Why Populists Neglect Automation: The Political Economy of Economic Dislocation

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Abstract

Why do populists emphasize offshoring as a cause of manufacturing job losses when automation is at least as significant a culprit? Why have voters predominantly responded to automation and offshoring shocks by demanding a retreat from globalization but not transfers to the unemployed? We propose that both questions are explained by the collision of economic nationalism and comparative advantage trade. Economic nationalists, who value their state's self-sufficiency and oppose imports, oppose policies that could hamper their own state's comparative advantage industries, like regulations of high-tech automation. They are more comfortable with tariffs restricting imports. In the United States, which has a comparative advantage in the production of capital intensive automation technologies, this effect undercuts the willingness of voters to support policies that would protect manufacturing jobs by reducing the ability of American firms to sell technology. Opportunistic populist politicians emphasize offshoring because economic nationalist voters are unified in their support for limiting imports but conflicted in their support for limiting automation. We develop a formal model of nationalist demand for policy in response to economic dislocation, where citizens form preferences over redistribution plans and a policy response that blunts dislocation (like a tariff or a restriction on automation). The source (foreign versus domestic) and type (labor versus automation) of a shock affects the preferred weights citizens place on each policy. We test the model's predictions with a survey experiment fielded in the United States. Consistent with expectations, domestic automation shocks increase the weight respondents place on redistribution versus a regulatory response, while globalization shocks place much heavier weight on regulatory (tariff) responses. Altering the source of each shock - by emphasizing foreign-produced automation technology or within-country labor relocation - reweights responses towards regulations in the former case and redistribution in the latter case. Our findings contribute to our understanding of the political consequences of the current populist moment as well as give predictions about the future consequences of automation shocks.

Introduction

The surge in populist sentiment embodied by the election of President Donald Trump and the Brexit referendum spurred renewed interest in the political economy of economic dislocation. A variety of work links globalization, epitomized by growing interdependence in trade networks or the "shock" of China's entry into the world marketplace, with changes in political behavior. These large economic forces set in motion economic dislocation that led to political support for protectionism-touting candidates,[1] platforms,[2], and opposition to incumbents,[3] especially among Whites.[4] The changes brought about during this time period have been so large as to lead some scholars to wonder whether this is the end of widespread support for the liberal economic order built since the end of World War II.[5]

Yet, if globalization-induced economic anxiety led to these massive political shifts, then two related questions arise. First, if globalization caused enough economic dislocation to attract the ire of elected officials and voters, then why didn't the rise of automation also induce similar changes? After all, automation is thought to account for a much larger share of economic dislocation compared to globalization.[6] Yet, according to politicians who have most effectively channeled economic anxiety into a populist political surge, globalization is the chief villian, not automation.[7] By April 2020, President Donald Trump had referenced "automation," "robot," or "technology" in 29 tweets but used the words "trade" or "tariff" in at least 528 tweets. These politicians embrace policy remedies to globalization, like tariffs, yet they generally ignore or even oppose regulations or redistributive responses that might blunt the effects of automation. They do so despite the fact that higher perceptions of the threat posed by automation also increase support for redistribution and regulation to address automation.[8]

Similarly, if globalization induced such intense anxiety among voters, why did they respond by supporting anti-globalization candidates instead of supporting greater economic transfers to those harmed

[1] Che et al. (2016)
[2] Colantone and Stanig (2018), Milner (2018)
[3] Jensen, Quinn, and Weymouth (2017)
[4] Baccini and Weymouth (2021)
[5] Jervis et al. (2018)
[6] Di Tella and Rodrik (2020)
[7] Zhang (2019), Flaherty and Rogowski (2021), Ballard-Rosa, Goldstein, and Rudra (2022)
[8] Busemeyer and Sahm (2021)

by economic shocks? A citizen facing the harm of foreign competition can be helped with tariffs, but she can also be helped by better social safety nets, unemployment insurance, or job retraining. In fact, a better social safety net could help manufacturing workers regardless of whether the pressure on their jobs is more attributable to automation or offshoring. And yet, voters and policymkers routinely express intense interest in the question of whether automation or trade is more to blame for the decline of manufacturing as if there were no policy solutions which could mitigate both problems. Even the politicians who do support increased transfers as their preferred solution also tend to support a retreat from globalization.[9] Why do similar shocks from foreign versus domestic sources engender such different types of policy responses?

This paper's argument is that the collision of economic nationalism and comparative advantage explains both questions. We construct a very general formal model of a citizen whose country faces a shock that affects national income and has distributional consequences for different groups in society. The citizen chooses her preferred bundle of responses to the shock, comprised of a policy response that blunts the shock and redistributive shock that makes losers from the shock whole again. The citizen is, to at least some degree, an economic nationalist. Economic nationalists are distinguished by their preference against imports - preferring instead national self-sufficiency. For an economic nationalist living in a technology or capital abundant state, imports of labor-intensive products both destroy manufacturing jobs and make the state dependent on foreign inputs. By contrast, economic nationalists in capital-abundant states are ambivalent about automation. New automation technologies developed domestically also harm manufacturing employment but they promote the economic self-sufficiency of the state. Therefore, opportunistic populist politicians neglect automation as a cause of economic dislocation because their natural constituency is conflicted about the merits of stopping it directly. But they are united in their opposition to foreign imports.

By allowing citizens to form preferences over a policy remedy, like tariffs, *and* a direct redistributive remedy, like unemployment insurance, our model explains why the social safety net is undersold as a policy solution to the threat of offshoring. Policy and redistributive remedies are substitutes, and

[9] Newmyer (2019)

increased preference for one crowds out desire for the other. Transfers only address the distributional consequences of the decline of manufacturing – they do not satisfy the economic nationalists who lament their state's dependence on imports. What's more, the demand for trade barriers actually crowds out the demand for transfers because the restrictions on imports partially protect manufacturing jobs, thereby reducing the need for transfers. When the cause is domestic automation, however, transfers are enticing to economic nationalists since they are less harmful to the technology industry than other types of regulations. Thus, in capital abundant states, transfers are promoted as a valid solution to job losses caused by automation but only rarely as a solution to jobs lost to offshoring.

We assess the predictions of the model with survey experimental data from the United States. Within a realistic news article about layoffs at an auto plant, we randomly vary two features: (1) the type of shock - automation versus labor and (2) the source of the shock - domestic or foreign. A domestic automation shock represents the canonical situation where automation from a U.S. firm replaces workers. Offshoring is a foreign labor shock. Respondents indicate support for redistribution (eg unemployment benefits) and a policy remedy (eg a tariff that blocks imports or regulations that limit automation).

We find that support for redistribution, relative to the policy remedy, increases for domestic automation shocks versus foreign labor shocks, consistent with the theory. The model also predicts that making the source of automation foreign, as opposed to domestic, should decrease support for redistribution and increase support for a regulatory policy remedy. To show this, we also include treatments with foreign automation shocks - where technology developed by foreign firms replaces U.S. workers - and domestic labor shocks - where jobs move from one state to another. Making automation foreign or making labor shocks domestic changes preferences in ways predicted by the model. The former change decreases the respondents' weight placed on redistribution; the latter increases the weight placed on redistribution.

The theory and empirical results help us better understand the current, populist moment and its effects on policy. Economic nationalism helps explain why trade, and not automation, bolstered politicians like President Trump, and why those politicians could successfully attribute blame to trade, as

opposed to automation. It also helps explain why globalization boosted the political fortunes of President Trump, but not Senator Elizabeth Warren or Andrew Yang. The model and theory also provide a general framework for how citizens weight different political responses to different shocks. Most work considers different policy responses in isolation; ours considers how citizens form a bundle of policy responses, which can potentially act as substitutes for one another. To the best of our knowledge, our model is among the first to account for substitution across options in a policy bundle, as opposed to considering tax/redistribution and policy remedies in isolation from one another.

Finally, we validate our conception of economic nationalism with additional experiments showing [xxx … the effects of making robots foreign are potentially through (1) perceived effects on the in group/out group or (2) perceived effects on sovereignty or security.]

Our research has important implications for the nascent international political economy of automation.[10] So far, the development of automation has been pioneered by knowledge clusters in the United States, particularly in Silicon Valley. However, other states are closing the technological gap - a phenomenon we document concretely in our paper's concluding discussion. China has demonstrated its ability to compete in high tech industries through its investments in Huawei and 5G technology. As firms in China and other states develop their capabilities to produce automation technology then the pressure on manufacturing jobs in the United States might become more attributable to foreign rather than domestic technology. The prediction of our theory is that an influx of foreign technology could stimulate demand for policies that limit automation – including domestic automation – among economic nationalists. If the next round of populist politicians choose to blame "foreign" technology for internal dislocation, then this could further stall a return to the compromise made with embedded liberalism.

By all indications, the pace of growth for digitization, ICT, and artificial intelligence are quickening. Increasing numbers, and increasingly higher-skilled workers, will find their vocations at risk. These trends portend a potential political crisis as large at that triggered by globalization. We therefore seek to heed the call of (Mansfield and Rudra 2020) who ask for more research on "the political conditions

[10] Mutz (2021), Owen and Johnston (2017), Wu (2019), and Gallego and Kurer (ARPS forthcoming).

under which governments compensate segments of society that suffer as a result of technological change" and on "the political conditions under which governments support and regulate technological change." Our paper speaks to both by linking a nation's position in high-tech industries with potential political reactions.

Literature

A growing body of literature assesses how economic shocks and dislocation affect political preferences. Disclocation from globalization has attracted the most attention from researchers and politicians alike. Most existing work links globalization with a bundle of nativist and anti-global policies, such as increased tariffs or support for immigration restrictions.[11] Exposure to globalization increases an individual's anxiety about their economic prospects or status, leading them to support protectionist and right wing politicians,[12] authoritarian politicians,[13] or to oppose incumbents.[14]

Surprisingly, existing work finds a weak, or even negative, relationship between globalization-induced dislocation and support for policies that compensate the losers from trade via transfers. Di Tella and Rodrik (2020) and Naoi (2020) survey US and Japanese respondents, respectively. They find that prompts about globalization shocks raise support for protectionism, but *decrease* support for compensation for the losers.[15] Rodrik (2020) summarizes this puzzle, noting that:

> backlash [against globalization] has overwhelmingly benefited right-wing populists. Left-wing populists who may have been programmatically better positioned to take advantage of the labor market shocks, with their redistributionist agendas, do not seem to have been much advantaged. (p 18)

Research on the political effects of automation and technological change follows a similar pattern. Several works link exposure to automation with support for protectionist policies, populist politicians,

[11] Che et al. (2016),Bisbee et al. (2020), Bisbee (2019)
[12] Colantone and Stanig (2018)
[13] Ballard-Rosa, Jensen, and Scheve (2018)
[14] Jensen, Quinn, and Weymouth (2017)
[15] For one exception, see Che et al. (2016) who find that globalization increased support for Democrats in the US House, who pursued more redistributive policies once elected.

or immigration restrictions.[16] The authors generally attribute the effect of automation on support for protectionist policies to blame misattribution,[17] wherein a worker suffering from automation-induced dislocation is "unlikely to have recognized the true causes of the [economic] concerns."[18] This leads to support of trade restrictions or anti-globalization politicians, instead of support for automation restrictions.

Findings for the effect of automation on support for increased transfers are mixed, as in research on trade-related dislocation. Thewissen and Rueda (2019) find that exposure to automation increased support for redistribution using survey data from Europe covering 2002-2012. Kurer and Hauserman (2021) find that subjective assessments of the risks from automation are positively correlated with support for unemployment assistance in some European countries. However, Zhang's (2019) aptly-titled work, "No Rage Against the Machines," finds little effect of automation primes on US respondents' expressed preferences over trade or redistribution policy. Gallego et al. (2021) find that exposure to automation does not increase support for *ex poste* redistribution policies. Jeffrey (2021) uses a survey experiment in the UK and finds that, initially, respondents who feel vulnerable to automation are unaffected or even less supportive of redistribution, but that rhetoric about the fairness of dislocation can change their opinions.

We are unaware of related work on the effect of within-country relocation of production on support for various remedies. This is despite the fact that major disruption comes not from competition abroad, but from lower wage workers located within the same country.

Work on dislocation and political preferences raises two related questions. First, why does dislocation lead to demands for protectionism instead of increased support for policies like unemployment insurance or adjustment assistance? If a worker fears losing her job because of competition from abroad, then protectionism can potentially avert or counteract that shock. But direct redistribution via tax and redistribution policy can also make that worker "whole" again.[19]

[16] Anelli, Colantone, and Stanig (2019), Caselli, Fracasso, and Traverso (2019), Owen and Johnston (2017), Im et al. (2019), Gamez-Djokic and Waytz (2020), Milner (2021). The lone exception that we are aware of is Gingrich (2019) who finds that automation can increase support for mainstream politicians, using survey data.

[17] Wu (2019)

[18] Frey, Berger, and Chen (2018), p. 428

[19] While also avoiding the price effects of tariffs, which voters dislike (See Casler and Clark (2021)).

Second, a worker is equally harmed – at least in an economic sense – by job loss resulting from foreign competition, a shift to automation, or a firm relocating production within her country. Even Henry Martyn, an English politician writing in 1701 recognized the economic equivalence of automation and globalization shocks. He used the "obvious" attraction of the former to rebut anti-import mercantilists.[20] Returning to modern times, Adam Posen (2021) writes that "for each manufacturing job lost to Chinese competition, there were roughly 150 jobs lost to similar-feeling shocks in other industries. But these displaced workers got less than a hundredth of the public mourning" (31). So why does political attention and popular ire focus much more heavily on foreign competition than automation or domestic competition, even though the direct consequences of each of these shocks on her income are identical?

