#### Inequality Aversion, Populism, and the Backlash Against Globalization

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and

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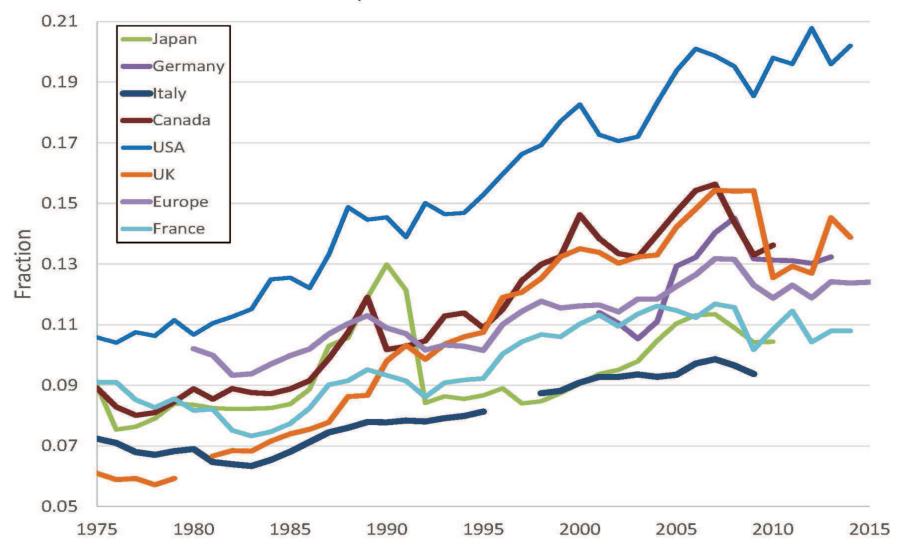
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Top 1% Income Share



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- Pushback against globalization emerges endogenously
  - $-\operatorname{Rational}$  voters' optimal response to  $\operatorname{\mathbf{rising}}$  inequality
  - Globalization carries the seeds of its own destruction

Global growth  $\downarrow$  (heterogeneous risk aversion) Inequality  $\uparrow$ 

Global growth

↓ (heterogeneous risk aversion)
Inequality ↑

↓ (inequality aversion)
Backlash

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• Backlash = Elect a populist, **Globalization**  $\rightarrow$  **Autarky** 

 $-\operatorname{\mathbf{Risk}}$  sharing: Global  $\rightarrow$  Local

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- $-\operatorname{\mathbf{Risk}}$  sharing: Global  $\rightarrow$  Local
- Consumption  $\downarrow$  but equality  $\uparrow$
- Heterogeneous risk aversion: Within countries  $\implies$  Inequality Across countries  $\implies$  Imbalances

#### Empirical Evidence

- Types of evidence
  - Across countries: Vote shares of populist parties + Surveys
  - Across individuals: Brexit + Trump voters

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- Types of evidence
  - $-\operatorname{Across}$  countries: Vote shares of populist parties + Surveys
  - Across individuals: Brexit + Trump voters
- Evidence largely supports the model
  - -**Countries**: More populist if they have
    - \* Higher inequality
    - \* Higher financial development
    - \* Lower current account balance
  - Individuals: More populist if they are
    - \* More risk-averse
    - \* More inequality-averse



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- Preferences of agent  $i \in \mathcal{I}^k$  at time  $t \in [0, T]$ :

$$U_i\left(C_{it}, V_t^k, t\right) = e^{-\phi t} \left(\frac{C_{it}^{1-\gamma_i}}{1-\gamma_i}\right)$$

where

 $\gamma_i = \mathbf{Risk}$  aversion

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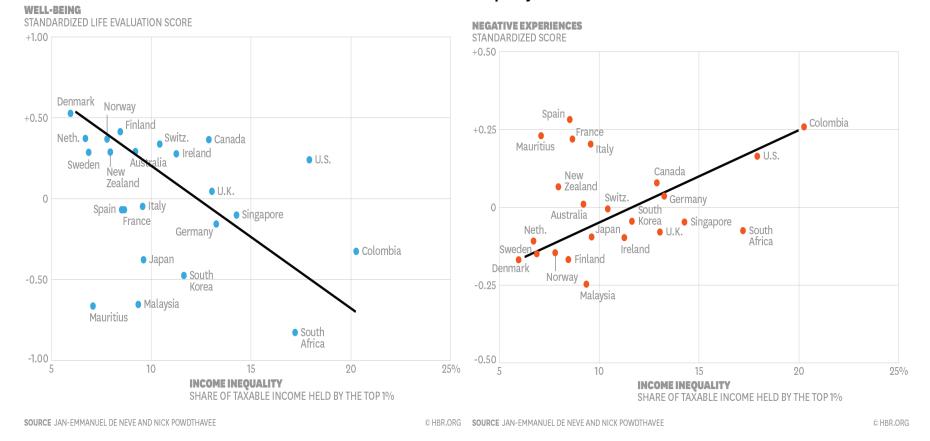
where

$$V_t^k = \operatorname{Var}\left(\frac{C_{it}}{\overline{C}_t^k} \mid i \in \mathcal{I}^k\right) =$$
**Inequality** in country  $k$ 

 $\gamma_i =$ **Risk aversion**  $\eta_i =$ **Inequality aversion** ( $\approx$  anti-elitism, "envy of the rich") Inequality Aversion

