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ABSTRACT

Motivated by the recent rise of populism in western democracies, we develop a model in which a populist backlash emerges endogenously in a growing economy. In the model, voters dislike inequality, especially the high consumption of the “elites.” Economic growth exacerbates inequality due to heterogeneity in risk aversion. In response to rising inequality, rich-country voters optimally elect a populist promising to end globalization. Redistribution is of limited value in containing the backlash against globalization. Countries with more inequality, higher financial development, and current account deficits are more vulnerable to populism, both in the model and in the data. Evidence on who voted for Brexit and Trump in 2016 also largely supports the model.

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“The gains from globalization are not evenly distributed.” Milanović (2016, p.10).

1. Introduction

We develop a theory that relates two of the defining trends of our times: growing income inequality over the past four decades (e.g., Atkinson, Piketty, and Saez, 2011) and the ongoing rise of populism in the West. The latter trend goes hand in hand with a pushback against globalization. This pushback is best exemplified by two momentous 2016 votes: the British vote to leave the European Union (“Brexit”) and the election of a protectionist, Donald Trump, to the U.S. presidency. In both cases, rich-country electorates voted to effectively take a step back from the long-lasting process of global integration.¹

We connect the two trends in a tractable heterogeneous-agent equilibrium model. In it, a backlash against globalization emerges as the optimal response of rational voters to rising inequality, which in turn is a natural consequence of economic growth. In other words, growth aggravates inequality, which eventually subdues globalization. The backlash is inevitable, just a matter of time. Globalization carries the seeds of its own destruction.

Populism is a political ideology pitching ordinary people, who are viewed as homogeneous and inherently good, against the established elites, who are deemed immoral and corrupt (e.g., Müller, 2016). While many forms of populism exist, anti-elitism is common to all of them. Anti-elitism enters our model through agent preferences. We assume that agents dislike inequality, which we measure by the variance of consumption shares across agents. Given our other assumptions, equilibrium consumption develops a right-skewed distribution across agents. As a result, inequality is driven by the high consumption of the rich rather than the low consumption of the poor. Aversion to inequality thus reflects envy of the economic elites rather than compassion for the poor. Inequality-averse agents are keen on reducing the consumption of the elites—the most effective way of lowering inequality.

Another common feature of populism is its anti-globalism. Populists prioritize national interests over international cooperation, strong leadership over diplomacy, and protectionism over free trade. They often advocate anti-global policies such as tariffs and immigration controls. Indeed, some researchers attribute the recent rise of populism to voters’ economic insecurity stemming from exposure to globalization.² Sampson (2017) reports that 69% of the British who disliked globalization voted for Brexit in the EU referendum. Colantone and

¹In his keynote speech at the 2018 World Economic Forum in Davos, French President Emmanuel Macron remarked: “Let us not be naive. Today, globalization is going through a major crisis...”

²The recent rise of populism appears to have multiple causes besides exposure to globalization. Some attribute it to cultural backlash against the ascent of progressive values (Inglehart and Norris, 2016). Others blame economic insecurity stemming from exposure to the financial crisis (Algan et al., 2017).

Stanig (2018a) show that support for Brexit was higher in the regions hit harder by globalization, as measured by import penetration from China. Autor et al. (2017) and Colantone and Stanig (2018b) find that imports from China boost support for populism in the U.S. and in 15 European countries. Guiso et al. (2017) use survey data to relate European voters’ preference for populist parties to economic insecurity from exposure to global trade and competition of immigrants. Guiso et al. (2018) find an especially strong effect of globalization on populist support in Eurozone countries. Rodrik (2018) presents similar arguments. Motivated by this evidence, we define a populist as a politician who wants to close her country’s borders and move away from global integration.³

The globalization process is sometimes believed to be irreversible, but history suggests otherwise. For almost a century before 1914, the world went through an era of globalization that by some metrics surpassed the level observed today. This era ended during World War I and was not resuscitated until after World War II (O’Rourke and Williamson, 2001; James, 2001). Globalization became a victim of a backlash driven by a variety of grievances, including rising inequality. The literature warns that history could repeat itself. For example, Rodrik (2000) postulates a trilemma, according to which we cannot have all three of global economic integration, the nation state, and democratic politics. Rodrik (1997) argues that globalization creates social tensions by interfering with labor markets and by clashing with domestic norms and social arrangements. We focus on one tension—inequality—and formalize the fragility of globalization in an equilibrium model.

In the model, agents like consumption but dislike inequality within their own country. There are two countries, the U.S. and the rest of the world (“RoW”). Both countries grow trees producing output, which trends upward. Agents have heterogeneous attitudes toward risk, with U.S. agents less risk-averse than RoW agents. Agents trade stocks and bonds. At the outset, the countries are financially integrated—there are no barriers to trade and risk is shared globally. At a given time, both countries hold elections featuring two candidates. The “mainstream” candidate promises to preserve financial globalization whereas the “populist” candidate promises to end it. If either country elects a populist, a move to autarky takes place. Going forward, each country consumes the output of its own tree and there is no cross-border trading. Elections are decided by the median voter.

We first solve for optimal consumption and portfolio choices under global risk sharing. Agents who are more risk-averse choose safer portfolios and smoother consumption plans,

³Our definition departs from other theories of populism. For example, Guiso et al. (2017) define as populist a party that champions short-term protection policies while disregarding their long-term costs. Acemoglu, Egorov, and Sonin (2013) define populist policies as those to the left of the median voter’s preferences.

effectively buying insurance from less risk-averse agents. Due to country-level differences in risk aversion, U.S. agents hold riskier portfolios than RoW agents. In the long run, U.S. agents thus consume more than their output while RoW agents consume less. The U.S. runs a current account deficit whereas RoW runs a surplus. Due to individual-level differences in risk aversion, economic growth increases inequality within both countries because less risk-averse agents consume a growing share of total output.

When deciding whether to vote for the populist candidate, U.S. agents face a tradeoff. If elected, the populist delivers lower consumption but also lower inequality to U.S. agents. After a move to autarky, U.S. agents can no longer borrow from RoW to finance their excess consumption. But their inequality drops, too, because the absence of cross-border leverage makes their portfolio positions less disperse. The balance of this consumption-inequality tradeoff depends on the agent and on the level of output. When output is higher, the loss of consumption hurts less because the marginal utility of consumption is lower. Therefore, as output grows, U.S. agents become increasingly willing to sacrifice consumption in exchange for more equality. In that sense, equality is a luxury good. When output grows large enough, more than half of U.S. agents prefer autarky and the populist wins the U.S. election. This is our main result: in a growing economy, the populist eventually gets elected. In a democratic society that values equality, globalization cannot survive in the long run.

Globalization would survive under a social planner. The competitive market solution differs from the social planner solution due to the negative externality that the elites impose on others through their high consumption. Inspired by the social planner, we could in principle tax the consumption of the elites and subsidize the consumption of those left behind by globalization. But simpler and more realistic wealth redistribution policies, which are not directly linked to consumption, fail to save globalization. In our model, financial markets are dynamically complete. Any state-contingent redistributive policy is “traded away” by agents in that there exists a redistribution of initial endowments that achieves the same consumption plan. We analyze a class of redistributive policies that transfer wealth from low-risk-aversion agents, who benefit the most from globalization, to high-risk-aversion agents, who benefit the least. These policies are equivalent to assigning higher initial endowments to high-risk-aversion agents. Starting from those modified endowments, the economy eventually reaches the point at which the populist gets elected. In that sense, wealth redistribution can delay the populist’s victory, but cannot prevent it from happening eventually.

Our model predicts that support for populism should be stronger in countries with higher inequality, more financial development, and a more negative current account balance. Looking across 29 developed countries, we find evidence supporting these predictions. We measure

the support for populism by the vote share of populist parties in recent elections, as well as by protectionist attitudes expressed in a survey of OECD households.

The model also makes predictions about the characteristics of populist voters. Such voters should be more risk-averse and more inequality-averse than mainstream voters, on average. Agents who are highly inequality-averse are “anti-elite,” as discussed earlier; they place a large weight on inequality in the consumption-inequality tradeoff. Agents who are highly risk-averse optimally choose safe consumption plans; as a result, their consumption is less adversely affected by a move to autarky. They also tend to be poorer because they benefit less from economic growth due to their conservative portfolio positions. Besides wealth, the model also suggests education as a proxy for risk aversion. Like more-risk-averse agents, less-educated agents tend to benefit less from growth under globalization, and have less to lose from the end of globalization. The model thus predicts that less-educated, poorer, and anti-elite agents are more likely to vote populist.

That is indeed what we find empirically. We examine the characteristics of the voters who supported Brexit in the 2016 EU referendum and Trump in the 2016 presidential election. We find that less-educated and lower-income voters are more likely to vote for Brexit and Trump. The support for Brexit and Trump is also stronger among right-wing respondents, who might be less inequality-averse. However, when we measure inequality aversion by religiosity or by three different proxies for envy of the rich, we find that more inequality-averse voters support Brexit, as the model predicts.

The model also makes predictions for asset prices. Upon a shift to autarky, the nature of risk sharing changes from global to local. The risk associated with U.S. output is now borne by U.S. agents only. Since these agents are less risk-averse than RoW agents, the U.S. market price of risk drops when autarky arrives. The opposite happens for RoW. As a result, the global market share of U.S. stocks rises in anticipation of the populist’s victory. Consistent with this prediction, the U.S. share of the global stock market rose steadily before the 2016 Trump election. The model also implies that U.S. bond yields should be low, possibly negative, before the populist’s victory. U.S. bonds are especially valuable when a move to autarky is likely because they deliver future consumption when its marginal utility to U.S. agents is high. Consistent with this prediction, bond yields in the West were low, negative in some countries, when the recent populist wave began.

Agents in our model dislike inequality. Inequality aversion has its roots in Thurow (1971), who advocates the inclusion of income distribution in an individual’s utility function. According to Thurow, individuals may prefer equality because it helps prevent crime and pre-

serve social stability, but also because they may have a taste for it. Wilkinson and Pickett (2009, 2018) show that more unequal societies suffer from a variety of problems including illiteracy, crime, and poor health. They argue that inequality causes status anxiety at all income levels, including the top, which leads to health and social problems. Fehr and Schmidt (1999) build a well-known model in which individuals are willing to give up material payoffs to achieve more equality. Alesina and Angeletos (2005) employ preferences in which agents dislike unfair outcomes. Evidence indeed shows that individuals dislike inequality. This evidence goes back to Morawetz et al. (1977), who compare two Israeli communities and find that individuals in the more egalitarian community report being happier. Alesina, Di Tella, and MacCulloch (2004) also find that people facing less inequality are happier. Dawes et al. (2007) find experimental evidence that subjects alter others' incomes, at a personal cost, to achieve more equality. Experimental results from dictator and ultimatum games also point to egalitarian preferences. Ferrer-i-Carbonell and Ramos (2014) review the evidence on happiness and inequality and "conclude that inequality correlates negatively with happiness in Western societies." Clark and D'Ambrosio's (2015) survey reaches similar conclusions.

Our modeling of globalization differs from its more common treatments in labor economics and international trade. Unlike labor economics, our model features no jobs, wages, or heterogeneity in skill. The model thus cannot speak to skill-biased technological change, a popular explanation for the recent rise in inequality.⁴ Unlike models of international trade, our model has only one consumption good. Instead of trade in goods, we focus on trade in financial assets, comparing global and local risk sharing.⁵ While this focus necessarily omits important non-financial aspects of the problem, it also delivers new insights regarding financial development, redistribution, asset prices, and risk aversion.

Heterogeneity in risk aversion has been of growing interest to financial economists.⁶ We do not interpret it literally as representing differences in personal appetite for risk. Instead, we use it as a modeling tool to capture two phenomena. First, heterogeneity in risk aversion generates rising inequality in a growing economy. In an endowment economy such as ours, inequality cannot rise due to factors such as technological change because production is not modeled explicitly.⁷ We employ individual-level differences in risk aversion as a simple way

⁴Global trade also seems to have exacerbated inequality in rich countries by deepening the divide between high-skilled and low-skilled workers (e.g., Wood, 1995, Rodrik, 1997, and Lindert and Williamson, 2003).

⁵Examples of studies that assess the magnitude of welfare gains from global versus local risk sharing include Cole and Obstfeld (1991), who find only small gains as long as trade in goods is permitted, and Colacito and Croce (2010), who find significantly larger gains. Another line of work, exemplified by Bekaert, Harvey, and Lundblad (2005), finds that financial market liberalizations tend to spur economic growth.

⁶See, for example, Dumas (1989), Chan and Kogan (2002), Gomes and Michaelides (2008), Longstaff and Wang (2012), Chabakauri (2013), Bhamra and Uppal (2014), and Garleanu and Panageas (2015). Evidence indeed finds heterogeneous risk preferences among households (e.g., Mazzocco and Saini, 2012).

⁷Recent studies of income inequality that do model production along with heterogeneous entrepreneurial

of capturing the uneven distribution of benefits from global growth.

Second, we interpret country-level differences in risk aversion as differences in financial development. Like Gourinchas, Rey, and Govillot (2017), we assume that U.S. agents are less risk-averse than RoW agents, capturing the idea that the U.S. is more financially developed than RoW. In their model, as well as ours, U.S. agents effectively provide insurance to RoW agents.⁸ Maggiori (2017) microfound this asymmetry by relying on differences in financial development across countries. In his model, the country whose financial intermediaries are less constrained behaves as if it were less risk-averse. That country also runs a trade deficit, as it does in our model. Caballero, Farhi, and Gourinchas (2008) and Mendoza, Quadrini, and Ríos-Rull (2009) also link financial development to global imbalances. Pástor and Veronesi (2017) consider the political implications of time variation in risk aversion, whereas here we consider the political implications of its cross-sectional variation.

Our paper is also related to the literature on financial development. A key result in this large literature is that financial development facilitates economic growth (e.g., Rajan and Zingales, 1998). In contrast, our model emphasizes the dark side of financial development: it spurs the growth of inequality, which eventually leads to a populist backlash.

The paper is organized as follows. Section 2 presents the model. Section 3 examines the equilibrium under globalization. Section 4 shows how the democratic process results in a backlash against globalization. Section 5 analyzes the asset pricing implications. Section 6 presents modeling extensions. Sections 7 through 9 present our empirical evidence, looking across countries, across voters, and at stock prices, respectively. Section 10 concludes.

2. Model

There is a continuum of agents with unit mass spread across two countries, the U.S. and the rest of the world (“RoW”). Agents have preferences over their own consumption as well as the inequality in their own country. Agent i from country $k \in \{US, RoW\}$ has a time-separable utility function with instantaneous utility at time t given by

$$U_i(C_{it}, V_t^k, t) = e^{-\phi t} \left(\frac{C_{it}^{1-\gamma_i}}{1-\gamma_i} - \eta_i V_t^k \right) \quad \forall i \in \mathcal{I}^k, \quad (1)$$

skill include Pástor and Veronesi (2016) and Jones and Kim (2018), among others.

⁸Consistent with this mechanism, Gourinchas et al. provide empirical evidence of wealth transfers from the U.S. to RoW during recent financial crises. Unlike Gourinchas et al., we allow heterogeneous risk aversion not only across countries but also within countries, which allows us to analyze within-country inequality.

where C_{it} is the agent's consumption, V_t^k is inequality in country k , $\gamma_i > 1$ is the agent's risk aversion, $\eta_i \geq 0$ is his "inequality aversion," and \mathcal{I}^k is the set of agents living in country k . We measure inequality by the variance of consumption shares across agents:

$$V_t^k = \text{Var} \left(\frac{C_{it}}{\bar{C}_t^k} \mid i \in \mathcal{I}^k \right), \quad (2)$$

where $\bar{C}_t^k = \text{E}^i [C_{it} \mid i \in \mathcal{I}^k]$ denotes the average value of C_{it} across all agents in country k . The scaling of C_{it} by \bar{C}_t^k in equation (2) ensures that V_t^k is invariant to changes in average consumption so that it measures relative, not absolute, inequality.

The utility function in equation (1) increases in consumption but decreases in inequality. The idea that individuals dislike inequality is well established, as explained earlier, but the way we model it is novel. We show later that, in equilibrium, consumption shares develop a right-skewed distribution across agents. Therefore, V_t^k is driven by the right tail of the distribution, and inequality aversion can largely be thought of as anti-elitism: agents dislike being left behind the economic elites.⁹ Our preference specification resembles Fehr and Schmidt (1999) in that agents effectively derive more disutility from envying the rich than from pitying the poor.¹⁰ Importantly, inequality aversion induces an externality: through their high consumption, the elites impose a negative externality on other agents.

We assume that U.S. agents are less risk-averse than RoW agents. The technical condition that we need is for the distribution of risk aversion, γ_i , across agents to satisfy

$$\lim_{x \rightarrow \infty} \frac{\text{E}^i [e^{x/\gamma_i} \mid i \in \mathcal{I}^{RoW}]}{\text{E}^i [e^{x/\gamma_j} \mid j \in \mathcal{I}^{US}]} = 0. \quad (3)$$

The simplest example of an assumption that satisfies this condition is

$$\gamma_i < \gamma_j \quad \forall i, j : \{i \in \mathcal{I}^{US}, j \in \mathcal{I}^{RoW}\}, \quad (4)$$

so that U.S. agents are uniformly less risk-averse than RoW agents. The distributions of γ_i for the U.S. and RoW can also overlap. For example, the condition (3) is satisfied when we let risk tolerances $\rho_i = 1/\gamma_i$ be uniformly distributed with the same lower bound for both countries but a higher upper bound for the U.S. The condition also holds if ρ_i in both countries is truncated normal, with the same truncation points and same dispersion for

⁹We interpret "elites" narrowly as the economic elites, or the wealthy. Political scientists often think of the elites more broadly as including also members of the political establishment, academia, military, etc.

¹⁰In Fehr and Schmidt's model, agents dislike inequality whether they are better or worse off than others, but they dislike it more if they are worse off. In our model, the agent's relative position in the income distribution does not appear in the utility function, but given the right skewness of consumption, the vast majority of agents are far behind the ultra-rich but only a bit ahead of the ultra-poor.

both countries but a higher mean in the U.S. This is the example we use in our numerical illustrations. But our propositions rely only on the weaker assumption in equation (3).

The assumption that U.S. agents are less risk-averse than RoW agents—the defining difference between the two countries—is motivated by the literature that explores risk-sharing motives to analyze global trading imbalances, especially Gourinchas, Rey, and Govillot (2017) and Maggiori (2017). Following this literature, which is described in the introduction, we view the lower risk aversion of U.S. agents as a proxy for the higher financial development of the U.S. financial system. In that sense, we could interpret US-RoW as any pair of countries with different levels of financial development. For example, we could replace US-RoW with UK-EU (or the United Kingdom and the European Union), as the financial system is generally considered to be more developed in the UK than in continental Europe.