We argue that citizen preferences account for substitution between potential remedies and the foreign nature of some shocks affects how they balance different responses. In general, shocks from globalization and automation create winners and losers. They are generally thought to raise aggregate welfare but to also transfer wealth between those who lose out from the shock to those who gain. Governments can respond to shocks in two ways. They can choose a direct policy that counteracts the shock itself, blunting any reallocation of wealth in the first place or reversing it if the shock has already occurred. For example, the government can use protectionism to try and restore the allocation of wealth to how it was before trade liberalization. The government can put limits on automation to prevent firms from shifting modes of production. The government can also tax and redistribute wealth to return to its *ex ante* allocation. Governments can also use these tools in conjunction with one another. To restore the *ex ante* wealth allocation, the government could heavily emphasize policies that counteract the shock (eg tariffs) but only slightly increase redistributive transfers. The government could also use a lighter hand in terms of tariffs, but more heavily tax and redistribute.

Our explanation centers the concept of economic nationalism and the perceived foreignness of a shock. These affect how a citizen "weights" the two options in her optimal response. By economic nationalism, we mean a set of preferences that place greater weight on one's fellow citizens and

[20] Rodrik (2011) references Martyn's argument in his discussion of debates over globalization.

ingroup members within the nation. This manifests as a preference for domestic production and a dislike of imported goods or technology.

Research on trade and globalization has made clear the importance of economic nationalism. Our conception of economic nationalism also relates to what Mutz and Kim (2017) call compatriotism, referring to "the tendency to favor in-group members strictly because they are citizens of the same country" (830). If people believe that the location of production determines whether their fellow citizens accrue economic gains through employment, then compatriots should prefer domestic production. Bonikowski and DiMaggio (2016) document "restrictive nationalism," which describes the tendancy to hold strict definitions about what it means to be a member of a particular country, eg "to be an American." Margalit (2012) link this to a fear of globalization among those who think of it as an invasive cultural package, as opposed to simply an economic shock. Kathleen Powers makes explicit the link between an underlying value and subsequent policy preferences. She describes "unity nationalism" as "[requiring] that group members prioritize actions that contribute to the group's betterment even when they must pay individual costs (Forthcoming, p. 46)."

We argue that - theoretically - economic nationalism could extend beyond trade in final goods, to also affect preferences over automation technology via two mechanisms. The first mechanism is redistributive: nationalists may believe that any negative consequences of importing technology will be borne disproportionately by their group. For example, nationalists might perceive imported technology as being more likely than domestic technology to automate jobs belonging to ingroup members. Even if the new technology lowers prices, nationalists would resist foreign automation as long as their conception of the nation includes people who are suffering the costs and excludes people who are experiencing the benefits. These nationalists cannot be said to be skeptical of foreign technology per se: ultimately, they are worried about the consequences of foreign technology on the nation.

The second mechanism depends on the threat of foreign technology to sovereignty. Nationalists want the national and political units to be aligned (see Gellner) and they expect the state to support the interests of the nation as they perceive it. Economic linkages can be used strategically to undermine the

sovereignty of the state and subvert its ability to support the nation. Foreign states can make market access to important technologies conditional on certain political behaviors. Schweinberger (2022) finds that the tendancy towards mercantilism and dislike of trade deficits is magnified for trade with with rising power adversaries, which could also apply to automation. Alternatively, the foreign state could use the technology for industrial and political espionage. Nationalists who identify the foreign state as an outgroup would resist foreign influence because it creates a possibility that the state will serve two masters. Nationalists motivated by self-sufficiency concerns might care very much about supply chains out of fear that economic linkages increase vulnerability. Supply chains of linkages among allies would be unlikely to threaten sovereignty.

We argue that the consequences of nationalism can apply to final goods *and* to automation. We assume that citizens have varying preferences over the national trade balance. All else equal citizens prefer a greater degree of national self-sufficiency, characterized by fewer imports.

Note however that it is far from guaranteed that the concept of economic nationalism could extend to citizen preferences over automation. There are three objections to the proposition that nationalist voters transfer their skepticism of foreign people to foreign technology. First and most straightforward, nationalists are defined by their desire to exclude particular groups of people, not technology, from the government's care. Nationalists could in principle be willing to do business with foreigners to access their technology even while resisting their immigrants or imports of their goods. Mutz (2021) hypothesizes this as a reason why automation fails to trigger reactions among U.S. citizens. Foreigners are outgroup members, while robots are not. It is also more difficult to attribute malicious intent to a robot than to a foreigner who has agency. Second, the association of technology with any particular country of origin is weaker in a world of global value chains. Imported robots increasingly embody contributions from many different countries, sometimes including the importing country itself. Third, nationalists might want to maximize the national income. International trade in robots should increase national income because comparative advantage trade creates mutual gains.

Our formal model focuses on "demand" side explanations for different policies, but fits within a

broader framework that accounts for elites and their "supply" of policies like protectionism.[21] Our model describes how economic nationalism and economic dislocation tilt public preferences towards policies like protectionism and away from redistribution. Politics is a highly competitive marketplace, where opportunists are always looking for an argument or greivance that they can use to rally their support. Some elites understand, or at least sense or intuit, how shifting conditions create fertile ground for certain arguments or ideas to take root. They then supply the corresponding platform or further stoke those shifts with identity-reinforcing cues.[22] The media helps amplify these messages as they gather steam. Our model helps explain why certain political messages, like those blaming globalization and advocating for protectionism, take stronger root than narratives based on automation.

Of note is how our answers to our two motivating questions - why trade and not automation, and why protection instead of redistribution - differ from existing work. For example, one alternative story asserts that automation is less salient than trade. Our explanation explains how this came to be. It was not long ago that academics assumed that trade was an exceptionally low salience issue among foreign policy issues, that were themselves relatively low salience.[23] Our argument helps understand why trade rose to the forefront of political consciousness, as opposed to automation. Similarly, our explanation does not rest on blame misattribution or voter ignorance. For starters, citizens tend to better understand issues that directly affect their employment. Additionally, "blame" is a malleable concept. Our model explains why politicians could more effectively sell stories about the harms of globalization and the necessity of protection, compared to the harms of automation and the necessity of redistribution or regulation.

Other alternative explanations describe public disillusionment with redistribution. Under this story, voters resorted to protectionism as they came to believe that redistribution failed or was not forthcoming. This story does not fit with key data points of the modern populist movement. Populism has found fecund ground even among European states with strong safety nets. Even in the United States, the populist movement arose after the tenure of President Obama, whose signature domestic

[21] Rodrik (2020).
[22] Balcazar (2021).
[23] Guisinger (2009)

policy acheivement was a large scale redistribution of wealth via the Affordable Care Act.

Theory

Our theoretical model is comprised of two parts: (1) an economy experiencing a shock that raises aggregate income, but has positive and negative effects on different societal groups and (2) a representative citizen with preferences over the income distribution among different groups in society. The citizen-utility component of the model incorporates recent research allowing preferences to have sociotropic and egocentric components,[24] implemented using preferences that give differential weight to particular groups within society.[25] The economic model departs from existing work by allowing two forms of response to the shock, transfers or a policy intervention, each with their own costs and benefits. By transfers, we have in mind tax and redistribution mechanisms that reallocate money from one group to another. By policy intervention, we mean government actions that directly counteract the shock itself, preventing the shock from creating dislocation in the first place.

The Political Economy of Redistributive Shocks

Consider an economy experiencing an economic shock of magnitude A which creates aggregate gains for the society as a whole. We consider two types of shocks: a globalization shock and a technology shock. We denote the type of shock with $k \in \{G, T\}$. The shocks are similar in several ways. First, both types of shock can create aggregate gains A. For a globalization shock, gains arise from offshoring as domestic firms move production abroad to take advantage of lower labor costs, lowering prices or raising the quality of goods for domestic consumers. For an automation shock, gains arise from improved technology that increases the efficiency of production, allowing firms to lower prices at home and export more abroad.

Second, both types of shocks cause internal economic dislocation, meaning that some subset of the population is harmed by the change. Workers who lose their jobs to foreign workers or to automation experience losses that are larger than the benefit of lower prices due to the shock. Citizens whose

[24] Rho and Tomz (2017), Mansfield and Mutz (2009), Fehr and Schmidt (1999), Bolton and Ockenfels (2000)
[25] Shayo (2009)

employment is unaffected by the shock are net "winners" from the shock. We denote the group of net winners with W and the net losers with L. We are interested in shocks that satisfy the Kaldor-Hicks criterion, meaning that the total gains accruing to W are greater than the total losses inflicted on L. The total income before the shock in both the W and L groups is I.[26] The net gains experienced by the W and L populations will be αA and $(1-\alpha)A$, respectively, where $\alpha > 1$ is a parameter governing the degree of dislocation induced by the shock. The framework can represent any redistributive shock. For example, if the shock caused W to gain 100 and L to lose 80, then $A = 20$ and $\alpha = 5$.

The shocks are also similar in that the government can choose a policy response, p, that blunts the economic dislocation effects of the shock. Our conception of a policy response is general: it is any *ex ante* policy which interrupts the economic reallocations, both good and bad, that result from the economic shock. For example, p can be thought of as protectionism in the case of a globalization shock. A tariff might re-raise foreign prices above the price of domestically produced goods. This offsets the cost savings from offshoring, deterring a firm from sourcing from abroad or encouraging the firm to re-shore production. For automation, p can be thought of as any policy that hinders technological change. Such policy would interrupt the transitional unemployment from automation at the cost of its associated efficiency gains. Examples include worker protections that make it harder to replace employees with technology or regulations significantly delaying the use of new technology by requiring extensive testing. Even in the United States, there is some discussion of these types of regulations, though they tend to be ad hoc or industry specific. For example, the US Congress has heard heated debate over proper regulation of autonomous vehicles, with transportation workers unions advocating for greater regulation.[27] In other places, automation regulations are more commonly discussed, implemented, and can be more wide-ranging. For example, the European Union has moved forward with a Machinery Directive pertaining to the safety of automation, among many other regulatory efforts.[28]

The government's choice of p is also continuous reflecting how the policy response can be more or less severe. Formally, we assume that aggregate gains A are decreasing in p. Importantly, our chosen

[26] The groups can be given different incomes without affecting the analysis.
[27] https://www.twu.org/wp-content/uploads/2022/01/TWU-TI-AV-Hearing-Testimony-2.2.2021.pdf.
[28] https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1682.

model reflects how the economically disruptive consequences from a shock are proportional to the gains from the shock – dislocation increases as the aggregate gains increase, and the government's policy response can counteract this dislocation.

In addition to a direct policy response, the government can also respond to a shock with transfers, t, that redistribute income from the winners from the shock to the losers, without directly blunting the shock. The transfer t represents the size of the net transfer from winners to losers, via taxation and redistribution. With transfers, the shock and ensuing dislocation occur, but taxation and redistribution can *ex post* affect the final income distributions among the winners and losers. Like many models, we assume that transfer mechanisms are imperfect.[29] The "leakiness" of the transfers t is represented by a function ℓ such that $\ell(t) < t$. Consistent with the literature on efficient taxation, the function ℓ is assumed to be continuous but could be nonlinear.[30] We further assume that $\ell'(0) = 1$, $\ell'(z) < 1$ for all $z > 0$, and $\ell''(z) < 0$ for all z. Together, these assumptions imply that larger transfers are monotonically more leaky.

The automation and globalization shocks differ in one important way: a globalization shock is a "foreign" shock and an automation shock is "domestic." This distinction refers to whether the shock changes the location of production, and relatedly, its effect on trade. A globalization shock is "foreign" in the sense that production moves abroad and, all else equal, the country in question will import more. An automation shock is "domestic" in the sense that no production is moved abroad, and all else equal, the country in question will export more. The setup is consistent with studying a country like the United States which has comparative advantage in the production of capital intensive products including automation technology. We highlight this distinction here, because citizens in our model can have preferences over the location of production. As explained below, we allow citizens to have preferences over production locations reflecting nationalist yearning for self-sufficiency.

In the experimental setup, we study the interaction of comparative advantage with nationalist preferences for economic self-sufficiency. We manipulate whether an automation shock is domestic

[29] For an example of similar modeling approaches, see Meltzer and Richard (1981). For a justification and explanation of the "leaky bucket" of redistribution, see Okun (1975).

[30] Dixit and Londregan (1996)

(from innovation by domestic firms) versus foreign (innovation from foreign firms). We also manipulate whether a labor market shock is foreign (offshoring to another country) versus domestic (from relocation within the country to a region with cheaper labor costs).

Preferences for Equity and Efficiency

How do individuals think about the choice of government responses, be they policy responses or transfers? We study individuals whose utility reflects competing priorities. The first tradeoff is between efficiency and equity. A citizen can care about the population welfare of the winners and losers, potentially placing differential weights on how much they care about each group. Policy responses and transfers thus affect utility *directly* by changing the income of the citizen's group. They also affect utility *indirectly* via their effect on the other group's welfare. The citizen's desire to maximize (weighted) payoffs for both groups creates in a tradeoff between aggregate efficiency and equity. Citizen-voters can reduce aggregate gains – either with a shock-blunting policy or a transfer – in order to achieve a more equitable distribution of income between the two groups.

A second tradeoff arises because citizens have preferences over the production locations as described above. Globalization shocks, defined as policies that decrease the costs/barriers of international trade, will increase aggregate welfare by encouraging imports of cheaper or better goods. A positive shock to the productivity of automation shock in a country with comparative advantage in that technology increases aggregate welfare by increasing the efficiency and quality of domestic production.