- Evidence
  - Experiments
  - Surveys

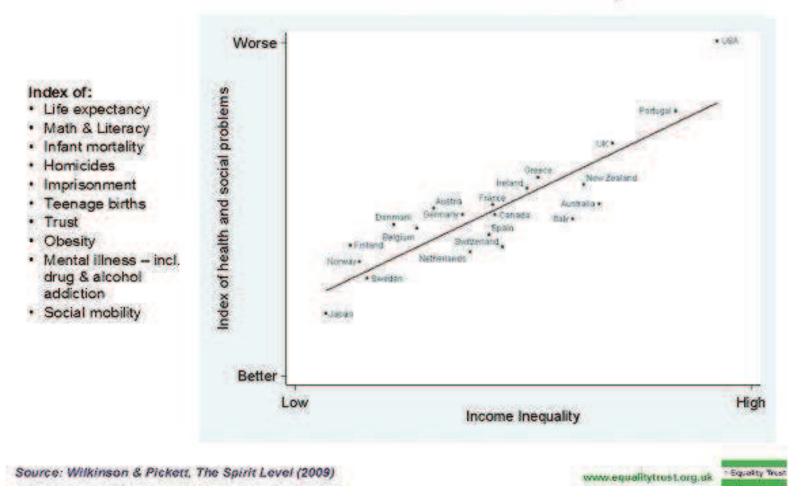
#### **Overall Well-Being Drops as National Income Inequality Rises**



#### People Report Having More Negative Experiences as National Income Inequality Rises

Source: Harvard Business Review

#### Health and Social Problems are Worse in More Unequal Countries



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  - Interpretation: U.S. more financially developed than RoW

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  - Interpretation: U.S. more financially developed than RoW
- Technical assumption:

$$\lim_{x \to \infty} \frac{\mathrm{E}^{\mathcal{I}}[e^{x/\gamma_j} \mid j \in \mathcal{I}^{RoW}]}{\mathrm{E}^{\mathcal{I}}[e^{x/\gamma_i} \mid i \in \mathcal{I}^{US}]} = 0$$

Examples:

- 1.  $\gamma_i < \gamma_j$  for all  $i \in \mathcal{I}^{US}, j \in \mathcal{I}^{RoW}$
- 2. U.S. risk tolerance  $\frac{1}{\gamma_i} \sim U[a, b]$ , RoW's  $\frac{1}{\gamma_i} \sim U[a, c]$ , with b > c
- 3. Truncated normals for  $\frac{1}{\gamma_i}$  in both countries, same truncation points, same dispersion, higher mean in the U.S.

• Global output:  $D_t = D_t^{US} + D_t^{RoW}$ . Its log,  $\delta_t \equiv \log(D_t)$ , follows

$$d\delta_t = \mu_\delta \, dt + \sigma_\delta \, dZ_t$$

where  $\mu_{\delta} > 0 \Rightarrow$  output trends upward

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• For simplicity, also assume (relaxed later):

$$\frac{D_t^{US}}{D_t} = \text{U.S. population share}$$

- Agents share risk in **complete markets** 
  - Interpretation 1: Financial contracts (stocks, bonds)
  - Interpretation 2: Labor contracts (risky, safe jobs)

- Two possible regimes:
  - 1. **Globalization**: Cross-border trade allowed Global risk sharing
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    - Elections decided by the median voter
- Expropriation not allowed
  - $-\operatorname{Can't}$  move to autarky if other country suffers consumption loss

#### Optimal Consumption

• Complete markets  $\implies$  Agent *i* in country *k* solves

$$\max_{\{C_{it}\}} \mathcal{E}_0\left[\int_0^T U_i\left(C_{it}, V_t^k, t\right) dt\right] \quad \text{s.t.} \quad \mathcal{E}_0\left[\int_0^T \pi_t^k C_{it} dt\right] = w_i$$

where  $\pi_t^k$  = state price density,  $w_i$  = initial endowment

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• **Result**:  $C_{it}^* = f(\gamma_i, \pi_t^k)$ 

- High- $\gamma_i$  agents choose consumption less sensitive to shocks

• Market clearing: 
$$D_t = \int_{i \in \mathcal{I}} C_{it} di$$
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- **Result:** Low- $\gamma_i$  agents grow disproportionately rich
  - Their consumption shares grow with output

$$\frac{C_{it}}{\overline{C}_t^k} \uparrow \text{ in } \delta_t \text{ iff } \gamma_i < \overline{\gamma}^k(\delta_t)$$

- Benefits of growth accrue increasingly to "elites"