The two countries grow trees which produce continuous streams of perishable output denoted by D_t^{US} and D_t^{RoW} at time $t \in [0, T]$. The aggregate global output, D_t , is given by

$$D_t = D_t^{US} + D_t^{RoW} . \quad (5)$$

We assume that $\delta_t \equiv \log(D_t)$ evolves over time by following a simple stochastic process:

$$d\delta_t = \mu_\delta dt + \sigma_\delta dZ_t , \quad (6)$$

where $\mu_\delta > 0$ and Z_t is a Brownian motion. We also assume, for simplicity, that each country’s share of global output is constant and equal to the country’s population share:

$$\frac{D_t^{US}}{D_t} = m , \quad (7)$$

where m is the fraction of agents living in the U.S. (so that $1 - m$ agents live in RoW).¹¹ Since each country’s output is perfectly correlated with global output, δ_t is the only state variable in the model. Even with a single shock (dZ_t), risk-sharing motives are critical due to the presence of heterogeneous agents with different risk aversions.

Agents can trade two types of financial assets: stocks and bonds. Stocks, which are in positive net supply, represent claims to the output streams of the two countries: U.S. stocks are claims to U.S. output, whereas RoW stocks are claims to RoW output. Since the two output streams are perfectly correlated, so are the two stock prices. Bonds, which are in zero net supply, allow agents to lend to each other in a risk-free manner.

Agents’ trading is governed by one of two trading regimes: “globalization” or “autarky.” Under globalization, there are no barriers to trade—U.S. agents can trade freely with RoW

¹¹In Section 6.1, we relax this assumption by allowing the countries’ output shares to be stochastic.

agents. Under autarky, cross-border trading is not allowed—U.S. agents can trade only with other U.S. agents, and RoW agents only with other RoW agents.

From time 0 until time $\tau \in [0, T]$, the countries coexist under globalization. At the given time τ , both countries hold elections featuring two candidates. The “mainstream” candidate promises to maintain globalization through time T . The “populist” candidate promises to end it and move the country to autarky until time T . Each country’s election is decided by that country’s median voter. When elected, both candidates deliver on their promises. If either country elects a populist, the move to autarky takes place immediately—U.S. agents reclaim the possession of the U.S. tree (producing D_t^{US}), RoW agents reclaim the RoW tree (producing D_t^{RoW}), and any cross-border debt is settled. From that point on, each country consumes the output of its own tree and all trading takes place within countries.

We assume that a country can shift to autarky only if it has enough wealth to settle all cross-border liabilities that such a shift would demand. In other words, a country cannot move to autarky if doing so would reduce the other country’s consumption. We thus rule out expropriation of wealth from the other country, or default, by imposing an infinite utility penalty on it. Such an assumption seems plausible for developed countries, which tend to settle their debts and avoid expropriation. For example, following the Brexit vote, the United Kingdom agreed to settle its “divorce bill” from the EU. This no-default assumption seems reasonable given our focus on the rise of populism in the rich world.

The no-default assumption would rule out shifts to autarky in models with a standard utility function over consumption. In such models, a voluntary shift to autarky always implies a consumption loss for the other country because one country can consume more only at the expense of the other. That is not true in our model, given the presence of inequality in the utility function. In our model, a voluntary shift to autarky by one country increases the consumption in the other country.

2.1. Optimal Consumption

Our assumptions imply that financial markets are dynamically complete, because the risk associated with the single shock (dZ_t) can be hedged by either of the two stocks (US or RoW), regardless of the trading regime, and time τ is known. Due to market completeness, we can write the optimization problem of each agent $i \in \mathcal{I}^k$, for $k \in \{US, RoW\}$, as

$$\max_{\{C_{it}\}} E_0 \left[\int_0^T U_i(C_{it}, V_t^k, t) dt \right] \quad (8)$$

subject to the static budget constraint

$$\mathbb{E}_0 \left[\int_0^T \pi_t^k C_{it} dt \right] = w_i , \quad (9)$$

where w_i is agent i 's initial wealth, $\mathbb{E}_0[\cdot]$ is an expectation as of time 0, and π_t^k is the state price density for country k , which is determined in equilibrium. We normalize $\pi_0^k = 1$ and $\delta_0 = 0$ without loss of generality. Under globalization, the two countries' financial markets are fully integrated, so that $\pi_t^{US} = \pi_t^{RoW}$. Under autarky, the markets are segmented, so that $\pi_t^{US} \neq \pi_t^{RoW}$. The Lagrangean for the constrained optimization problem is

$$L_i = \mathbb{E}_0 \left[\int_0^T U_i(C_{it}, V_t^k, t) dt \right] - \xi_i \left(\mathbb{E}_0 \left[\int_0^T \pi_t^k C_{it} dt \right] - w_i \right) , \quad (10)$$

where ξ_i is the Lagrange multiplier. The maximization is performed state by state, period by period. The first-order conditions yield agent i 's optimal consumption:

$$C_{it} = e^{\frac{g_t^k - \log(\xi_i)}{\gamma_i}} , \quad (11)$$

where g_t^k is a simple transformation of the state price density:

$$g_t^k = -\phi t - \log(\pi_t^k) . \quad (12)$$

2.2. Distribution of Initial Endowments

Substituting optimal consumption from equation (11) into the budget constraint in equation (9), we can express agents' initial endowments as

$$w_i = e^{-\frac{\log(\xi_i)}{\gamma_i}} \mathbb{E}_0 \left[\int_0^T e^{-\phi t + \left(\frac{1}{\gamma_i} - 1\right) g_t^k} dt \right] . \quad (13)$$

For tractability, we make technical assumptions about the distribution of w_i across agents. These assumptions allow us to solve the model analytically despite having two countries and multi-dimensional agent heterogeneity of very general form. First, we decompose $\log(\xi_i)$ as

$$\log(\xi_i) = y + \log(\tilde{\xi}_i) , \quad (14)$$

which gives us freedom to vary y later on. We then define the variable

$$\psi_i = -\frac{1}{\gamma_i} \log(\tilde{\xi}_i) \quad (15)$$

and assume that it is independent of γ_i .¹² Once we draw the values of ψ_i and γ_i from their assumed distributions, we combine them with the chosen value of y to construct ξ_i , which

¹²The independence between ψ_i and γ_i is ensured by choosing $\tilde{\xi}_i$ implied by the values of ψ_i and γ_i . Given two independent distributions of ψ_i and γ_i , the distribution of $\tilde{\xi}_i$ follows from $\log(\tilde{\xi}_i) = -\psi_i \gamma_i$.

then determines the initial endowments w_i in equation (13). In Section 4.3, we vary y to examine how the distribution of initial endowments affects the equilibrium outcomes.

Agents are heterogeneous in three dimensions—they have different risk aversions γ_i , inequality aversions η_i , and initial endowments w_i (or, alternatively, ψ_i). We make no assumptions about the functional forms of the distributions of any of the three parameters across agents. We only assume that the distribution of γ_i is bounded, $\gamma_i \in [\gamma_L, \gamma_H]$ with $\gamma_L > 1$, continuously differentiable, and that it has positive dispersion. In addition, the distributions of both ψ_i and $1/\gamma_i$ must have well-defined moment-generating functions.

Heterogeneous-agent models are often amenable only to numerical solutions. We derive analytical solutions, along with a rich set of model predictions, under multi-dimensional heterogeneity and general assumptions about parameter distributions across agents.

In addition to solving the model analytically, we illustrate its main implications in a parametric example. First, we choose the preference parameters. For each country, the distribution of risk tolerance $\rho_i = 1/\gamma_i$ is truncated normal with the same truncation points, restricting γ_i to the interval of (2, 10). The standard deviation of ρ_i is also the same, 0.05, for both countries. But the means of ρ_i are different: 0.25 for the U.S. and 0.2 for RoW, so that RoW agents are more risk-averse, on average, than U.S. agents (the condition (3) is satisfied). The distribution of η_i is normal truncated at zero, with the mean of 0.001 and standard deviation of 0.0003. The time preference parameter is $\phi = 0.02$. For the output process in equation (6), we pick $\mu_\delta = 0.02$ and $\sigma_\delta = 0.04$. In equation (7), we set $m = 0.2$. We choose the election time $\tau = 2$ years. The world ends at time $T = \tau + 100$ years. For the distribution of initial endowments, we choose $y = 0$ and ψ_i in equation (15) that is normally distributed with the standard deviation of 0.2 and the mean such that $E^i [e^{\psi_i} | i \in \mathcal{I}] = 1$.

The log of global output, δ_t , follows the process in equation (6). The drift of this process is positive ($\mu_\delta > 0$), reflecting the natural tendency of output to grow over time. The value of δ_t thus grows on average, and it is just a matter of time before it exceeds any given value with probability arbitrarily close to one. In several of our subsequent results, we assume “when output is large enough,” by which we mean $\delta_t > \underline{\delta}$, where $\underline{\delta}$ is a result-specific threshold. This is an innocuous assumption—we simply restrict our attention to time periods t for which enough time has passed since time 0 so that the inequality $\delta_t > \underline{\delta}$ is satisfied.

3. Globalization

We now solve for the equilibrium under globalization. Since $\pi_t^{US} = \pi_t^{RoW}$, from equation (12), we have $g_t^{US} = g_t^{RoW}$. We denote the common value of g_t^{US} and g_t^{RoW} by g_t . Since output is perishable, aggregate global output equals aggregate consumption in each period:

$$D_t = \int_{i \in \mathcal{I}} C_{it} di , \quad (16)$$

where \mathcal{I} is the set of all agents. Substituting for consumption from equation (11), we obtain

$$\delta_t = \log \left(\frac{\mathbb{E}^i [e^{(g_t - y)/\gamma_i} \mid i \in \mathcal{I}]}{\mathbb{E}^i [e^{-y/\gamma_i} \mid i \in \mathcal{I}]} \right) . \quad (17)$$

The equilibrium value of g_t is the unique solution to this equation. We denote this solution by $g(\delta_t)$. The basic properties of this function are derived by Veronesi (2018). He shows that $g'(\delta_t)$ is the inverse of the consumption-weighted average of agents' risk tolerance. Since this value is positive, $g(\delta_t)$ is increasing in δ_t . In addition, $g'(\delta_t)$ decreases as δ_t increases because in a stronger economy, agents with lower risk aversion consume relatively more so that their higher risk tolerance receives a larger weight in the average. Finally, $g(\delta_t) \rightarrow \infty$ as $\delta_t \rightarrow \infty$ because the marginal utility of consumption shrinks to zero when consumption is infinite.

3.1. Inequality

From equations (2) and (11), we derive the following proposition.¹³

Proposition 1. *Under globalization, when output is large enough, within-country inequality grows with output, without bounds. That is, for both countries $k \in \{US, RoW\}$, V_t^k from equation (2) is uniformly increasing in δ_t , and $\lim_{\delta_t \rightarrow \infty} V_t^k = \infty$.*

We prove this proposition in two steps. First, we derive a formula for V_t^k :

$$V_t^k = \frac{\mathbb{E}^i [e^{2\psi_i} \mid i \in \mathcal{I}^k]}{\mathbb{E}^i [e^{\psi_i} \mid i \in \mathcal{I}^k]^2} \frac{\mathbb{E}^i [e^{2(g(\delta_t) - y)/\gamma_i} \mid i \in \mathcal{I}^k]}{\mathbb{E}^i [e^{(g(\delta_t) - y)/\gamma_i} \mid i \in \mathcal{I}^k]^2} - 1 . \quad (18)$$

Then we show that the quantity from equation (18) is increasing in δ_t , without bounds.

The result that inequality grows with output would be unsurprising if we were to measure inequality in *absolute* terms, as the cross-sectional variance of consumption levels, because those levels, and the differences between them, grow with the size of the economy. However,

¹³The proofs of all of our formal results are in the Internet Appendix, which is posted on our websites.

we measure inequality in *relative* terms, as the cross-sectional variance of consumption shares (equation (2)). Instead of being trivial, the result is an outcome of optimal risk sharing. As the economy strengthens, agents with lower risk aversion consume an increasingly large fraction of total output. This follows from equation (11) because $g'(\delta_t) > 0$. Economic growth generates rising relative inequality due to heterogeneity in risk aversion.

Inequality is eventually driven by the right tail of the consumption distribution. To see this, we first denote the skewness of consumption shares across agents by

$$S_t^k = \text{Skewness} \left(\frac{C_{it}}{\bar{C}_t^k} \mid i \in \mathcal{I}^k \right) . \quad (19)$$

Corollary 1. *When output is large enough, we have $S_t^k > 0$, S_t^k uniformly increasing in δ_t , and $\lim_{\delta_t \rightarrow \infty} S_t^k = \infty$, for both countries $k \in \{US, RoW\}$.*

This result holds when output is large enough that the skewness induced by heterogeneous wealth cumulation overcomes the heterogeneity of initial endowments (whose distribution could be left- or right-skewed). Inequality is thus driven by the high consumption of the rich, not the low consumption of the poor. Inequality aversion is determined more by agents' dislike of the rich than by their concern for the poor. Figure 1 plots the substance of Proposition 1 and Corollary 1 for our parametric example.

3.2. Current Account Balance

Heterogeneity in risk aversion generates an imbalance between the two countries.

Proposition 2. *Under globalization, when output is large enough, the U.S. runs a current account deficit whereas RoW runs a current account surplus.*

That is, U.S. agents consume more than their output whereas RoW agents consume less:

$$\int_{i \in \mathcal{I}^{US}} C_{it} di > D_t^{US} \quad (20)$$

$$\int_{i \in \mathcal{I}^{RoW}} C_{it} di < D_t^{RoW} . \quad (21)$$

The intuition follows from efficient risk sharing. Since U.S. agents are less risk-averse, they insure RoW agents by selling them bonds. They borrow from RoW agents and establish aggressive portfolio positions in stocks. The dividends from these positions finance high consumption by U.S. agents when output is large. The opposite is true for RoW agents—

their desire for smooth consumption leads them to hold conservative portfolios, from which they consume less. This pattern is illustrated in Figure 2.

Next, we establish some notation. The wealth of agent i at time t is

$$W_{it} = E_t \left[\int_t^T \frac{\pi_s}{\pi_t} C_{is} ds \right] , \quad (22)$$

so the aggregate wealth of all agents in country $k \in \{US, RoW\}$ is

$$W_t^k = \int_{i \in \mathcal{I}^k} W_{it} di . \quad (23)$$

We let P_t^k denote the market price of country k 's stock, which is a claim on the stream of dividends produced by the country's tree, and $P_t = P_t^{US} + P_t^{RoW}$ denote the value of the global stock market portfolio. Under globalization, all agents have positions in this stock portfolio and in risk-free bonds. We let N_{it} and B_{it} denote agent i 's holdings of stocks and bonds, respectively, and also define $N_t^k = \int_{i \in \mathcal{I}^k} N_{it} di$ and $B_t^k = \int_{i \in \mathcal{I}^k} B_{it} di$. In terms of the state variable δ_t , we have $W_t^k = W^k(\delta_t)$ and $P_t = P(\delta_t)$. For each country, we then have

$$W^k(\delta_t) = N_t^k P(\delta_t) + B_t^k , \quad (24)$$

which shows that a country's wealth is equal to the value of its stock-bond portfolio.

Corollary 2. *U.S. agents are net borrowers whereas RoW agents are net lenders.*¹⁴

That is, $B_t^{US} < 0$ and $B_t^{RoW} > 0$. From Corollary 2 and equation (24), we see that U.S. agents have a levered position in the stock market (i.e., $N_t^{US} P(\delta_t) > W^{US}(\delta_t)$), unlike RoW agents (for whom $N_t^{RoW} P(\delta_t) < W^{RoW}(\delta_t)$). As a result, U.S. agents benefit more from economic growth (i.e., from growing δ_t) than do RoW agents.

Corollary 3. *When output is large enough, U.S. agents' total wealth exceeds the U.S. stock market capitalization. The opposite is true for RoW:*

$$\frac{W_t^{US}}{P_t^{US}} > 1 > \frac{W_t^{RoW}}{P_t^{RoW}} . \quad (25)$$

Since U.S. agents hold levered portfolios, their wealth exceeds the value of their own tree, increasingly so as output continues to grow. The U.S. is therefore "rich" relative to RoW under globalization. Although this intuition builds on Corollary 2, the proof of Corollary 3 does not rely on Corollary 2; instead, it follows directly from Proposition 2.

¹⁴While Corollary 2 appears to hold generally, we are able to prove it only in the special case when the distribution of γ_i satisfies equation (4) and agents perceive zero probability of a move to autarky at time τ . In contrast, our proofs of all other results in this section are fully general (see the Internet Appendix).

4. Backlash Against Globalization

At time τ , both countries hold elections that may result in a move from globalization to autarky. Before analyzing how agents vote, we describe the equilibrium under autarky.

4.1. Autarky

Under autarky, each country consumes its own output, so that for both $k \in \{US, RoW\}$,

$$D_t^k = \int_{i \in \mathcal{I}^k} C_{it} di . \quad (26)$$

Substituting for consumption from equation (11) and rearranging, we obtain an equation identical to equation (17), except that the expectation is taken across country k 's agents only and g_t is replaced by g_t^k . We denote the solution to that equation, which is the equilibrium value of g_t^k , by $g^k(\delta_t)$. Similar to its global counterpart $g(\delta_t)$, the function $g^k(\delta_t)$ is increasing and concave in δ_t , and it diverges as $\delta_t \rightarrow \infty$. In addition, when output is large enough,

$$g^{US}(\delta_t) < g(\delta_t) < g^{RoW}(\delta_t) . \quad (27)$$

Recall from equation (12) that $g^k(\delta_t)$ is a simple modification of the state price density, π_t^k , which can be interpreted as the marginal utility of consumption for the representative agent in country k . Equation (27) implies that the marginal utility of U.S. agents is higher under autarky than under globalization, whereas the opposite is true for RoW agents.

Inequality under autarky obeys equation (18), except that $g(\delta_t)$ is replaced by $g^k(\delta_t)$. Next, we compare the inequality under autarky with that under globalization.

Proposition 3. *For every δ_t , U.S. inequality is lower under autarky than under globalization, whereas the opposite is true for RoW inequality:*

$$V_t^{US} [g^{US}(\delta_t)] < V_t^{US} [g(\delta_t)] \quad (28)$$

$$V_t^{RoW} [g^{RoW}(\delta_t)] > V_t^{RoW} [g(\delta_t)] . \quad (29)$$

The intuition follows from risk-sharing considerations. Under globalization, U.S. agents effectively provide consumption insurance to RoW agents. Therefore, U.S. agents' consumption paths are riskier than their endowments, resulting in more dispersion in their consumption shares. Under autarky, the cross-border insurance is absent, U.S. agents' consumption paths are less risky, and U.S. inequality is lower. For RoW agents, the same arguments apply

in reverse. Under globalization, RoW agents' consumption paths are less risky than their endowments, and their consumption shares are more similar to each other. Under autarky, RoW agents consume their endowment, resulting in larger RoW inequality.

The explanation can also be recast in portfolio terms. Under globalization, U.S. agents borrow from RoW agents to finance a levered stock position. This leverage amplifies the differences in consumption across U.S. agents. Under autarky, the cross-border leverage is absent and so U.S. consumption inequality is smaller. For RoW agents, the opposite is true. Under globalization, they hold substantial positions in bonds issued by U.S. agents. Given the similarity of RoW agents' holdings, the differences in their consumption shares are relatively small. Under autarky, the cross-border bond holdings are absent and so RoW consumption inequality is larger. See Figure 1 for a parametric illustration.