To simplify this, we allow individuals to vary in the degree to which they receive *direct* utility from the trade balance. On the one extreme, economic nationalists want their state to be self-sufficient and therefore strongly prefer national income arising from exports as opposed to imports. On the other extreme, cosmopolitians do not care whether income changes result from imports or exports.[31]

The nationalist preferences described here can also be thought of as capturing a tradeoff between

[31] We do not consider the possibility that citizens may prefer goods produced abroad. As an empirical matter, these people are likely to be rare; most people have some degree of preference for domestic production. From a theoretical standpoint, the model can still incorporate this possibility. The predictions for this group would be the mirror image of those derived below.

preference for national income and preference for self-sufficiency. In this framework, economic nationalists would demand more domestic production to avoid exposing their nation's economy to the policy whims of a foreign public or to avoid enriching the outgroup at the expense of one's conationals. Cosmopolitans would be citizens who choose policies to maximize national income (subject to their preference for equity). Cosmopolitans could still be nationalists in the sense that they care mostly about the welfare of their fellow citizens as long as they have no preferences about the location of production. The economic nationalist preferences in the model require the citizen to embrace an exclusionary form of nationalism which perceives foreign production, especially foreign production that cannot be replicated domestically, as a threat to security.[32]

We formalize these components of the citizen's utility function as follows. Consider a utility function $U(H_W, H_L, p|\nu, \gamma, k)$ mapping the welfare of the two groups and the policy choice to an individual voter's utility. The first two arguments, H_W and H_L, represent the incomes of the W and L individuals respectively. The utility function exhibits a preference for *efficiency* which, formally, means that we assume U is strictly increasing in both H_W and H_L. We also assume that the utility function exhibits a preference for *equitable* distributions of wealth, which is formally represented by assuming U is convex in its arguments H_W and H_L. Voters formulate their preferences over policies by trading off between efficiency and equity – maximizing efficiency means minimizing market interventions and equity can always be increased by reversing the redistributive shock. The third term, p allows for the policy intervention to directly affect utility. A direct effect is not present for cosmopolitans, who only care about the equity/efficiency tradeoff.

The parameter $\nu \in [0, 1]$ controls the social welfare weights that the individual assigns to each of the two groups in society. Individuals who have egocentric preferences would put weight only on their own group. The degree to which an individual's preferences are sociotropic is determined by how the individual weights the welfare of groups other than their own. For example, a citizen with egocentric preferences who stands to gain from the economic shock would set $\nu = 1$ so that they only value the

[32] For more on distinguishing exclusive nationalism from other varieties, see Bonikowski and DiMaggio (2016). Brutger and Pond (2021) use a similar conception of nationalism to explain preferences over antitrust policies among US respondents.

income of the "winners" in their utility function. Symmetrically, a citizen with egocentric preferences who would lose income from the productivity shock would select $\nu = 0$. This parameter allows us to connect our results to the existing literature on trade preferences that seeks to explore sociotropism in the formation of trade policy preferences. A higher degree of sociotropic preferences (meaning ν closer to 0.5) will translate into a stronger preference for equity over efficiency and a higher amount of redistribution.

The remaining arguments of U describe how the individual's utility is affected by trade balances. The parameter $\gamma \in [0, 1]$ describes the intensity of the individual's nationalist sentiments. When $\gamma = 0$ the individual does not care directly about trade balances or policy responses; she only cares about the policy response insofar as it affects each group's welfare. For a nationalist individual, $\gamma > 0$, utility *increases* with the trade balance. In a capital or technology abundant state like the United States, labor intensive products are imported and capital intensive products are exported. Therefore, a nationalist in the United States receives additional utility from restricting imports of labor intensive products and loses utility from interference in the production of technology intensive products.

Recall that $k = G$ denotes that the economy is facing a globalization shock, where policy responses will limit imports. In this case, a citizen with any degree of nationalist preference receives positive utility from protection: $\partial U(\cdot, \cdot, p|\nu, \gamma \neq 0, k = G)/\partial p > 0$. When $k = T$, the shock is technological in nature and policy responses will limit exports. In this case, the nationalist receives disutility from the policy response: $\partial U(\cdot, \cdot, p|, \nu\gamma \neq 0, k = T)/\partial p < 0$.

Demand for Policy

How do citizens form their indirect utility for policies given the above economic framework? In short, since policy remedies and transfers are substitutes, citizens choose the optimal pairing of the two responses. The citizen's degree of nationalism tilts the optimal bundle towards the policy response in the case of a foreign, globalization shock and towards transfers in the case of a domestic, automation shock.

The mechanics of this logic can be illuminated by a careful analysis of how the voter would form

preferences over policies. Voters choose a level of policy intervention p and a level of transfers t to achieve their preferred balance between equity and efficiency. Voters always want more efficiency if they can get it without sacrificing equity. But not every income allocation is feasible; voters are restricted to choose among only the income allocations which can be implemented with transfers and protection. The set of feasible allocations is therefore defined as $Y = \{(H_W, H_L) : H_W = I + \alpha A(p) - t, H_L = I + (1-\alpha)A(p) + \ell(t)\}$.

Figure **??** illustrates the set of feasible allocations and the policy/transfer bundles that acheive them. The point $(H_L = 7.5, H_W = 22.5)$, located in the upper left corner of the figure, represents the income allocation for each group that would occur in the absence of any government action. Government policies and transfers can move society to different income allocations. A subset of these allocations are depicted as points with an inner and outer fill indicating the necessary policy intervention and transfers for their achievement. Lighter inner dots show more intense levels of transfers being used to acheive a particular allocation. Lighter outer dots show greater use of policy remedies to acheive a particular allocation. Both the inner and outer dots get lighter as we move southeast in the figure - moving towards larger income reallocations further from the top left. The inner dots get lighter as we move from the inner envelope to the outer envelope frontier. The dotted lines represent allocations implemented with equal policy protection and dashed lines represent allocations of equal transfers. The top dotted line originates at the point $(7.5, 22.5)$ and bends downwards because of the leaky bucket property of transfers.

A purely cosmopolitan voter will choose some income allocation on the upper right frontier of the feasible allocations. Her utility increases monotonically in both groups' incomes. Unencumbered by concerns about the location of production, she will pick an allocation on the frontier because these points minimize efficiency losses for any given income distribution. The frontier is the set $\partial Y = \{(h, H_L) : h = \max_{p,t} H_W(p,t) \text{ and } H_L(p,t) = K\}$, which is the set of maximum feasible H_W for any fixed H_L.[33]

A cosmopolitan citizen with no preferences over the location of production will choose an alloca-

[33] Formal derivation in the appendix.

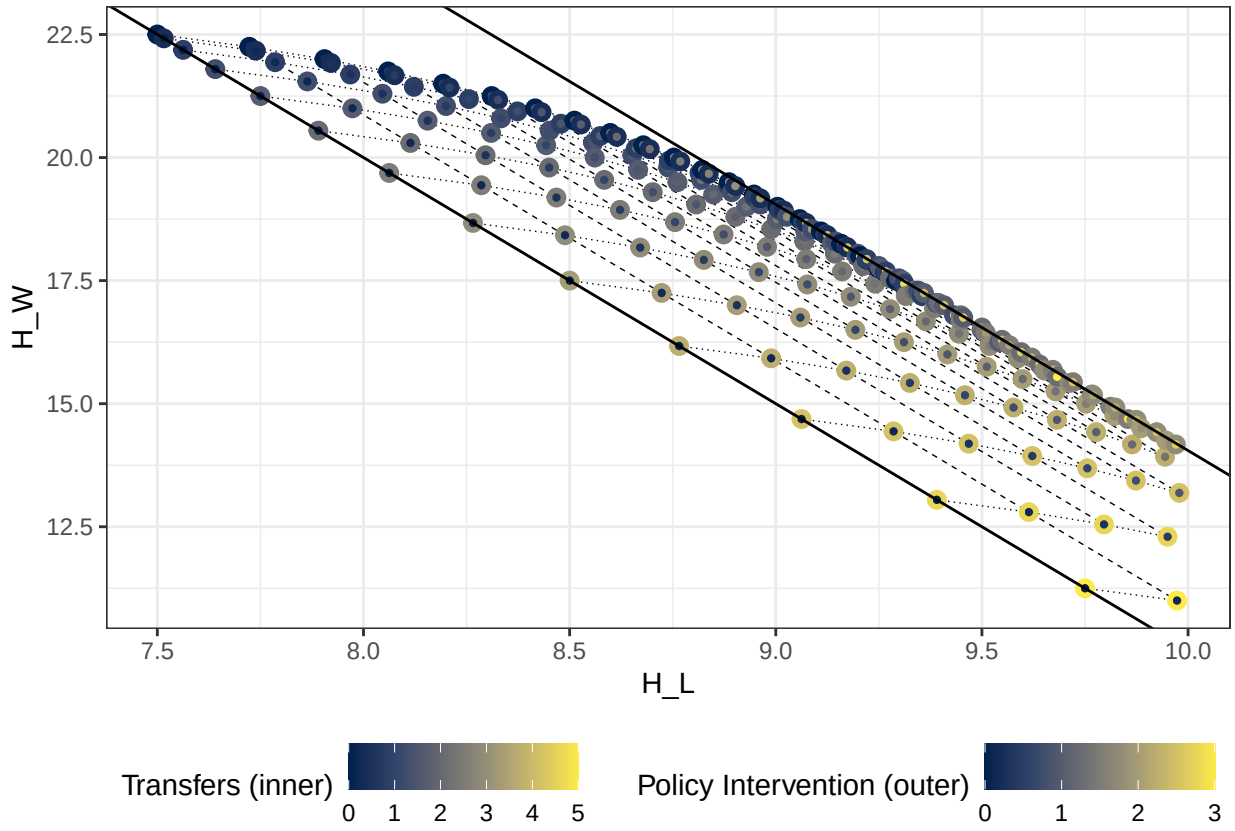

Figure 1: Example feasible set with the frontier highlighted and a sample of allocations plotted. Each dot shows a potential reallocation of income between the winners and losers. The diameter of the outer dot shows the magnitude of the policy change needed to achieve that allocation. The inner dot shows the amount of transfers needed. The graph was made using the following parameters: $A(p) = 10 - p^2$, $\ell(t) = \log(t+1)$, $I = 10$, and $\alpha = 1.25$. Given these parameters, the allocation $(H_L = 7.5, H_W = 22.5)$ would occur in the absence of government action. Allocations along dotted lines all have equal policy interventions p while allocations along dashed lines have equal transfers t. The upper and lower envelopes are illustrated with black lines whose slope is $\alpha/(1-\alpha) = -5$ (see Appendix for the derivation). The feasible set's upper envelope is below the black line when the allocation can be achieved with transfers alone and requires no policy intervention.

tion along the frontier of the feasible set because of their preferences for additional income for both groups. There is no reason for a cosmopolitan to reduce aggregate income any more than absolutely necessary to implement their preferred income distribution. Thus, regardless of the specifics of their preferences, the cosmopolitan's marginal rate of substitution between incomes H_W and H_L at their optimum will be equal to the slope of the frontier of the feasible set. In the Appendix, we show that the slope is $\alpha/(1-\alpha)$. The slope is constant because the rate at which income can be transferred from W to L is constant once the least wasteful mixture of policy intervention and transfers has been chosen.

Now, consider a nationalist – who also has preferences over the location of production – facing a globalization shock. To isolate the effect of these additional preferences, assume the nationalist has identical preferences over the efficiency/equity tradeoff to the cosmopolitan just considered. Such a citizen still balances equity and efficiency, but because she has preferences that stem directly from the trade balance, she chooses a policy bundle inside the frontier. She decreases transfers in favor of a greater policy response if the shock increases imports. Put differently, she demands a greater policy response because of her desire to blunt the effect of the shock on the trade balance. The policy response partially achieves her preferred income distribution. This, in turn, crowds out her demand for transfers.

The opposite occurs when considering an automation shock. She weakens the policy intervention in order to minimize the effect on the trade balance. This, in turn, strengthens her relative demand for transfers. In both cases, the nationalist's preferred allocation is not on the frontier of the set of feasible allocations. The points on the frontier of the budget set are are never optimal for nationalists because the frontier represents the most efficient way to exchange between the incomes of W and L and regardless of the method. But nationalists have intrinsic preferences over the means by which their preferred income distribution is achieved, which changes their perception of the efficiency of exchanging the incomes of W and L. Thus, unlike a cosmopolitan, nationalists generally do not maximize aggregate income, even for a given distribution.

Finally, it is important to note that our argument is about the weights the respondent places on

each type of response - not the overall level of response. Different shocks can trigger different levels of total responses from a citizen, eg if a citizen perceived a globalization shock to be bigger than an automation shock.[34]

We can show that the composition of a nationalist's preferred policy response varies predictably. Specifically, the type of shock will affect the relative weight she places on policy versus transfer responses. We can think of this relative weight as the degree to which her preferred reallocation is achieved through one policy versus the other. Figure **??** illustrates an example with concrete utility functions. In each pane, the total redistribution preferred by the citizen is illustrated by the blue vector. The total redistribution is then decomposed into its constituent policies. The green vectors show redistribution from the citizen's preferred policy intervention. The red arrows show redistribution from the citizen's preferred transfers. Finally, the sum of the red and green vectors delivers the total redistribution represented by the blue vector. The orange vector is the projection of the transfers vector onto the total redistribution vector and shows the share of the citizen's preferred total redistribution attributable to transfers.

