Robots, Foreigners, and Foreign Robots: Policy Responses to Automation and Trade

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Abstract

We develop a general model of a citizen's demand for policy responses to redistributive shocks like globalization and automation. The model illustrates how a dislike for imports can increase demand for policy responses that 'backpedal' against the shock, such as automation regulation and tariffs, relative to demand for *ex post* transfers. We use survey experimental evidence from two different designs to support the model's predictions. Treatments emphasizing an automation shock from domestic-origin technology cause citizens to place greater weight on redistribution relative to regulations (backpedaling against automation). A foreign-origin labor shock, e.g. firms moving production abroad, leads to greater weight on protectionism (backpedaling against globalization), which also crowds out demand for redistribution. Most importantly, "making automation foreign" by emphasizing foreign-origin technology reweights responses towards greater support for regulations and away from redistribution. Our findings explain how support for automation regulations could grow, as politicians increasingly vilify foreign technology.

1 Introduction

The surge in anti-trade sentiment embodied by the election of President Donald Trump spurred renewed interest in the political consequences of economic dislocation. A variety of work links globalization with political support for protectionist candidates, authoritarianism, and opposition to incumbents.[1] The changes brought about during this time period have been large enough for some scholars to worry about the end of the liberal economic order.[2]

Yet, if trade-induced economic anxiety led to massive political shifts, then two related questions arise. First, why didn't the rise of automation do the same? Automation is thought to cause greater economic dislocation than trade. But according to politicians who have effectively channeled economic anxiety, trade is the chief villain.[3] Politicians have stoked support for tariffs as a way to "backpedal" against globalization, yet they neglect or oppose regulations that would blunt dislocation from automation.

Additionally, if trade induced intense anxiety among voters, why hasn't their support for redistribution been stronger? A citizen harmed by globalization can be helped with tariffs, but she can also be helped by better social safety nets. From a purely material, economic self-interest perspective, redistribution helps workers regardless of whether dislocation comes from automation or globalization, and can ameliorate the political consequences of dislocation.[4]

We argue that the combination of economic nationalism and comparative advantage sheds light on both questions. We construct a general formal model of a citizen whose country faces a shock that has distributional consequences, bringing net-gains to some but net-losses to others. Citizens have two policy instruments at their disposal. First, citizens can support redistributive transfers that help those harmed without entirely eroding the aggregate gains generated by the shock. Second, citizens can support "backpedaling" policies, by which we mean policies directly counteracting the shock itself, reversing its associated gains and losses – e.g. tariffs that slow a globalization shock or

[1] For a recent summary, see Colantone, Ottaviano, and Stanig (2022).
[2] Jervis et al. (2018)
[3] Zhang (2022), Ballard-Rosa, Goldstein, and Rudra (2022), Wu (2022)
[4] Margalit (2011)

regulations on the use of technology which slow automation shocks. All citizens have an incentive to support a bundle of policies that reduce inequality without sacrificing too much economic efficiency.

Citizens who are economic nationalists prefer different policy bundles depending on the national origins of the shock. We define an economic nationalist as a citizen who dislikes imports and prefers national self-sufficiency. We assume that all citizens have at least a little inclination towards economic nationalism. When facing a globalization shock causing both domestic dislocation and increased foreign dependence, an economic nationalist would put more weight on backpedaling policies. Relying more heavily on tariffs can reduce foreign dependence and repair inequality at the same time. By contrast, redistribution can only mitigate inequality.

However, an economic nationalist facing an automation shock that has distributional consequences yet also boosts domestic productivity makes a very different choice. In this case, backpedaling policies are counterproductive – by undoing the shock, the policy is increasing dependence on foreign production even as inequality is reduced. A citizen therefore would rely more heavily on transfers. Thus, the effect of regulation on the country's foreign reliance tilts citizens towards transfers and away from backpedaling policy.

Put simply, the perceived origin of economic dislocation – domestic versus foreign – affects how much weight citizens place on backpedaling policies versus redistribution in their preferred response. In a country like the United States, which still enjoys a comparative advantage in automation technology, the theory means that U.S. citizens would be hesitant to regulate automation technology. Opportunistic politicians neglect dislocation from automation because their constituents are conflicted about the merits of regulating it directly. No such conflict arises for globalization shocks, so politicians can more successfully "sell" tariffs as a remedy.

Most importantly, the model predicts that when the source of automation technology is changed from domestic to foreign, this decreases support for redistribution and increases support for regulation. Citizens will then respond to automation similarly to how they respond to globalization, placing greater weight on regulation to backpedal against all automation.

We assess the predictions of the model with two large survey experiments conducted in the

United States. In the first experiment, 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. Respondents read the article then indicate support for redistribution and a backpedaling policy (e.g. tariffs or regulations limiting automation). We find that support for redistribution, relative to the backpedaling policy, increases for domestic automation shocks versus foreign labor shocks, consistent with the theory.

This experimental design also includes treatments with foreign automation shocks – where technology developed by foreign firms replaces U.S. workers. Existing work has compared prompts about trade to generic automation prompts, and interpreted the differences in light of the foreignness of trade and the presumed non-foreignness of automation. We explicitly manipulate the foreignness of labor and automation shocks to provide direct evidence for how foreignness matters. As predicted, making automation foreign increases the weight placed on automation regulations relative to redistribution.

The second experiment replicates these results with a completely different experimental design. It uses an informational treatment instead of an article vignette, focuses solely on automation and does not specify a sector. We fielded it in May 2022, when anxiety from COVID had lessened substantially, to ensure that events proximate to the first survey were not responsible for our results.

We again find results consistent with our model. A prompt emphasizing the foreign origins of automation increases the weight respondents place on redistribution compared to automation regulations. We also leverage the replication experiment to further show which aspects of economic nationalism are the strongest explanations for our findings. Economic nationalism can arise from a security-related aversion to imports, a concern about relative gains, or identity-based racialized concerns about who wins or loses within a country. Treatments emphasizing the first two explanations have stronger effects on increased weight placed on regulations compared to redistribution. Our treatment implicitly emphasizing the racial identity of those harmed has weaker effects.

We contribute to the growing body of work on the politics of automation.[5] Existing work empha-

[5] Gallego and Kurer (2022), Owen and Johnston (2017)

sizes how citizens misattribute blame to trade instead of automation and therefore support tariffs.[6] Our work helps explain misattribution, showing why politicians can successfully attribute blame to trade and rally support for protection. We present a theory that takes the beliefs of citizens as given and explains why they would choose a different policy response for different types of shocks that have the same distributional consequences. Additionally, most work considers preferences for backpedaling policies or redistribution in isolation. Our model makes clear how attributes of a shock and economic nationalism interrelate to affect a citizen's preferred *bundle* of policy responses, which can act as substitutes for one another.

Our research has important forward-looking implications for the growing *international* political economy of automation. By all indications, the pace of growth for digitization and artificial intelligence 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. We wholeheartedly agree with Wu (2022) on the importance of "future research to examine the conditions in which the public's enthusiasm toward technology might break down" (3). E. Mansfield and Rudra (2021) similarly call for more research on "the political conditions 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 research suggests that citizens will demand regulations as the perceived "foreignness" of technology increases. So far, the development of automation has been pioneered by knowledge clusters in the United States, like Silicon Valley. The United States has therefore been very hesitant to restrict technology because "every bit of regulation… potentially holds back those U.S. companies" in a global technology arms race.[7] However, other countries are closing the technological gap. China has demonstrated its ability to compete in high tech industries through its investments in Huawei and 5G technology. As non-US firms develop their capabilities to produce automation technology, then the pressure on jobs in the United States might become more attributable to foreign rather than domestic technology. Our theory predicts that an influx of foreign technology

[6] E.g. Kuo et al. (2022), Wu (2022), Wu (2023), Di Tella and Rodrik (2020), Mutz (2021).
[7] Frankel, Sheera. The New York Times. 18 July 2023. See also Weymouth (2023).

could finally stimulate demand for policies limiting automation.

Our work also contributes to the retrospective post-mortem for embedded liberalism – the bargain wherein societies are more accepting of economic dislocation due to globalization (or automation) if they are supported by a robust safety net. Our work shows that economic nationalism interferes with the politics of the bargain. Nationalistic voters want to rely more heavily on backpedaling than redistribution when facing foreign shocks. Backpedaling policies designed to reverse the shock, like tariffs, are more popular when the shock is perceived as foreign. The US is increasingly importing automation technology. Foreign states, often adversaries like China, increasingly challenge US supremacy at the frontier of advanced technologies. If voters in the US come to perceive automation as foreign, our theory predicts that nationalistic voters will increase demand for direct regulation to the point where support for redistribution could be crowded out. This means that an embedded liberalism-style bargain – minimal regulation of automation combined with a strong safety net – will become harder as the origins of technology become more globally dispersed.