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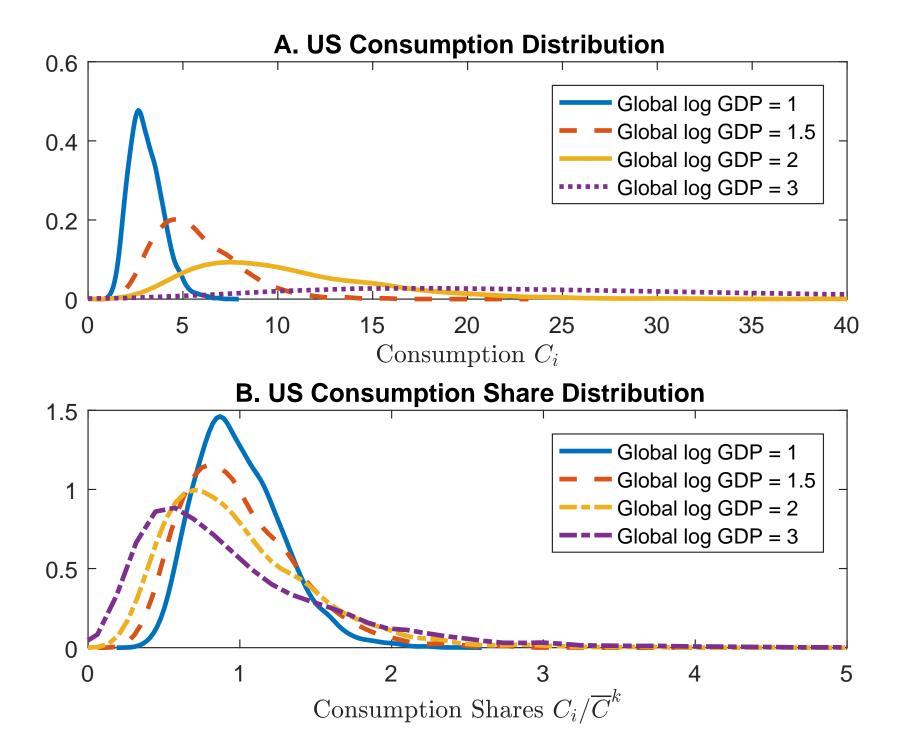
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• **Result:** Fraction of agents who grow richer declines with output

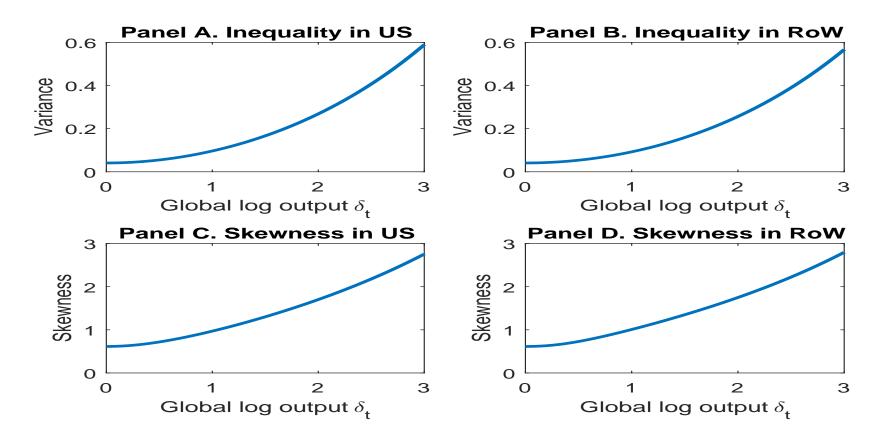
$$\delta_t \uparrow \Longrightarrow \ \overline{\gamma}^k(\delta_t) \downarrow$$

– The ranks of elites are shrinking



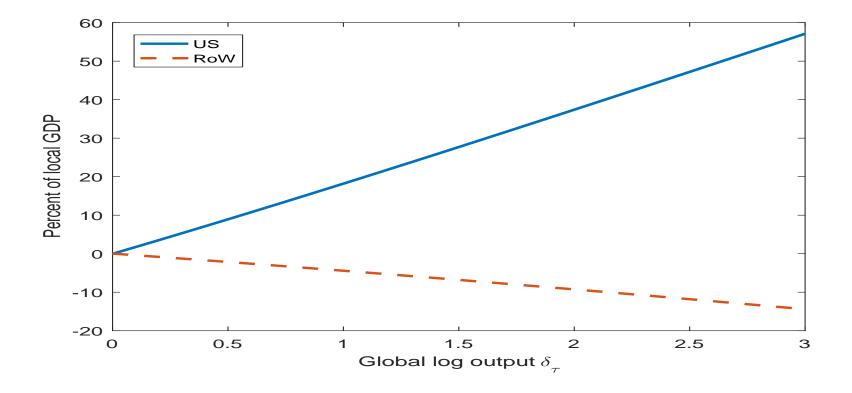
• **Result:** Inequality  $V^k$  increases, without bounds, as output grows. So does the skewness of consumption shares.

 $\implies$  Inequality grows with output, driven by elites' consumption



• **Result:** U.S. runs a current account deficit, RoW runs a surplus.

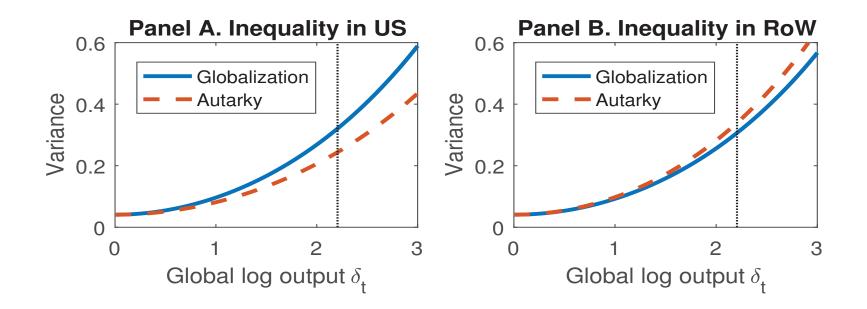
$$\int_{i \in \mathcal{I}^{US}} C_{it} \, di > D_t^{US} \,, \quad \int_{i \in \mathcal{I}^{RoW}} C_{it} \, di < D_t^{RoW}$$