The middle pane shows a nationalist's optimal response to a globalization shock. Relative to the preferences of the cosmopolitan in the left pane, the nationalist wishes to use a much stronger policy response, represented by the longer green vector. Consequently, the nationalist demand fewer transfers as shown by the shorter red vector. In this case, the nationalist prefers less total redistribution, shown by the shorter blue vector (which also lies inside the feasible set). But the share of their optimal total redistribution due to transfers has decreased. Our theory cannot predict whether the nationalist's blue arrow representing their optimal total redistribution will be longer or shorter than the cosmopolitan's. However, we can show that the orange arrow representing the share of the total redistribution due to transfers will cover more of the blue arrow for the nationalist.

The right pane shows the same citizen facing a domestic, automation shock. The red vector again

[34] The effect of a shock on total response is complicated. For example, a nationalist's total preferred redistribution may increase or decrease relative to the cosmopolitan's. While nationalists favor transfers or policy interventions predictably, we show in the Appendix that the net effect on incomes is indeterminate. For example, nationalists facing a shock that raises imports could reduce their preference for transfers by more than they increase their preference for tariffs or not. The potential nonlinear relationship between the instruments and income further complicates the net effect on total redistribution. These issues make the empirical detection of these effects challenging.

shows the redistribution resulting from transfers, and the green vector shows the consequences of an automation-limiting policy. Here, the nationalist chooses a small policy intervention and a much larger amount of transfers. Our theory would predict that the nationalist facing a domestic automation shock would rely more heavily on transfers to achieve their preferred redistribution, meaning that the orange vector will cover more of the blue vector than it would for a cosmopolitan.

This yields the hypothesis we assess in the empirical section: When measured as a fraction of the total desired redistribution, a nationalist facing an import (export) shock will rely more (less) heavily on tariffs to implement their preferred income allocation. To reiterate, the hypothesis is about *shares* of a citizen's preferred response consisting of a policy remedy versus transfers. Citizens may differ in their preferred *levels* of each response, depending on the magnitude of the original shock and their individual preferences for efficiency or equity. For example, a citizen might want a larger policy response to a larger shock. But the proportion of her total desired response that consists of a policy remedy versus transfers should be the same.

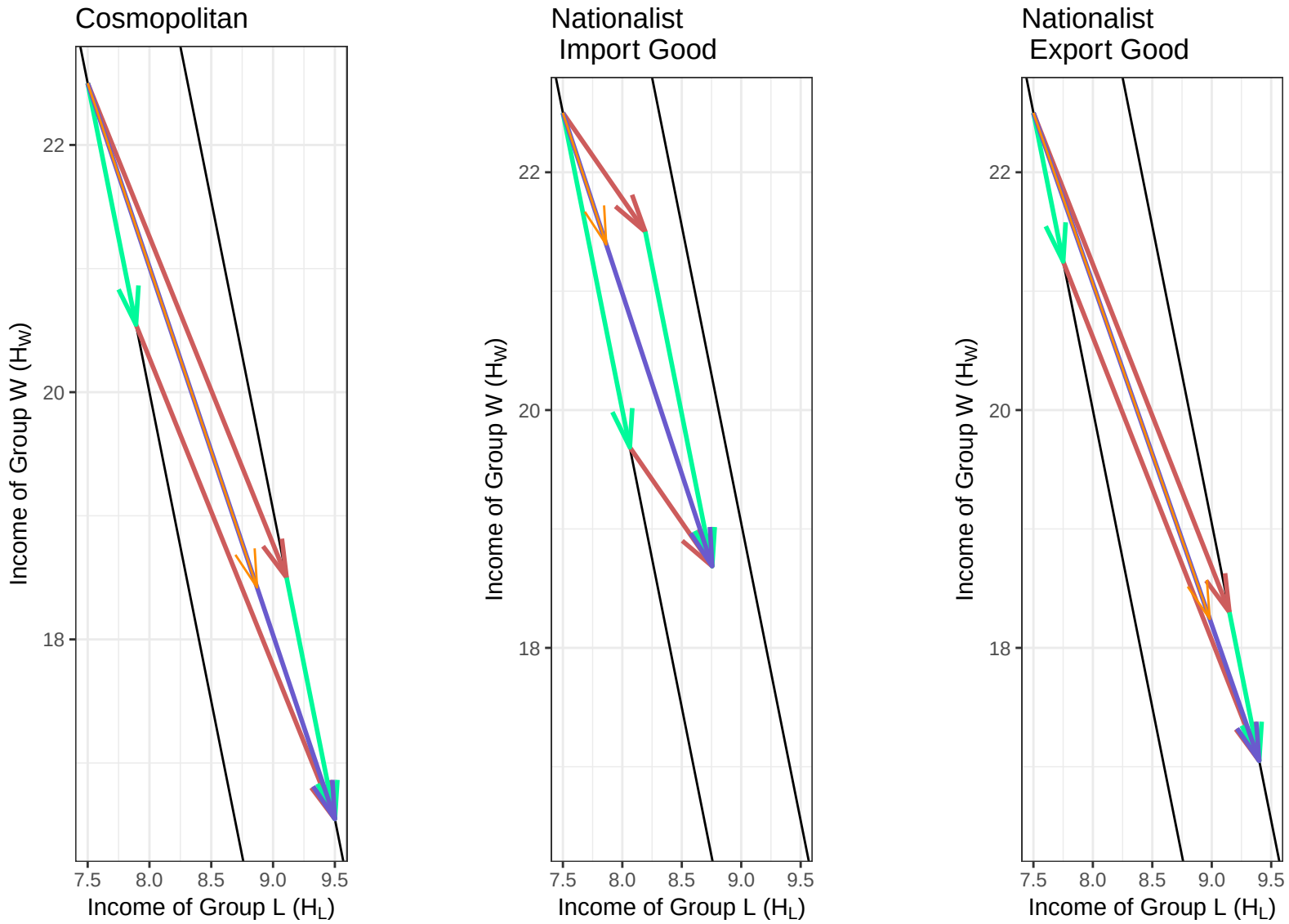

Figure 2: The figure depicts example vector decompositions of voter preferences. The green arrows show the vector $v_p = (A(p^*) - A(0))(1 - \alpha, \alpha)^T$, which represents the component of the preferred allocation implemented with the voter's preferred policy intervention p^*. The red arrows show the vector $v_t = (\ell(t^*), -t^*)^T$ which represents the component of the preferred allocation implemented with the preferred transfer t^*. The blue arrow shows the total desired redistribution $v_t + v_p$. The fraction of the total movement which depends on transfers is shown as the orange vector, which is the projection of v_t onto $v_t + v_p$. The length of the orange line is a larger fraction of the length of the blue line for nationalists facing shocks that affect export goods. It is a smaller fraction for nationalists facing shocks that affect import goods.

Survey Experiment

To assess the predictions of the theoretical model, we conducted a online survey experiment that varied the type and source of an economic shock and let respondents indicate their support for different government responses. In two waves occurring September 23-24, 2020 and October 28-29, 2020 we recruited approximately $6,400$ respondents using Lucid Theorem, a service that recruits respondents from a variety of sources such as ads or rewards programs. After screening out respondents who failed attention checks or did not consent, our sample consisted of $3,154$ respondents. Respondents resided in the United States and were at least 18 years old. One advantage of this platform is that Lucid recruits samples that are representative of the country on a variety of demographic characteristics, including gender, age, education, party identification and household income, making the respondents more representative than samples recruited from similar platforms, like MTurk. Recent work by Peyton, Huber, and Coppock (2020) indicates that survey experiments conducted during the COVID-19 pandemic of 2020 should be generalizable in most cases.[35]

Treatment

Every respondent read a newspaper article that we composed about layoffs in an automotive plant, owned by General Motors, taking place in Michigan.[36] We choose to use an article that we created in order to maximize the realness of the treatment while holding everything else about the article constant. Respondents were pre-briefed in the informed consent process that they might be shown false information and they were also debriefed about the deception after the experiment. The risks of this deception were minimal, since all four versions of the article contained content similar that found in real articles. It would not have been possible to find four real articles that were similar enough to each other – except for the characteristics of the economic shock – to make inferences. We also wanted treatment to be realistic and mimic the treatment respondents receive in the real world, to

[35] During the pandemic, researchers noticed a drop in quality of Lucid respondents (Aronow et al. 2020). We used two attention checks at the beginning of the survey and dropped respondents who failed either.

[36] We used a blue-collar industry for the vignettes, because the majority of elite discourse about trade and automation focuses on the industries. A natural extension to our research would consider more white-collar industries.

increase the external validity of the experiment.[37]

Each respondent read the same first page of the article. The first page laid out the situation, displayed a picture of an auto worker, and included a quote attributed to the CEO.[38] Treatment consisted of random assignment to one of four versions of the second page of the article. The versions varied the type of shock – labor versus automation – and the origin of the shock – foreign versus domestic. Our key concern was making sure that all four versions matched each other closely in structure, overall tone and content, except for variation in the type and origin of the shock.

The foreign labor shock was described as originating from globalization and offshoring. It included a picture of large shipping containers arriving at a US port and a planned factory site overseas. The text described companies moving jobs abroad and shutting down production facilities in the United States. This treatment is pictured in the Appendix.

The domestic automation shock was described as originating from firms developing computer software and advanced robotics that replaced workers and shut down production facilities in the United States Respondents first saw a captioned picture of automation at an auto plant. We emphasized that US firms were the source of the automation technology. Respondents also saw a picture of CISCO headquarters, a company to whom automation advances were attributed. This treatment is shown in the Appendix.

For the domestic labor shock, we kept everything the same as in the foreign labor treatment, except that relocation was to other states within the US. An abbreviated version of that treatment is shown in the Appendix. For the foreign automation treatment, we again matched the domestic automation treatment. Except, we emphasized how foreign firms in Europe and Asia had developed the technology that replaced workers, and we included a picture of Alibaba headquarters; the Appendix shows this treatment.

In the taxonomy of Brutger et al. (2020) our survey is non-hypothetical, identifies real actors, and is high in contextual detail. The treatments themselves are relatively small changes in a detail-rich article.

[37] Please see the appendix for more detail on the decisionmaking process behind the use of deception.

[38] We intentionally left the gender and race of the worker obscured. We also did not mention GM's CEO, Mary Barra, by name since President Trump had specifically antagonized her in speeches and on public media.

This tends to bias against finding larger treatment effects, making our approach more conservative.

Outcome Measures

We then told respondents "we want to ask how you think the US Federal government should respond to events like the one described in the article." Respondents saw brief bullet points that recapped the content of the article they had just read. For example, a respondent assigned to the Domestic-Automation treatment condition read as follows.

To recap:

- The company is laying off a large number of workers.
- The main cause of the layoffs is the company's decision to replace workers with automation and technology.
- The technology was developed by US firms.

Repondents were then asked how much they agreed or disagreed with a set of statements. They answered with a slider that ranged from 0 (strongly disagree) to 100 (strongly agree). The statements below were presented in random order:

- The Federal government should increase benefits that are paid to people who are unemployed.
- The Federal government should restrict imports of automobiles by increasing tariffs.
- The Federal government should increase regulations to limit a company's ability to replace workers with automation.

Respondents read all three options in all treatment conditions. The article was written so that each question would still read coherently, even if the article emphasized a policy remedy that didn't correspond to that policy, eg a respondent in the Foreign Labor condition still read about automation regulation. We did this because it gives insight into respondents' overall level of preferred response and because of the possibility, identified in existing work, that respondents prefer mis-matched policy remedies, eg they could theoretically prefer tariffs as a remedy to automation and vice versa.

Balance and Randomization

We block-randomized treatment assignment based on whether the respondent identified as a Republican, Democrat, or an Independent.[39] The tables below provide summary statistics about treatment assignment by party identification. The randomization procedure worked as expected. Additionally, the respondents were balanced across treatment conditions along a larger set of respondent characteristics. We used the procedure described in Hansen and Bowers to compare balance in respondent characteristics across treatment groups. We fail to reject the null of no significant differences between groups, both comparing domestic and foreign treatments and labor and automation treatments.