4.2. Elections

At time $\tau \in [0, T]$, both countries vote for one of two candidates. The mainstream candidate commits to maintain the globalization regime, whereas the populist commits to a shift to autarky, both lasting through time T . To determine who agent $i \in \mathcal{I}^k$ votes for, let U_i^G and U_i^A denote the agent's utilities from globalization and autarky, respectively, at time τ :

$$U_i^G(\delta_\tau; k, \tau, T) = \mathbb{E}_\tau \left[\int_\tau^T e^{-\phi(s-\tau)} \left(\frac{C_{is}^{1-\gamma_i}}{1-\gamma_i} - \eta^i V_s^k \right) ds \mid \text{mainstream elected} \right] \quad (30)$$

$$U_i^A(\delta_\tau; k, \tau, T) = \mathbb{E}_\tau \left[\int_\tau^T e^{-\phi(s-\tau)} \left(\frac{C_{is}^{1-\gamma_i}}{1-\gamma_i} - \eta^i V_s^k \right) ds \mid \text{populist elected} \right]. \quad (31)$$

The agent votes for the populist candidate if and only if

$$U_i^A(\delta_\tau; k, \tau, T) > U_i^G(\delta_\tau; k, \tau, T). \quad (32)$$

4.2.1. Voting by U.S. Agents

When deciding who to vote for, agents assess the effects of a move to autarky on both consumption and inequality. A shift to autarky decreases the consumption of U.S. agents (compare equations (20) and (26)), but it also reduces inequality (Proposition 3). This tradeoff is at the heart of the voting decision of each U.S. agent.

Individual agents may vote differently due to heterogeneity in η_i , γ_i , and w_i . We make only minimal distributional assumptions about these variables, as noted earlier. For our results about voting behavior, we add the assumption that more than half of U.S. agents

exhibit inequality aversion, $\eta_i > 0$. It is fine for some agents to exhibit no such aversion ($\eta_i = 0$), but inequality-neutral U.S. agents cannot constitute a voting majority.

Proposition 4. *For any U.S. agent i with $\eta_i > 0$, there exists $\bar{\delta}^i$ such that for any $\delta_\tau > \bar{\delta}^i$, the agent votes for the populist candidate.*

If δ_τ is large enough, the U.S. agent prefers autarky because the resulting reduction in inequality more than outweighs the associated reduction in consumption. The reduction in consumption does not bother the agent much because his marginal utility of consumption is low in a strong economy. When $\delta_\tau \rightarrow \infty$, the consumption loss does not bother the agent at all because the marginal utility goes to zero. In contrast, the reduction in inequality matters more because the drop in inequality, $V_\tau^{US} [g(\delta_\tau)] - V_\tau^{US} [g^{US}(\delta_\tau)]$, is bounded below as δ_τ increases. Therefore, when δ_τ is large enough, the gain from a more equal society more than compensates for the loss of consumption that the agent suffers when moving to autarky.¹⁵

Equality can be interpreted as a luxury good in that society demands more of it when it becomes wealthier. When δ_τ increases, agents are more willing to sacrifice consumption in exchange for more equality. Extending this idea beyond our model, voters might also treat culture, traditions, and other nonpecuniary values as luxury goods. Consistent with this argument, the recent rise in populism appears predominantly in rich countries. In poor countries, the marginal utility of consumption is high and agents are not willing to sacrifice consumption in exchange for more equality or other nonpecuniary values.

Corollary 4. *For any δ_τ , a U.S. agent i with $\eta_i = 0$ votes for the mainstream candidate.*

This result highlights the importance of inequality aversion for our results. Agents whose aversion is weak (i.e., whose η_i is small) reject populism to preserve the risk-sharing benefits of globalization. If we eliminated inequality aversion altogether by assigning $\eta_i = 0$ to all agents, globalization would always prevail; in fact, the populist would not win a single vote! It is the aversion to inequality that leads to a backlash against globalization.

The U.S. election is decided by the U.S. median voter. If the fraction of U.S. agents for whom the relation (32) holds exceeds one half, then the election is won by the populist and the U.S. moves to autarky. We now present our main result.

Proposition 5. *There exists $\bar{\delta}$ such that for any $\delta_\tau > \bar{\delta}$, the populist wins the U.S. election.*

¹⁵Anecdotal evidence suggests that at least some Trump supporters accept lower consumption as a price they are willing to pay for Trump’s effort to move the U.S. away from globalization, such as the tariffs he imposed in 2018: “Casey Jackson, a maintenance technician, said he would support the tariffs even if they cost him personally. “If it comes out of my paycheck, so be it,” he said.” (*Tariffs Trim a Factory’s Profit, but Loyalty to Trump Endures*, The New York Times, July 23, 2018).

In a sufficiently strong economy, the populist wins the U.S. election because the median voter values the lower inequality under autarky more than the higher consumption under globalization. The result follows from Proposition 4. In that proposition, the threshold $\bar{\delta}_t^i$ varies across agents. The median value of $\bar{\delta}_t^i$ across all U.S. agents is equal to the value of $\bar{\delta}$ in Proposition 5. This value of $\bar{\delta}$ is indicated by the vertical line in Figure 3.

Proposition 5 highlights the fragility of globalization. By permitting the broadest possible risk sharing, globalization stimulates risk taking. Differences in risk aversion lead agents to adopt different exposures to economic shocks. Agents with the largest exposures—those with the highest tolerance for risk—benefit the most from economic growth, while agents with the smallest exposures benefit the least. Economic growth thus deepens the wedge between the consumption levels of agents with different risk aversions, resulting in growing inequality. Given agents’ preference for equality, in a growing economy, it is just a matter of time before output grows to a level at which more than half of the agents vote for the populist.

Proposition 5 maps well onto the populist backlash observed recently in the West. Both the Trump election and the Brexit vote occurred in 2016, after decades of prosperity. The only major recession since World War II was associated with the 2008 financial crisis, but the 2009–2016 period is one of the longest economic expansions in both the U.S. and UK, indicating a large value of δ_t by 2016 in the context of our model. The fruits of this expansion have not been shared equally, resulting in steady rise of inequality in both the U.S. and UK.¹⁶ By 2016, the inequality rose to such a level that both countries voted populist in crucial polls, our model suggests. China’s growth over the same period may have further contributed to the rise of populism, as we discuss in Section 6.1.

The populist’s victory in the U.S. election is welcomed by some agents but not others. More than half of U.S. agents benefit from a shift to autarky, but those who vote mainstream, such as low- η_i agents, do not. The impact on RoW agents, who benefit from higher consumption but suffer from higher inequality, is also mixed. But, of course, RoW agents have no say in the U.S. voters’ decision. By electing the populist, the U.S. imposes an externality on RoW, which is forced to accept autarky. In the following section, we analyze the heterogeneity in the agents’ voting preferences in more detail.

¹⁶For example, the top 10% income share rose from 34.2% in 1980 to 47.0% in 2014 in the U.S., and from 28.4% in 1979 to 40.0% in 2014 in the UK, according to the World Inequality Database.

4.2.2. Who Votes for the Populist?

We now analyze the cross section of U.S. agents' voting preferences. Agents exhibit heterogeneity in three dimensions: risk aversion, γ_i , inequality aversion, η_i , and the parameter ψ_i that helps determine agents' initial endowments.

Proposition 6. *Agents with higher values of γ_i and η_i are more likely to vote populist.*

The expression “more likely” should be interpreted as follows: Holding η_i and ψ_i constant, there exists a threshold $\bar{\gamma}$ such that agent i votes for the populist if and only if $\gamma_i > \bar{\gamma}$. Similarly, holding γ_i and ψ_i constant, there exists a threshold $\bar{\eta}$ such that agent i votes for the populist if and only if $\eta_i > \bar{\eta}$. Given the randomness in γ_i , η_i , and ψ_i , populist voters tend to exhibit more aversion to both risk and inequality, as illustrated in Figure 4.

The result that high- η_i agents vote populist is straightforward. Recall that a move to autarky benefits U.S. agents by reducing within-U.S. inequality but hurts them by reducing their consumption. In this consumption-inequality tradeoff, higher- η_i agents put a larger weight on inequality, which makes autarky more appealing to them.

The result that high- γ_i agents vote populist follows from their optimal choice of smooth consumption plans. Equation (11) shows that the equilibrium consumption of higher- γ_i agents is less sensitive to changes in g_t^k . As a result, such agents suffer a smaller drop in consumption when the global value g_t changes to the local value g_t^{US} , where $g_t^{US} < g_t$ (equation (27)). Since higher- γ_i agents are better insured against the adverse consumption consequences of a shift to autarky, they are more likely to vote populist.

The model produces a negative relation between γ_i and wealth at time τ . This relation follows from the result that lower- γ_i agents choose more aggressive portfolios. Such agents benefit more from economic growth and they gradually accumulate more wealth than higher- γ_i agents. The negative relation between γ_i and wealth at time τ is not perfect, but it becomes stronger as time passes because the effect of initial endowments dwindles. The model thus suggests wealth as a natural empirical proxy for risk aversion. Panel C of Figure 4 shows that there are wealthy voters who vote populist, as well as poor voters who vote mainstream, but on average, mainstream voters are wealthier than populist ones.

The larger wealth of mainstream voters is reflected in their consumption. Figure 5 shows that mainstream voters consume more than populist voters on average. Mainstream voters also tend to suffer larger drops in consumption upon a move to autarky. The reason is their lower risk aversion (Panel A of Figure 4), which leads them to choose more volatile

consumption plans, as explained earlier.

Besides wealth, another natural proxy for risk aversion in the context of our model is skill. It does not appear in our simple endowment model, but there are important similarities between skill and risk aversion in terms of the key channels highlighted by the model. Similar to low- γ_i agents, skilled agents tend to benefit more from economic growth under globalization. This is true especially if the growth is driven by skill-biased technological change, which is outside the model but relevant in the current economic environment. Similar to low- γ_i agents, more skilled agents thus suffer a larger drop in consumption when a move to autarky occurs. In other words, like low- γ_i agents, more skilled agents have more to lose when globalization ends. Therefore, like low- γ_i agents, more skilled agents are less likely to vote populist. We measure skill by education in our empirical work.

Another argument supporting education as a proxy for γ_i is that the two concepts are linked in models of human capital investment. Because investment in education is risky, agents with lower γ_i are more likely to undertake it. Shaw (1996) establishes a negative relation between education and risk aversion, both theoretically and empirically.

4.2.3. Voting by RoW Agents

The voting behavior of RoW agents is more straightforward than that of U.S. agents.

Proposition 7. *RoW agents never elect the populist candidate.*

To understand this result, recall from Proposition 3 that a shift to autarky would increase RoW inequality. For RoW agents to choose autarky, their consumption would have to rise enough to compensate for the higher inequality. Their consumption would rise because under globalization, RoW agents consume less than their tree's output, whereas under autarky, they consume all of it (compare equations (21) and (26)). But this increase in RoW consumption comes at the expense of U.S. consumption. We rule out such expropriation by subtracting an infinitely large penalty from the utility function in equation (31).¹⁷

¹⁷In principle, we could allow such expropriation and impose portfolio constraints to ensure agent participation in the market (Alvarez and Jermann, 2000); however, our analysis would no longer be tractable. Our assumption of no expropriation would be inappropriate for developing countries (e.g., Hugo Chavez in Venezuela), but it seems reasonable given our focus on the recent rise of populism in the rich world.

4.3. Redistribution

In Section 4.2, we show that after output grows enough, U.S. agents elect a populist who puts an end to globalization. Globalization is thus fragile in a democracy, but it would be resilient in a benevolent dictatorship. A social planner would eschew autarky because globalization offers more efficient risk sharing. The social planner solution differs from our competitive market solution because of a consumption externality caused by the presence of inequality in the utility function. By consuming a lot, the elites raise inequality, imposing a negative externality on others. The social planner can overcome this externality by constraining agents' consumption plans, but agents are unable to do so while trading on their own.

In a competitive market, could we prevent autarky by wealth redistribution? Recall that high- γ_i agents tend to be poorer at time τ and also vote populist. Could we save globalization by transferring wealth from low- γ_i agents, who benefit the most from globalization, to high- γ_i agents, who benefit the least? The answer is a qualified no.

Proposition 8. *For any redistributive policy $\{\mathcal{T}_{i,t}\}$ such that $\int \mathcal{T}_i(\delta_t) di = 0$, there exists a redistribution of the endowments at time 0 that achieves the same consumption plans.*

In other words, any state-contingent redistributive policy is equivalent to a redistribution of initial endowments. This claim follows from dynamic market completeness. Under redistribution, agent i 's static budget constraint can be written as

$$\mathbb{E}_0 \left[\int_0^T \pi_t^k C_{it} dt \right] = w_i + \mathbb{E}_0 \left[\int_0^T \pi_t^k \mathcal{T}_{it} dt \right]. \quad (33)$$

Any redistributive policy $\{\mathcal{T}_{i,t}(\delta_t)\}$ can thus be implemented at time 0 by augmenting agent i 's initial endowment with $\tilde{w}_i = \mathbb{E}_0 \left[\int_0^T \pi_t^k \mathcal{T}_{it} dt \right]$. It is easy to verify that $\int \tilde{w}_i di = 0$.

Recall from Section 2.2 that, for tractability, we restrict the distribution of initial endowments w_i to those described by equation (13), which can be rewritten as

$$w_i = e^{\psi_i} \mathbb{E}_0 \left[\int_0^T e^{-\phi t + (g_t^k - y)/\gamma_i - g_t^k} dt \right]. \quad (34)$$

We have the freedom to pick any value of y and any distribution of ψ_i whose mean is $\mathbb{E}^i [e^{\psi_i} | i \in \mathcal{I}] = 1/\mathbb{E}^i [e^{-y/\gamma_i} | i \in \mathcal{I}]$. Equation (34) shows that by increasing the value of y , we redistribute initial wealth from low- γ_i agents to high- γ_i agents. This fact is also apparent from Panel A of Figure 6: as y increases, so does the correlation between γ_i and w_i . This is precisely the redistribution we care about—from the wealthy to the poor. The most relevant type of redistribution can thus be implemented by choosing different values of y .

Because all of our prior results are independent of y , they hold for any redistribution captured by different values of y . We formalize this statement in the following corollary.

Corollary 5. *For any redistributive policy that is equivalent to a change in y , there exists $\bar{\delta}$ such that for any $\delta_\tau > \bar{\delta}$, the populist candidate wins the U.S. election.*

This class of redistributive policies thus cannot prevent the breakdown of globalization. Panel B of Figure 6 shows that increased redistribution implies a higher value of the threshold $\bar{\delta}$ from Proposition 5. Therefore, increased redistribution makes it less likely that the populist gets elected at any given time τ . But for any finite redistributive policy y , when τ is large enough, the inequality $\delta_\tau > \bar{\delta}$ holds almost surely. In that sense, redistribution can “delay” the election of the populist but cannot prevent it from happening eventually.

Corollary 5 is noteworthy because redistribution is often proposed as a remedy for the inequality caused by global trade. It is commonly argued that to obtain the first-best solution, we should preserve globalization and make transfers from the beneficiaries of globalization to those adversely affected by it.¹⁸ This argument has some merit in the context of our model because redistribution can reduce the probability of the populist getting elected, for any given τ . But it also has limitations because for any given finite redistributive policy y , there exists τ large enough that the populist almost surely gets elected. A related point is made by Musto and Yilmaz (2003), who show in a different setting that agents can trade away the effects of redistributive policies by trading in complete markets.

For redistribution to save globalization, there must be some departure from our modeling assumptions. For example, one could introduce market incompleteness or transaction costs. Or one could add a Pigouvian tax on consumption, taxing agents based on their contribution to consumption inequality (i.e., taxing those who make the inequality larger and subsidizing those who make it smaller). Of course, a consumption tax with agent-specific tax rates would be difficult to implement in practice. The redistributive programs observed in reality, such as the U.S. Trade Adjustment Assistance program and the European Globalisation Adjustment Fund, are modest in size and quite different from a Pigouvian consumption tax. They are closer in spirit to redistribution captured by y . This type of redistribution is of particular interest because it allows us to skew the initial endowments arbitrarily in favor of the losers from globalization (i.e., high- γ_i agents), as explained earlier.

¹⁸For example, Rodrik (1997, page 73) argues that “If the external risks that buffet national economies and workers were fully observable, a set of transfers contingent on the realization of the shocks would work best. But the world is obviously too complicated for first-best solutions...”

5. Asset Prices

Recall from equation (12) that the state price density under globalization is given by

$$\pi_t = e^{-\phi t - g(\delta_t)} . \quad (35)$$

Ito's Lemma thus implies

$$\frac{d\pi_t}{\pi_t} = -r(\delta_t) dt - \sigma_\pi(\delta_t) dZ_t , \quad (36)$$

where

$$r(\delta_t) = \phi + g'(\delta_t) \mu_\delta - \frac{1}{2} (g'(\delta_t)^2 - g''(\delta_t)) \sigma_\delta^2 \quad (37)$$

$$\sigma_\pi(\delta_t) = g'(\delta_t) \sigma_\delta . \quad (38)$$

Equations (37) and (38) show how the interest rate, $r(\delta_t)$, and the price of risk, $\sigma_\pi(\delta_t)$, depend on the state variable δ_t . The dependence of $r(\delta_t)$ on δ_t is unclear as the interplay between intertemporal substitution (the term that involves μ_δ) and precautionary savings (the term that involves σ_δ^2) is complicated. But $\sigma_\pi(\delta_t)$ unambiguously decreases with δ_t because $g'(\delta_t)$ decreases with δ_t , as explained earlier. When δ_t is high, the price of risk is small because a disproportionate amount of consumption is attributed to low-risk-aversion agents who demand low compensation for risk.

Under autarky, equations (37) and (38) look identical, except that the common values $g(\delta_t)$, $r(\delta_t)$, and $\sigma_\pi(\delta_t)$ are replaced by the country-specific values $g^k(\delta_t)$, $r^k(\delta_t)$, and $\sigma_\pi^k(\delta_t)$. To help us understand how the price of risk depends on the trading regime, we show that¹⁹

$$(g^{US})'(\delta_t) < g'(\delta_t) < (g^{RoW})'(\delta_t) . \quad (39)$$

From equations (38) and (39), we immediately obtain the following proposition.

Proposition 9. *The U.S. market price of risk, σ_π^{US} , is lower under autarky than under globalization, for any δ_t . The opposite is true for RoW.*

This result follows from the lower risk aversion of U.S. agents (equation (3)). Under globalization, the risk associated with the output of the U.S. tree is borne by both U.S. and RoW agents, whereas under autarky, it is borne by U.S. agents only. Since these agents are less risk-averse than RoW agents, they demand lower compensation for risk. Similarly, all

¹⁹While equation (39) appears to hold generally, we can prove the first inequality, $(g^{US})'(\delta_t) < g'(\delta_t)$, only in the special case when the distribution of γ_i satisfies equation (4). Our proofs of the other two inequalities, $(g^{US})'(\delta_t) < (g^{RoW})'(\delta_t)$ and $g'(\delta_t) < (g^{RoW})'(\delta_t)$, are fully general (see the Internet Appendix).

the risk associated with the RoW tree is borne by RoW agents who are more risk-averse than U.S. agents, so they demand higher compensation for risk. Proposition 9 is illustrated in Panel A of Figure 7 for a whole range of values of δ_t .

