *American Economic Review*, 110(10):3139–3183.
- Bakker, R., Edwards, E., Hooghe, L., Jolly, S., Koedam, J., Kostelka, F., Marks, G., Polk, J., Rovny, J., Schumacher, G., Steenbergen, M., Vachudova, M., and Zilovic, M. (2015). 1999-2014 chapel hill expert survey trend file. *Version 1.13 Available on chesdata.eu. Chapel Hill, NC: University of North Carolina, Chapel Hill.*
- Barone, G., D’Ignazio, A., De Blasio, G., and Naticchioni, P. (2016). Mr. rossi, mr. hu and politics. the role of immigration in shaping natives’ voting behavior. *Journal of Public Economics*, 136:1–13.
- Becker, S., Fetzer, T., and Novy, D. (2017). Who voted for brexit? a comprehensive district-level analysis. *Economic Policy*, 32(92):601–650.
- Boustan, L. (2010). Was postwar suburbanization “white flight”? evidence from the black migration. *Quarterly Journal of Economics*, 125(1):417—443.
- Budge, I. and Laver, M. (2016). Party policy and government coalitions. *Springer.*

Bibliography II

- Colantone, I., Ottaviano, G. I., and Stanig, P. (2021). The backlash of globalization. *CESifo Workink Paper*, 9289.
- Colantone, I. and Stanig, P. (2018). The trade origins of economic nationalism: Import competition and voting behavior in western europe. *American Journal of Political Science*, 62(4):936–953.
- Edo, A., Giesing, Y., Öztunc, J., and Poutvaara, P. (2019). Immigration and electoral support for the far left and far right. *European Economic Review*, 115:99–143.
- Funke, M., Schularick, M., and Trebesch, C. (2020). Populist leaders and the economy. Technical report, CEPR Discussion Paper DP15405.
- Grzymala-Busse, A. and McFaul, M. (2020). Votes for populists. *Global Populisms Project, Stanford University*.
- Guiso, L., Herrera, H., Morelli, M., and Sonno, T. (2017). Demand and supply of populism. *CEPR Discussion Papers*, 11871.
- Guriev, S. and Papaioannou, E. (2021). The political economy of populism. *Journal of Economic Literature*, forthcoming.
- Halla, M., Wagner, A., and Zweimuller, J. (2017). Immigration and voting for the far right. *Journal of the European Economic Association*, 15(6):1341–1385.

Bibliography III

- Hawkins, K. A., Aguilar, R., Silva, B., Jenne, E., Kocijan, B., and Kaltwasser, C. (2019). Measuring populist discourse: The global populism database. *Paper presented at the 2019 EPSA Annual Conference in Belfast, UK.*
- Klemans, M. and Magruder, J. (2018). Labour market responses to immigration: Evidence from internal migration driven by weather shocks. *Economic Journal*, 128(613):2032–2065.
- Mayda, A. M., Peri, G., and Steingress, W. (2022). The political impact of immigration: Evidence from the united states. *American Economic Journal: Applied Economics*, 14(1):358–89.
- Monras, J. (2020). Immigration and wage dynamics: Evidence from the mexican peso crisis. *Journal of Political Economy*, 128(8):3017–3089.
- Morelli, M., Nicolo, A., and Roberti, P. (2021). A commitment theory of populism. *CESifo Working Paper*, 9473.
- Moriconi, S., Peri, G., and Turati, R. (2019). Immigration and voting for redistribution: Evidence from european elections. *Labour Economics*, 61(101765).
- Moriconi, S., Peri, G., and Turati, R. (2022). Skill of the immigrants and vote of the natives: Immigration and nationalism in european elections 2007–2016. *European Economic Review*, 141:103986.

Bibliography IV

- Mudde, C. (2004). The populist zeitgeist. *Government and Opposition*, 39(7):541–563.
- Munshi, K. (2003). Networks in the modern economy: Mexican migrants in the u.s. labor market. *Quarterly Journal of Economics*, 118(2):549–599.
- Rodrik, D. (2018). Populism and the economics of globalization. *Journal of International Business Policy*, 1(1/2):12–33.
- Rodrik, D. (2021). Why does globalization fuel populism? economics, culture and the rise of right-wing populism. *Annual Review of Economics*, 13(forthcoming).
- Rooduijn, M., Van Kessel, S., Froio, C., Pirro, A., De Lange, S., Halikiopoulou, D., Lewis, P., Mudde, C., and Taggart, P. (2019). The populist: An overview of populist, far right, far left and eurosceptic parties in europe. *Database*.
- Swank, D. (2018). Comparative political parties dataset: Electoral, legislative, and government strength of political parties by ideological group in 21 capitalist democracies, 1950-2015. *Electronic Database, Department of Political Science, Marquette University*.
- Van Kessel, S. (2015). Populist parties in europe: Agents of discontent? *Springer*.