2 Economic Shocks and Political Responses

A growing body of literature assesses how economic shocks and dislocation affect political preferences. Dislocation from globalization has attracted the most attention from researchers and politicians alike. Despite the recent surge in scholarly attention, concerns about dislocation from trade and automation have risen many times over the last century. Concerns about globalization are well-documented in work on embedded liberalism,[8] and politicians have long capitalized on anxiety about trade to make political hay.[9] Concerns about automation also have a long history. Parker (2022) describes how American anxiety over the post-war automation advances reached "hysteria" levels, and political opposition from unions varied significantly across industries.

Most recent work describes reactions as a "backlash" against decades of openness. Surprisingly, existing work finds a weak, or even negative, relationship between globalization-induced dislocation and support for redistribution to compensate workers harmed by trade.[10] Di Tella and Rodrik

[8] Ruggie (1982)
[9] Margalit (2011)
[10] Rodrik (2021).

(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.[11] This occurs despite the price effects of tariffs, which voters dislike.[12]

Research on citizens' preferred responses to automation follows a similar pattern. Several works link exposure to automation with support for protectionism.[13] Findings relating automation and support for redistribution are mixed. Thewissen and Rueda (2019) and Busemeyer and Sahm (2021) find that exposure to automation increased support for redistribution using survey data from Europe and 24 OECD countries, respectively. Golin, Rauh, et al. (2022) find that exposure to information about automation increase support for taxation and universal basic income. However, Zhang's (2022) aptly-titled work, "No Rage Against the Machines," finds little effect of automation primes on US respondents' preferences for redistribution. Gallego et al. (2022) and Kuo et al. (2022) find that exposure to automation and subjective risk of automation, respectively, do not increase support for *ex post* redistribution policies. Jeffrey (2021) finds that, initially, UK respondents who feel vulnerable to automation are unaffected or even less supportive of redistribution, though fairness rhetoric can change their opinions. Gonzalez-Rostani (forthcoming) finds that automation increases political apathy.

Existing work emphasizes blame misattribution as an explanation, wherein a worker dislocated by automation is "unlikely to have recognized the true causes of the [economic] concerns."[14] This leads to support for protectionism, instead of support for automation restrictions.[15] Wu (2022) shows that people with jobs at higher risk of computerization are more opposed to globalization. Di Tella and Rodrik (2020) similarly find that automation prompts increase support for tariffs.

Each author interprets these results as evidence that politicians can successfully misattribute blame because trade is foreign, while automation presumably is not. Out-groups, especially foreign workers, are easier to target than automation. It is also more difficult to attribute malicious intent

[11] For one exception, see Che et al. (2016) who find that globalization increased support for Democrats in the US House, who then supported redistribution.

[12] Casler and Clark (2021).

[13] Anelli, Colantone, and Stanig (2019), Owen and Johnston (2017), Im et al. (2019), Milner (2021).

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

[15] See also Hai (2022).

to a robot than to a foreigner who has agency.[16] Blame misattribution then explains why citizens demand tariffs, instead of transfers or automation regulations. Tariffs are the "appropriate" way to backpedal against the perceived shock.

Wu (2023) finds such an effect, even when respondents read prompts about the effects of automation. Prompts about job loss from automation increase support for tariffs among US Democrats and immigration restrictions among Republicans. Blame displacement is so severe that, among Democrats, automation prompts raise support for tariffs — even more than prompts about offshoring to China or import competition!

Blame misattribution gives a powerful explanation for why economic anxiety leads to support for protectionism. But it leaves unanswered why anxious citizens do not more strongly support redistribution and better social safety nets. For those anxious about or harmed by economic dislocation, redistribution can help make them whole again, from a financial perspective. Even if citizens misattribute blame, it is important to explain the conditions under which they prefer policies that limit dislocation relative to alternatives, like redistribution.

2.1 Foreign Robots?

The aforementioned experiments leave the origin – foreign versus domestic – of the technology generating an automation shock unspecified. We consider directly the possibility that people can perceive an automation shock as having domestic or foreign origins, which can affect their preferred responses. If "foreignness" is the reason why people misattribute blame to trade instead of automation, then will foreign technology elicit support for automation regulations in the same way that globalization elicited support for tariffs?

Existing research has good reason to presume that many citizens think of automation as a *domestic* shock. However, the window of opportunity for a politician to cast automation as *foreign*, and therefore worthy of a direct regulatory response, is widening. A politician wanting to harness anxiety triggered by automation could highlight the foreign origins of industrial robots. For example, the location of knowledge production is an important determinant of innovation and production.

[16] Mutz (2021). See also Gallego and Kurer (2022) pp 476-7 and Kaihovaara and Im (2020).

The Australian Strategic Policy Institute (ASPI) analyzes which countries published the most high impact research on critical and emerging technologies from 2018-2022.[17] The most research on "advanced robotics" and "autonomous systems operation technology" now comes from scholars at Chinese institutions, with the United States lagging slightly behind. In the ten technologies ASPI categorizes as related to "Artificial Intelligence, computing, and communications," China lead in seven and only slightly trails the United States in the other three.

Additionally, the United States' trade deficit in physical machinery to automate manufacturing has exploded in the last 30 years. To quantify trade in automation machinery, we use reports on tariff classification rulings to identify the Harmonized System codes most clearly associated with automation products and manufacturing robotics.[18] In the 1990s, the United States ran a relatively small trade deficit in automation technology, about 180 million. By 2020, this deficit increased by 1472%, to 2.8 billion dollars. The automation technology trade deficit has outpaced the overall trade deficit, which grew by 1015% over the same period.

Additionally, the source of automation trade has changed greatly over this time period in ways that could make automation easier to vilify in the United States. The largest automation exporters in 1990 – Germany and Japan – are geostrategic partners to the United States. They accounted for almost 80% of global exports. Yet, by 2020, their shares of global exports decreased by half, with newcomers like China making large gains. Antipathy towards China, with emphasis on its identity as an illiberal non-democracy[19] and its role as a geopolitical adversary, is a pillar of anti-globalization sentiment

2.2 Aspects of Economic Nationalism

Perceived foreignness matters because citizens have preferences that incorporate economic nationalism. For the purposes of our argument we mean "economic nationalism" to be a set of preferences for domestic production and a dislike of imported goods or technology. We delineate three different reasons for a dislike of imports, which provides greater specificity for *why* foreignness mat-

[17] Gaida et al. (2023).
[18] Trade value data are from COMTRADE.
[19] Chu (2021)

ters. These aspects of economic nationalism are not mutually exclusive or exhaustive of all reasons someone might dislike imports.

First, nationalists fear foreign reliance and value self-sufficiency. They want the national and political units to be aligned and they expect the state to support the interests of the nation as they perceive it.[20] 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 goods or technologies conditional on political demands. Nationalists who identify the foreign state as an outgroup would resist foreign influence because it makes the state will serve a foreign master.

Existing work on trade emphasizes this downside to economic integration. Carnegie and Gaikwad (2022) extensively document public aversion to trading with geopolitical adversaries. Schweinberger (2022) finds that mercantilist tendencies and dislike of trade deficits are magnified for trade with rising power adversaries (Herrmann 2017). The political connection between economic nationalism, sovereignty, and self-determination extends at least as far back as the 1919 Peace Conference (Manela 2007). Self-determination, or the assertion that nations are sovereign and have the right to determine their own affairs, requires that nation-states be free from undue foreign influence. Nationalists abhor the potential for foreign entities to use economic linkages to undermine sovereignty because it threatens their nation's self-determination. This attitude results in an economic nationalist imperative to limit imports.

Second, globalization research emphasizes nationalist concerns about the relative gains accrued by fellow citizens versus foreigners. According to this explanation, citizens may not fear economic coercion directly, but rather they resent the gains from trade experienced by the trading partner. Many people believe that the location of production determines whether their fellow citizens accrue gains through employment, making them prefer domestic production. Mutz and Kim (2017) call this in-group favoritism, where people "maximize the difference between the extent of in-group and out-group benefits" (831). Citizens who are concerned about relative military superiority could also become suspicious of any trade that generates more value for a trading partner than for their

[20] Gellner (1983). On the relationship between trust in government and trade policy see Macdonald (2023).

country Powell (1991).

In the first two types of nationalist preferences, the relevant in-group/out-group distinction is cross-national, demarcated by national borders. They fit within the concept of "unity nationalism" as "[requiring] that group members prioritize actions that contribute to the group's betterment even when they must pay individual costs (46)."[21] With globalization, the "action" is forgoing the benefits of globalization by erecting barriers, for the betterment of the nation.