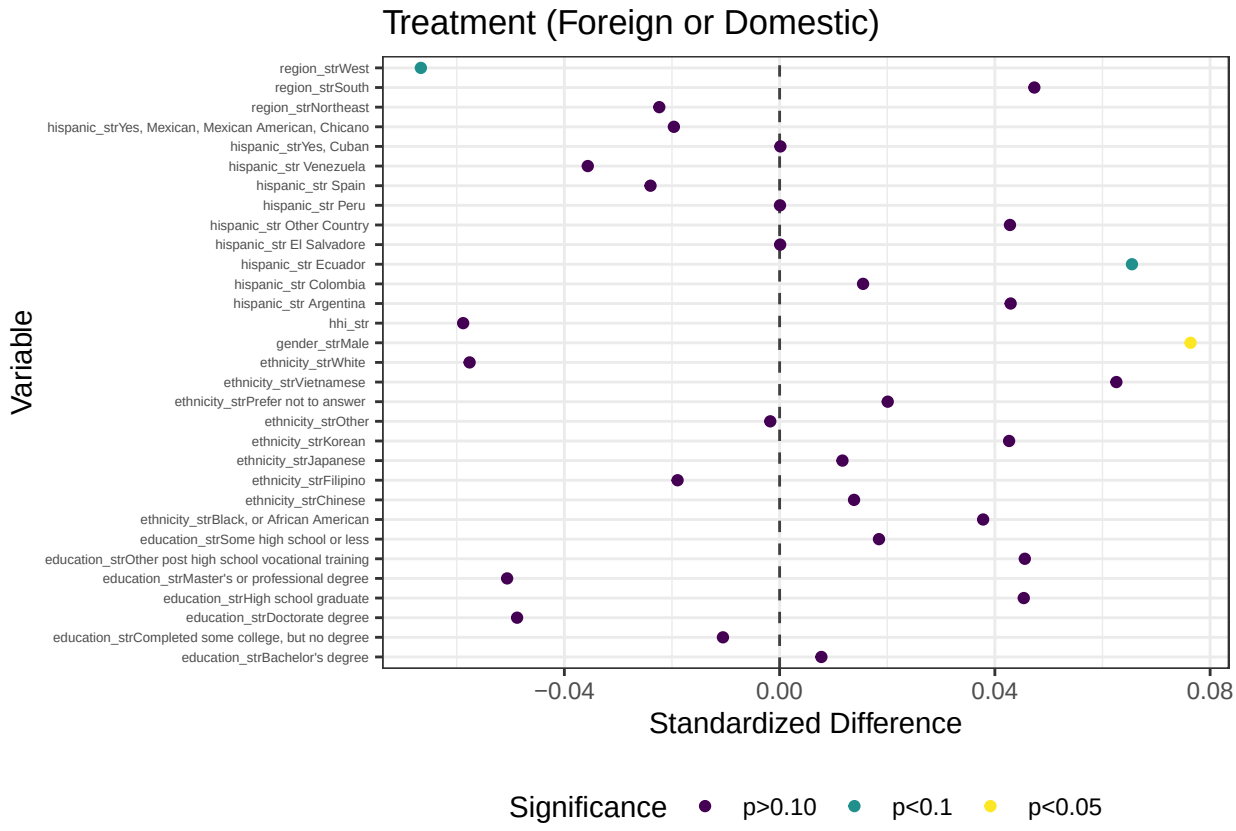

Figure 3: The Bowers and Hansen (2008) omnibus test p value is 0.4

[39] Lucid provides this information directly to the researcher prior to treatment assignment.

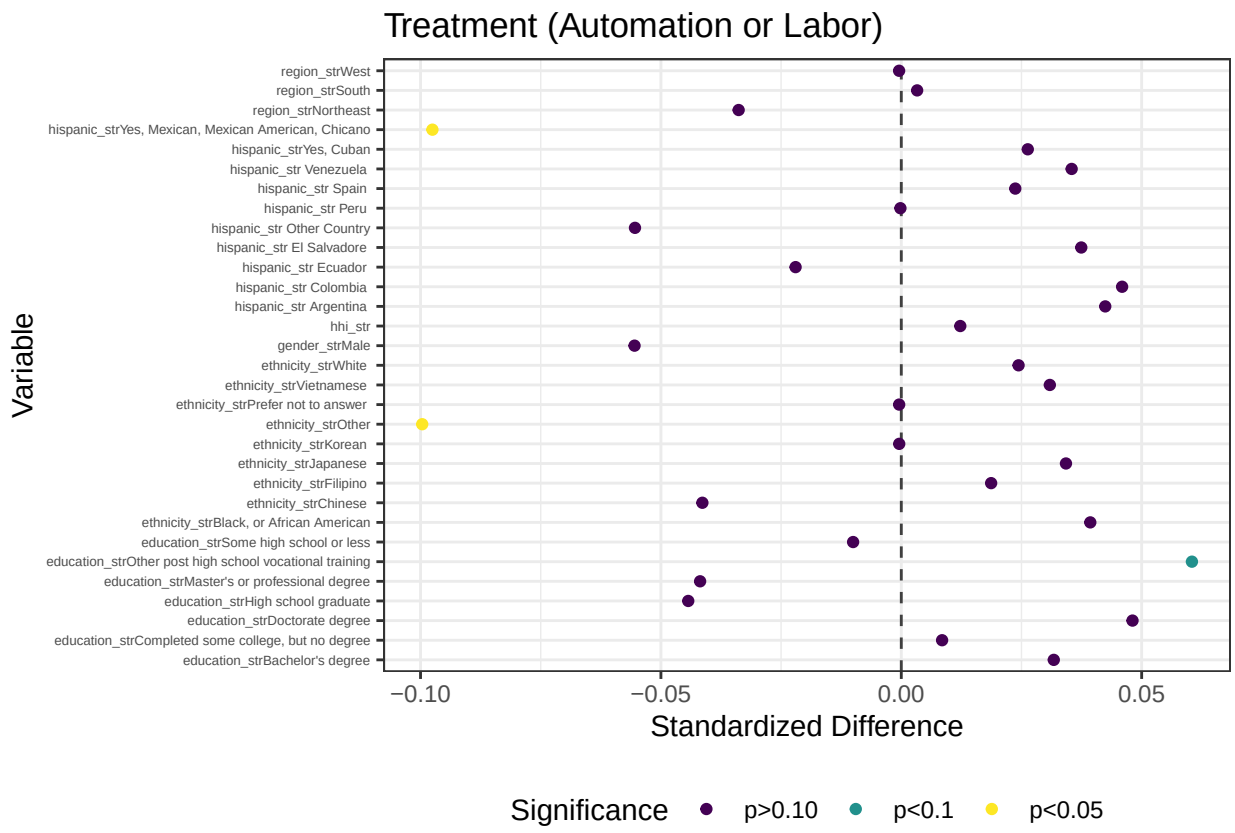

Figure 4: The Bowers and Hansen (2008) omnibus test p values is 0.27

Attentional Manipulation Checks

We primed respondents with the statement that we would ask them about the content of the article at the end of the survey. We also timed how long respondents spent on each page of the article. In general, time spent reading the article was speedy, but not unexpectedly so for an online survey like this one.

Additionally, at the end of the survey, we asked respondents three manipulation check questions. We asked the industry in which the layoffs took place, the main cause of the layoffs, and which potential government solutions they were asked about. The first and third questions had one correct answer and two incorrect answers apiece. The correct answers also did not vary across treatments. The second question had all four treatment conditions listed in brief, and the correct answer depended on which treatment the respondent received. The table below shows summary statistics for these questions.

Question 1	Question 2	Question 3	Mean Number Answered Correctly
0.97	0.63	0.82	2.42

Results: Total Response

We first present results for the effect of treatment on the respondent's total response to the shock. Total response refers to the sum of the respondent's agreement with each of the three items: tariffs, automation restrictions, and unemployment benefits. The theory's predictions are about the share of the total response, but it is useful to first look at how treatment affects the magnitude of the respondent's preferred responses.

?? and **??** show the effect of treatment on total response. In each figure, we show the full sample smoothed distribution of the outcome variable. We mark the foreign versus domestic dimension of treatment with blue and red lines. We mark the labor versus automation dimension of treatment with solid versus dashed lines. In **??**, we regress the total agreement, summed across all three possible responses, on binary terms that equal 1 if the treatment is Foreign or Automation, respectively. In the even columns, we also include the interaction between Foreign and Automation. This functionally means

that Domestic Labor is the base group, and the effects of each of the other three Foreign/Domestic and Labor/Automation permutations can be inferred from the estimated coefficients. We also include an indicator for whether the respondent was in the September wave or not, in case overall attitudes changed over time. Columns 3-4 standardize the outcome variable (subracting the mean and dividing by the standard deviation) to better compare the effects with other measures. **??** shows the same regression in a different format. Here, we include indicator variables for each treatment, again holding out Domestic Labor as the base group.

Consistent with previous work, the foreign labor treatment triggers the greatest total response from our respondents. Respondents' total agreement with the three items increased by approximately 10 points in the Foreign Labor condition, compared to the Domestic Labor condition. Both foreign and domestic automation triggered a smaller total response than the Domestic Labor condition, though these differences were small and generally insignificant.

The treatments other than Foreign Labor generally do not have significant effects on total agreement, as shown in **??**. This table splits the sample between Domestic/Foreign (pooling automation and labor) and Automation/Labor (pooling domestic and foreign). For example, Column 1 shows that, among the respondents receiving a domestic treatment, automation did not increase total preferred response. This gives further evidence of the importance of attention to shares of preferred responses, looking at how much weight respondents place on each potential government solution.

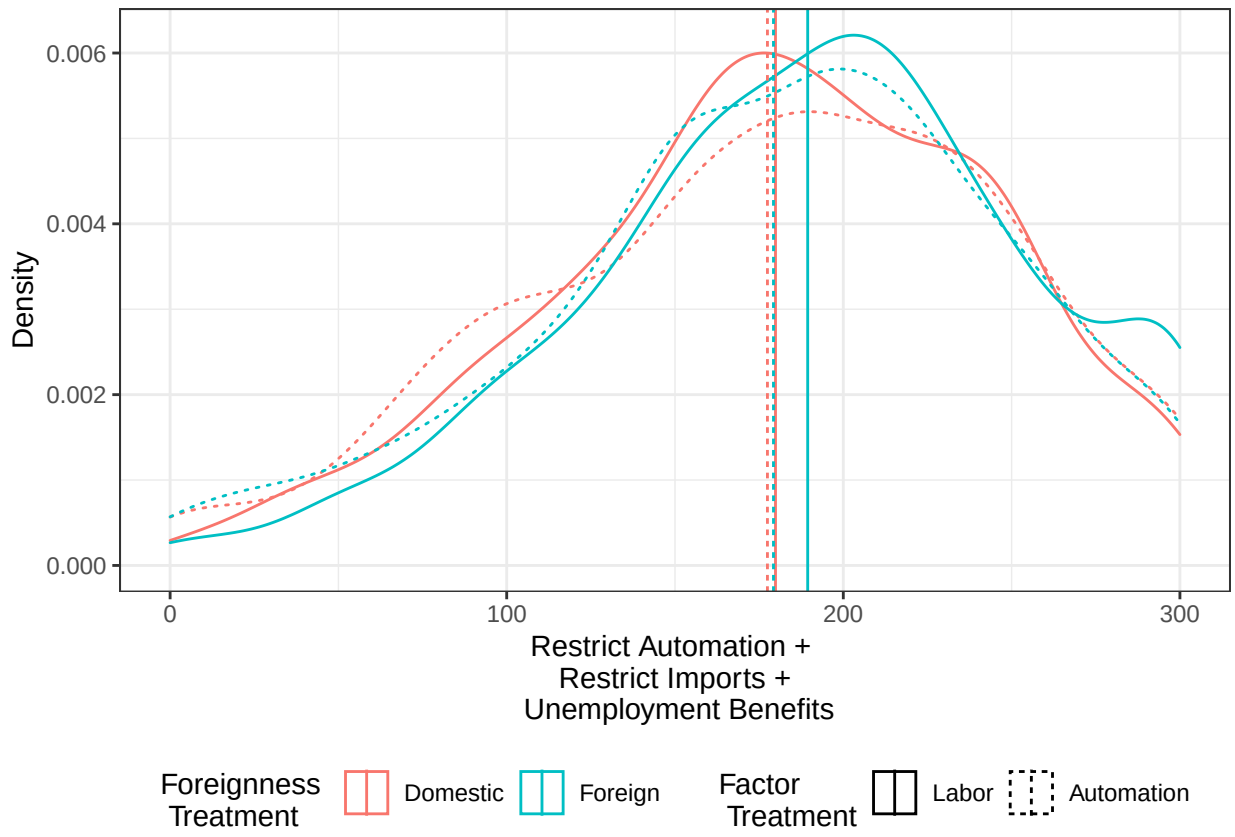

Figure 5: The distribution of the total agreement defined as the sum of agreement with each policy. This diagram suggests that only the foreign labor treatment consistently encourages respondents to increase their total demand for state intervention to protect manufacturing workers.

Table 1: Effects on Total Agreement. Foreign Labor stimulates people to agree more with all three issues.

	Dependent variable:			
	Total Agreement		Total Agreement (Standardized)	
	(1)	(2)	(3)	(4)
Foreign Ind	5.673**	9.546***	0.084**	0.141***
	(2.425)	(3.325)	(0.036)	(0.049)
Automation Ind	−6.295***	−2.451	−0.093***	−0.036
	(2.426)	(3.450)	(0.036)	(0.051)
Sept Sample	−4.008	−3.989	−0.059	−0.059
	(2.463)	(2.462)	(0.036)	(0.036)
Foreign * Automation		−7.739		−0.114
		(4.848)		(0.072)
Constant	184.229***	182.296***	0.041	0.012
	(2.557)	(2.811)	(0.038)	(0.041)
Observations	3,115	3,115	3,115	3,115
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 2: Effects on Total Agreement, presented with treatment indicators.

	Dependent variable:	
	Total Agreement	Total Agreement (standardized)
	(1)	(2)
Domestic Automation	−2.451	−0.036
	(3.450)	(0.051)
Foreign Labor	9.546***	0.141***
	(3.325)	(0.049)
Foreign Automation	−0.644	−0.010
	(3.404)	(0.050)
Sept Sample	−3.989	−0.059
	(2.462)	(0.036)
Constant	182.296***	0.012
	(2.811)	(0.041)
Observations	3,115	3,115
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 3: Effects on Total Agreement, presented with split samples.

	Dependent variable:			
	Total Agreement			
	(1)	(2)	(3)	(4)
Automation	−2.405	−10.207***		
	(3.451)	(3.407)		
Foreign			9.567***	1.812
			(3.325)	(3.528)
Sept Sample	−0.668	−7.347**	−1.103	−6.846*
	(3.515)	(3.446)	(3.406)	(3.553)
Constant	180.258***	193.878***	180.525***	181.557***
	(3.219)	(3.104)	(3.175)	(3.221)
Sub Sample	Domestic	Foreign	Labor	Automation
Observations	1,568	1,547	1,556	1,559
Note:				*p<0.1; **p<0.05; ***p<0.01

Results: Response Shares

?? and **??** show the more important results for the effect of treatment on each respondent's share of the total response. Respondents may differ in their overall level of desired response. And different treatments trigger different levels of response, as shown above. The model, however, generates predictions about the respondent's weight placed on each type of response as a fraction of the total response.