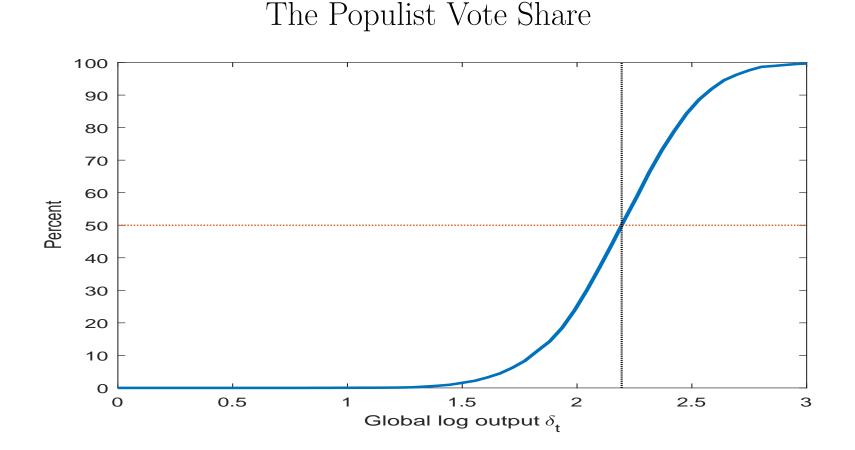
Equilibrium under Autarky

• Market clearing:  $D_t^k = \int_{i \in \mathcal{I}^k} C_{it} di$ , for  $k \in \{US, RoW\}$  $\implies$  Solve for  $\pi_t^{US} \neq \pi_t^{RoW}$  Equilibrium under Autarky

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- **Result:** U.S. inequality is lower under autarky than under globalization. The opposite is true for RoW.



• **Result:** There exists output level  $\overline{\delta}$  such that for any  $\delta_{\tau} > \overline{\delta}$ , the **populist wins the U.S. election**.



• At time  $\tau$ , agents in country k vote, comparing expected utilities

$$\mathbf{E}_{\tau} \left[ \int_{\tau}^{T} e^{-\phi(s-\tau)} \left( \frac{C_{is}^{1-\gamma_i}}{1-\gamma_i} - \eta^i V_s^k \right) \, ds \right]$$

under the two candidates (mainstream, populist)

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• **Result:** For any U.S. agent *i* with  $\eta_i > 0$ , there exists  $\overline{\delta}^i$  such that for any  $\delta_{\tau} > \overline{\delta}^i$ , the agent votes populist.

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  - Move to autarky  $\implies C_{it} \downarrow$  but  $V_t^{US} \downarrow$
  - $-\delta_t \uparrow \Longrightarrow$  Marginal utility of  $C_{it} \downarrow \Longrightarrow$  Equality dominates

\* Equality is a **luxury good** 

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• **Result:** Any redistributive policy  $\{\mathcal{T}_{i,t}(\delta_t)\}$  s.t.  $\int \mathcal{T}_i di = 0$  is equivalent to a redistribution of initial endowments  $w_i$ 

- With complete markets, redistributive policies are "traded away"

• Agent *i*'s budget constraint under redistribution:

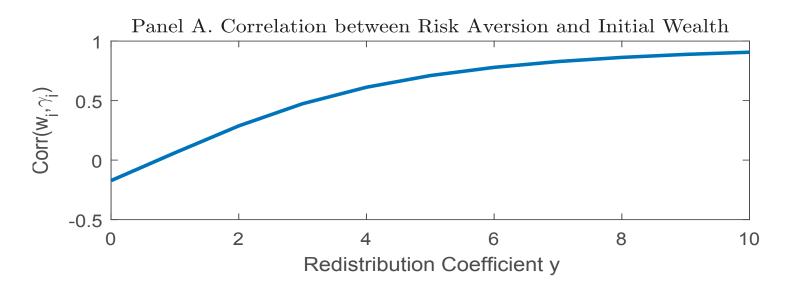
$$\mathbf{E}_0 \left[ \int_0^T \pi_t^k C_{it} \, dt \right] = w_i + \mathbf{E}_0 \left[ \int_0^T \pi_t^k \, \mathcal{T}_{it} \, dt \right]$$

To implement redistributive policy  $\{\mathcal{T}_{i,t}(\delta_t)\}$ , augment agent *i*'s initial endowment by  $\tilde{w}_i = \mathcal{E}_0\left[\int_0^T \pi_t^k \mathcal{T}_{it} dt\right]$ . Note:  $\int \tilde{w}_i di = 0$ .