Other research on trade emphasizes how shocks redistribute wealth or status across different groups within a nation. If someone defines their in-group as an identity nested within their country – e.g. along racial lines – then they might think that trade hurts their in-group members, even if it benefits others in their country. For example, Guisinger (2017) documents how political ads overwhelmingly portray protectionism as benefiting white workers. Whites in diverse areas were more supportive of protection, because they viewed it as beneficial to their in-group. Baccini and Weymouth (2021) argue that whites feel more harmed by globalization, compared to African Americans, which spurs their support for populists. Baccini, Ciobanu, and Pelc (2023) extend this argument to compare globalization and automation. White Americans think globalization harms whites, more so than whites think automation harms whites. As a result, they are more supportive of populist appeals.

Crucially, these three aspects of nationalism could extend beyond trade, to affect preferences over automation. With respect to self-sufficiency, reliance on imported technology also creates vulnerability to foreign influence, just as a reliance on foreign final goods. The foreign state could even use the technology for industrial and political espionage. The recent spats between the United States and China over Huawei-sourced technology and TikTok emphasized their potential threat to national security.

Nationalists concerned about relative gains may believe that imported automation technology harms national welfare in the same way as trade – they fear that it benefits a foreign state more than their own. Finally, with respect to within-nation group identity, nationalists may believe that

[21] Powers (2022).

any negative consequences of importing technology will be borne disproportionately by their group. Nationalists might perceive imported technology as being more likely than domestic technology to kill jobs belonging to in-group members. Even if the new technology brings some gains, nationalists would resist foreign automation as long as their conception of the nation emphasizes certain people who are suffering via job loss.

3 Theory

We now turn to a formal model of a citizen's preferred responses to a shock that raises aggregate income for a country but differentially affects winners and losers within the country. We depart from existing work by allowing two forms of response to the shock: transfers, which redistribute money from winners to losers, or a backpedaling policy that blunts the shock's impact. These policies are conceptually distinguished by their mechanism of action: backpedaling policies reverse the shock while transfers accept the shock. Backpedaling means government actions that directly counteract the shock itself, mitigating any gains or losses. For a globalization shock, protectionism achieves this. A tariff lessens the gains from trade, but also ameliorates domestic dislocation.[22]

For automation, this can be thought of as any policy that restricts firms' ability to replace workers with technology. So-called "robot taxes" on profits from replacing workers with automation are the clearest examples. Examples also include worker protections making it harder to replace employees with technology or regulations delaying the use of new technology by requiring extensive testing. Though less prevalent in US politics, automation regulations are much more prominent in Europe.[23]

Our formal model focuses on a "demand" side explanation for policies, but fits within a broader

[22]We thank two anonymous reviewers for bringing our attention to cases where the distributional consequences of trade can reduce inequality. For example, low income households generally benefit relatively more from trade openness than high income households because, due to nonhomothetic demand, their typical consumption is concentrated in traded sectors (Fajgelbaum and Khandelwal 2016). Our framework applies to any case where the net effect of tariffs is to reduce inequality induced by a trade shock. Existing literature supports the political salience of this scope condition. In particular, low income households tend to oppose trade due to their perception that it increases inequality (Lu, Scheve, and Slaughter 2012).

[23]E.g. the EU's Machinery Directive https://osha.europa.eu/en/legislation/directive/regulation-20231230eu-machinery

framework that accounts for elites' "supply" of policies.[24] Politics is a highly competitive marketplace, where opportunists are always looking for an argument or grievance that will rally support. Some elites understand or intuit how shocks create fertile ground for certain arguments to take root. They then supply the corresponding platform or further stoke those shifts with identity-reinforcing cues.[25] Our model helps explain why certain political platforms resonate with citizens.

3.1 Characterizing Shocks

We consider two types of shocks: a globalization shock and an automation shock, denoted $k \in \{G, T\}$. Both types create aggregate gains of magnitude A. For a globalization shock, gains arise from substituting foreign production for domestic production which lowers prices or raises the quality of goods for domestic consumers. For an automation shock, gains arise from increased production efficiency, allowing firms to lower prices and export more abroad.

Both types of shocks also cause internal economic dislocation. While everyone benefits from the positive aspects of the shock, some subset of the population is net-harmed. Losses for workers losing their jobs to import competition or foreign workers and those replaced by automation outweigh any benefits. Citizens whose employment is unaffected are net winners. We denote the groups with W (winners) and L (losers). We assume the shocks satisfy the Kaldor-Hicks criterion: the total gains to W exceed 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 $\alpha > 1$ describes the degree of dislocation induced by the shock.

For either type of shock, the government can choose a backpedaling policy response, p, that blunts economic dislocation. Our conception of a policy response is general: it is any policy which interrupts the economic reallocations, both good and bad, caused by the shock. The government's choice of p is continuous, reflecting how the policy response can be more or less severe. Formally, we assume that aggregate gains A are decreasing in p.

The government can also respond with transfers, t, that redistribute income from the winners

[24] Rodrik (2021).
[25] Balcazar (2021).
[26] The groups can be given different incomes without affecting analysis.

to the losers. 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 redistribution can *ex post* affect the final income distributions among winners and losers. Like many models, we assume that transfer mechanisms are imperfect. The "leakiness" of the transfers t is represented by a function ℓ such that $\ell(t) < t$. Consistent with existing literature, we assume the function ℓ is continuous but could be nonlinear.[27] 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 imports more. An automation shock is "domestic" in the sense that no production is moved abroad, and all else equal, the country exports 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 have preferences over the location of production, as explained below.

3.2 Preferences for Income Equality and Efficiency

How do individuals think about the choice of a backpedaling policy and transfers? We define the citizen's utility function as: $U(H_W, H_L, p|\gamma)$. Our assumptions about this function create two, interrelated tradeoffs.

The first two arguments, H_W and H_L, represent the final incomes of the W and L individuals respectively. We assume U is strictly increasing in both H_W and H_L. We also assume that U is convex in its arguments H_W and H_L. These assumptions create a tradeoff between *efficiency* and *equality*. All else equal, the citizen likes to increase the wealth of both groups. The convexity assumption means that, all else equal, she prefers a more equal distribution. The tradeoff arises because a

[27] Dixit and Londregan (1996).

citizen's preferred response to the shock can reduce aggregate gains – either with a backpedaling policy or a leaky transfer – in order to achieve a more equal income distribution. But this comes at the cost of shrinking aggregate income. We assume that dislocation from the shock increased inequality between the winning and losing groups, since this matches most popular descriptions of globalization and automation, though it is theoretically possible that a shock could make an unequal society more equal.

Note that this accommodates both sociotropic and egocentric approaches to preference formation by allowing the voter to place weights on the welfare of winners and losers. Our approach is compatible with recent research de-emphasizing whether a particular citizen is harmed by a shock, e.g. because of her factor ownership or employment sector (Rho and Tomz 2017), and with research showing that voters are sensitive to direct economic consequences from trade policy. Egocentric voters put a higher weight on welfare for their group, while voters who are more sociotropic will spread the weights more equally. All voters have at least some degree of sociotropic and egocentric motivation when forming preferences, but that degree can vary.[28] The convexity assumption only implies that she prefers some (possibly weighted) convex combination of incomes to more unequal distributions.

The third term in the utility function, p, allows for the backpedaling policy to directly affect utility, via its effect on the trade balance. For a globalization shock, utility is increasing in p, since protectionism improves the trade balance. For an automation shock, utility is decreasing in p, since automation regulations harm exports.

The magnitude of the effect of p on utility is conditional on $\gamma \in [0, 1]$. γ describes the intensity of the individual's economic nationalist sentiments, i.e. how much she prefers domestic production. $\gamma = 0$ denotes at "cosmopolitan" individual who does not care directly about the trade balance; she only cares about each group's welfare. A "cosmopolitan" does not care whether income changes result from a foreign or domestic shock.[29]

[28] E. D. Mansfield and Mutz (2009).

[29] Note that cosmopolitans can still be nationalists in the sense that they care mostly about the welfare of their fellow citizens. Our assumption is only that they have no preferences about the location of production.

For an economic nationalist, where $\gamma > 0$, utility *increases* with the trade balance. Economic nationalists prefer national income arising from exports as opposed to imports. In a capital or technology abundant state like the United States, labor intensive products are imported and capital intensive products are exported. A U.S. nationalist receives additional utility from restricting imports of labor intensive products and loses utility from regulating the production of technology intensive products.

These assumptions about p and γ create the second tradeoff for a citizen: between preference for national income and preference for self-sufficiency. Economic nationalists demand policies that increase domestic production, but such policies may also harm national income by blunting the positive effects of a shock. Formally, we assume that — for a globalization shock — a citizen with nationalist preferences receives positive utility from protection: $\partial U(\cdot, \cdot, p|\gamma \neq 0, k = G)/\partial p > 0$. For an automation shock, policy responses will limit exports and the nationalist receives disutility from the policy: $\partial U(\cdot, \cdot, p|, \gamma \neq 0, k = T)/\partial p < 0$.