Looking first at **??**, the Foreign Labor condition increased the weight placed on the tariff response, but *decreased* the weight placed on unemployment benefits. This gives direct evidence that respondents substituted the two measures for one another, especially in the case of Foreign Labor shocks. The reverse is true for Domestic Automation. The largest share of responses was placed on unemployment benefits, with the lowest weight placed on automation regulations.

In terms of the "mis-matched" policies – ie tariffs in response to automation and regulation in

response to foreign labor shocks – there were not significant effects, which is again what we would expect. Looking at weights placed on automation regulation, there is little difference between Foreign versus Domestic Labor shocks. Looking at the weights placed on tariffs, there is also little difference in Foreign versus Domestic Automation shocks.

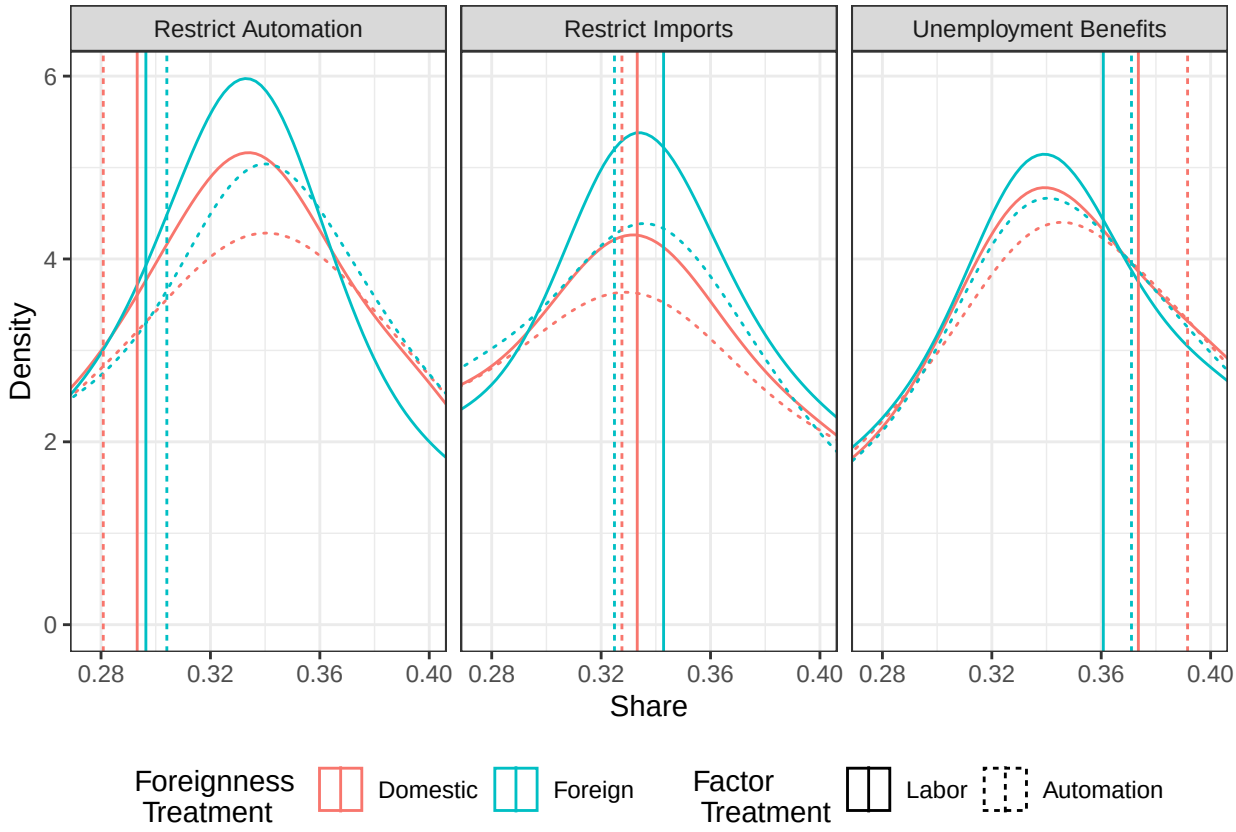

Figure 6: The distribution of agreement shares across treatments. Only shares between 0.275 and 0.4 are depicted. The diagram shows that respondents want to rely more heavily on restricting automation when the automation threat is foreign while they want to rely on transfers when an automation threat is domestic. They rely on restricting imports in response to foreign labor shocks.

?? shows these results in regression form. These estimates are from regressing the share of a particular item on indicator variables for the three treatments. The share is calculated as agreement for that particular policy divided by the respondent's total agreement, summed over all three items. The base category is Domestic Automation. Looking first at the third row, shifting from a Domestic to a Foreign Automation shocks greatly raises the weight placed on automation restrictions. At the same time, this lowers the weight placed on redistribution. In other words, when we make the Domestic Automation

Table 4: Effects on Share of Total Agreement, Domestic Automation as Base Category

	Dependent variable:		
	restrict automation share	restrict imports share	benefits to unemployed share
	(1)	(2)	(3)
Domestic Labor	0.012*	0.005	−0.018**
	(0.007)	(0.008)	(0.008)
Foreign Labor	0.016**	0.015*	−0.031***
	(0.007)	(0.008)	(0.009)
Foreign Automation	0.023***	−0.003	−0.021**
	(0.007)	(0.008)	(0.009)
Sept Sample	−0.002	0.008	−0.006
	(0.005)	(0.006)	(0.006)
Constant	0.282***	0.323***	0.395***
	(0.006)	(0.007)	(0.007)
Observations	3,090	3,090	3,090
Note:			*p<0.1; **p<0.05; ***p<0.01

shock "Foreign," we see the same relative ordering of policy responses that we see with Foreign Labor shocks..

Similarly, shifting from Foreign Labor to Domestic Labor shocks increases the relative weight placed on redistribution. Making the Foreign Labor shock "Domestic," makes the relative weights placed on policies look more like those for a domestic automation shock.[40]

??, **??**, and **??** show regressions using the split sample presentation we previously used for total agreement. For each table, we look at one of the three response shares, splitting the sample between foreign/domestic and automation/labor. One initially surprising result is that, for respondents who received a Labor treatment, the Foreign Labor treatment did not increase support for import restrictions, relative to the Domestic Labor treatment. We think that this is potentially explained by respondents having different perceptions of the magnitude of a domestic versus foreign labor shock. Total responses changed greatly in response to foreign labor shocks. The other treatments didn't change total responses very much. This could potentially attenuate differences in shares, even if respondents are still showing the types of substitution between policies that the theory expects. The signs are as expected - foreign labor raises shares for tariffs and lowers them for unemployment - but these differences are not statistically significant.

Robustness of Results

?? replicates **??**, about the total response to various treatments, using a broad arrray of control variables, describing respondent characteristics. We included indicators for every level of variables that measured the respondent's education, gender, ethnicity, region of residence, party ID, and also a measure of their household income. Results are generally similar.

?? does the same for the regressions using shares as the outcome variable, as in **??**. Again, results are similar.

[40]We did not include a response item for restrictions on relocating production domestically. This is one potential area for future research. We also asked respondents about their support for immigration restrictions, stronger unions, and about their perceptions of product quality. Our initial looks at these ancillary outcome variables hasn't shown large effects, but we haven't completed analysis of these measures.

Table 5: Effects on Share of Total Agreement - Import Restrictions - Split Samples

	Dependent variable:			
	Restrict Imports Share			
	(1)	(2)	(3)	(4)
Automation	−0.005	−0.018**		
	(0.008)	(0.008)		
Foreign			0.010	−0.003
			(0.008)	(0.008)
Sept Sample	0.013	0.003	0.012	0.004
	(0.009)	(0.008)	(0.008)	(0.008)
Constant	0.325***	0.341***	0.326***	0.325***
	(0.008)	(0.007)	(0.008)	(0.008)
Sub Sample	Domestic	Foreign	Labor	Automation
Observations	1,557	1,533	1,550	1,540
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 6: Effects on Share of Total Agreement - Automation Restrictions - Split Samples

	Dependent variable:			
	Restrict Automation Share			
	(1)	(2)	(3)	(4)
Automation	−0.012*	0.008		
	(0.007)	(0.007)		
Foreign			0.003	0.023***
			(0.006)	(0.007)
Sept Sample	−0.002	−0.002	−0.006	0.002
	(0.007)	(0.007)	(0.007)	(0.007)
Constant	0.294***	0.298***	0.297***	0.280***
	(0.007)	(0.006)	(0.007)	(0.006)
Sub Sample	Domestic	Foreign	Labor	Automation
Observations	1,557	1,533	1,550	1,540
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 7: Effects on Share of Total Agreement - Unemployment Benefits - Split Samples

	Dependent variable:			
	Benefits to Unemployed Share			
	(1)	(2)	(3)	(4)
Automation	0.018**	0.010		
	(0.008)	(0.008)		
Foreign			−0.013	−0.021**
			(0.008)	(0.009)
Sept Sample	−0.011	−0.001	−0.006	−0.006
	(0.009)	(0.008)	(0.008)	(0.009)
Constant	0.380***	0.361***	0.377***	0.395***
	(0.008)	(0.007)	(0.008)	(0.008)
Sub Sample	Domestic	Foreign	Labor	Automation
Observations	1,557	1,533	1,550	1,540
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 8: Effects on Total Agreement with controls. Foreign Labor stimulates people to agree more with all three issues. Very little changes when adding the controls.

	Dependent variable:	
	Total Agreement	Total Agreement (Standardized)
	(1)	(2)
Domestic Labor	3.748 (3.509)	0.055 (0.052)
Foreign Labor	13.288*** (3.573)	0.196*** (0.053)
Foreign Automation	4.405 (3.574)	0.065 (0.053)
sample_dateSep 25	−2.460 (2.519)	−0.036 (0.037)
education_strBachelor's degree	−5.017 (5.080)	−0.074 (0.075)
education_strCompleted some college, but no degree	3.241 (5.252)	0.048 (0.077)
education_strDoctorate degree	−3.904 (9.781)	−0.058 (0.144)
education_strHigh school graduate	17.574*** (5.113)	0.259*** (0.075)
education_strMaster's or professional degree	−7.082 (6.069)	−0.104 (0.090)
education_strOther post high school vocational training	8.215 (8.574)	0.121 (0.126)
education_strSome high school or less	10.061 (8.892)	0.148 (0.131)
gender_strMale	−7.294*** (2.537)	−0.108*** (0.037)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Argentina	−8.107 (17.272)	−0.120 (0.255)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Colombia	−5.082 (31.118)	−0.075 (0.459)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Ecuador	−1.141 (16.450)	−0.017 (0.243)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***El Salvadore	−29.737 (21.815)	−0.439 (0.322)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Other Country	1.305 (10.527)	0.019 (0.155)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Peru	72.300*** (26.171)	1.066*** (0.386)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Spain	−2.459 (13.879)	−0.036 (0.205)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Venezuela	39.771*** (14.299)	0.587*** (0.211)
hispanic_strYes, Cuban	−8.488 (27.604)	−0.125 (0.407)
hispanic_strYes, Mexican, Mexican American, Chicano	1.879 (5.734)	0.028 (0.085)
region_strNortheast	2.177 (3.876)	0.032 (0.057)
region_strSouth	4.683 (3.328)	0.069 (0.049)
region_strWest	−1.424 (3.747)	−0.021 (0.055)
ethnicity_strBlack, or African American	8.625 (9.688)	0.127 (0.143)
ethnicity_strChinese	−11.543 (15.314)	−0.170 (0.226)
ethnicity_strFilipino	−1.560 (19.850)	−0.023 (0.293)
ethnicity_strJapanese	−52.238* (26.658)	−0.771* (0.393)
ethnicity_strKorean	−29.709** (14.965)	−0.438** (0.221)
ethnicity_strOther	−7.253 (10.348)	−0.107 (0.153)
ethnicity_strPrefer not to answer	16.525 (12.460)	0.244 (0.184)
ethnicity_strVietnamese	−30.831 (29.552)	−0.455 (0.436)
ethnicity_strWhite	−9.253 (9.026)	−0.136 (0.133)
hhi_str	−0.00005* (0.00003)	−0.00000* (0.00000)
political_party_strIndependent Democrat	−0.933 (6.127)	−0.014 (0.090)
political_party_strIndependent Republican	−9.045 (6.356)	−0.133 (0.094)
political_party_strNot very strong Democrat	6.000 (5.259)	0.089 (0.078)
political_party_strNot very strong Republican	2.648 (5.474)	0.039 (0.081)
political_party_strOther - leaning Democrat	−28.423 (19.031)	−0.419 (0.281)
political_party_strOther - leaning Republican	−52.849** (20.642)	−0.780** (0.304)
political_party_strOther - neither	−9.494 (8.531)	−0.140 (0.126)
political_party_strStrong Democrat	15.676*** (4.850)	0.231*** (0.072)
political_party_strStrong Republican	15.809*** (5.216)	0.233*** (0.077)
Constant	179.485*** (11.342)	−0.029 (0.167)
Observations	2,904	2,904

Note: *p<0.1; **p<0.05; ***p<0.01

Table 9: Effects on Share of Total Agreement. Foreign automation stimulates more support for restrictions on automation, while domestic automation causes people to support transfers as a larger share. Very little changes when adding controls