• For tractability, we consider initial endowments of the form

$$w_i = e^{\psi_i} \operatorname{E}_0 \left[ \int_0^T e^{-\phi t + \left(g_t^k - y\right)/\gamma_i - g_t^k} dt \right]$$

• Increase  $y \implies$  Redistribute  $w_i$  from low- $\gamma_i$  to high- $\gamma_i$  agents - From those who benefit from globalization to those who lose

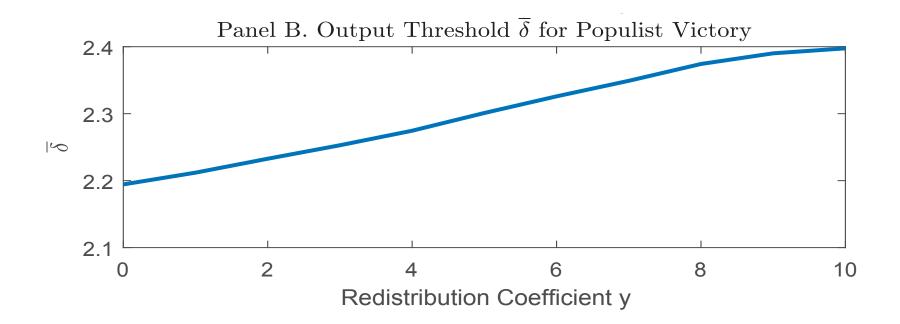


• **Result:** For any redistributive policy y there exists  $\overline{\delta}$  such that for any  $\delta_{\tau} > \overline{\delta}$ , the populist wins the U.S. election.

 $\implies$  For any given y, when  $\tau$  is large enough, the populist wins

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• **Result:** Redistribution can delay the populist win but not forever

### Evidence: Which Countries Are Populist?

## • **Predictions:** Populism is stronger in countries with

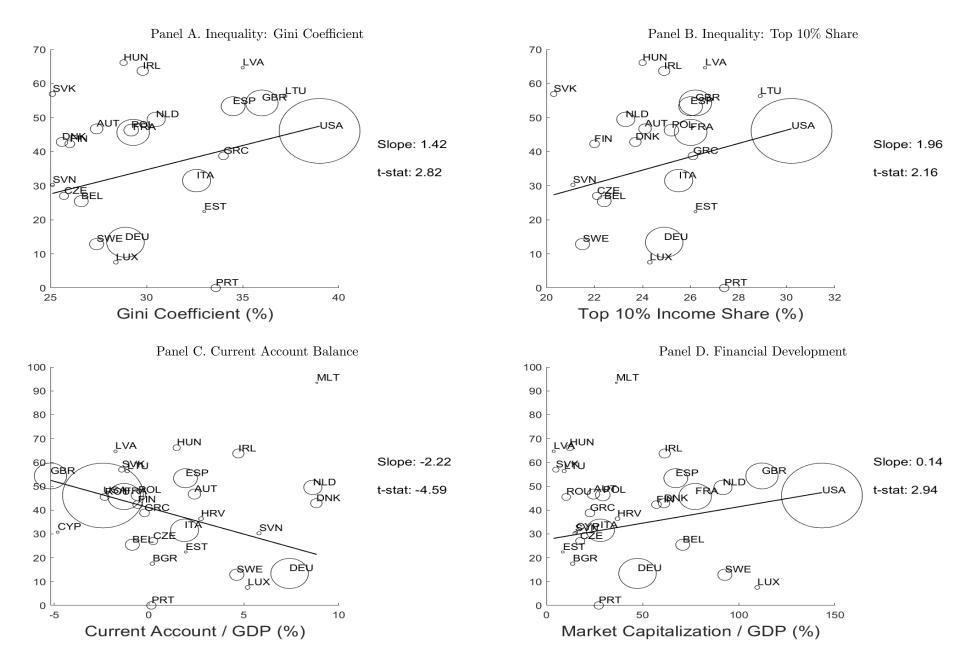
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- Lower current account balance
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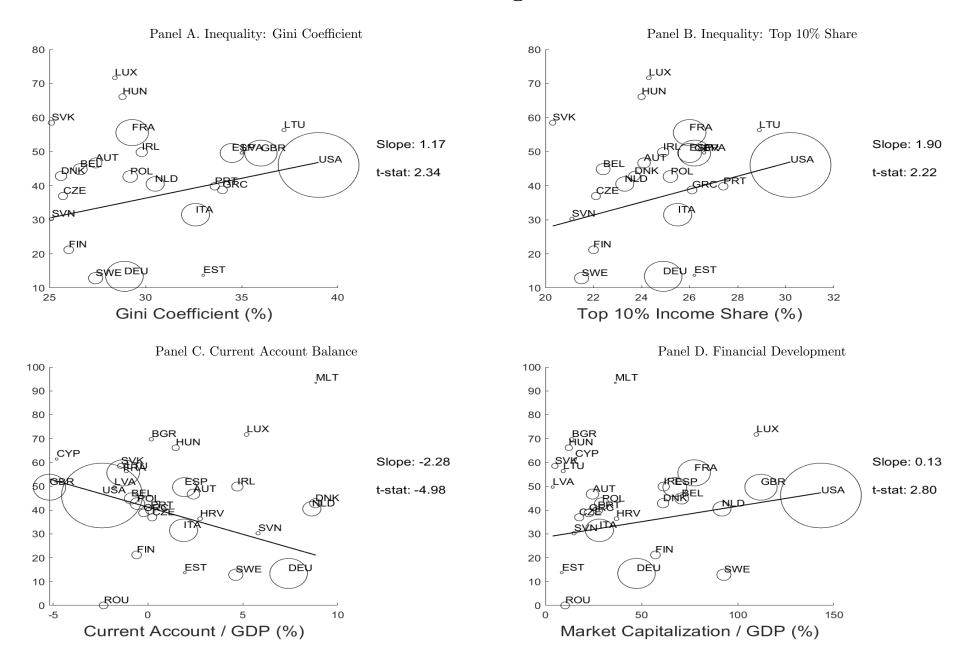
### • **Predictions:** Populism is stronger in countries with