5.1. Stock Prices

The market price of country k 's stock is the present value of dividends from country k 's tree:

$$P_t^k = E_t \left[\int_t^T \frac{\pi_s^k}{\pi_t^k} D_s^k ds \right]. \quad (40)$$

Proposition 10. *For $t < \tau$, an increase in δ_t leads to an increase in the global market share of U.S. stocks, $P_t^{US} / (P_t^{US} + P_t^{RoW})$.*

The intuition is simple. When δ_t increases, so does the probability of $\delta_\tau > \bar{\delta}$ in Proposition 5, so the probability of the populist's victory rises. This victory leads to a lower discount rate for U.S. stocks but a higher discount rate for RoW stocks (Proposition 9). As the market anticipates this outcome, the global market share of U.S. stocks rises. Panel B of Figure 7 visualizes Proposition 10 in the context of our parametric example.

5.2. Bond Prices

The model also has interesting implications for bond prices. At time $t < \tau$, consider two zero-coupon risk-free bonds maturing at time $t' > \tau$. The ‘‘U.S. bond’’ pays one unit of consumption good in the U.S. at time t' ; the ‘‘RoW bond’’ does the same in RoW.

Proposition 11. *For $t < \tau$, an increase in δ_t leads to a decrease in the yield of the U.S. bond but an increase in the yield of the RoW bond.*

To understand this result, note that an increase in δ_t makes it more likely that $\delta_\tau > \bar{\delta}$, in which case autarky arrives at time τ (Proposition 5). Upon a shift to autarky, country k 's state price density jumps from π_τ to π_τ^k . From equation (35), $\pi_\tau^k / \pi_\tau = e^{g(\delta_\tau) - g^k(\delta_\tau)}$. Given equation (27), a move to autarky increases state prices in the U.S. but decreases them in RoW. This makes sense because a move to autarky decreases U.S. agents' consumption, thereby increasing their marginal utility of consumption. Buying the U.S. bond allows U.S. agents to postpone consumption until after time τ when its marginal utility is higher. Since an increase in δ_t makes autarky more likely, it makes the U.S. bond more valuable, reducing its yield. The same arguments, but in reverse, apply to RoW.

Panel C of Figure 7 visualizes Proposition 11. When δ_t is low, markets expect globalization to continue beyond time τ , resulting in similar bond yields in both countries. Their high level is a reflection of the standard risk-free rate puzzle with CRRA utility. When δ_t grows, a move to autarky becomes more likely; the U.S. bond thus becomes more valuable and the RoW bond less so. When δ_t grows so much that a shift to autarky is all but certain, the U.S. bond's price rises so much that its yield turns negative. The U.S. bond is very valuable because it guarantees a unit of consumption in a future state in which the marginal utility of consumption will be very high. This prediction fits the observation that bond yields in the West were low, in some cases negative, when the recent populist wave began.

6. Model Extensions

In this section, we extend the model to incorporate several realistic features. In Section 6.1, we allow the countries' output shares to vary over time. In Section 6.2, we allow the countries' population shares to vary, permitting migration across countries. In Section 6.3, we consider three extensions that raise the economic cost of moving to autarky.

6.1. Time-Varying Output Shares

In the baseline model, each country's share of global output is constant and equal to the country's population share (equation (7)). We now generalize this setting by allowing the output shares to vary over time. Similar to Menzly, Santos and Veronesi (2004), we assume that $F_t = D_t^{US}/D_t$ is stochastic, following a diffusion process in the interval (0,1). For tractability, we assume that F_t stops fluctuating at time τ if agents elect the populist (i.e., $F_t = F_\tau$ for $t \geq \tau$ under autarky). We maintain all other assumptions.

In this more general setting, all results from Section 3 continue to hold. More interesting, the outcome of the U.S. election depends on the value of F_τ . This value affects two necessary conditions for the populist to be elected. The first of these is $g^{US}(\delta_t) < g(\delta_t)$ (equation (27)), which ensures that U.S. inequality declines upon the move to autarky. The second one is that the U.S. runs a trade deficit (equation (20)). Both conditions hold if and only if

$$F_t < F(\delta_t) , \tag{41}$$

where

$$F(\delta_t) = \left(1 + \frac{\mathbf{E}^i[e^{(g(\delta_t)-y)/\gamma_i} \mid i \in \mathcal{I}^{RoW}]}{\mathbf{E}^i[e^{(g(\delta_t)-y)/\gamma_i} \mid i \in \mathcal{I}^{US}]} \frac{1-m}{m} \right)^{-1} . \tag{42}$$

The function $F(\delta_t)$ monotonically increases from 0 to 1 as δ_t increases from $-\infty$ to $+\infty$. The threshold condition (41) implies that for any given value of F_t , there exists δ_t sufficiently large—larger than $F^{-1}(F_t)$ —so that (20) and (27) hold. Also, for any given δ_t , there exists F_t sufficiently low—lower than $F(\delta_t)$ —so that (20) and (27) hold. The threshold condition (41) can thus be triggered by either an increase in δ_t or a decrease in F_t .

Building on these results, we prove that Proposition 5 continues to hold with a modified threshold: there exists a value $\bar{\delta}(F_\tau)$ such that the U.S. elects the populist when $\delta_\tau > \bar{\delta}$. The backlash against globalization thus eventually happens also in this more general setting.

The threshold $\bar{\delta}(F_\tau)$ is increasing in F_τ when F_τ is large enough. Further increases in F_τ then make the condition (41) binding, so that δ_τ must exceed a larger threshold $\bar{\delta}(F_\tau)$ for this condition to hold. As a result, the populist’s victory becomes more likely when F_τ declines from a high level. Intuitively, when F_τ declines, a shift to autarky is more attractive to U.S. agents because it gives them less risk to share, resulting in less inequality. After moving to autarky, U.S. agents share only the risk associated with their own tree. This local risk is lower when F_τ declines, implying less extreme portfolio positions across U.S. agents and thus less inequality, making autarky more desirable.

This result—that a decrease in F_t makes the populist victory more likely when F_t is large enough—provides the basis for a novel potential explanation for why populism in the West appeared in 2016. The rise of populism has its roots in the 2008 financial crisis. The argument is *not* that the crisis made the U.S. poorer in absolute terms; after all, the 2009–2016 period was one of the longest economic expansions in the U.S. history. But the crisis made the U.S. poorer relative to RoW. The 2008 crisis is often perceived as global, but it was more of an “Atlantic” crisis, which impoverished the West but not China. While U.S. output shrank, Chinese output continued to grow at a rapid pace approaching 10% per year. As a result, China (and RoW more generally) grew richer relative to the U.S. in the decade preceding 2016, implying a decrease in F_t . The lower U.S. output share implies more Chinese risk to share, making autarky more appealing to U.S. agents, as explained earlier.

6.2. Time-Varying Population Shares

In the baseline model, the fraction of agents living in the U.S. is fixed at m . We now allow the U.S. population share m_t to vary over time. An increase in m_t can be interpreted, for example, as immigration from RoW into the U.S. While varying m_t , we hold constant the distributions of risk aversion in both countries, maintaining the interpretation of country-

level differences in financial development. We also assume, similar to the previous section, that both m_t and F_t stop fluctuating at time τ if agents elect the populist.

Since the function $F(\delta_t)$ from equation (42) depends on m_t , we relabel it as $F(\delta_t, m_t)$. Since $F(\delta_t, m_t)$ is an increasing function of m_t , the threshold condition (41) is more likely to hold at time τ when m_τ is larger, holding δ_τ and F_τ constant. Recall that the condition (41) is necessary for the populist to get elected. As a result, immigration from RoW to the U.S. makes it more likely that the populist gets elected. Intuitively, when m_t increases, autarky becomes more attractive to U.S. agents because they have more other U.S. agents to share local risk with. This result is consistent with the important role of immigration observed in the recent populist backlash. However, we do not emphasize immigration much because it is closely related to cultural reasons that are outside our model.

6.3. Higher Costs of Autarky

In the baseline model, a move to autarky does not affect the output process in equation (6). In this section, we consider three possible changes in that process upon a shift to autarky:

1. A reduction in the growth rate of output, μ_δ ,
2. A downward jump in output: $D_\tau = JD_{\tau-}$, where $J < 1$,
3. An increase in output volatility, σ_δ .

The first two changes capture the idea that a shift to autarky may be costly in terms of lost output. In the first change, growth slows down permanently when the gains from cross-border trade disappear. The second change is an abrupt one-time contraction at time τ resulting from the disruption of trade. Both changes have ambiguous effects on agents' utility—while they imply lower consumption, they also reduce inequality.

Adding either or both of these changes to our baseline model leads to the same basic conclusions. As long as the values of J and the drop in μ_δ are known, markets continue to be complete and our main results continue to hold. That includes the key Proposition 5, with a different threshold $\bar{\delta}$ compared to the baseline case. The backlash against globalization thus eventually takes place—when output is large enough, U.S. voters find it optimal to elect a populist even if the move to autarky is costly in terms of lost output.

This result sheds new light on the 2016 EU referendum in Britain. Before the referendum, many economists predicted that Brexit would lead to significant output losses for Britain. The British voters heard the message and yet voted in favor of Brexit. A common interpretation is that people did not believe the predictions. An alternative interpretation, supported

by our model, is that people believed them but opted for Brexit anyway. Lower output was a price the British voters were willing to pay in order to reduce inequality. Along the same lines, the British voters may have understood and accepted that Brexit would weaken the City of London. Since inequality is driven mostly by the highest incomes, a particularly effective way to reduce it is to drive the wealthy London bankers out of Britain.

The third change, an increase in output volatility, is another potential cost of autarky. After cross-border risk sharing stops, agents face the risk associated with local but not global output; they can no longer diversify country-specific risks. We do not model such risks, but in their presence, a shift to autarky would raise the output volatility faced by agents. Motivated by this fact, we extend our model by allowing σ_δ in equation (6) to rise at time τ if a move to autarky occurs. We find that our main results continue to hold in that setting.

7. Evidence: Which Countries Are Populist?

While our main contribution is theoretical, we also provide some empirical evidence. Our model predicts that the backlash against globalization—and the related rise of populism—should be the consequence of growing within-country inequality. To examine this prediction, we look across developed countries. We relate the recent support for populism, with a focus on its anti-globalization variety, to country-level measures of income inequality. We find that more unequal countries do indeed exhibit stronger populist support.

In our two-country model, support for populism is stronger in the country (U.S.) that runs a current account deficit (Proposition 2). This prediction is supported by the fact that the U.S. has run such a deficit since the 1980s. Looking across developed countries, we also find stronger support for populism in countries with larger current account deficits. The reason why the U.S. runs a deficit in the model is that its agents are less risk-averse than RoW agents. Fundamentally, the model implies that populist support should be stronger in the country with less risk-averse agents. Besides the current account balance, another proxy for risk aversion is financial development, as explained earlier. In the data, support for populism is indeed stronger in countries with more developed financial markets.

Our analysis examines a recent cross-section of rich countries. This approach is motivated by the fact that the rise of populism in the West is a recent phenomenon from the 2010s. Moreover, the time series of variables that we relate to populism—inequality, current account, and financial development—are highly persistent year to year, suggesting that adding the time dimension would be of limited value. For these reasons, in Section 7.2, we measure

the support for populism by the vote shares of populist parties in recent elections. To complement our analysis, we use survey evidence in Section 7.3.

7.1. Data

We measure the support for populism by the vote share of populist parties in recent elections. Our set of countries includes the U.S. and all EU countries. This sample seems appropriate given our focus on the rise of populism in the West. For each country, we consider the most recent national parliamentary election as of January 1, 2017. The list of all elections is in Table 1. If the country’s most recent election took place before the May 2014 European Parliament (EP) election, we replace the national election with the EP election in the same country to align the timing of elections as closely as possible across countries.

We obtain data on election outcomes from the ParlGov database (Döring and Manow, 2011). This database contains party-by-party vote shares from parliamentary and EP elections for all EU member states and most OECD countries.

To identify populist parties, we match the ParlGov data to the 2014 Chapel Hill Survey of Experts (Bakker et al., 2015). This survey estimates the positioning of national political parties on various ideological and policy issues. The data cover the views of 337 experts evaluating 268 political parties from all EU member states.²⁰ We focus on the three dimensions of populism evaluated in the survey that seem the most closely related to skepticism toward globalization: (1) position toward nationalism, (2) position on immigration policy, and (3) the salience of anti-elite rhetoric.²¹ We thus classify as populist the parties that experts consider to be nationalist, anti-immigrant, or anti-elite.

For each of the three dimensions, individual experts rate each party on the scale of 0 to 10, with larger values indicating a more populist stance (i.e., increased nationalism, a tougher immigration policy, and a stronger anti-elite stance).²² We classify a party as populist if its average score across experts is at least six. Specifically, we classify a party as nationalist

²⁰Inglehart and Norris (2016) also use this survey along with ParlGov to classify parties as populist.

²¹The remaining policy dimensions evaluated in the survey include the party’s position toward ethnic minorities, environmental issues, corruption, deregulation, state intervention in the economy, wealth redistribution, improving public services vs reducing taxes, regional decentralization, urban vs rural interests, religion, liberal social lifestyle, civil liberties vs law and order, integration of asylum seekers, and peacekeeping. None of these are obviously related to globalization. Probably the closest is the position toward ethnic minorities because members of such minorities often arrive from abroad. We view the position toward ethnic minorities as a fourth dimension of populism and report the results in the Internet Appendix.

²²See the Appendix for more detail on the scoring for each of the three dimensions. The number of experts scoring each party in the 2014 survey ranges from 3 to 22, averaging 11.6.

(anti-immigrant; anti-elite) if its average score for the first (second; third) dimension is at least six. For each election and each facet of populism, we compute the populist vote share by adding up the vote shares of all populist parties. For example, we compute the nationalist vote share in the 2016 Irish election by adding up the 2016 vote shares of all Irish parties classified as nationalist. We report all parties' average scores in the Internet Appendix.

The intersection of ParlGov and the Chapel Hill Survey yields a sample of elections covering the 28 EU member states. We augment this sample by adding the United States. The most recent major election in the U.S. was the 2016 presidential election, which pitted Donald Trump against Hillary Clinton. We classify Donald Trump as populist on all three dimensions and Clinton on none. We thus assess the U.S. populist share as equal to Trump's share of the popular vote, 46.1%, in all three dimensions.

We measure income inequality in two ways. First, we use the Gini coefficient of disposable income after taxes and transfers, which we obtain from the OECD. Our second measure is the top 10% income share, obtained from the World Bank. Our data on current account balance and financial development also come from the World Bank. We measure financial development by the ratio of the country's stock market capitalization to GDP, in percent.²³ The current account balance is also expressed as a fraction of GDP, in percent. We match the timing of these variables to the timing of the election, as described in the Appendix.

7.2. Election Evidence

Panels A and B of Figure 8 plot the cross-country relation between income inequality and the vote share of the nationalist parties, or "nationalism." In Panel A, we measure inequality by the Gini coefficient; in Panel B, we measure it by the top 10% income share. Our sample consists of countries of very unequal sizes, including giants such as the U.S. and Germany as well as minnows such as Malta and Luxembourg. We indicate each country's size by a circle whose area is proportional to the country's GDP. We also weight each country by its GDP when we regress nationalism on inequality.

The relation between the two variables is significantly positive. The t -statistic is 2.82 for the Gini and 2.16 for the top 10% income share. The relation is also economically significant: a one-standard-deviation increase in the Gini (top 10% income share) is associated with a 5.8 (4.8) percentage point increase in the nationalist vote share. The relation is strong

²³We also consider three other measures of financial development, all scaled by GDP: private credit, stock market trading volume, and the sum of stock and bond market capitalizations. The results based on these measures are similar to those reported here. For details, see the Internet Appendix.

among large countries; for example, the U.S. has relatively large values of inequality and nationalism, whereas Germany has relatively small values of both. Also, if we restrict the sample to the eight largest countries with the GDP of Poland or higher, there is a 43% (18%) simple correlation between nationalism and the Gini (top 10% income share). But even across all countries, the correlations are nontrivial: 21% and 13%, respectively. More unequal countries thus exhibit more nationalism, consistent with the model.

Panel C of Figure 8 plots the current account balance against nationalism. The relation is negative ($t = -4.59$), as the model predicts. Again, we weight countries by their GDP. A one-standard-deviation increase in the current account balance is associated with an 8.6 percentage point decrease in the nationalist vote share. The U.S. and Germany again provide a salient example: the former runs a large current account deficit whereas the latter runs a large surplus; the U.S. also has more nationalism. If we equal-weight all countries, the correlation between the two variables is essentially nil, but it is highly influenced by the tiny countries of Malta and Cyprus. After eliminating all countries with GDP smaller than Poland's, the correlation is a whopping -51% .

Panel D of Figure 8 shows that financial development is positively related to nationalism ($t = 2.94$), as predicted, applying the same GDP-weighting as before. A one-standard-deviation increase in financial development is associated with a 5.2 percentage point increase in the nationalist vote share. Returning to the U.S.-Germany comparison, the former has more-developed financial markets and also more nationalism. The simple correlation between the two variables is again close to zero, but it is highly influenced by Malta and Luxembourg. After eliminating all economies smaller than Poland's, the correlation is 48%.

Figures 9 and 10 show similar results when we replace the vote shares of nationalist parties by those of anti-immigrant and anti-elite parties, respectively. Both measures of populism are negatively related to the current account balance and positively related to both income inequality and financial development. Equal-weighted correlations are mostly insignificant, but GDP-weighting produces regression coefficients that are always significant. All three measures of populism thus lead to the same conclusions.

Recall that for each country, we use either the national election or the May 2014 EP election, whichever is more recent as of January 1, 2017. For robustness, we also conduct the analysis in two other ways: (1) by using only the national elections from Table 1 (i.e., excluding the EP elections, and including some national elections from back to 2012), and (2) by using only the EP elections for all EU countries (i.e., excluding the national elections). In both cases, the results are very similar to those reported here. See the Internet Appendix.

In general, the advantage of using EP elections is that they take place essentially at the same time in all EU countries. The disadvantage is that the voter turnout in EP elections is lower: 43.4%, compared to 66.1% for the national elections in our sample.

The largest-GDP country, the U.S., has relatively large inequality, a current account deficit, and highly developed financial markets. Its presence in our sample thus significantly contributes to our conclusions. However, even when we exclude the U.S., the results are qualitatively similar. For example, all four slopes in Figures 8 and 9 have the same signs and most of them remain statistically significant. See the Internet Appendix.

Overall, we show that the electoral support for populist parties is stronger in countries with more inequality, more financial development, and larger current account deficits. These results are consistent with our model. The relatively small size of our sample dictates the nature of our analysis, which is simple and essentially descriptive.