3.3 Demand for Backpedaling Policy and Transfers

How do citizens form their indirect utility for backpedaling and transfers? In short, backpedaling and transfers are substitutes for the purpose of implementing a particular tradeoff between efficiency and equity. Citizens choose the optimal pairing of the two responses to minimize efficiency losses while improving the distribution of income. They scale the magnitude of the response according to the severity of the shock. The citizen's degree of nationalism tilts the optimal bundle towards the policy response in the case of a foreign shock and towards transfers in the case of a domestic shock.

This logic can be illuminated by a careful analysis of how the citizen forms preferences over policies. Voters always want more efficiency if they can get it without sacrificing equality. 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/regulation.[30]

How does the citizen choose a level of policy intervention p and a level of transfers t to achieve

[30] See appendix for characterization of the set of feasible allocations $Y = \{(H_W, H_L) : H_W = I + \alpha A(p) - t, H_L = I + (1 - \alpha)A(p) + \ell(t)\}$.

their preferred balance between equality and efficiency? Figure 1 shows the citizen's optimal policy choices in vector form, in response to different shocks. In each pane, the horizontal axis shows the income of the losing group and the vertical axis shows the income for the winning group. The point of origin for the vectors in the top left represents the income distribution resulting from the shock, which would remain without any government intervention.

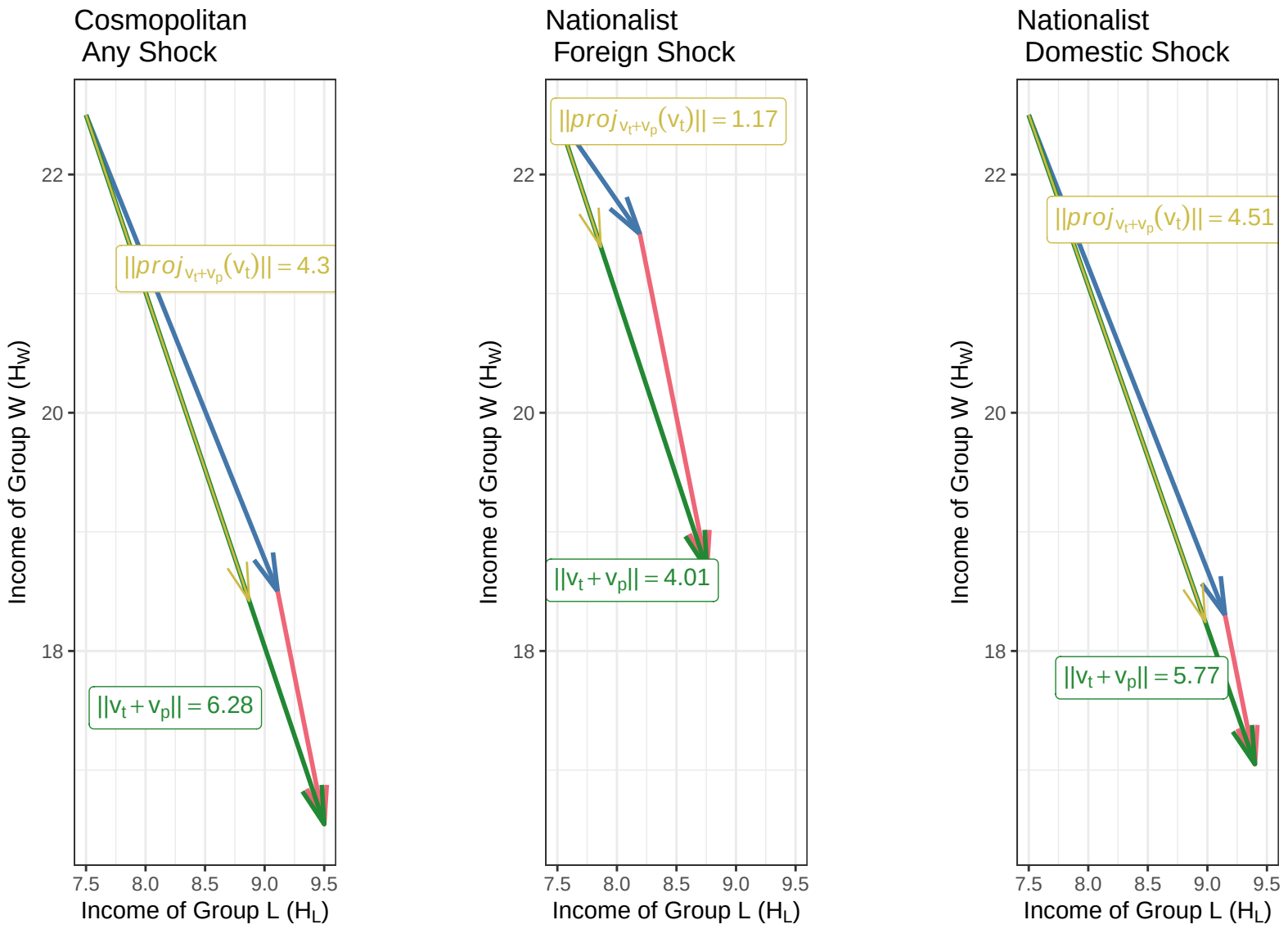


Figure 1: The figure depicts weights on each response as a vector decomposition of the total response. The green vector shows the total desired redistribution $v_t + v_p$. The yellow vector shows the weight placed on transfers – the projection of v_t onto $v_t + v_p$.

It is helpful to start with the left pane – a "purely" cosmopolitan citizen facing any shock. She first chooses her preferred income allocation based on the equality and efficiency trade-off, which is the point at the end of the green vector in the bottom right. Her total response reallocates income from the winners to the losers, arriving at this destination point. She stops this reallocation when further efficiency losses outweigh further equality gains.

The blue and red vectors show *how* she achieves this reallocation. The red vector, labelled v_p, shows how much reallocation results from the backpedaling policy. The blue vector, labelled v_t, shows how much reallocation results from transfers. She balances the degree to which she uses each option to reallocate income based on the leakiness of transfers.[31] If transfers become leakier, she places greater weight on the backpedaling policy to achieve her preferred allocation.

To show the relative weights of each response, we project the blue vector onto the middle vector, $proj_{v_t+v_p}(v_t)$. The length of this projection shows the relative weight placed on transfers, as a proportion of the length of the total income reallocation, $||v_t + v_p||$. In the example in the figure, the total reallocation (6.28) is achieved by approximately $2/3$ emphasis on transfers (length of 4.3) and $1/3$ on backpedaling policy (remaining length of 1.98)

Now consider the middle pane, showing a nationalist – who also has preferences over the location of production – facing an identical foreign shock. To isolate the effect of nationalist preferences, we fix this person's preferences over the efficiency/equality trade-off to be identical to the cosmopolitan just considered. We again project the vector representing their preference for transfers onto a vector representing their total preferred response. The nationalist still balances equality and efficiency, but because she has preferences that stem directly from the trade balance, she is more inclined to deploy backpedaling policies that reduce imports. Of her total reallocation ($||v_t + v_p|| = 4.01$), only about $1/4$ is achieved through transfers ($proj_{v_t+v_p}(v_t) = 1.17$). The remainder is achieved through backpedaling policy.

The nationalist places a greater weight on backpedaling policies because her benefit from reducing imports compensates for the efficiency loss of restricting trade. This also partially achieves

[31] The concept of "leakiness" can include the administrative and implementation costs for the policies. Leakiness can also capture how citizens perceive one policy or the other to be more feasible given the state's institutions.

her preferred balance between equality and efficiency, so the nationalist subsequently demands fewer transfers. In other words, the demand for trade barriers crowds out the demand for transfers. Note that adding nationalism changes the total reallocation and resulting income distribution, too. Group incomes are more unequal in the middle pane than the left pane. The nationalist does not choose an allocation on the frontier of the feasible set, because doing so means foregoing their intrinsic benefits of interrupting imports. The backpedaling policy has gotten her closer to a more equal income allocation, so when considering additional transfers, she more quickly reaches the point where transfer inefficiency outweighs further gains in income equality.

The opposite logic occurs when this same nationalist considers an advance in domestic automation technology – shown in the right pane. The nationalist is especially wary of backpedaling policies that would harm domestic firms. Thus, she experiences an additional penalty for backpedaling against the shock. Relative to the cosmopolitan, the nationalist demands less backpedaling policy. She still seeks to balance equality and efficiency, but she does so by relying more heavily on transfers ($proj_{v_t+v_p}(v_t) = 4.51$).

Finally, Figure 1 makes clear that it is important to consider *relative* weights a citizen places on each response – not just how much she wants backpedaling policies or transfers, in isolation. We held fixed the size of the shock in our thought exercises, but different types of shocks can trigger different levels of total responses from a citizen. For example, if a citizen perceived a foreign shock to be bigger than a domestic shock, this could change her total response.[32] A citizen might perceive transfers or backpedaling as more or less inefficient when considering tariffs versus automation restrictions.