- Higher inequality
- $-\operatorname{Lower}$  current account balance
- Higher financial development
- Examine a recent cross-section of rich countries
- Measure populism in four ways
  - -Vote share of populist parties in recent elections
    - $\ast$  Populist = 1. Nationalist, 2. Anti-immigrant, 3. Anti-elite
    - $\ast$  Data from ParlGov and 2014 Chapel Hill Survey of Experts
  - $-\operatorname{\mathbf{Survey-based}}$  support for protectionism; 2013 ISSP data

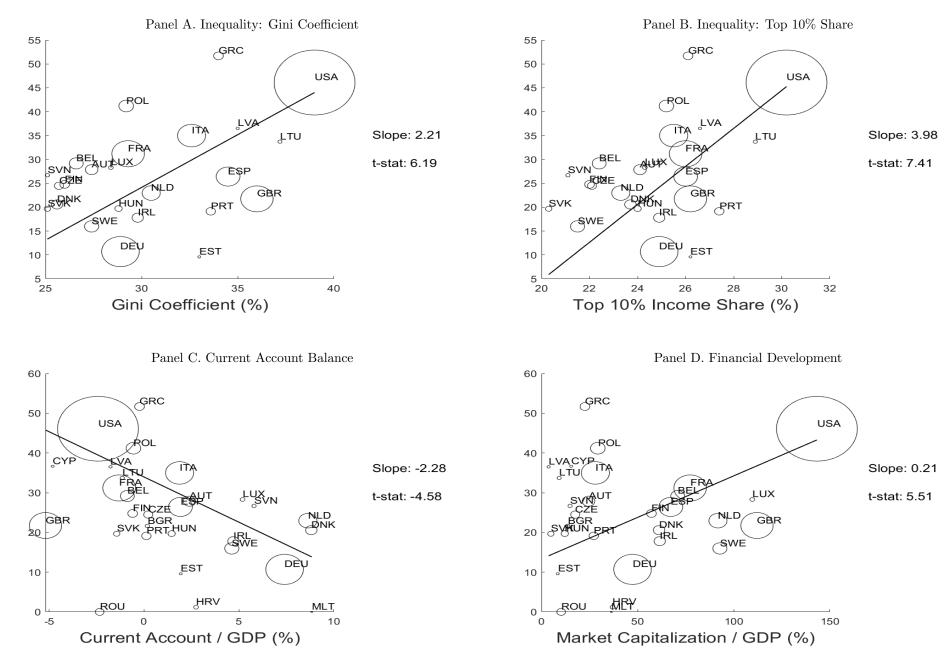
#### **Vote Share of Nationalist Parties**



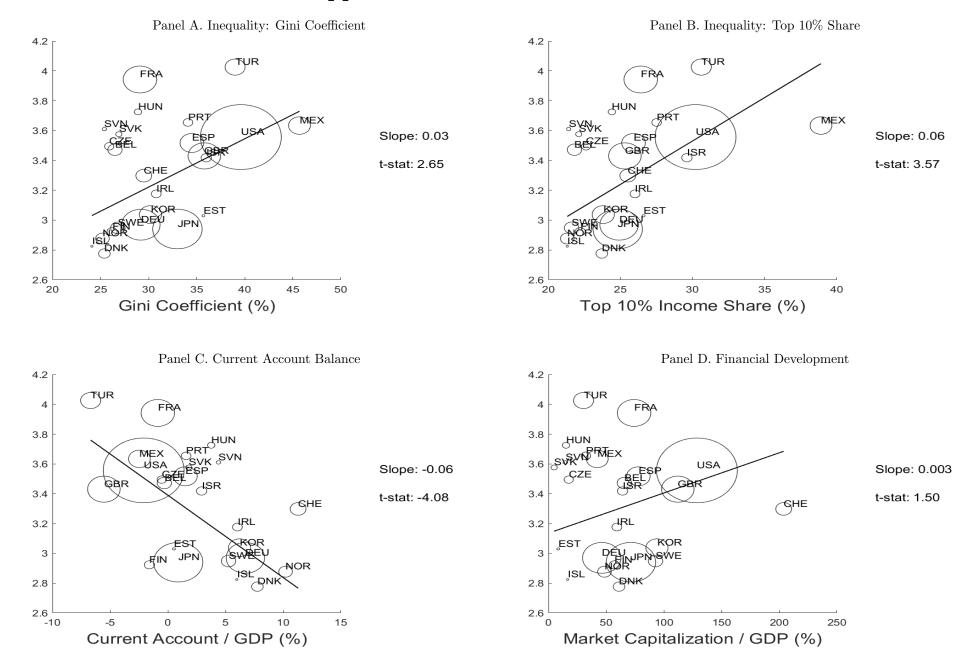
#### **Vote Share of Anti-Immigrant Parties**