7.3. Survey Evidence

Our election-based analysis implicitly assumes that an agent who casts a vote for an anti-globalization party dislikes globalization. Inferring agents' attitudes from their actions is a time-honored approach in economics. Another approach is to ask agents directly, in a survey, how they feel about globalization. Using survey data has both advantages and disadvantages in our context. One advantage is that a survey can isolate the issue of globalization more narrowly by asking a well-targeted question. One disadvantage is that agents' survey responses have no real consequences, so we have little assurance that survey questions have been answered truthfully. With this tradeoff in mind, we conduct a simple survey analysis of attitudes toward globalization to complement our election-based analysis.

We use data from the International Social Survey Programme (ISSP; www.issp.org), an international organization that conducts cross-country surveys on social science topics. These surveys cover most OECD members as well as a few non-members; we use only OECD countries in our analysis. We use the 2013 ISSP segment on national identity.

The ISSP question that we find the most relevant given our focus is “Country should limit the import of foreign products” (Q5a). Individual responses are on the scale of 1 to 5, with 5 indicating “agree strongly” and 1 indicating “disagree strongly.” (We flip the original numerical ranking in the database so that higher response values indicate a stronger anti-globalization attitude.) We average the individual responses within countries and interpret a higher country-level average score as stronger support for protectionism.

We match these country-level protectionism scores to our data on inequality, financial development, and current account balance. We use the 2013 values of these variables because the ISSP survey was conducted in 2013. If the 2013 value of financial development is missing, we take the most recent value since 2010; if all values since 2010 are missing, we record financial development as missing. For inequality, we go as far back as necessary to find a non-missing observation.²⁴ Current account balance is available in 2013 for each country.

Panels A and B of Figure 11 plot the cross-country relation between income inequality and the protectionism score. We run cross-sectional regressions in the same manner as in Section 7.2. They reveal a positive relation between the protectionism score and both measures of inequality, the Gini ($t = 2.65$) and the top 10% income share ($t = 3.57$). A one-standard-deviation increase in the Gini (top 10% income share) is associated with an increase of 0.18 (0.23) in the protectionism score. This result is similar to the election-based results in Section 7.2, but it is less driven by large countries. Even when the countries are equal-weighted, the correlation between inequality and the protectionism score is positive and high, 43% for the Gini and 45% for the top 10% income share. Citizens of more unequal countries show more support for protectionism, consistent with the model.

Panel C of Figure 11 shows a negative relation between the current account balance and the protectionism score ($t = -4.08$), as the model predicts. A one-standard-deviation increase in the current account balance is associated with a 0.25 decrease in the protectionism score. This result echoes the election-based results, except it is again less driven by large economies: even the equal-weighted correlation between the two variables is -57% .

Panel D of Figure 11 shows a positive but insignificant relation between financial development and the protectionism score ($t = 1.50$). A one-standard-deviation increase in financial development is associated with a 0.12 increase in the protectionism score. The equal-weighted correlation between the two variables is close to zero but the correlation is higher, 42%, when calculated across the six largest countries only. Overall, this relation is similar qualitatively but weaker quantitatively than its counterpart in Section 7.2.

Besides the survey question 5a that we use, other ISSP questions could also plausibly be used here. For example, “Important to have lived in a country for most of one’s life” (question 2c) and “Foreigners should not be allowed to buy land in country” (question 5d) seem almost as relevant as 5a (but not quite as relevant, in our view). The results based on question 2c are similar to those reported here: all four slopes have the same sign and three of them are statistically significant. The results based on question 5d are weaker than those

²⁴Our oldest top 10% share observation is from 2008; our oldest Gini coefficient is from 2012.

reported here: three of the four slopes have the same sign (those in Panels A through C) but none are statistically significant. We show those results in the Internet Appendix.²⁵

To summarize, the survey results are consistent with the model. Protectionist attitudes are stronger in countries with more inequality and larger current account deficits. They are also stronger, but not significantly so, in countries with more financial development.

8. Evidence: Who Are the Populist Voters?

In this section, we use micro-level survey data to examine the model’s predictions about the characteristics of populist voters. The model predicts that agents with higher risk aversion and higher aversion to inequality are more likely to vote populist (Proposition 6). We test these predictions in two different settings. In Section 8.1, we analyze the characteristics of the British voters who supported Brexit in the 2016 referendum. In Section 8.2, we examine which Americans voted for Donald Trump in the 2016 presidential election.

8.1. Evidence from the Brexit Referendum

For the purpose of this section, we consider voters to be populist if they vote in favor of Brexit in the June 2016 EU referendum. Brexit—Britain’s exit from the EU, which appears likely to happen as of this writing—represents a clear retreat from globalization.

8.1.1. Data

We obtain data from the British Election Study (BES, www.britishelectionstudy.com). This survey of British voters asks questions about political preferences, values, and demographic characteristics. We use the BES panel study dataset, which consists of responses to an online survey conducted between 2014 and 2018 in 13 waves. We use data primarily from wave eight, which was conducted shortly before the EU referendum (between May 6 and June 22 of 2016) on 33,502 respondents. We boost this large sample size further by adding data from other waves, as described in the Appendix.

²⁵The ISSP also asks EU-related questions; we do not use them because our sample contains also countries outside the EU such as Israel, Japan, Korea, Mexico, and Turkey. We list all national-identity survey questions in the Internet Appendix. That Appendix also shows the results obtained when we exclude the U.S. from our sample. Those results are somewhat weaker but qualitatively similar to those reported here.

The left-hand side variable in our regressions is a dummy variable that we call *SupportForBrexit*. This variable is equal to one if the respondent either voted to “Leave the EU” in the referendum or expressed the intent to do so. The variable is equal to zero otherwise.

We use three proxies for risk aversion. Respondents report their annual gross household income as being in one of 15 income ranges. *Income* is an integer between 1 and 15, with higher values indicating higher income. We use income as a proxy for wealth, whose relation to risk aversion is explained in Section 4.2.2. That section also motivates our second proxy, *Education*, which is equal to one if the respondent’s education extends beyond high school and zero otherwise. Finally, *WillingnessToTakeRisk* is based on the response to the question “Generally speaking, how willing are you to take risks?” We convert the four possible responses to integer values from 0 to 3, with higher values indicating higher willingness.

We use seven proxies for inequality aversion. The first proxy is *Income*. Lower-income households are likely to dislike inequality more because it makes their income handicap more pronounced. Second, we construct the variable *InequalityBad* from the responses to two questions: “Do you think the difference in incomes between rich people and poor people in the UK today is larger, smaller, or about the same as it was 20 years ago?”, followed by “And do you think this is a good thing, a bad thing, or haven’t you thought about it?” If the response to the first question is “Larger” then we set *InequalityBad* equal to 3 (or 2 or 1) if the response to the second question is ‘Bad thing’ (or ‘Don’t know’ or ‘Good thing’, respectively). If the first response is “Smaller” then we set *InequalityBad* equal to 3 (or 2 or 1) if the second response is ‘Good thing’ (or ‘Don’t know’ or ‘Bad thing’, respectively). In other words, we view respondents as inequality-averse if they perceive a rise in inequality and dislike it, or if they perceive a fall in inequality and like it.²⁶ Our third proxy is the respondent’s left-right orientation. Our variable *LeftRight* ranges from 0 (extreme left) to 10 (extreme right). The fourth variable, *Religious*, is equal to one if the respondent reports having a religious affiliation and zero otherwise. It seems plausible that religious people care more about equality. Religions often emphasize the need for fairness and compassion while encouraging followers to care less about mammon.²⁷

²⁶The correct answer to the first question is “Larger,” as UK inequality has risen. For example, the top 10% income share rose from 38% in 1994 to 40% in 2014, according to the World Income Database. Among the 68,625 survey respondents in our sample, 43% said “Larger,” 7.5% said “About the same,” and only 3% said “Smaller” (the remaining respondents either said “Don’t know” or did not respond).

²⁷For example, Christianity, Britain’s majority religion, preaches: “Again I tell you, it is easier for a camel to pass through the eye of a needle than for a rich man to enter the kingdom of God.” (Matthew 19:24). Islam, Britain’s second most popular religion, preaches: “Those who give away their wealth by night and day, secretly and openly, will have their reward with their Lord. They will feel no fear and will know no sorrow.” (Quran 2:274).

Our three remaining proxies for inequality aversion are motivated by the positive skewness of consumption shares across agents, both in our model and in the data. As explained earlier, our measure of inequality aversion, η_i , is better thought of as the envy of the rich rather than compassion for the poor. The reduction in inequality resulting from a shift to autarky is brought about mostly by cutting down the consumption of the rich. In the context of the EU referendum, high- η_i agents vote for Brexit because they derive pleasure from the reduced consumption of London’s oligarchs and high-flying bankers. The ideal hypothetical survey question would ask: “How much happier would you be if Britain’s wealthiest people became poorer, or if they left the country?” Britons responding “very much” would have high values of η_i . Alas, none of the questions in the BES fully capture this concept.

We attempt to capture the envy of the elites by three variables. *PoliticiansFavorTheRich* measures the extent to which the respondent agrees with the statement “Politicians only care about people with money.” *LawFavorsTheRich* is based on the extent to which the respondent agrees with “There is one law for the rich and one for the poor.” Finally, *DoNotTrustExperts* is based on the extent to which the respondent agrees with “I’d rather put my trust in the wisdom of ordinary people than the opinions of experts.” All three variables take integer values from 1 (‘Strongly disagree’) to 5 (‘Strongly agree’).

Finally, we include controls for the respondent’s age, gender, ethnic minority status, and feminist attitude. The variable *Minority* is equal to one if the respondent considers themselves as anything other than “White British;” otherwise it is zero. The variable *Feminist* reflects the degree of support for women’s rights on a scale of 1 to 5. We provide additional details about all of our variables in the Appendix.

8.1.2. Results

Table 2 shows the results from the logit regression of *SupportForBrexit* on our right-hand-side variables.²⁸ Agents with higher incomes and more education are less likely to support Brexit, consistent with the model. Recall that income is a proxy for wealth, and that both wealth and education are motivated as proxies for risk aversion in Section 4.2.2. Interpreting the evidence through the lens of our model, higher-income and better-educated agents oppose Brexit because they suffer a larger drop in consumption should Brexit occur.

Agents who report higher *WillingnessToTakeRisk* are more likely to support Brexit. If willingness to take risk represents risk tolerance, then this result goes against the model’s

²⁸The results based on probit estimation are very similar, as we show in the Internet Appendix.

prediction. However, we must interpret this evidence with nuance if we take our complete-markets model seriously. In the model, agents share all risks efficiently. In equilibrium, high- γ_i agents adopt less aggressive portfolio positions and risks are borne mainly by low- γ_i agents. High- γ_i agents thus effectively buy insurance from low- γ_i agents. If asked whether she is willing to take risks, a high- γ_i agent in our model could very well respond yes because she is well insured.²⁹ In a complete-markets model, it is therefore unclear whether we should interpret willingness to take risks as a sign of risk tolerance or risk aversion. Under the latter interpretation, the results in Table 2 are perfectly consistent with the model. Therefore, we view the evidence based on *WillingnessToTakeRisk* as hard to interpret.

The three risk aversion proxies jointly explain 11% of the variance in *SupportForBrexit*. *Education* by itself explains 9% while *Income* explains 2% and *WillingnessToTakeRisk* only 0.2%. A one-standard-deviation change in *Education* (*Income*; *WillingnessToTakeRisk*) affects *SupportForBrexit* by 0.63 (0.32; 0.08) in a simple regression. The economic significance of *Income* and *Education* is thus much stronger than that of *WillingnessToTakeRisk*.

While income and education do not appear to be suitable proxies for risk aversion in general, they seem quite suitable for the task at hand given our theoretical setting. We use risk aversion only as a modeling tool, as noted earlier. Instead of sticking to the narrow interpretation of attitude toward risk, our proxies for risk aversion focus on the economic mechanism through which risk aversion affects the voting decision. What causes high- γ_i agents to vote populist is that these agents are hedged so that their consumption is less adversely affected by a shift to autarky than is the consumption of low- γ_i agents. Our proxies for γ_i should therefore capture the extent to which the agent’s consumption is affected by a shift to autarky. Both income and education fit the bill, as we explain in Section 4.2.2.

Table 2 shows that the support for Brexit is stronger among right-wing respondents. The effect is strong: a one-standard-deviation change in *LeftRight* is associated with a change in *SupportForBrexit* of 1.03 to 1.15, depending on the specification. As right-wing voters tend to exhibit less support for income redistribution, one might view them as less inequality-averse, in which case the coefficient on *LeftRight* goes against the model’s prediction for inequality aversion. However, the left-right orientation may be more closely related to compassion for the poor than to the envy of the rich. It may also be determined by many non-economic influences. Survey evidence reveals a complicated relation between the left-right orientation and attitudes toward inequality (Alesina, Di Tella, and MacCulloch, 2004).

²⁹For example, consider two agents with different risk aversions who both own a sailboat. The more risk-averse agent has insured her boat for its full value whereas the less risk-averse agent has no insurance. If asked whether they are willing to take risk, the more risk-averse agent might say “yes, I’m willing, because I’m perfectly insured,” whereas the less risk-averse agent might say “no because I have no insurance.”

The evidence based on *Religious* is more favorable to the model. The support for Brexit is stronger among people with a religious affiliation. A one-standard-deviation change in *Religious* moves the support for Brexit by 0.05 to 0.16. Assuming religious people are more inequality-averse than non-believers, this evidence supports the model.

After controlling for *LeftRight* and *Religious*, *InequalityBad* is positively related to *SupportForBrexit*. This relation is consistent with the model. However, the relation vanishes after adding our “anti-elite” proxies. The role of *InequalityBad* appears to be driven by concerns about the right tail of the income distribution.

The focus on the right tail is crucial. As noted earlier, our measure of inequality, V_t^k from equation (1), is driven by the highest values of the consumption distribution, which implies that inequality aversion, η_i , reflects mostly the envy of the rich. It is thus comforting that all three measures of this envy exhibit strong positive relations to *SupportForBrexit*. In the all-inclusive specification, a one-standard-deviation change in *PoliticiansFavorTheRich* (*LawFavorsTheRich*; *DoNotTrustExperts*) is associated with a change in *SupportForBrexit* of 0.32 (0.08; 0.75). This evidence is consistent with the model.

Finally, to the extent that lower-income people dislike inequality more (e.g., Fehr and Schmidt, 1999), the previously-discussed negative relation between *SupportForBrexit* and *Income* also supports the model’s prediction regarding inequality aversion.

8.2. Evidence from the Trump Election

In this section, we define a populist vote as a vote for Donald Trump in the November 2016 U.S. presidential election. On the campaign trail, Trump promised to put “America first” in his economic policy, pull the U.S. out of multiple international agreements, build a wall on the border with Mexico, impose tariffs, restrict immigration, etc. We thus interpret a vote for Trump as a vote to pull back from globalization. As our U.S. dataset contains fewer relevant variables than the British dataset used in Section 8.1, we keep this section shorter.

8.2.1 Data

We use data from the 2016 Cooperative Congressional Election Survey (CCES; Ansolabehere and Schaffner, 2016). This survey of U.S. voters is similar to the BES but less comprehensive in terms of the questions asked. For example, unlike the BES, the 2016 CCES contains no direct questions about attitudes toward the elites, risk, or inequality.

The left-hand side variable in our regressions is a dummy variable that we call *Support-ForTrump*. This variable is equal to one if the respondent voted for Trump in the 2016 presidential election; it is zero otherwise.

On the right-hand side, we use variables similar to those from the BES whenever available. *Income* takes integer values from 1 to 16 depending on the income range of the respondent family’s annual income. *Education* takes integer values from 1 to 6 depending on the highest level of education completed. *Religious* takes integer values from 0 to 3 depending on the importance of religion in the respondent’s life. We include controls for the respondent’s age, gender, and ethnicity. Finally, because Trump was the nominee of the Republican party, we add a control for the dummy variable indicating whether the respondent thinks of herself as a *Republican*. For more detail about all of our variables, see the Appendix.

8.2.2. Results

Table 3 shows that both *Income* and *Education* are negatively related to support for Trump. While *Income* is statistically significant in Panel A, where we control for the *Republican* dummy, it is not significant in Panel B, where we do not. *Income* squared, however, is significantly negatively related to the support for Trump in both panels. When we include both *Income* and its square, the former enters positively and the latter negatively, indicating a nonlinear relation. Apart from this difference, the results are similar to those from Table 2. Interpreting them in the context of our model, higher-income and higher-education voters behave as if they were less risk-averse: they oppose Trump because they suffer a larger drop in consumption when a shift to autarky takes place.³⁰

More religious people are more likely to vote for Trump. This result echoes Table 2 and is consistent with the model to the extent that more religious people exhibit more inequality aversion. If we view Republicans as less inequality-averse, then the positive slope on *Republican* goes against the model’s prediction. However, many Republicans must have voted for Trump regardless of their attitude toward inequality because Trump was their party’s nominee. In addition, the Republican-Democrat divide in the U.S. is well known to be related to many non-economic variables that are outside our simple model.

Some of our variables, such as income, education, and religion, have already been identified as characteristics of populist voters in the literature (e.g., Inglehart and Norris, 2016). Our contribution is in interpreting these variables through the lens of our model, which

³⁰Table 3 reports the results based on logit estimation. The results based on probit estimation are very similar, as we show in the Internet Appendix.

analyzes the connections between populism and inequality in a formal way.

9. Stock Prices

According to Proposition 10, a continued increase in output before the election should lead to a rising global share of the U.S. stock market. We examine this prediction in the context of the 2016 U.S. presidential election. We obtain data on two monthly stock market return indices, for the U.S. and World-except-the-U.S., from Morgan Stanley Capital International. We invest \$1 in both markets at the beginning of 2014, thus normalizing the global share of the U.S. market on January 1, 2014 to 50%. We track the performance of this hypothetical investment through 2017, updating the U.S. market share in light of the differential return performance of the U.S. and non-U.S. stocks. The market share we construct differs from the actual U.S. market share in two respects: the actual share reflects not only returns but also new equity issues and repurchases, and it is not exactly 50% on January 1, 2014. From the perspective of our model, the initial market share is irrelevant and neither issues nor repurchases appear. Therefore, the market share series constructed here is more suitable than the actual series for the purpose of testing our model.

Figure 12 shows the evolution of our U.S. market share series over time. The share increases steadily, from 50% in January 2014 to 57% in early 2017, ending at 56.2% in December 2017. In the context of our model, this increase reflects the growing strength of the global economy and, consequently, the rising probability of Trump winning the U.S. election. Trump announced his candidacy in June 2015, became the Republican nominee in July 2016, and won the election in November 2016. As his candidacy gained momentum, market participants updated their expectations and stock prices responded. Of course, this model-based interpretation ignores first-order determinants of stock prices such as macroeconomic fundamentals, corporate profits, and tax policy. There are many reasons why U.S. stocks outperformed non-U.S. stocks in 2014–2017. We do not claim that the mechanism highlighted by our model is the main reason, or even one of the main reasons. We simply conclude that the stock price evidence is broadly consistent with the model.