	Dependent variable:		
	restrict automation share	restrict imports share	benefits to unemployed share
	(1)	(2)	(3)
Domestic Labor	0.017** (0.007)	0.005 (0.008)	−0.021** (0.008)
Foreign Labor	0.017** (0.007)	0.017** (0.008)	−0.034*** (0.008)
Foreign Automation	0.024*** (0.007)	−0.004 (0.008)	−0.020** (0.009)
sample_dateSep 25	−0.005 (0.005)	0.013** (0.006)	−0.007 (0.006)
education_strBachelor's degree	−0.006 (0.010)	−0.016 (0.012)	0.022* (0.012)
education_strCompleted some college, but no degree	−0.003 (0.010)	0.004 (0.013)	−0.001 (0.013)
education_strDoctorate degree	−0.002 (0.018)	−0.011 (0.021)	0.013 (0.023)
education_strHigh school graduate	0.020** (0.010)	−0.018 (0.012)	−0.002 (0.012)
education_strMaster's or professional degree	−0.011 (0.012)	−0.013 (0.015)	0.024 (0.015)
education_strOther post high school vocational training	0.018 (0.020)	0.030 (0.023)	−0.048** (0.021)
education_strSome high school or less	0.011 (0.020)	−0.007 (0.019)	−0.003 (0.022)
gender_strMale	−0.025*** (0.005)	0.005 (0.006)	0.020*** (0.006)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Argentina	0.003 (0.036)	−0.065 (0.063)	0.062 (0.056)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Colombia	0.009 (0.051)	0.068 (0.069)	−0.077** (0.032)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Ecuador	0.024 (0.040)	−0.097*** (0.031)	0.073 (0.045)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***El Salvadore	0.242* (0.145)	−0.146** (0.065)	−0.096 (0.103)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Other Country	0.001 (0.023)	−0.060** (0.024)	0.059** (0.029)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Peru	0.022** (0.009)	−0.067*** (0.011)	0.046*** (0.011)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Spain	−0.011 (0.021)	−0.054* (0.030)	0.065 (0.045)
hispanic_strYes, another Hispanic, Latino, or Spanish origin ***Venezuela	0.064** (0.026)	−0.064* (0.037)	0.001 (0.038)
hispanic_strYes, Cuban	−0.032 (0.055)	0.021 (0.087)	0.012 (0.065)
hispanic_strYes, Mexican, Mexican American, Chicano	0.039*** (0.012)	−0.058*** (0.012)	0.019 (0.016)
region_strNortheast	−0.010 (0.007)	−0.004 (0.009)	0.014 (0.009)
region_strSouth	−0.007 (0.006)	−0.009 (0.008)	0.016** (0.008)
region_strWest	−0.011 (0.008)	−0.008 (0.009)	0.019** (0.009)
ethnicity_strBlack, or African American	0.010 (0.019)	0.011 (0.022)	−0.021 (0.019)
ethnicity_strChinese	−0.018 (0.026)	0.007 (0.028)	0.010 (0.032)
ethnicity_strFilipino	−0.046 (0.039)	0.035 (0.049)	0.012 (0.042)
ethnicity_strJapanese	−0.034 (0.046)	0.094 (0.077)	−0.060 (0.066)
ethnicity_strKorean	0.038 (0.032)	0.011 (0.049)	−0.048 (0.039)
ethnicity_strOther	−0.021 (0.021)	0.038 (0.025)	−0.017 (0.023)
ethnicity_strPrefer not to answer	0.001 (0.024)	0.038 (0.036)	−0.039 (0.031)
ethnicity_strVietnamese	−0.072* (0.039)	−0.063 (0.063)	0.135 (0.092)
ethnicity_strWhite	−0.027 (0.018)	0.022 (0.021)	0.005 (0.018)
hhi_str	−0.00000 (0.00000)	0.00000 (0.00000)	−0.00000 (0.00000)
political_party_strIndependent Democrat	0.001 (0.012)	−0.050*** (0.014)	0.048*** (0.016)
political_party_strIndependent Republican	−0.003 (0.012)	0.055*** (0.016)	−0.051*** (0.015)
political_party_strNot very strong Democrat	0.010 (0.010)	−0.020* (0.012)	0.010 (0.013)
political_party_strNot very strong Republican	0.002 (0.011)	0.057*** (0.014)	−0.060*** (0.013)
political_party_strOther - leaning Democrat	−0.016 (0.044)	−0.109** (0.055)	0.125 (0.077)
political_party_strOther - leaning Republican	0.055 (0.044)	0.029 (0.032)	−0.084* (0.045)
political_party_strOther - neither	0.010 (0.017)	−0.030 (0.021)	0.019 (0.022)
political_party_strStrong Democrat	0.004 (0.009)	−0.052*** (0.011)	0.048*** (0.012)
political_party_strStrong Republican	0.011 (0.010)	0.069*** (0.013)	−0.080*** (0.012)
Constant	0.315*** (0.022)	0.306*** (0.027)	0.380*** (0.025)
Observations	2,881	2,881	2,881

Note: *p<0.1; **p<0.05; ***p<0.01

Interestingly, these results were also strongest among white respondents. The appendix contains a detailed analysis of treatment affects by race. In general, both white and non-white respondents reacted to treatment in similar ways, but the magnitudes tended to be large for white respondents.

Discussion and Conclusion

Our model and empirical results help resolve two, interrelated questions: why have globalization shocks, instead of automation, triggered political reactions, and why has that reaction de-emphasized redistributive remedies? Economic nationalist sentiment, which values exports over imports and the perception of national self-sufficiency, explains part of why citizens prefer tariffs for globalization shocks and redistribution for automation shocks in a capital-rich country like the United States. Facing a globalization shock, tariffs remedy part of the problem and also substitute for transfers. Facing an automation shock, regulations can weaken national standing in prominent industries, so citizens more heavily favor transfers.

This type of reaction in places like the United States may create a self-perpetuating cycle that further undermines the bargain implied in "embedded liberalism." If citizens prefer tariffs and this crowds out deeper social safety net programs, then citizens may further lose faith in those safety net programs. The perceived ineffectiveness of redistribution means that, as globalization continues to deepen, citizens may be less and less inclined to reach for economic transfers as a remedy.

Our results suggest that patterns of responses to automation shocks may be more than ignorance or blame misattribution. Our treatments gave people direct, clear information about a particular shock, which should alleviate those issues. We still found that different shocks engendered different types of reactions. A natural extension of this research would examine attitudes in countries with different factor endowments and places in global value chains. For a capital-scarce country, our model would predict different responses to each type of shock. An automation shock might engender stronger demand for a direct, regulatory remedy. Citizens in this hypothetical country might not fear losing competitiveness in a high-tech or high-capital industry that they do not lead; regulations wouldn't hurt their national standing so they are freer to use regulation as the remedy, which would crowd out some

demand for redistribution. A globalization shock that displaced workers in a capital-intensive industry may increase support for transfers, relative to tariffs. Citizens might fear that retreats from globalization or retaliatory tariffs might harm their perceived standing in the markets of products they do export.

Finally, even separate from globalization, our research makes a direct contribution to the politics of automation and how citizens respond to automation shocks. By all indications, the pace of growth for automation is quickening. Increasing numbers, and increasingly higher-skilled workers, will find their vocations at risk. These trends portend a potential political crisis as large at that triggered by globalization. The window of opportunity for a politician to cast automation as *foreign*, and therefore worthy of the same reactionary politics triggered by trade in goods, is large and widening.

Figure xxx shows how the United States' trade deficit in physical machinery to automate manufacturing processes has exploded in the last 30 years. To quantify trade in automation machinery, we use reports on tariff classification disputes[41] to identify the Harmonized System codes most clearly associated with automation products and manufacturing robotics.[42] In the latter part of the 20th century, the United States ran a relatively small trade deficit in automation technology, USDxxx. But by 2020, this deficit increased by xxx%, to xxx dollars.

A politician who wanted to harness anxiety triggered by automation could highlight the foreign origins of industrial robots. This need not be limited to manufacturing; a politician courting pharmacists displaced by automation, for example, could emphasize the foreignness of imported machinery from German robotics giant, DENSO.[43]

Additionally, the source of automation trade changed greatly over this time period as well, and changed in ways that could make automation easier to villify in the United States and Western Europe. The largest automation exporters in 1990 are generally countries towards which Americans feel relatively low levels of antagonism. Germany and Japan - largely viewed as geostrategic partners to most countries in the "West" - were major exporters of automation technology, accounting for almost 80% of global exports. Yet, by 2020, their shares of global exports had been cut in half, with newcomers

[41] Cite Mangini wp.

[42] We searched tariff dispute reports for terms like "robot", "industrial robot", and "automation." This let us identify HS 848290, HS 847950, and HS 851521 as the appropriate codes. Trade value data are from COMTRADE.

[43] https://willrobotstakemyjob.com/awesome-examples-of-robots-in-the-workplace

like China making large gains in export share. Antipathy towards China, with emphasis on its role as a geopolitical adversary to the United States, was a pillar of the anti-globalization sentiment stoked by Donald Trump. Figure xxx shows how the top xxx countries' imports and exports of automation technology changed over this same time period. Each vector shows a country's starting point in 1990 and how its automation trade balance changed by 2020. We mark countries with growing net exports with a "+" and those with shrinking net exports with an "o." China, Vietnam, and Malaysia showed the largest gains in automation exports.

The next frontier of automation extends far beyond physical machines to include more recent manifestations – digitization, ICT, and artificial intelligence. Here, too, some data suggest an opening window of opportunity for politicians to cast certain technologies as foreign. In surveys of over 1,000 global leaders conducted in 2020 and 2021, almost 35% of respondents answered "Very likely" or "Likely" when asked about the likelihood that "the innovation center of the world will move from Silicon Valley in the next four years." The majority of respondents were C-level executives (eg CEO, CFO, COO) for their firms. This was *down* from 58% in 2019.[44] Recent high profile events, like the Trump administration's antagonism toward TikTok emphasized the power of arguing that a piece of foreign technology poses a unique threat. The United States currently has strong reasons to resist policy restrictions on emerging technologies - the world's tech giants are mostly American firms, which is a large reason why the United States fights to tear down barriers like data localization or privacy laws. But if foreign challengers emerge, the temptation to reach for those policy restrictions with an appeal towards nationalism, will only increase.

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Appendix

Deception Description and Justification

Our survey experiment used deception by showing respondents an article that included details that we manipulated. We described it as a news article, and did not attribute it to any particular outlet. We believe that the potential harms of this deception are minimal and justified. We also mentioned possible misinformation in the informed consent document and included a detailed debrief document.

We believe that our use of deception entails minimal harm, if any, because the content of each version of our article resembles the type of information commonly found in mainstream news outlets. A regular media consumer is likely to come across articles about globalization, offshoring, automation, and job losses.

Respondents were aware of the possibility of misinformation at the informed consent stage. Our informed consent included: "As part of this research design, you may not be told everything or may be misled about the purpose or procedures of the research. You will be fully informed about the procedures and any misinformation at the conclusion of the study." Respondents could therefore make their own decisions about the possible harms.

Our debrief document is reproduced below in full:

Thank you for your participation in this study. This study is concerned with how information about economic changes, such as globalization and automation, affect participants' support for various

government policies.

The news article you read was not from an actual news outlet and the exact events described did not happen. We changed parts of the news article for each participant. Some participants read about automation developed by US firms, while others read about automation developed by foreign firms, competition with foreign workers, or competition from US workers. Some news articles also included language that emphasized nationalist ideas. We did this to ensure that all participants read an article that was identical in all ways, except for those key changes.

Though the news article was not from a real news outlet, its content resembled that of many similar articles that appear in national news outlets. For example, our news article was partially based off of this published article:

https://thehill.com/policy/finance/475529-us-steel-closing-mill-laying-off-1500-detroit-workers

There is ongoing debate in political science and economics research about which trends most affect US jobs. Here are links to further reading about automation and globalization:

https://www.piie.com/blogs/trade-and-investment-policy-watch/automation-labor-market-disruption-and-trade-policy

https://www.usnews.com/news/economy/articles/2017-07-17/study-1-in-4-us-jobs-at-risk-of-offshoring

If you have concerns about your rights as a participant of this study, please contact (author names and contact information).

Finally, we urge you not to discuss this study with anyone else who is currently participating or might participate at a future point in time.

Thank you again, your participation is greatly appreciated. Please click the next arrow to be redirected and end the survey.

Finally, this deception was necessary since it would not have been feasible to find real articles whose content matched that of the treatments without also varying many other features. Articles about different shocks, labor and automation, foreign and domestic, also vary important features like the industry in question, the country source of the shock (eg China, Mexico, Germany, etc.). They also

vary in their tone, ranging from purely abstract economic reporting to a more personal-interest focus on those affected by the shock. We chose not to use a purely hypothetical treatment because we wanted our instrument to mimic, as closely as possible, the "real-world" treatment of reading an article about an actual event. Very recent research argues that these decisions may not have large consequences for estimated treatment effects.[45] We defaulted to choosing a realistic scenario to more closely match the information the readers are exposed to outside of our survey.

Proof of Pareto Efficient Transfer

We can evaluate the efficiency of transfers by asking whether it would be possible to compensate the L individuals without eliminating the gains for W individuals. Such a transfer would be a Pareto improvement relative to the situation with no redistributive policy. We show that such a transfer is always possible as long as

$$\frac{\alpha - 1}{\alpha} \leq \ell'(t) \tag{1}$$

As long as the decay is sufficiently low then a Pareto optimal transfer exists which can compensate the L individuals without harming the W individuals. Dixit and Norman (1980, 1986) found that a Pareto optimal transfer from those who gain from trade liberalization to those who are harmed always exists, and this result is broadly reflective of their findings.