#### **Vote Share of Anti-Elite Parties**

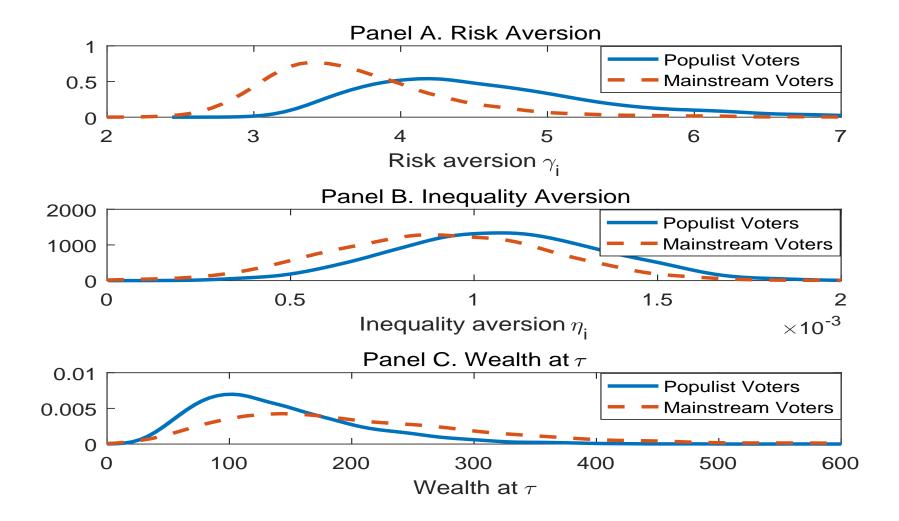


#### Support for Protectionism



Who Are the Populist Voters?

• **Result:** Agents with higher  $\gamma_i$  and  $\eta_i$  tend to vote populist



Evidence: Who Are the Populist Voters?

- Use survey data on Brexit and Trump voters
  - -Brexit: 2014-2018 British Election Study, panel data
  - $-\,{\bf Trump:}\ 2016$  Cooperative Congressional Election Survey
- Empirical proxies:

### -Risk aversion

\* Brexit: Income, Education, WillingToTakeRisk, Religious \* Trump: Income, Education

## – Inequality aversion

- \* Brexit: Income, Religious, LeftRight, InequalityBad, PoliticiansFavorTheRich, LawFavorsTheRich, DoNotTrustExperts
- $* {\rm Trump:} \ In come, \ Religious, \ Republican$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Income	-0.09 (-27.04)			-0.06 (-15.04)			-0.06 $(-7.86)$	-0.06 $(-7.28)$
Education	· · · ·	-1.27 (-60.29)		-1.22 (-44.27)			-0.65 (-12.57)	-0.55 (-9.83)
$Willingness {\it To TakeRisk}$		. ,	0.11 (7.86)	0.21 (10.97)			0.17 (4.98)	0.20 (5.54)
LeftRight					0.44 (47.88)	0.47 (41.71)	0.45 (35.20)	0.42 (31.07)
Religious					0.31 (8.52)	0.15 (3.43)	0.16 (3.16)	0.11 (2.07)
In equality Bad					0.12 (3.40)	-0.04 (-0.89)	-0.03 (-0.62)	-0.02 (-0.37)
Politicians Favor The Rich						0.29 (10.82)	0.27 (8.73)	0.30 (9.34)
Law Favors The Rich						0.11 (3.71)	0.07 (1.92)	0.08 (2.17)
DoNotTrustExperts						0.78 (36.94)	0.68 (27.76)	0.66 (25.90)
Minority						( )	( )	-0.54 (-5.53)
Age								0.01 (4.23)
Gender (Male)								-0.14 (-2.55)
Feminist								-0.36 (-11.47)
$\begin{array}{c} \text{Observations} \\ R^2 \end{array}$	$\begin{array}{c} 31095 \\ 0.02 \end{array}$	$40783 \\ 0.09$	40890 0.002	$25328 \\ 0.11$	$15631 \\ 0.21$	$13953 \\ 0.35$	$\begin{array}{c} 10838\\ 0.36\end{array}$	$\begin{array}{c} 10370\\ 0.38 \end{array}$

### Determinants of the Support for Brexit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	Panel A. Controlling for Republican Dummy							
Republican	3.06 (95.92)	3.06 (95.93)	3.06 (95.83)	$3.05 \\ (94.51)$	2.92 (94.66)	2.92 (89.32)	2.86 (84.45)	
Income	-0.02 (-4.64)		$0.06 \\ (3.86)$	0.10 (6.41)		0.11 (6.70)	$0.08 \\ (4.82)$	
$Income^2$		-0.002 (-5.72)	-0.01 (-5.11)	-0.01 $(-4.85)$		-0.005 $(-4.43)$	-0.004 (-3.80)	
Education				-0.27 (-28.72)		-0.26 (-27.31)	-0.24 (-23.82)	
Religious					$0.40 \\ (37.84)$	$0.37 \\ (32.59)$	0.46 (37.82)	
Minority							-1.28 (-34.04)	
Age							$0.01 \\ (14.76)$	
Gender (Male)							0.57 (21.14)	
$\begin{array}{c} \text{Observations} \\ R^2 \end{array}$	$\begin{array}{c} 40445\\ 0.32 \end{array}$	$\begin{array}{c} 40445\\ 0.32 \end{array}$	$\begin{array}{c} 40445\\ 0.32\end{array}$	$\begin{array}{c} 40445\\ 0.33\end{array}$	$\begin{array}{c} 45209\\ 0.34 \end{array}$	$\begin{array}{c} 40426\\ 0.35 \end{array}$	$\begin{array}{c} 40426\\ 0.40\end{array}$	