However, our theory makes clear that – regardless of how large or small a citizen perceives a shock to be – the relative weights she places on particular responses will vary in predictable ways. Regardless of the perceived shock size, citizens with some degree of economic nationalism will prefer

[32]Inconsistent results in the literature could be due to how respondents perceive the magnitude of different treatments. 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. 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.

greater backpedaling for foreign shocks, as a proportion of their total response, compared to domestic shocks. Conversely, they will prefer weaker transfers, relative to their demand for backpedaling, when facing a foreign shock, as opposed to a domestic shock. In other words, the theory generates a sharp prediction for relative weights which is especially important since it also makes clear that there are not sharp predictions for absolute levels of support.

3.4 Predictions

The middle and right panes of Figure 1 generate our first prediction as a comparison of responses to prompts about foreign labor versus domestic automation shocks. When thinking about a foreign labor shock, like outsourcing or import penetration, an individual places greater weight on backpedaling (tariffs) as a direct response and less weight on transfers. For a domestic automation shock, she places greater weight on transfers, and less weight on backpedaling (regulations on automation).

These panes of Figure 1 also show the second prediction considered below. If we take an automation shock, and "make it foreign" as opposed to domestic, our theory predicts that citizen will demand a greater degree of automation regulations, and place a relatively weaker weight on transfers. This is a cleaner test of our theory because it holds fixed the type backpedaling policy.[33] Note, too, that this is a prediction that is about direct regulations on automation, not tariffs. This prediction is not that "making automation foreign" will increase demand for tariffs; rather that this will cause citizens to demand greater direct regulations of automation.

Although our setup is tailored to studying the United States, the model is generalizable to other settings. In countries that export labor intensive goods we would expect nationalists to emphasize backpedaling policy when confronted with a foreign automation shock and to emphasize transfers when confronted with a foreign labor shock. Across all cases, the model's predictions are summarized as a collision of comparative advantage and economic nationalism – economic nationalists want policy bundles relying more on backpedaling when confronted with shocks that intensify imports and demand more on transfers when confronted with shocks that intensify exports. Testing

[33] We thank a reviewer for highlighting how someone can have preferences over tariffs versus regulations even if they did not have nationalist preferences.

these predictions outside the United States is beyond the current scope of our investigation.

4 First Survey Experiment

To assess these predictions, we fielded a survey experiment that varied the type and source of an economic shock and let respondents indicate support for different government responses. The first experiment consisted of two waves occurring September and October 2020. We sampled 3,154 US respondents in total, 18 or older, using Lucid Theorem. Lucid recruits samples that are representative of the country on a variety of demographic characteristics, including gender, age, education, party identification and household income.[34]

4.1 Treatment

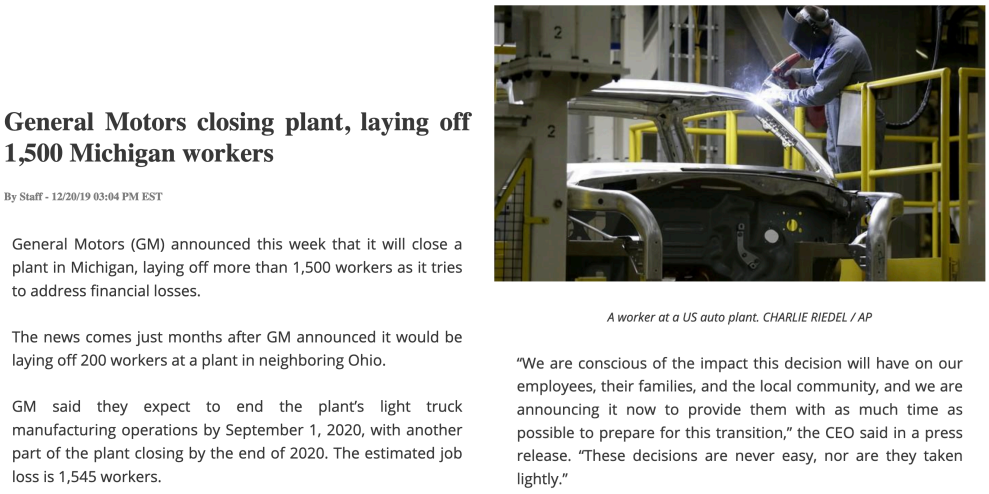
Respondents answered initial demographic and opinion questions then were randomly assigned to one of four treatments, which were newspaper articles that we composed about layoffs in an automotive plant.[35] We used an article that we created in order to maximize the realness of the treatment while holding 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. The risks of this deception were minimal, since all versions of the article contained content similar that found in real articles. It would not have been possible to find 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 increase the external validity of the experiment.

Each respondent read the same first page of the article, shown in Figure 2. It laid out the situation, displayed a picture of an auto worker, and included a quote attributed to the CEO. 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

[34]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. Nevertheless, we also replicated these results again in a separate experiment, desribed shortly.

[35]We used a blue-collar industry for the vignettes because the majority of elite discourse about trade and automation focuses on these industries. Randomization reduces concerns about confounding. For example, respondents who are skeptical of the feasibility of one policy tool or the other would be similarly skeptical across treatment conditions.

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. Since the pictures themselves are also part of the treatment, we chose them very carefully to make sure that they conveyed the content as intended.[36]



General Motors closing plant, laying off 1,500 Michigan workers

By Staff - 12/20/19 03:04 PM EST

General Motors (GM) announced this week that it will close a plant in Michigan, laying off more than 1,500 workers as it tries to address financial losses.

The news comes just months after GM announced it would be laying off 200 workers at a plant in neighboring Ohio.

GM said they expect to end the plant's light truck manufacturing operations by September 1, 2020, with another part of the plant closing by the end of 2020. The estimated job loss is 1,545 workers.

A worker at a US auto plant. CHARLIE RIEDEL / AP

"We are conscious of the impact this decision will have on our employees, their families, and the local community, and we are announcing it now to provide them with as much time as possible to prepare for this transition," the CEO said in a press release. "These decisions are never easy, nor are they taken lightly."

Figure 2: Content of first page of news article, read by all respondents

The foreign labor shock, left pane of Figure 3, 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 US production facilities.

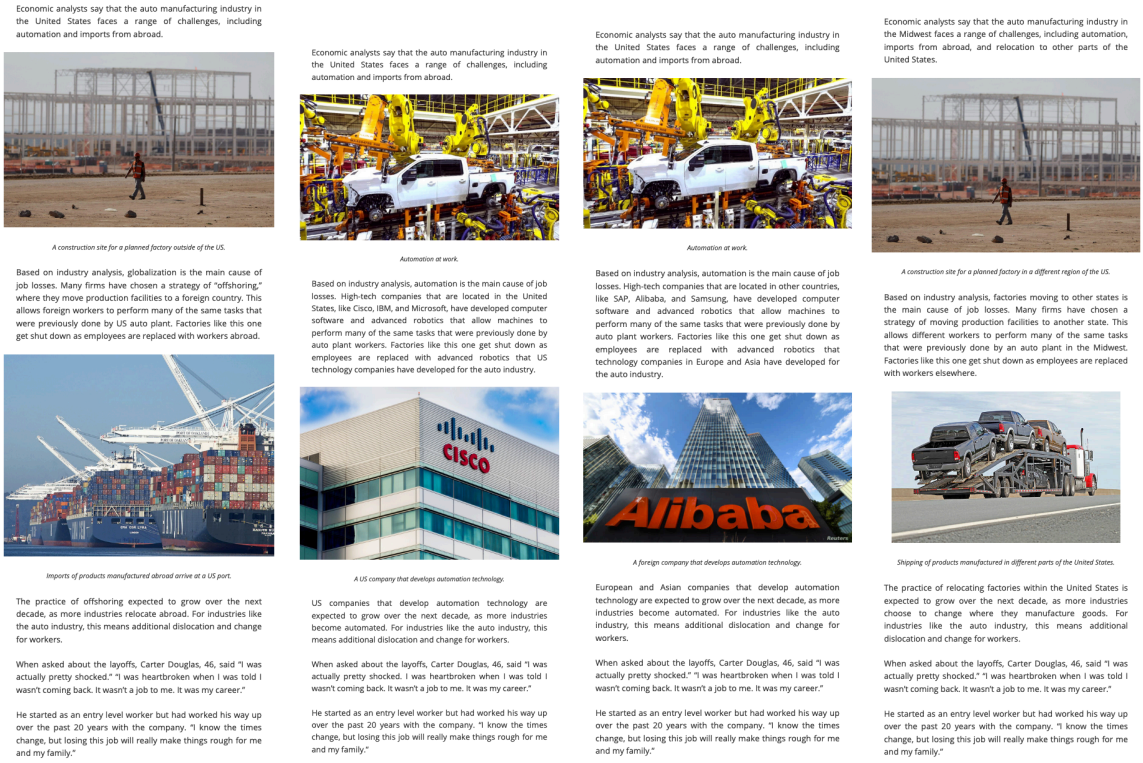
The domestic automation shock, second pane, was described as originating from firms developing software and advanced robotics that replaced workers and shut down US production facilities. Respondents saw a captioned picture of automation at an auto plant. We emphasized that US firms were the source of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

For the foreign automation treatment (third pane), we again matched the domestic automation treatment. Except, we emphasized how foreign firms in Europe and Asia (SAP, Alibaba, and Samsung) had developed the technology that replaced workers, and we included a picture of Alibaba headquarters. We mentioned multiple countries and firms so that respondents weren't solely think-

[36] We intentionally left the gender and race of the worker obscured.

ing about high profile examples, like Huawei. For most respondents, Alibaba is a vaguely foreign company, but doesn't immediately make them think of China. The domestic labor shock condition kept everything the same as in the foreign labor treatment, except that job relocation was to other states within the US. It shows over-ground shipping instead of a container ship (fourth pane).