The event examined here, featuring the U.S. and RoW, closely matches our theoretical setting. Brexit would not match our setting from the asset pricing perspective. We have a two-country model, whereas the Brexit setting features not only the UK and the rest of the EU but also the rest of the world. Many agents who hold European stocks, such as American or Japanese investors, reside in neither the UK nor the EU. Therefore, in the Brexit setting, stocks are priced to a significant extent by agents who are absent from the model.

10. Conclusions

We highlight the fragility of globalization in a democratic society that values equality. In our model, a pushback against globalization arises endogenously as a rational voter response. When a country grows rich enough, it becomes willing to sacrifice consumption in exchange for a more equal society in which the elites consume less. Redistribution is of limited value in our frictionless, complete-markets model. If policymakers want to save globalization permanently, they need to keep the world away from our modeling assumptions. For example, they can keep markets incomplete or add frictions to trading. Our model can serve as a benchmark for judging the prospects for the long-term survival of globalization.

When and where should a populist backlash occur? Countries with high inequality, high financial development, and current account deficits should be especially vulnerable. Both the U.S. and Britain fit the bill. Perhaps it is no coincidence that they led the populist wave with the Brexit vote and the Trump election. As for when, the backlash should occur when inequality grows large enough. Since inequality tends to rise with economic growth, the model cannot explain increases in far-right populist support after financial crises (Funke, Schularick, and Trebesch, 2016). On the other hand, it can explain Trump’s election, which happened during one of the longest-ever economic booms in the U.S. The model’s extensions imply the backlash is more likely when the country faces immigration and when it grows more slowly than the rest of the world. The rapid growth of China in the past few decades may have spurred populism in the West where growth has been much slower.

Our model is related to two well-known theories of the dynamics of inequality. Kuznets (1955) suggests that inequality first rises due to industrialization but then falls after industries attract much of the rural labor force. Piketty (2014) argues that inequality naturally rises because the rate of return on capital exceeds the rate of economic growth, and it falls only as a result of state intervention or conflict. Unlike Kuznets or Piketty, we have a formal model. Our model also predicts a rise and fall inequality, but the mechanism is different—inequality first rises as a consequence of heterogeneous exposure to global growth, but then it falls as a result of political decisions that reverse global integration.

The political decisions that reduce inequality in our model could also take other forms. Some of the largest historical reductions in inequality were caused by violent political events such as wars and revolutions (Scheidel, 2017). While Scheidel describes the effects of violence on inequality, our mechanism can in principle deliver reverse causality in which rising inequality causes violence. When inequality grows large enough, it becomes unsustainable because inequality-averse agents find it optimal to upset the elites by destroying some of

the endowment, sacrificing consumption in exchange for more equality.³¹ We leave such a single-country modification of our model for future research.

³¹This result is reminiscent of Ljungqvist and Uhlig (2015), who find that in the Campbell-Cochrane habit model, government interventions that destroy part of the endowment can improve welfare. Alesina and Perotti (1996) show empirically that high income inequality causes socio-political instability.

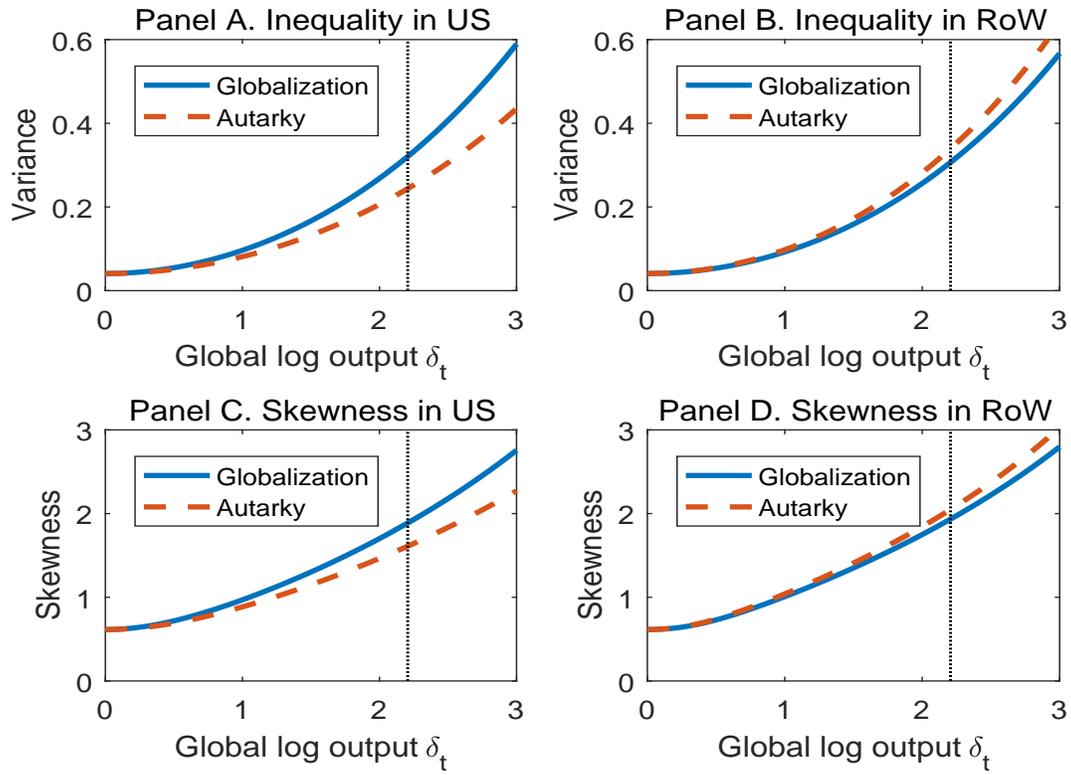


Figure 1. Inequality and Skewness of the Consumption Distribution. This figure plots V_t^k and S_t^k as a function of δ_t for $k \in \{US, RoW\}$, under globalization (solid line) and autarky (dashed line).

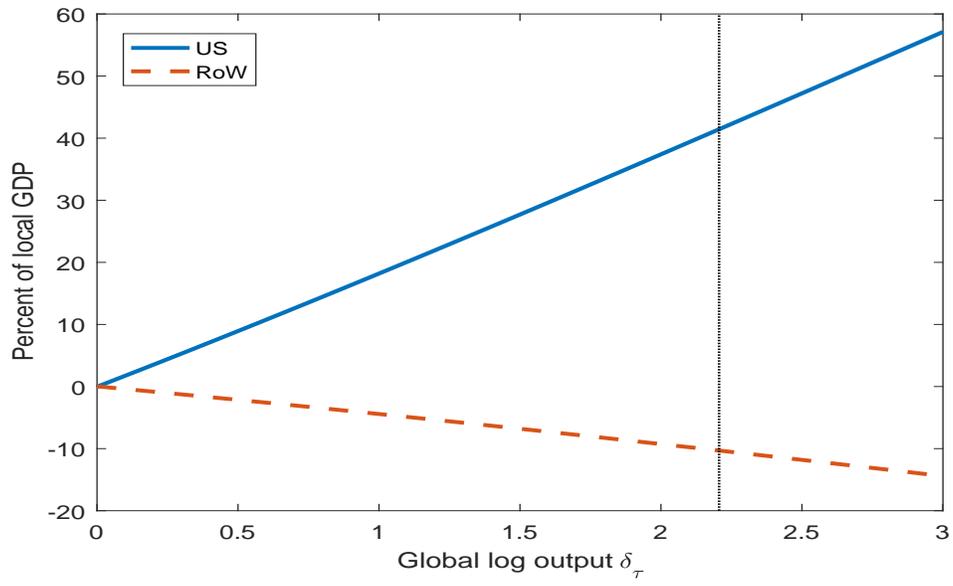


Figure 2. Current Account Deficit. This figure plots the current account deficits of the two countries, as a percentage share of local GDP, against δ_t .

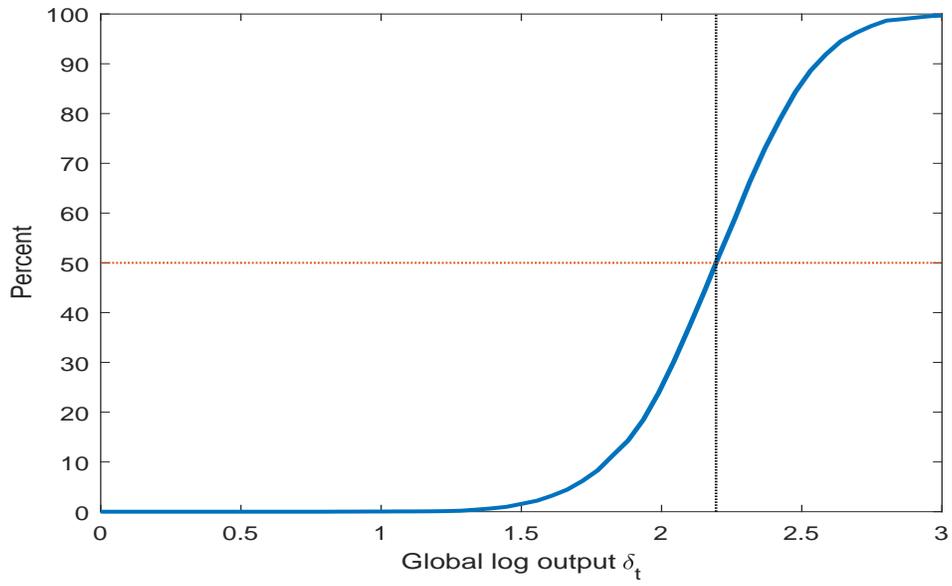


Figure 3. The Populist Vote Share. This figure plots the fraction of U.S. agents voting for the populist candidate, in percent. The vertical line denotes $\bar{\delta}$ from Proposition 5.

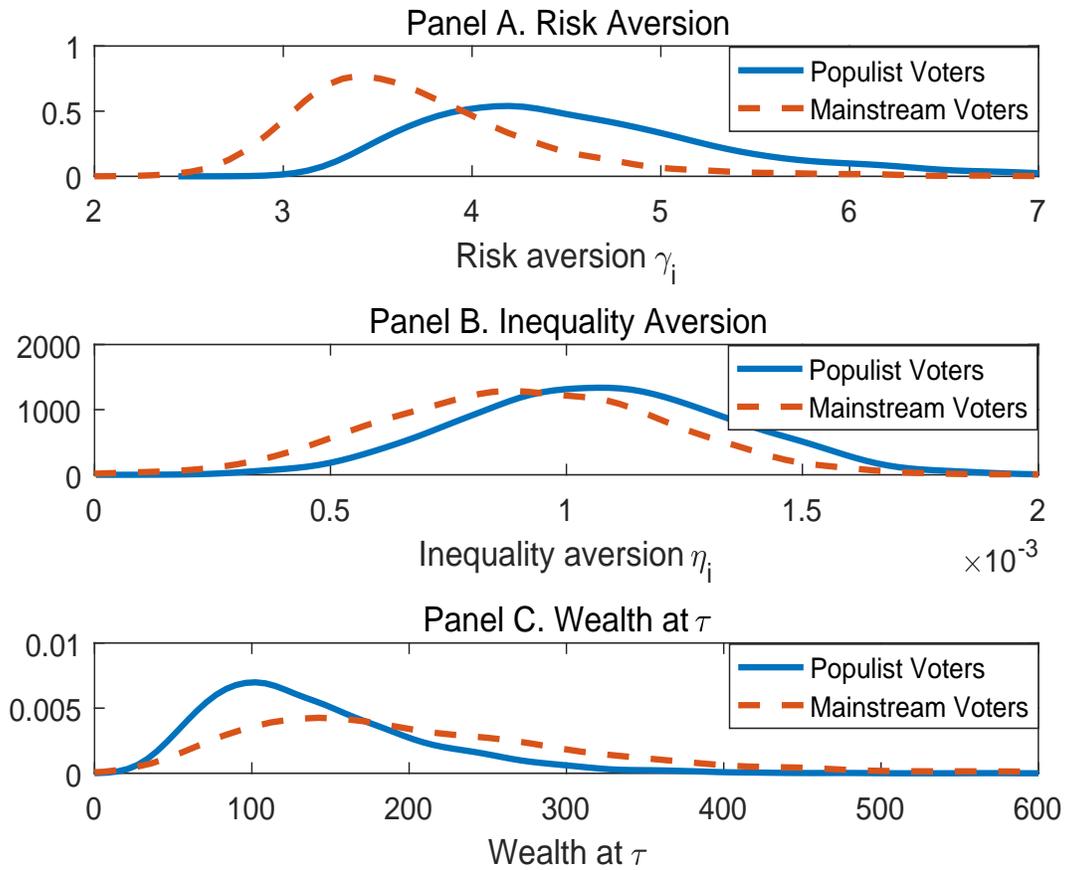


Figure 4. Characteristics of Populist and Mainstream Voters. This figure plots the distributions of γ_i (Panel A), η_i (Panel B), and wealth at the time of the election (Panel C) across populist voters (solid line) as well as mainstream voters (dashed line).

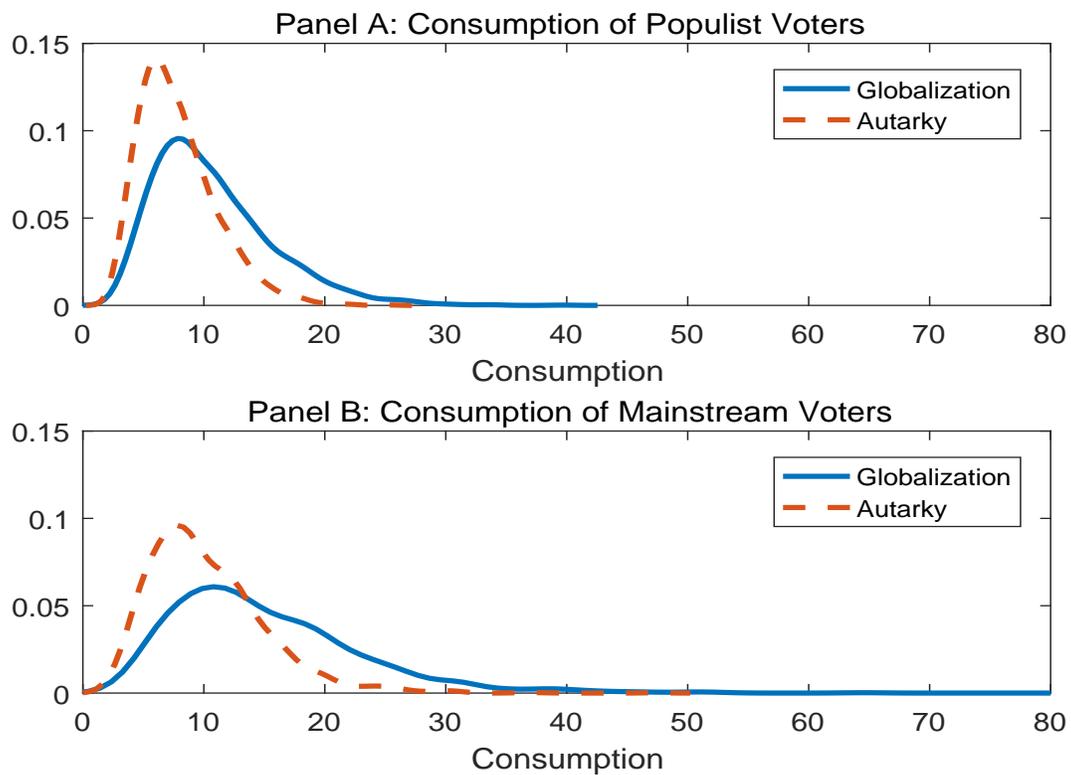


Figure 5. The Distribution of Consumption. This figure plots the distribution of consumption at time τ across populist voters (Panel A) and mainstream voters (Panel B) under two regimes: globalization (solid line) and autarky (dashed line). The value of δ_τ is such that one half of U.S. agents favor each regime.

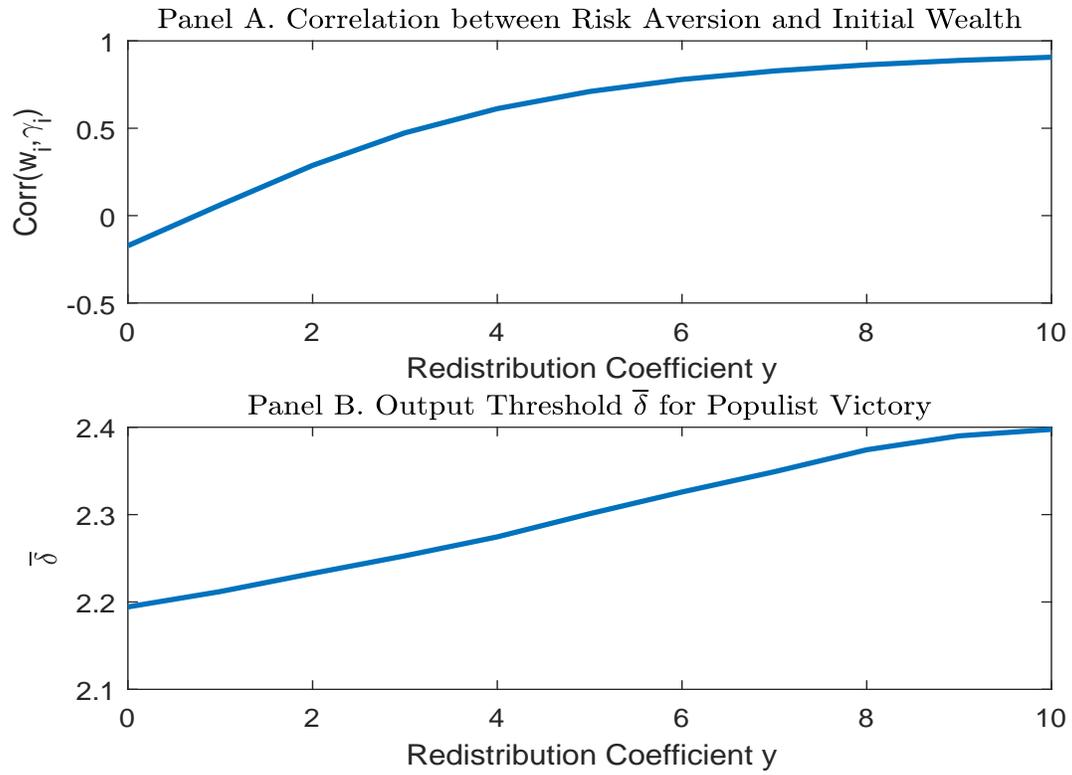


Figure 6. The Effects of Redistribution. This figure plots the correlation between risk aversion γ_i and initial endowment w_i across U.S. agents (Panel A) and the threshold $\bar{\delta}$ from Proposition 5 (Panel B) for different values of the redistribution coefficient y .