The level of transfers t that compensates the L individuals solves

$$(1-\alpha)A(p) + \ell(t) = 0$$
$$(\alpha - 1)A(p) = \ell(t)$$

For $\ell \neq 0$ there must be a t^* that satisfies the above because t is linear and $A(p)$ is constant in t. The

[45] See Brutger et al. (2020) and Kreps and Roblin (2019).

gains to the W individuals will not be completely eroded as long as

$$\alpha A(p) - t \geq 0$$
$$\alpha A(p) \geq t$$

For some t^* that satisfies $(\alpha - 1)A(p) = \ell t^*$:

$$\begin{aligned}
\alpha A(p) &\geq t \\
\alpha A(p) &\geq \frac{1}{\ell}(\alpha - 1)A(p) \\
\ell\alpha A(p) &\geq \alpha A(p) - A(p) \\
A(p) &\geq \alpha A(p)(1 - \ell) \\
1 &\geq \alpha(1 - \ell) \\
-\frac{1}{\alpha} + 1 &\leq \ell \\
\frac{\alpha - 1}{\alpha} &\leq \ell
\end{aligned}$$

This demonstrates Equation (**??**).

Locating the Frontier of the Feasible Set

The frontier can be characterized by solving the following maximization:

$$\max_{p,t} H_W \; s.t. \; H_L = K$$

Forming the Lagrangean and taking the first order conditions:

$$\begin{aligned}
\mathcal{L} &= H_W - \lambda(H_L - K) \\
&= I + \alpha A(p) - t - \lambda(I + (1-\alpha)A(p) + \ell(t)) \\
\frac{\partial \mathcal{L}}{\partial p} &= \alpha A'(p) - \lambda(1-\alpha)A'(p) \\
\frac{\partial \mathcal{L}}{\partial t} &= -1 - \lambda \ell'(t)
\end{aligned}$$

Setting the first order conditions to zero and simplifying:

$$\begin{aligned}
\alpha A'(p) - \lambda(1-\alpha)A'(p) &= 0 \\
\frac{\alpha}{1-\alpha} &= \lambda
\end{aligned}$$

$$\begin{aligned}
-1 - \lambda \ell'(t) &= 0 \\
\lambda &= -\frac{1}{\ell'(t)}
\end{aligned}$$

Plugging in we obtain:

$$\ell'(t) = \frac{\alpha - 1}{\alpha}$$

The above equation completely determines the value of t which maximizes H_W for a fixed value of H_L. The transfer must equate the decay rate with the redistribution index. Notice that the frontier choice of t is decreasing in α: when the right hand side is higher a smaller transfer is required to drop ℓ' sufficiently low. The intuition is that when the distributional consequences of the shock are extreme it would be very relatively inefficient to use leaky transfers to redistribute wealth since larger transfers are more leaky.

When is there an interior solution to the above equation? Since $\ell'(0) = 1$ by assumption and $\ell''(t) < 0$ it must be the case that there exists some t^* which solves the equation because $(\alpha - 1)/\alpha <$

1.

Once t^* is determined it is possible to identify the associated level of protection p using the constraint:

$$\begin{aligned} H_L &= K \\ I + (1-\alpha)A(p) + \ell(t^*) &= K \\ A(p) &= \frac{-K + I + \ell(t^*)}{\alpha - 1} \end{aligned}$$

How does the frontier choice of p change with α? Recall that increasing α decreases t^*. Therefore, the numerator decreases with α and the denominator increases, so $A(p)$ must decrease with α, which is only accomplished by increasing p. Thus, we have determined that p and t are substitutes along the frontier of the feasible set and thus the feasible set is convex towards the origin.

Notice as well that the frontier of the feasible set is linear in H_L for all points where both transfers and protection are used.

The slope of the upper envelope can be found by plugging in and taking a derivative with respect to H_L:

$$\begin{aligned} H_W &= I + \alpha A(p) - t \\ &= I + \alpha\left(\frac{-H_L + I + \ell(t^*)}{\alpha - 1}\right) - t^* \\ \frac{\partial H_W}{\partial H_L} &= -\frac{\alpha}{\alpha - 1} \\ &= \frac{\alpha}{1-\alpha} \end{aligned}$$

Recall when taking the derivative that we have already shown t^* does not depend on H_L since it depends only on α. Thus, this must also be the slope of the cosmopolitan's utility function at the

optimum:

$$-\frac{\frac{\partial U}{\partial H_L}}{\frac{\partial U}{\partial H_W}} = \frac{\alpha}{1-\alpha}$$

The Behavior of Nationalists

Let the cosmopolitan's optimal choice of incomes be H_L^* and H_W^* and consider the nationalist's utility at this allocation. If nationalism is additively separable from the preferences over the incomes then:

$$U_N(H_W, H_L) = U_C(H_W, H_L) + u(p_f)$$

where $u(p_f)$ is the nationalist's direct utility from the frontier protection level p. Now consider the maximization problem faced by the nationalist.

$$\max_{p,t} U_C(H_W, H_L) + u(p_f)$$

Taking the first order conditions and setting them equal to zero:

$$\frac{\partial U_C}{\partial H_W}\frac{\partial H_W}{\partial p} + \frac{\partial U_C}{\partial H_L}\frac{\partial H_L}{\partial p} + \frac{\partial u}{\partial p} = 0$$
$$\frac{\partial U_C}{\partial H_W}\frac{\partial H_W}{\partial t} + \frac{\partial U_C}{\partial H_L}\frac{\partial H_L}{\partial t} = 0$$

Simplifying the derivative with respect to p:

$$\frac{\partial U_C}{\partial H_W}\frac{\partial H_W}{\partial p} + \frac{\partial U_C}{\partial H_L}\frac{\partial H_L}{\partial p} + \frac{\partial u}{\partial p} = 0$$
$$\frac{\partial U_C}{\partial H_W}\alpha A'(p) + \frac{\partial U_C}{\partial H_L}(1-\alpha)A'(p) + \frac{\partial u}{\partial p} = 0$$
$$\frac{\frac{\partial U_C}{\partial H_W}}{\frac{\partial U_C}{\partial H_L}} = \frac{-\frac{\partial u}{\partial p}}{\alpha A'(p)\frac{\partial U_C}{\partial H_L}} + \frac{\alpha - 1}{\alpha}$$

What is the slope of the nationalist's utility with respect to p evaluated at the cosmopolitan's optimum?

$$\frac{\partial U_N(H_W^*, H_L^*)}{\partial p} = \frac{\partial U_C}{\partial H_W}\alpha A'(p) + \frac{\partial U_C}{\partial H_L}(1-\alpha)A'(p) + \frac{\partial u}{\partial p}$$
$$\frac{\partial U_N(H_W^*, H_L^*)}{\partial p} = \frac{\partial U_C}{\partial H_W}\alpha A'(p) + \left(-\frac{\alpha}{1-\alpha}\frac{\partial U_C}{\partial H_W}\right)(1-\alpha)A'(p) + \frac{\partial u}{\partial p}$$
$$\frac{\partial U_N(H_W^*, H_L^*)}{\partial p} = \frac{\partial u}{\partial p}$$

Clearly, the cosmopolitan's optimal allocation is not the same as the nationalist's optimum. The new optimum will occur where the derivatives are zero:

$$\frac{\frac{\partial U_C}{\partial H_W}}{\frac{\partial U_C}{\partial H_L}} = \frac{-\frac{\partial u}{\partial p}}{\alpha A'(p)\frac{\partial U_C}{\partial H_L}} + \frac{\alpha - 1}{\alpha}$$

$$\frac{\partial U_C}{\partial H_W}\frac{\partial H_W}{\partial t} + \frac{\partial U_C}{\partial H_L}\frac{\partial H_L}{\partial t} = 0$$
$$\ell'(t) = \frac{\frac{\partial U_C}{\partial H_W}}{\frac{\partial U_C}{\partial H_L}}$$

Setting them equal:

$$\ell'(t) = \frac{-\frac{\partial u}{\partial p}}{\alpha A'(p)\frac{\partial U_C}{\partial H_L}} + \frac{\alpha - 1}{\alpha}$$

The above equation makes it clear that at the nationalist's optimum it must not be the case that $\ell'(t_N^*) = (\alpha - 1)/\alpha$. Recall that $\ell'(t) = (\alpha - 1)/\alpha$ along the entire upper envelope of the feasible set. Therefore, the nationalist's optimal allocation must not be on the upper envelope. The nationalist is effectively trading off efficiency in exchange for expressing their nationalist tendencies.

How does the degree of nationalist inefficiency depend on the parameters? Note that the distance between the cosmopolitan's preferred level of transfers and the nationalist's preferred transfers is decreasing in 1) the redistribution magnitude α, 2) the weight on the those harmed by the shock $\partial U_C/\partial H_L$, and the rate at which the shock can be reversed by policy $A'(p)$. Regardless, the reliance

on policy will increase when the good is imported and it will decrease when the good is exported.

Policy Composition of Preferred Allocation

How much does the cosmopolitan rely on transfers versus protection? Consider the following vector decomposition of the preferred allocation:

$$\begin{aligned} v_t &= (H_L(0,t^*) - H_L(0,0), H_W(0,t^*) - H_W(0,0)) \\ &= (I + (1-\alpha)A(0) + \ell(t^*) - (I + (1-\alpha)A(0)), I + \alpha A(0) - t^* - (I + \alpha A(0))) \\ &= (\ell(t^*), -t^*) \\ ||v_t|| &= \sqrt{(-t^*)^2 + \ell(t^*)^2} \end{aligned}$$

$$\begin{aligned} v_p &= (H_L(p^*,0) - H_L(0,0), H_W(p^*,0) - H_W(0,0)) \\ &= (I + (1-\alpha)A(p^*) - (I + (1-\alpha)A(0)), I + \alpha A(p^*) - (I + \alpha A(0))) \\ &= ((1-\alpha)(A(p^*) - A(0)), \alpha(A(p^*) - A(0))) \\ ||v_p|| &= \sqrt{\alpha^2(A(p^*) - A(0))^2 + (1-\alpha)^2(A(p^*) - A(0))^2} \\ &= (A(p^*) - A(0))\sqrt{1 - 2\alpha + 2\alpha^2} \end{aligned}$$

$$\begin{aligned} v_t + v_p &= ((1-\alpha)(A(p^*) - A(0)) + \ell(t^*), \alpha(A(p^*) - A(0)) - t^*) \\ ||v_t + v_p|| &= \sqrt{((1-\alpha)(A(p^*) - A(0)) + \ell(t^*))^2 + (\alpha(A(p^*) - A(0)) - t^*)^2} \end{aligned}$$

Now we can project the transfers vector onto the total movement to understand what fraction of the movement is due to transfers and what fraction is due to policy. The scalar projection of a on b is defined as $proj_b(a) = a \cdot b/||b||$ and it measures how much of a is pushing in the same direction as

b. The voter is relying more on policy if

$$
\begin{aligned}
proj_{v_t+v_p}(v_p) &\geq proj_{v_t+v_p}(v_t) \\
\frac{v_p \cdot (v_t + v_p)}{||v_t + v_p||} &\geq \frac{v_t \cdot (v_t + v_p)}{||v_t + v_p||} \\
v_p \cdot (v_t + v_p) &\geq v_t \cdot (v_t + v_p) \\
v_p \cdot v_t + v_p \cdot v_p &\geq v_t \cdot v_t + v_t \cdot v_p \\
v_p \cdot v_p &\geq v_t \cdot v_t \\
||v_p||^2 &\geq ||v_t||^2 \\
(A(p^*) - A(0))^2((1-\alpha)^2 + \alpha^2) &\geq \ell(t^*)^2 + (t^*)^2
\end{aligned}
$$

The above inequality applies regardless of whether the voter is a cosmopolitan or nationalist and regardless of where the optimal point is located within the feasible set. Recall that t^* does not vary for sufficiently high values of H_L for a cosmopolitan voter. Therefore, there is some threshold above which the cosmopolitans start to rely more heavily on policy than on transfers.

The actual fraction attributable to transfers is

$$
\begin{aligned}
\frac{proj_{v_t+v_p}(v_t)}{proj_{v_t+v_p}(v_t) + proj_{v_t+v_p}(v_p)} &= \frac{\frac{v_t \cdot (v_t + v_p)}{||v_t + v_p||}}{\frac{v_t \cdot (v_t + v_p)}{||v_t + v_p||} + \frac{v_p \cdot (v_t + v_p)}{||v_t + v_p||}} \\
&= \frac{v_t \cdot (v_t + v_p)}{v_t \cdot (v_t + v_p) + v_p \cdot (v_t + v_p)} \\
&= \frac{v_t \cdot (v_t + v_p)}{v_t \cdot (v_t + v_p) + v_p \cdot (v_t + v_p)} \\
&= \frac{v_t \cdot (v_t + v_p)}{(v_t + v_p) \cdot (v_t + v_p)} \\
&= \frac{||v_t||^2 + v_t \cdot v_p}{||v_t + v_p||^2} \\
&= \frac{\ell(t^*)^2 + (t^*)^2 + (1-\alpha)(A(p^*) - A(0))\ell(t^*) - \alpha(A(p^*) - A(0))t^*}{((1-\alpha)(A(p^*) - A(0)) + \ell(t^*))^2 + (\alpha(A(p^*) - A(0)) - t^*)^2}
\end{aligned}
$$