Note that the treatments themselves are relatively small changes in a detail-rich article. This tends to bias against finding larger treatment effects, making our approach more conservative.



(a) Foreign/Labor (b) Dom./Automation (c) For./Automation (d) Domestic/Labor

Figure 3: Treatment Articles

4.2 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 article they had just read.

Respondents were then asked how much they agreed or disagreed with the following set of statements, presented in random order. They answered with a slider that ranged from 0 (strongly

disagree) to 100 (strongly agree). *The Federal government should…*

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

The first outcome measure describes support for one of the most prominent transfers - unemployment benefits. For the foreign labor treatment, restricting imports via tariffs is the natural backpedaling policy. For automation, regulations making it harder for firms to replace workers with automation is a policy to blunt automation shocks. We constructed a measure of the difference between support for the relevant backpedaling policy versus transfers. As the theoretical model shows, the relative level of support for possible responses is important, not just the nominal level of support. Features of a particular experimental design — intentional or not — can influence nominal levels of support. Using differences in support for possible responses helps alleviate this concern.

For the labor treatments, the difference measure equals the respondent's support for tariffs minus support for transfers. For the automation treatments, the difference measure equals support for automation regulations minus support for transfers. Note too that we focus on restrictions on US firms' ability to replace workers with automation for both the foreign and domestic automation treatments. The policy response – regulate automation – is *not* about tariffs on robot imports.

We sorted respondents into groups based on pre-treatment measures of party identification and answers to three questions about national chauvanism. Within each block/group, we randomly assigned treatment. There were only minor imbalances across treatment groups. We told respondents that we would ask them about the content of the article at the end of the survey. Respondents generally answered these questions accurately. We also timed how long respondents spent on each page of the article. Time spent reading the article was speedy, but not unexpectedly so for an online survey like this one.[37]

[37] See appendix.

4.3 Results: Relative Weights on Transfers vs. Policy

Table 1 summarizes the differences between the support for backpedaling versus transfers.[38]. The means of the differences are all negative, because respondents generally supported transfers more than backpedaling. As predicted, foreign shocks caused respondents to place greater relative weight on backpedaling, substituting away from transfers. As an initial look at the first prediction – that going from foreign labor to domestic automation shocks increases the weight on transfers – we see that this is indeed the case. Respondents reading the foreign labor treatment had nearly equal support for tariffs versus transfers, slightly preferring transfers. Respondents reading the domestic automation treatment placed a much higher weight on transfers, compared to restricting automation. Support for transfers was over 10 points higher in the domestic automation treatment condition.

	Labor (Imported)	**Automation** (Exported)
Foreign	Backpedaling Policy: 63.6 Transfers: 66.9 **Difference:** -3.2 95% Conf. Int. $[-5.8, -0.6]$	Backpedaling Policy: 56.7 Transfers: 64.7 **Difference:** -7.9 95% Conf. Int. $[-10.1, -5.7]$
Domestic	Backpedaling Policy: 58.3 Transfers: 65.4 **Difference:** -7.2 95% Conf. Int. $[-9.7, -4.6]$	Backpedaling Policy: 54.4 Transfers: 66 **Difference:** -11.6 95% Conf. Int. $[-13.8, -9.4]$

Table 1: Mean differences in preferred policy response by treatment condition. All entries are means of support for the relevant policy, transfers, or their difference as appropriate. Reported differences may not agree with reported levels due to rounding.

Table 1 also shows support for our second prediction. Moving from domestic to foreign automation raises support for regulating automation *and* lowers support for transfers. Reading about foreign automation shifted respondents' preferences more towards automation restrictions. In the

[38]The appendix shows the levels of support for each outcome question, by treatment condition. Confidence intervals calculated using the means and variance for each cell and z score standardization.

domestic automation condition, respondents supported transfers over automation restrictions by an average of 11.61 points. For foreign automation, this difference shrinks to 7.85 points.

To analyze these differences statistically, we first compare across respondents assigned to the Foreign Labor and Domestic Automation treatments. The dependent variable again uses the relevant policy in each case, i.e. tariffs minus transfers for labor and automation restrictions minus transfers for automation. Table 2 shows the results from regressing this difference on an indicator for the Foreign Labor treatment, with and without a wide array of controls.

The positive coefficients show how the differences in support for the policy versus transfers increases with the Foreign Labor, compared to the Domestic Automation treatment. Moving to Foreign Labor causes the increase in support for import restrictions to outweigh any corresponding increase in support for transfers. This makes the difference in support for the two responses bigger.

The second two columns of Table 2 show the same analysis for the second prediction, comparing the Domestic and Foreign Automation treatments. The sample is restricted to those receiving an automation treatment, and the main independent variable is an indicator for Foreign Automation. Going from domestic to foreign automation has a similar effect as going from domestic automation to foreign labor. It again increases the difference between support for backpedaling via automation restrictions and transfers. The magnitudes for this effect are slightly smaller than that of the Foreign Labor treatment, but the similarities in effects are striking. When told that automation is foreign, respondents adjust their preferred policy bundle in similar ways to when we emphasized a Foreign Labor shock.

We do not find evidence that making automation foreign increased support for tariffs. This is reassuring that respondents did not misinterpret the articles' treatments or misattribute blame in the experiment. In both the foreign and domestic automation treatments, most respondents preferred regulating automation to tariffs, as well. We are only aware of one survey comparing reactions to within-country firm relocations with those moved abroad. Rickard (2022) finds that the latter trigger stronger anti-incumbent reactions. Here, we find that support for tariffs and transfers increase for foreign versus domestic labor shocks, which would be consistent with an anti-incumbent reaction if

Table 2: Effect of Shock Type on Preferred Response (policy minus transfers)

	Dependent variable:			
	relevant policy difference		restrict automation difference	
	(1)	(2)	(3)	(4)
Foreign Labor	8.436***	9.391***		
	(1.753)	(1.697)		
Foreign Automation			3.749**	3.812**
			(1.608)	(1.568)
Sept Sample	−0.059	0.315	1.898	1.582
	(1.799)	(1.749)	(1.663)	(1.626)
Controls	No	Yes	No	Yes
Subsample	DA + FL	DA + FL	DA + FA	DA + FA
Observations	1,565	1,490	1,566	1,494
Note:				*p<0.1; **p<0.05; ***p<0.01

citizens perceived current remedies to be insufficient.

5 Second Survey Experiment

We conducted a large ($N = 2,182$), pre-registered follow-up experiment in May 2022 with two goals. First, we wanted to replicate the main finding which helps make sure that results are not driven by the original experiment's timing or specific experimental design choices. The initial experiment was fielded when unemployment concerns from COVID rose rapidly, potentially making respondents more sensitive to threats to employment. In May 2022, unemployment concerns had lessened. Our initial experiment also used a news story about the auto sector. Details or unintended content could influence results. The follow-up used an abstract, informational treatment about general job losses from automation. This helps ensure that results aren't driven by idiosyncratic features of our initial experiment.[39]

[39] Brutger et al. (2022).

Second, we wanted to pinpoint what aspects of foreignness triggered the responses predicted by our theory. The follow-up explores which aspects of economic nationalism push respondents the most to support regulations over transfers for foreign shocks. Respondents first read a brief paragraph about the changing nature of work due to automation. We then randomly assigned respondents to information about whether automation was foreign- or domestically-sourced.[40] Then, for respondents who were told that a significant proportion of automation technology is foreign, we randomly assigned them to one of three arguments about the potential downsides of foreign technology.