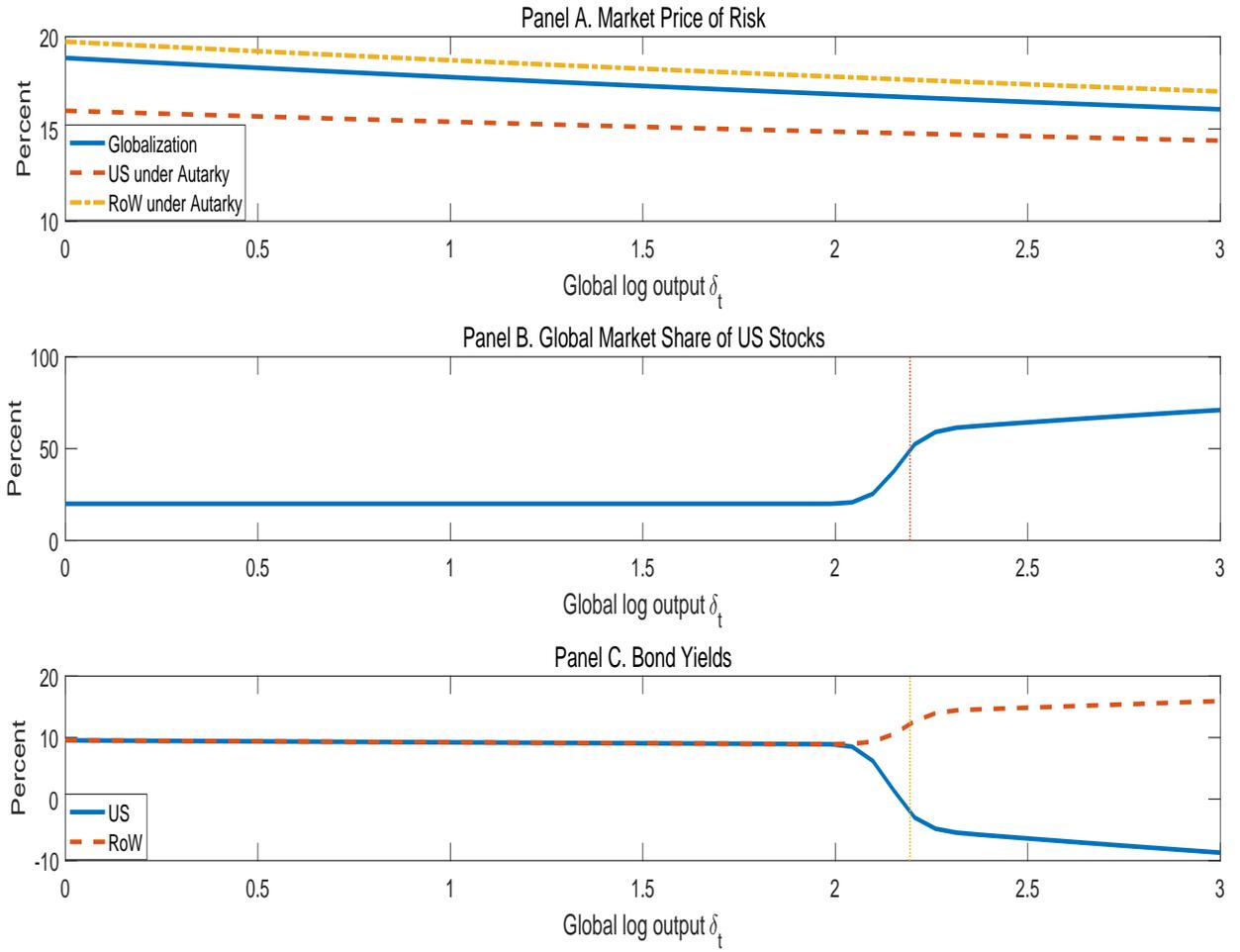


Figure 7. Asset Pricing Implications. This figure plots asset pricing quantities as a function of δ_t at time $t = \tau - 2$ years. Panel A plots the market prices of risk, σ_π^{US} and σ_π^{RoW} , under globalization (solid line) and under autarky (dashed and dash-dot lines, respectively). Panel B plots the global market share of U.S. stocks, $P_t^{US}/(P_t^{US} + P_t^{RoW})$. Panel C plots the yields on U.S. and RoW 10-year zero-coupon bonds. The vertical line in Panels B and C denotes the threshold $\bar{\delta}$ from Proposition 5.

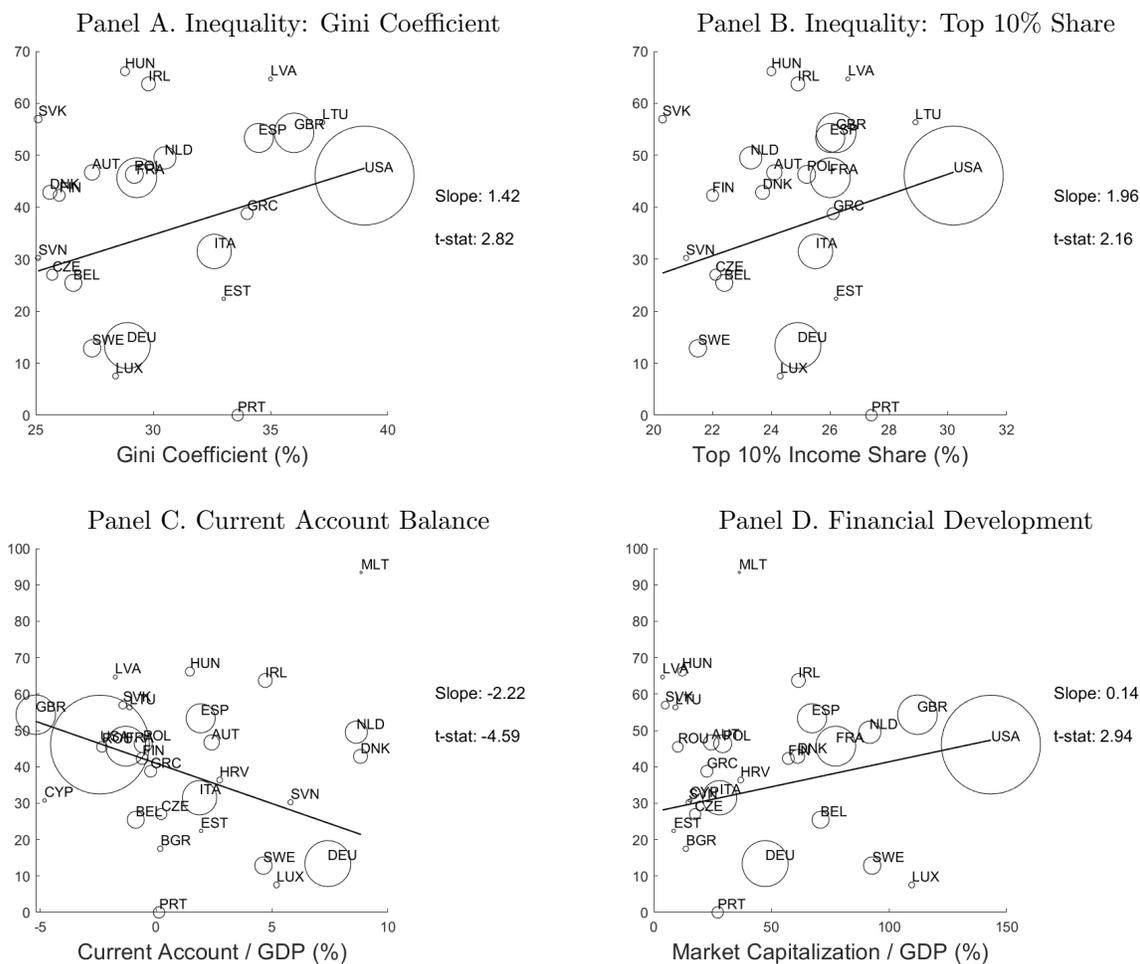


Figure 8. Vote Share of Nationalist Parties. This figure plots the election vote share of the parties we classify as nationalist, in percent. For each country, we use either the most recent national parliamentary election as of January 1, 2017 or the same country’s May 2014 European Parliament election, whichever occurs later. The vote share is plotted against country-level measures of the Gini coefficient of disposable net income (Panel A), the share of income going to the top 10% of earners (Panel B), the current account balance as a fraction of GDP (Panel C), and the ratio of stock market capitalization to GDP (Panel D). The circle around each country’s observation has an area proportional to the country’s GDP. The slope and its *t*-statistic are from the GDP-weighted cross-country regression.

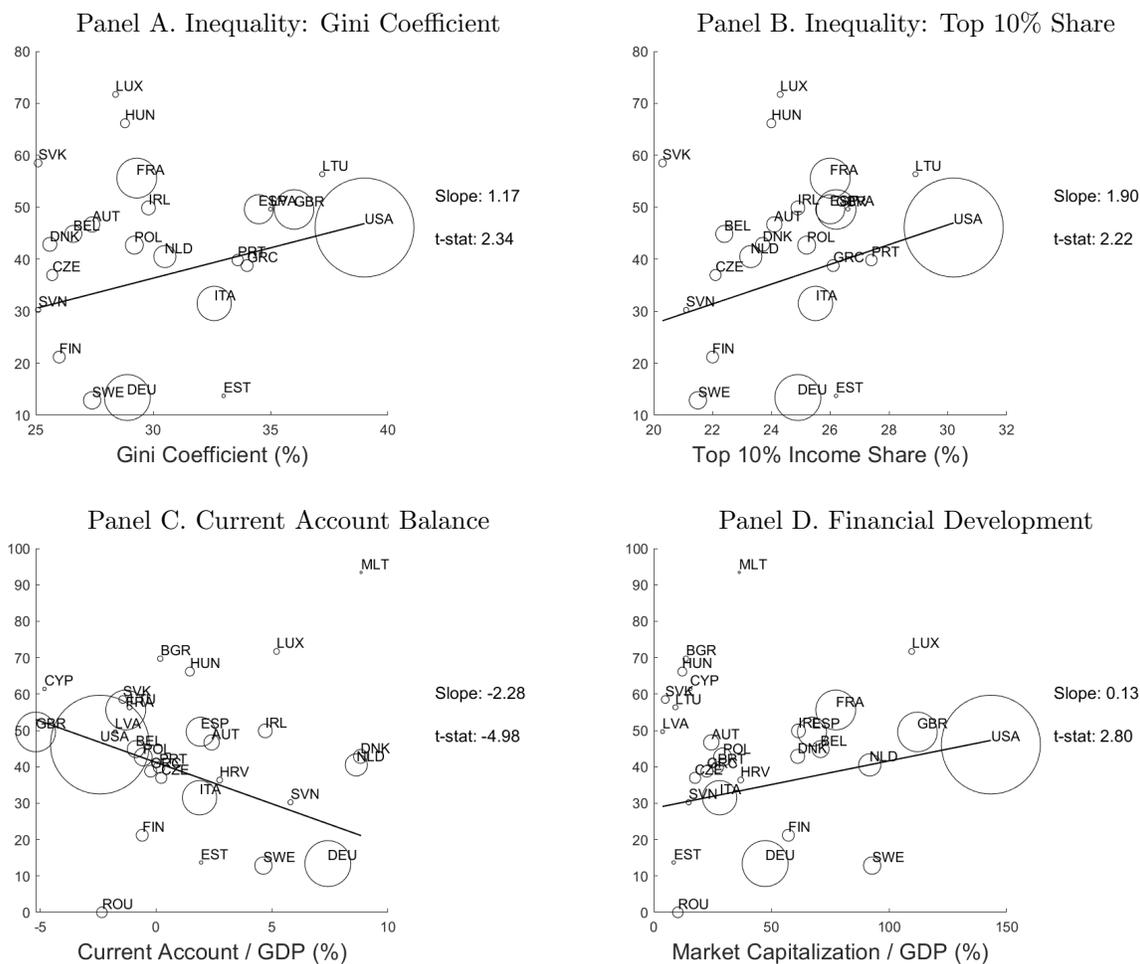


Figure 9. Vote Share of Anti-Immigrant Parties. This figure plots the election vote share of the parties we classify as anti-immigrant, in percent. For each country, we use either the most recent national parliamentary election as of January 1, 2017 or the same country’s May 2014 European Parliament election, whichever occurs later. The vote share is plotted against country-level measures of the Gini coefficient of disposable net income (Panel A), the share of income going to the top 10% of earners (Panel B), the current account balance as a fraction of GDP (Panel C), and the ratio of stock market capitalization to GDP (Panel D). The circle around each country’s observation has an area proportional to the country’s GDP. The slope and its t -statistic are from the GDP-weighted cross-country regression.

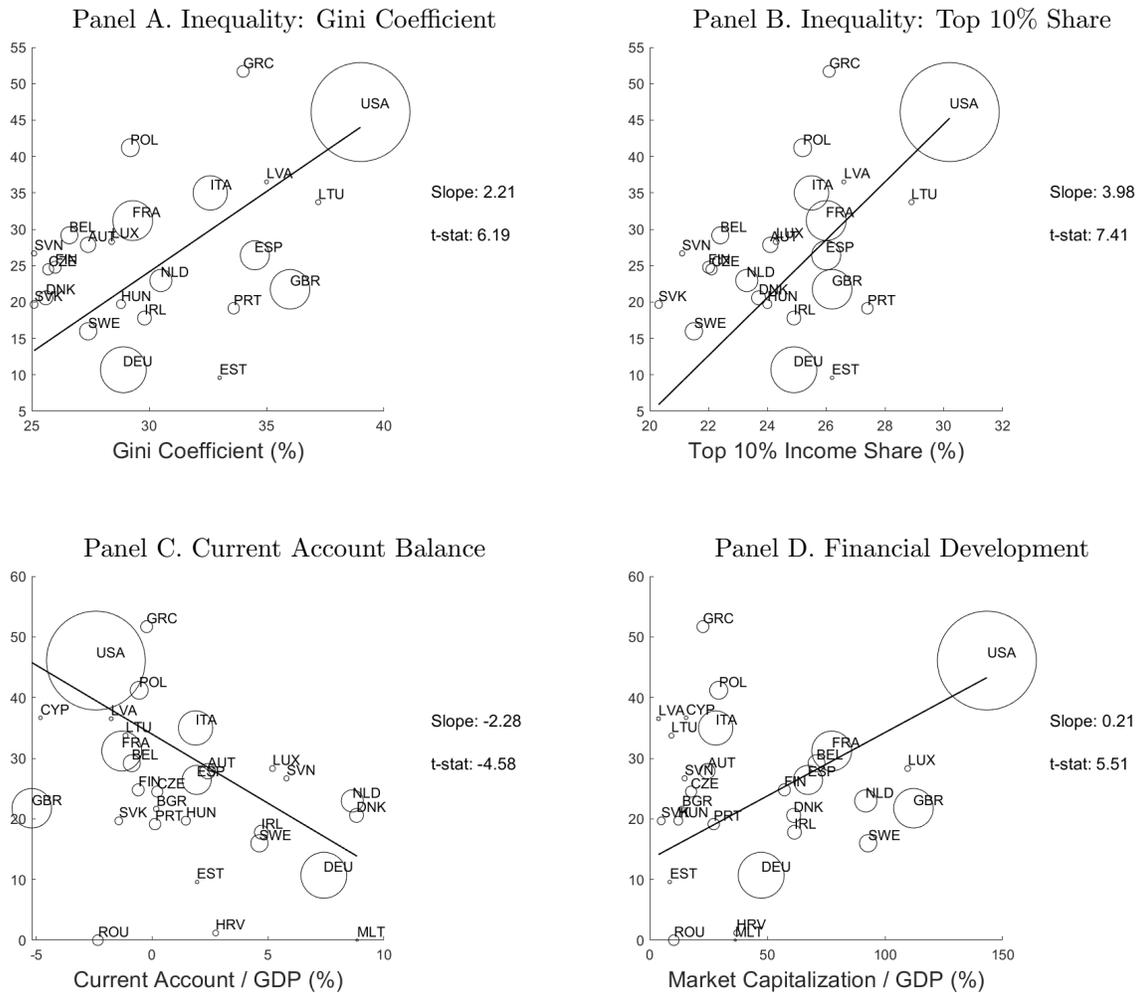


Figure 10. Vote Share of Anti-Elite Parties. This figure plots the election vote share of the parties we classify as anti-elite, in percent. For each country, we use either the most recent national parliamentary election as of January 1, 2017 or the same country’s May 2014 European Parliament election, whichever occurs later. The vote share is plotted against country-level measures of the Gini coefficient of disposable net income (Panel A), the share of income going to the top 10% of earners (Panel B), the current account balance as a fraction of GDP (Panel C), and the ratio of stock market capitalization to GDP (Panel D). The circle around each country’s observation has an area proportional to the country’s GDP. The slope and its *t*-statistic are from the GDP-weighted cross-country regression.

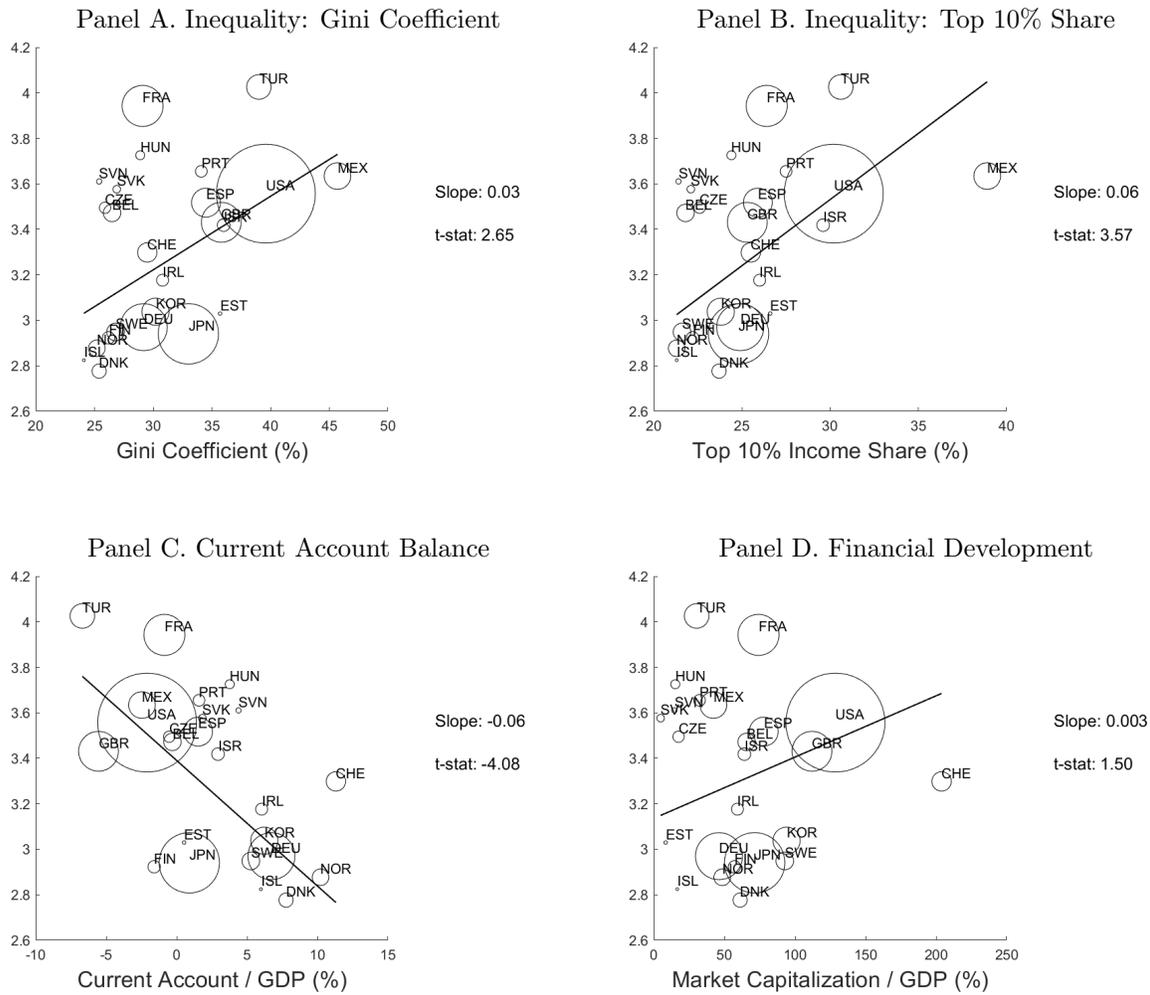


Figure 11. Support for Protectionism. This figure plots the extent to which the country’s respondents in the 2013 ISSP survey agree with the statement “Country should limit the import of foreign products.” The survey responses range from 1 to 5, with 5 indicating “agree strongly” and 1 “disagree strongly,” so that a higher score indicates stronger support for protectionism. The country-level score is the average of all individual responses in the country. This score is plotted against country-level measures of the Gini coefficient of disposable net income (Panel A), the share of income going to the top 10% of earners (Panel B), the current account balance as a fraction of GDP (Panel C), and the ratio of stock market capitalization to GDP (Panel D). The circle around each country’s observation has an area proportional to the country’s GDP. The slope and its *t*-statistic are from the GDP-weighted cross-country regression.