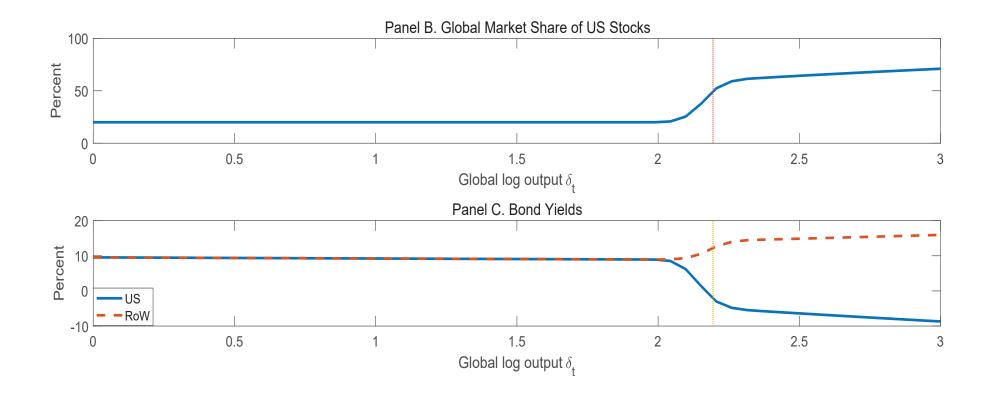
### Determinants of the Support for Trump

	(1)	(2)	(3)	(4)	(5)	(6)	(7)			
	Panel B. No Control for Republican Dummy									
Income	-0.001 (-0.27)		0.10 (7.30)	0.14 (10.42)		0.15 (10.52)	$0.12 \\ (8.15)$			
$Income^2$		-0.0004 (-2.10)	-0.01 $(-7.58)$	-0.01 (-7.22)		-0.01 (-6.36)	-0.01 $(-5.43)$			
Education				-0.28 (-35.71)		-0.27 (-33.09)	-0.25 $(-28.58)$			
Religious					$0.53 \\ (58.25)$	0.51 (52.02)	$0.61 \\ (57.66)$			
Minority							-1.59 (-47.71)			
Age							$0.01 \\ (14.54)$			
Gender (Male)							0.47 (20.32)			
$\frac{\text{Observations}}{R^2}$	$\begin{array}{c} 40456\\ 0.00\end{array}$	$40456 \\ 0.0001$	$40456 \\ 0.001$	$\begin{array}{c} 40456\\ 0.03\end{array}$	$45222 \\ 0.08$	$40437 \\ 0.10$	$40437 \\ 0.19$			

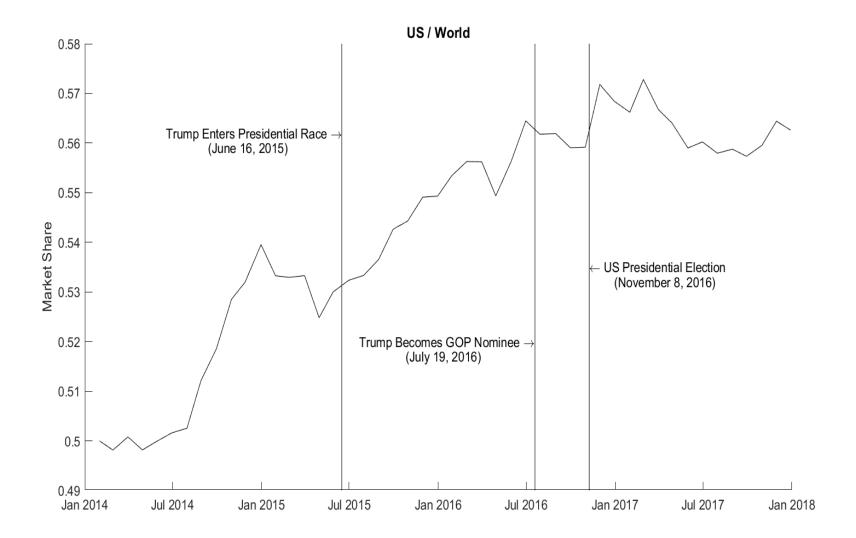
### Determinants of the Support for Trump

### Asset Prices

- **Result:** Global market share of U.S. **stocks** increases before the populist victory.
- **Result:** U.S. **bond** yields fall before the populist victory.



### Global Share of U.S. Stock Market



Extensions  $\implies$  Same Conclusions

- Time-varying U.S. output share  $F_t$ 
  - Populist elected if  $\delta_{\tau} > \overline{\delta}(F_{\tau})$ , where  $\overline{\delta}'(F_{\tau}) > 0$
  - U.S. output share  $\downarrow \Longrightarrow$  Populism  $\uparrow$
- Time-varying population shares

-Immigration from RoW to U.S.  $\Longrightarrow$  Populism  $\uparrow$ 

- Higher costs of autarky
  - Lower output growth,  $\mu_\delta$
  - Higher output volatility,  $\sigma_\delta$

# Conclusions

- Backlash against globalization arises endogenously in our model
   Rational voters' optimal response to rising inequality
- Key modeling ingredients:
  - Inequality aversion
  - Heterogeneous risk aversion (within & across countries)
  - -Risk sharing (global vs. local)
- Evidence across countries and voters largely supports the model
  - Countries are more populist if they have more inequality, more financial development, and current account deficits
  - Voters are more populist if more risk- and inequality-averse