Each argument emphasized one of the aspects of economic nationalism described in the theory. The *foreign reliance* treatment emphasized the worry that foreign technology makes the US dependent on other countries. The *relative gains* treatment emphasized that the US gained less than the foreign country. The *within-country* redistribution treatment emphasized how imported technology harmed "blue-collar" workers in the "heart" of America - words used to evoke specific images of who loses from imported automation. We again matched the wordings based on length, tone, and structure. The outcome measures asked respondents to choose the degree to which they agreed with regulating automation and increasing unemployment benefits. We randomized the order of the two items.

- Foreign Reliance: *Analysts worry that relying on imported technology makes the United States too reliant on foreign technology from foreign countries. The United States would be vulnerable to foreign influence if other countries threatened to stop exporting their technology.*
- Relative Gains: *Analysts worry that importing technology helps foreign firms more than it helps US firms. US firms will be able to sell products at a lower cost, but most of the profits would go to foreign firms that make the machines.*
- Within-Country: *Analysts worry that imported technology hurts some Americans more than others. Automation is especially harmful to hard-working, blue collar Americans working in the "heart" of the country, even if automation helps the US economy overall.*

[40] We sorted respondents into groups based on a pre-treatmet question about whether imports were good or bad, then randomly assigned treatments within each block.

	Automation
Domestic	Policy: 53 Transfers: 50.3 **Difference:** 2.8 95% Conf. Int. $[-0.1, 5.7]$
Foreign	Policy: 58.9 Transfers: 52.4 **Difference:** 6.6 95% Conf. Int. $[5.1, 8.2]$

Table 3: Mean differences in policy response minus transfers, by treatment condition.

Table 3 shows that emphasizing the foreignness of automation and giving arguments about the potential downsides increases the weight that respondents place on regulations relative to transfers. Here, respondents more strongly preferred regulations over transfers, so the outcome measure — regulations minus transfers — is positive.[41] This difference increased sharply when the technology's foreign origins were emphasized.

Table 4 shows that the effect of foreign automation is statistically significant. The first two columns regress the difference outcome on an indicator for whether a respondent received one of the foreign automation treatments, with and without a set of controls. Columns 3 and 4 show the effect of each type of foreign treatment individually. The foreign reliance and relative gains treatments have the strongest effects on increasing the difference in support for transfers versus automation restrictions. The within-country treatment also increases the weight respondents place on regulation, but we cannot reject the null of no effect for that particular treatment in some statistical specifications. This suggests that foreignness as an explanation for support for various government responses is driven more by concerns about reliance and relative gains, compared to concerns about which co-nationals are harmed.

[41] In the first experiment, respondents preferred transfers more. This could be because the other experiment focused on tangible, personalized job losses or because of the specific circumstances of that time period. This is further evidence that comparing *relative* support for government responses is valuable.

Table 4: Effect of Treatments on Difference (Regul. - Transfers), Between-respondent estimates

	(1)	(2)	(3)	(4)	(5)	(6)
Foreign	3.879**	3.411**			8.038***	7.479***
	(1.689)	(1.656)			(2.474)	(2.448)
For. - Reliance			4.629**	3.731*		
			(2.056)	(2.014)		
For. - Rel. Gains			4.515**	4.532**		
			(1.996)	(1.963)		
For. - Within			2.495	1.984		
			(2.031)	(1.982)		
Imports Good > 60					−1.234	1.428
					(2.972)	(2.978)
Foreign*Imp. Good > 60					−7.696**	−7.368**
					(3.369)	(3.338)
Constant	2.763*	−3.350	2.763*	−3.398	3.487	−4.382
	(1.490)	(3.553)	(1.490)	(3.561)	(2.168)	(3.764)
Controls?	N	Y	N	Y	N	Y
Observations	2,133	2,078	2,133	2,078	2,132	2,077

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

We also assessed whether the dimension of nationalism that we emphasize – a dislike of imports – moderated treatment effects. Pre-treatment, we asked respondents: "Imports are goods made in other countries that are purchased by firms and consumers in the United States. On a scale of 1 to 100, how bad or good are imports for the United States?" The median response was 60, so we constructed a binary indicator for respondents whose answer was above 60. In columns 5 and 6 of Table 4, we interacted this with the foreign treatment indicator. As expected, the negative coefficients on the interaction term show that the foreignness treatment is much weaker among those who think imports are good.

5.1 Racial Breakdowns and Robustness Checks

We also broke down of results by respondent race. Consistent with existing work, moving from Domestic Automation to Foreign Labor most strongly increases support for backpedaling among whites. However, moving from Domestic Automation to Foreign Automation did not have significantly stronger effects among whites. In our second experiment, the effect of the Foreign Au-

tomation treatment, compared to the Domestic Automation treatment, does tend to be stronger for whites, but only weakly so. We cannot reject the null hypothesis of equivalent effects. Interestingly, the Within-Country treatment, which is most closely tied to racial concerns about who wins and loses in America is consistently the weakest treatment. And in some specifications, it *decreased* support for automation regulations among whites.

The racial breakdowns are interesting because they suggest that the effect of foreignness for whites is much stronger in the case of foreign labor, compared to foreign automation. On the one hand, this suggests that politicians would have a harder time stoking intense dislike of foreign automation in a way that was concentrated among whites. There may be something specific to foreign labor that evokes stronger reactions among whites that is not present when thinking about foreign-origin technology. On the other hand, this also suggests that there may be broader appeal for politicians wanting to cast automation as foreign, in a way that wouldn't be limited to just whites. The catalyzing effect of making automation foreign was not localized to only one racial group.

In both experiments, we presented results using a differences outcome measure, support for policy remedies minus support for transfers. There are two alternate approaches using *shares* instead of differences: (1) $\frac{\text{relevant policy}}{\text{relevant policy+transfers}}$ and (2) $\frac{\text{relevant policy}}{\text{tariffs+regulate automation+transfers}}$. The two measures differ in how they treat the policy remedy for the *other* shock, i.e. how they treat tariffs for respondents receiving the automation treatment or automation regulations for someone receiving the foreign labor treatment. The first measure excludes the less relevant policy from the denominator. The second measure includes it. Results are similar to results using both shares measures.

We also replicated results using a longer set of control variables, without binning categorical variables. Results are similar to those presented above. We also structured the second experiment to allow within- and across-respondent comparisons. The above results are from across-respondent comparisons. Results are similar using within-respondent analyses.[42]

[42]See appendix for robustness checks and additional details on racial breakdowns.

6 Discussion and Conclusion

Our paper sheds light on why globalization, instead of automation, triggered political reactions, and why that reaction de-emphasized redistribution. Economic nationalism, which values exports over imports, makes citizens prefer tariffs for globalization and redistribution for automation. Facing a globalization shock, tariffs remedy part of the problem and also act as a substitute for transfers. Facing automation, regulations weaken domestic firms, so citizens more heavily favor transfers.

Our answer complements existing arguments that automation is simply less salient than trade. It was not long ago that academics assumed that trade was an exceptionally low salience issue among foreign policy issues, which were themselves relatively low salience.[43] Our argument helps understand why trade rose to the forefront of political consciousness, as opposed to automation.

Our research further helps explain disillusionment with "embedded liberalism," which many citizens perceive as weak and unconvincing[44], as a consequence of a self-perpetuating cycle. Embedded liberalism depends on a safety net which can protect anyone harmed by the distributional consequences of globalization. Strong economic nationalists may turn away from embedded liberalism altogether as their preference for backpedaling policy displaces demand for redistribution. Politicians having a reputation for pandering to economic nationalism – emphasizing tariffs over transfers – undermine the credibility of any future promises to deepen redistribution. As globalization deepens, even weak economic nationalists may become less inclined to reach for transfers as a remedy because they know politicians would sooner turn to tariffs as a policy instrument. Taken together, the unwillingness of politicians to support the social safety net and the declining demand for its expansion are self-reinforcing. These two effects could gradually erode the case for liberalism.

A natural extension of this research would examine attitudes in countries with different factor endowments. For a country that imports automation technology, an automation shock might engender stronger demand for a direct, regulatory remedy. Those citizens might not fear losing competitiveness in a high-tech industry that they do not lead. Regulations wouldn't hurt their na-

[43] Guisinger (2009), See also "What do Americans think about free trade? Not much." Egan, Patrick. The Washington Post. May 11, 2015.

[44] Colantone and Stanig (2018)

tional standing so they are freer to use regulation as the remedy. This helps explain why many EU members have been at the forefront of automation regulations.[45] The proposed regulations, along with other major initiatives like the General Data Protection Regulation (GDPR), are more politically popular, because they largely target foreign technology giants.