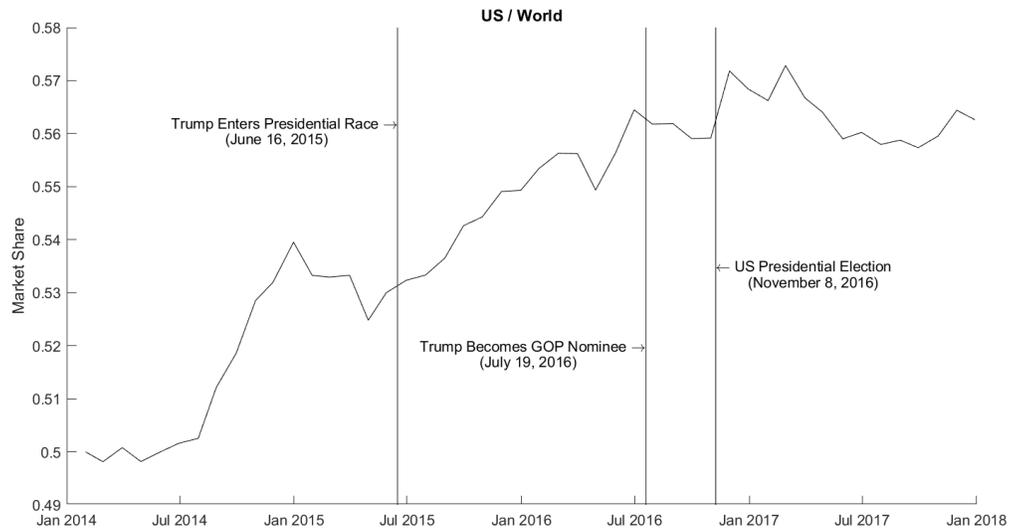


Figure 12. The U.S. Market Share. This figure plots the dynamics of the U.S. stock market’s share of the global market capitalization. We normalize this share to 50% as of January 1, 2014 and update it monthly as a result of the differential return performance of the U.S. and non-U.S. stocks.

Table 1
Elections in Our Sample

This table reports the dates of the national elections in our sample. For each country, we use its most recent national election as of January 1, 2017 as long as it occurred in or after May 2014. If the national election occurred before May 2014, we replace it by the May 2014 European Parliament election in the same country.

Country	National Election Date	European Parliament Election Used? (Y/N)
Austria	2013-09-29	Y
Belgium	2014-05-25	N
Bulgaria	2014-10-05	N
Croatia	2016-09-11	N
Cyprus	2016-05-22	N
Czech Republic	2013-10-25	Y
Denmark	2015-06-18	N
Estonia	2015-03-01	N
Finland	2015-04-19	N
France	2012-06-17	Y
Germany	2013-09-22	Y
Greece	2015-09-20	N
Hungary	2014-04-06	Y
Ireland	2016-02-26	N
Italy	2013-02-25	Y
Latvia	2014-10-04	N
Lithuania	2016-10-09	N
Luxembourg	2013-10-20	Y
Malta	2013-03-09	Y
Netherlands	2012-09-12	Y
Poland	2015-10-25	N
Portugal	2015-10-04	N
Romania	2016-12-11	N
Slovakia	2016-03-06	N
Slovenia	2014-07-13	N
Spain	2016-06-26	N
Sweden	2014-09-14	N
United Kingdom	2015-05-07	N
United States	2016-11-08	N

Table 2
Determinants of the Support for Brexit

This table reports the slope coefficients from a cross-sectional logit regression. The left-hand-side variable is the support for Brexit among the respondents to the British Election Survey. The right-hand-side variables are listed in the first column. The intercept is included in the regression. The t -statistics are in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Income</i>	-0.09 (-27.04)			-0.06 (-15.04)			-0.06 (-7.86)	-0.06 (-7.28)
<i>Education</i>		-1.27 (-60.29)		-1.22 (-44.27)			-0.65 (-12.57)	-0.55 (-9.83)
<i>WillingnessToTakeRisk</i>			0.11 (7.86)	0.21 (10.97)			0.17 (4.98)	0.20 (5.54)
<i>LeftRight</i>					0.44 (47.88)	0.47 (41.71)	0.45 (35.20)	0.42 (31.07)
<i>Religious</i>					0.31 (8.52)	0.15 (3.43)	0.16 (3.16)	0.11 (2.07)
<i>InequalityBad</i>					0.12 (3.40)	-0.04 (-0.89)	-0.03 (-0.62)	-0.02 (-0.37)
<i>PoliticiansFavorTheRich</i>						0.29 (10.82)	0.27 (8.73)	0.30 (9.34)
<i>LawFavorsTheRich</i>						0.11 (3.71)	0.07 (1.92)	0.08 (2.17)
<i>DoNotTrustExperts</i>						0.78 (36.94)	0.68 (27.76)	0.66 (25.90)
<i>Minority</i>								-0.54 (-5.53)
<i>Age</i>								0.01 (4.23)
<i>Gender (Male)</i>								-0.14 (-2.55)
<i>Feminist</i>								-0.36 (-11.47)
Observations	31095	40783	40890	25328	15631	13953	10838	10370
R^2	0.02	0.09	0.002	0.11	0.21	0.35	0.36	0.38

Table 3
Determinants of the Support for Trump

This table reports the slope coefficients from a cross-sectional logit regression. The left-hand-side variable is the support for Donald Trump in the November 2016 presidential election. Panel A controls for whether the survey respondent self-identifies as Republican; Panel B does not. The right-hand-side variables are listed in the first column. The intercept is included in the regression. The t -statistics are in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Controlling for Republican Dummy							
<i>Republican</i>	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)
<i>Income</i>	-0.02 (-4.64)		0.06 (3.86)	0.10 (6.41)		0.11 (6.70)	0.08 (4.82)
<i>Income</i> ²		-0.002 (-5.72)	-0.01 (-5.11)	-0.01 (-4.85)		-0.005 (-4.43)	-0.004 (-3.80)
<i>Education</i>				-0.27 (-28.72)		-0.26 (-27.31)	-0.24 (-23.82)
<i>Religious</i>					0.40 (37.84)	0.37 (32.59)	0.46 (37.82)
<i>Minority</i>							-1.28 (-34.04)
<i>Age</i>							0.01 (14.76)
<i>Gender (Male)</i>							0.57 (21.14)
Observations	40445	40445	40445	40445	45209	40426	40426
R^2	0.32	0.32	0.32	0.33	0.34	0.35	0.40
Panel B. No Control for Republican Dummy							
<i>Income</i>	-0.001 (-0.27)		0.10 (7.30)	0.14 (10.42)		0.15 (10.52)	0.12 (8.15)
<i>Income</i> ²		-0.0004 (-2.10)	-0.01 (-7.58)	-0.01 (-7.22)		-0.01 (-6.36)	-0.01 (-5.43)
<i>Education</i>				-0.28 (-35.71)		-0.27 (-33.09)	-0.25 (-28.58)
<i>Religious</i>					0.53 (58.25)	0.51 (52.02)	0.61 (57.66)
<i>Minority</i>							-1.59 (-47.71)
<i>Age</i>							0.01 (14.54)
<i>Gender (Male)</i>							0.47 (20.32)
Observations	40456	40456	40456	40456	45222	40437	40437
R^2	0.00	0.0001	0.001	0.03	0.08	0.10	0.19

Appendix A. Data: Cross-Country Election Analysis

In this section we fill in some details regarding the data used in our cross-country election-based analysis (Section 7.1). The scoring used in the 2014 Chapel Hill Survey of Experts is as follows:

1. NATIONALISM: Position towards nationalism.
0 = Strongly promotes cosmopolitan rather than nationalist conceptions of society
10 = Strongly promotes nationalist rather than cosmopolitan conceptions of society
2. IMMIGRATE_POLICY: Position on immigration policy.
0 = Strongly opposed tough policy
10 = Strongly favors tough policy
3. ANTIELITE_SALIENCE: Salience of anti-establishment and anti-elite rhetoric.
0 = Not Important at all
10 = Extremely Important

We match the timing of the independent variables to the timing of the election. For an election in a given country-year, we measure inequality, current account balance, and financial development in the same country-year. If the same-year value is unavailable, we use the prior-year value. If financial development is unavailable for both years, we record it as missing. If inequality is unavailable for both years, we go farther back in time until we find a non-missing value.³² Current account balance data are available for each country-year.

Appendix B. Data: British Election Study

We now describe the variables from the British Election Study (Section 8.1).

To measure the support for Brexit, we use the BES variable *profile_eurefvote*, which contains three possible responses to the question “Which way did you vote?” in the 2016 EU referendum: “Remain in the EU,” “Leave the EU,” or “Don’t know.” The response “Leave the EU” indicates support for Brexit. If the variable *profile_eurefvote* is missing, we use the variable *euRefVote* from wave 10, which contains the same voter’s response as to how they would vote in the same referendum. If the wave-10 value is missing, we use the corresponding values from waves 9, 8, or 7, in that order. The waves 7 through 10 were all conducted between April and December of 2016. We define a dummy variable *SupportForBrexit*, which is equal to one if the voter voted for Brexit and zero otherwise.

We measure the respondent’s willingness to take risk, or *WillingnessToTakeRisk*, by using the BES variable *riskTaking*, which contains the response to the question “Generally speaking, how willing are you to take risks?” We convert the four possible responses to integer values between 0 and 3 as follows:

- ‘Very unwilling to take risks’ → 0
- ‘Somewhat unwilling to take risks’ → 1
- ‘Somewhat willing to take risks’ → 2
- ‘Very willing to take risks’ → 3

We use the wave-8 value to keep the timing as close as possible to the EU referendum. But if the wave-8 value is unavailable, we use the most recent wave in which it is available.

To measure income, we use the BES variable *profile_gross_household*, which reports each household’s annual gross income in one of 15 income ranges. We construct *Income* by assigning the values 1 through 15 as follows:

³²This approach is motivated by the high persistence of the inequality series. We do not have to go much farther back—our oldest Gini coefficient is from 2014, and our oldest top 10% share is from 2013.

- under £5,000 per year → 1
- £5,000 to £9,999 per year → 2
- £10,000 to £14,999 per year → 3
- £15,000 to £19,999 per year → 4
- £20,000 to £24,999 per year → 5
- £25,000 to £29,999 per year → 6
- £30,000 to £34,999 per year → 7
- £35,000 to £39,999 per year → 8
- £40,000 to £44,999 per year → 9
- £45,000 to £49,999 per year → 10
- £50,000 to £59,999 per year → 11
- £60,000 to £69,999 per year → 12
- £70,000 to £99,999 per year → 13
- £100,000 to £149,999 per year → 14
- £150,000 and over → 15

We measure the respondent’s education by using the BES variable *profile_education*, which contains the responses to the question “At what age did you finish full-time education?” We create a dummy variable *Education*, which is equal to zero if the response is 18 years or less and one otherwise.

We construct our first measure of the respondent’s aversion to inequality by using two BES variables: *inequalityChange* and *inequalityGoodBad*. The variable *inequalityChange* contains the response to the question “Do you think the difference in incomes between rich people and poor people in the UK today is larger, smaller, or about the same as it was 20 years ago?” The variable *inequalityGoodBad* contains the response to the follow-up question “And do you think this is a good thing, a bad thing, or haven’t you thought about it?” Both variables are available only in waves 2, 3, and 4. We use the wave-4 values whenever available; if they are unavailable, we use the most recent wave for which they are available. We construct our *InequalityBad* variable as an integer value 1, 2, or 3 as follows:

- If *inequalityChange* = “Larger” then we compute *InequalityBad* as
 - If *inequalityGoodBad* = ‘Good thing’ → 1
 - If *inequalityGoodBad* = ‘Don’t know’ → 2
 - If *inequalityGoodBad* = ‘Bad thing’ → 3
- If *inequalityChange* = “Smaller” then we compute *InequalityBad* as
 - If *inequalityGoodBad* = ‘Good thing’ → 3
 - If *inequalityGoodBad* = ‘Don’t know’ → 2
 - If *inequalityGoodBad* = ‘Bad thing’ → 1
- If *inequalityChange* is neither “Larger” or “Smaller” then we declare *InequalityBad* as missing

We measure the respondent’s *LeftRight* orientation by using the BES variable *leftRight*, which contains the response to the question “In politics people sometimes talk of left and right. Where would you place yourself on the following scale?” The possible values range from 0 (extreme left) to 10 (extreme right). We use these numerical values directly. We use the most recently observed value of the *leftRight* variable.

We measure the respondent’s religiosity by using the BES variable *profile_religion*, which contains the response to the question “Do you have a religious affiliation?” We create a dummy variable *Religious*, which is equal to zero if the response is “No, I do not regard myself as belonging to any particular religion” and one otherwise.

To measure the respondent’s dislike of the elites, we create three variables: *PoliticiansFavorTheRich*, *LawFavorsTheRich*, and *DoNotTrustExperts* based on the responses to the question “How much do you agree or disagree with the following statements?” for three different statements as follows:

- “Politicians only care about people with money.” → *PoliticiansFavorTheRich*

- “There is one law for the rich and one for the poor.” → *LawFavorsTheRich*
- “I’d rather put my trust in the wisdom of ordinary people than the opinions of experts.” → *DoNotTrustExperts*

Each of the three variables takes integer values from 1 to 5, which we assign as follows:

- ‘Strongly disagree’ → 1
- ‘Disagree’ → 2
- ‘Neither agree nor disagree’ → 3
- ‘Agree’ → 4
- ‘Strongly agree’ → 5

Our variable *PoliticiansFavorTheRich* is derived from the BES variable *polForTheRich*. We use the most recent available value of this variable; that is the value from wave 7 or from prior waves 4, 3, 2, and 1, in that order. Our variable *LawFavorsTheRich* is derived from the BES variable *lr4W7W8W9*, which comes from waves 7 through 9. Our variable *DoNotTrustExperts* is derived from the BES variable *antiIntellectual*, which is available from waves 7 through 11. We use the most recent available value of that variable.

We measure the respondent’s ethnic minority status by using the BES variable *profile_ethnicity*, which contains the response to the question “To which of these groups do you consider you belong?” If the response is “White British” (this is the response given by 88.8% of respondents) then we set the dummy variable *Minority* equal to zero; otherwise we set it equal to one.

We measure the respondent’s *Feminist* attitude by using the BES variable *femaleEquality*, which contains the response to the question “Please say whether you think these things have gone too far or have not gone far enough in Britain: Attempts to give equal opportunities to women.” We convert the five possible responses to integer values between 1 and 5 as follows:

- ‘Gone much too far’ → 1
- ‘Gone too far’ → 2
- ‘About right’ → 3
- ‘Not gone far enough’ → 4
- ‘Not gone nearly far enough’ → 5

The variable is available as an aggregate from waves 6 through 12.

Finally, to measure the respondent’s age, we use the BES variable *Age* (“What is your age?”), and to measure the respondent’s gender, we use the BES variable *gender* (“Are you male or female?”).

Appendix C. Data: Cooperative Congressional Election Survey

We now describe the variables from the 2016 CCES (Section 8.2).

To measure the support for Trump, we use the CCES variable *CC16_410a*, which contains the responses to the question “For whom did you vote for President of the United States?” in the 2016 election. We set the variable *SupportForTrump* equal to one if the voter voted for Trump and zero otherwise.

To measure income, we use the CCES variable *faminc*, which reports the response to the question “Thinking back over the last year, what was your family’s annual income?” in multiple income ranges. We construct *Income* by assigning the values 1 through 16 as follows:

- Less than \$10,000 → 1
- \$10,000 to \$19,999 → 2
- \$20,000 to \$29,999 → 3

- \$30,000 to \$39,999 → 4
- \$40,000 to \$49,999 → 5
- \$50,000 to \$59,999 → 6
- \$60,000 to \$69,999 → 7
- \$70,000 to \$79,999 → 8
- \$80,000 to \$99,999 → 9
- \$100,000 to \$119,999 → 10
- \$120,000 to \$149,999 → 11
- \$150,000 to \$199,999 → 12
- \$150,000 or more → 12
- \$200,000 to \$249,999 → 13
- \$250,000 to \$349,999 → 14
- \$250,000 or more → 14
- \$350,000 to \$499,999 → 15
- \$500,000 or more → 16

To measure *Education*, we use the CCES variable *educ*, which contains the response to the question “What is the highest level of education you have completed?” We convert the six possible responses to integer values between 1 and 6 as follows:

- ‘No high school’ → 1
- ‘High school graduate’ → 2
- ‘Some college’ → 3
- ‘2-year’ → 4
- ‘4-year’ → 5
- ‘Post-grad’ → 6

To measure how *Religious* the respondent is, we use the CCES variable *pew_religimp*, which contains the response to the question “How important is religion in your life?” We convert the four possible responses to integer values between 0 and 3 as follows:

- ‘Very important’ → 3
- ‘Somewhat important’ → 2
- ‘Not too important’ → 1
- ‘Not at all important’ → 0

To measure the respondent’s ethnic minority status we use the CCES variable *race*, which contains the response to the question “What racial or ethnic group best describes you?” If the response is one of ‘Black’, ‘Hispanic’, ‘Asian’, ‘Native American’, or ‘Middle Eastern’ then we classify the respondent as *Minority*.

The *Republican* variable is based on the CCES variable *pid3*, which contains the response to the question “Generally speaking, do you think of yourself as a ...?”. If the response is ‘Republican’ then we set *Republican* equal to one; otherwise we set it to zero.

We back out the respondent’s age from the variable *birthyr*. Gender comes from the variable *gender*.

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