Separate from globalization, our research makes a direct contribution to the politics of automation and how citizens respond to automation shocks. Our research suggests opportunistic politicians might find greater support for regulating automation, by emphasizing the foreignness of macroeconomic forces. Our arguments go beyond "old-school" manufacturing. Trends towards white-collar automation are, by now, well documented. A politician courting pharmacists displaced by automation, for example, could emphasize the foreignness of imported machinery from German robotics giant, DENSO.[46] The next frontier of automation also extends far beyond physical machines to include digitization, ICT, and artificial intelligence. Here, too, some data suggest an opening window of opportunity for politicians to cast 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 (e.g. CEO, CFO, COO) for their firms. This number *down* from 58% in 2019.[47]

Recent high profile events, like bipartisan 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.

[45] "Proposed "European AI Act" and "Machinery Product Regulation" Will Hamper Innovation, Stifle Small Businesses and Disrupt Manufacturing, Global Robotics Leaders Warn." Business Wire. 08 December 2021.

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

[47] KPMG Technology Industry Surveys 2019-2021.

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Robots, Foreigners, and Foreign Robots

ONLINE APPENDIX

April 2024

Appendix Table of Contents

A THEORY APPENDIX ITEMS

This section of the appendix shows the steps to generate Figure 1 – showing the preferred compositions of policy responses to different types of shocks. We show how to arrive at this prediction in three steps: (1) finding the set of income allocations that are feasible and the policy bundle used to achieve them (p for backpedaling policies and t for transfers) (2) how these decisions change for nationalists, for different kinds of shocks and (3) how to decompose the total response into the weight placed on p and t.

A.1 Locating the Frontier of the Feasible Set

We first construct the frontier of the feasible set of income allocations. We can define this by finding the highest income H_W for each possible H_L using the policy tools (p and t). The frontier is characterized by solving the following maximization:

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

for some fixed K. Forming the Lagrangean, taking the first order conditions, setting equal to zero and simplifying 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 rest of the feasible set as a function of p using the constraints $H_L = K$ and $A(p) = (-K + I + \ell(t^*))/(\alpha - 1)$. An example of the feasible set is shown in Figure 4. 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. Thus, because $A(p)$ must decrease as a function of α, we have concluded that p must increase as a function of α. 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.

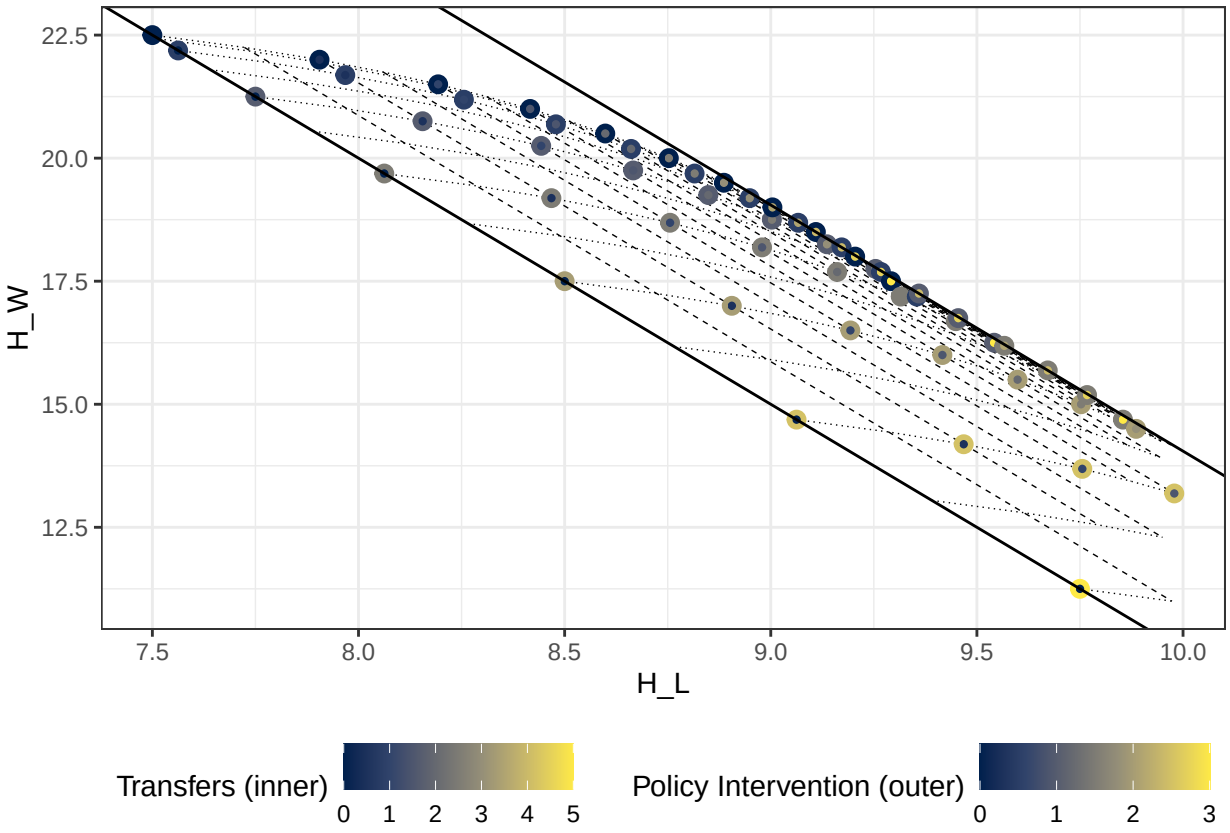

Figure 4: Example feasible set with the frontier highlighted and a sample of allocations plotted. Each dot shows a potential reallocation of income between the winners and losers. The diameter of the outer dot shows the magnitude of the policy change needed to achieve that allocation. The inner dot shows 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 $\alpha/(1-\alpha) = -5$. 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.

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:

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

Recall when taking the derivative that we have already shown t^* does not depend on H_L since it depends only on α.

A.2 The Behavior of Nationalists

How does adding nationalism to preferences affect a voter's preferred location within the feasible set (and the policy bundle used to achieve it)? We start by expressing nationalist preferences as an additively separable component to a "regular" cosmopolitan voter's preferences: $U_N(H_W, H_L) = U_C(H_W, H_L) + u(p)$ where N and C stand for nationalist and cosmopolitan, respectively, and $u(p)$ is the nationalist's direct utility from the protection level p. Consider the maximization problem

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

Taking the first order conditions, setting them equal to zero, and simplifying we obtain:

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

The above expression makes it clear that the cosmopolitan (a voter for whom $\partial u / \partial p = 0$) will make different choices than a nationalist. Calculating the first order condition with respect to transfers t

$$\begin{aligned} \frac{\partial U_C}{\partial H_W} \frac{\partial H_W}{\partial t} + \frac{\partial U_C}{\partial H_L} \frac{\partial H_L}{\partial t} &= 0 \\ \ell'(t) &= \frac{\frac{\partial U_C}{\partial H_W}}{\frac{\partial U_C}{\partial H_L}} \end{aligned} \tag{2}$$

First, consider Equation (1). When a nationalist is confronted with a shock of foreign origin

their utility for policy is positive, so $\partial u/\partial p > 0$. Thus, the term $-\frac{\partial u}{\partial p}/(\alpha A'(p)\frac{\partial U_C}{\partial H_L})$ is positive (recall $A'(p) < 0$ by assumption). Therefore, the right hand side is larger for a nationalist facing an import shock than it is for a cosmopolitan for whom $\partial u/\partial p = 0$. The nationalist's choice of p thus needs to either lower $\partial U/\partial H_L$, raise $\partial U/\partial H_W$, or both, relative to the choice of the cosmopolitan. Choosing a higher value of p decreases H_W and raises H_L: thus, it also raises $\partial U/\partial H_W$ and lowers $\partial U/\partial H_L$. Following the logic, a nationalist must choose a higher level of policy p than a cosmopolitan. The nationalist is reacting to their intrinsic incentive to stop the flow of imports, and they are accepting more redistribution as a consequence.

Now consider the incentives described by Equation (2). The nationalist's higher choice of p leads to more redistribution raising $(\partial U/\partial H_W)/(\partial U/\partial H_L)$. Because the marginal rate of substitution between incomes H_W and H_L is higher, the nationalist's optimal transfer must change. By assumption, $\ell''(t) < 0$, meaning that decreasing t will increase $\ell'(t)$. The nationalist therefore prefers fewer transfers. This choice is a byproduct of the effect of nationalism on demand for policy. The nationalist's higher demand for policy means that they are accepting more redistribution. Thus, they need fewer transfers to achieve their preferred level of redistribution. The demand for policy that stops imports has crowded out their demand for transfers.

A.3 Policy Composition of Preferred Allocation

How much of their total redistribution does the voter implement with each policy instrument? Consider the following vector decomposition of the preferred income allocation:

$$v_t = (H_L(0,t^*) - H_L(0,0), H_W(0,t^*) - H_W(0,0))$$
$$||v_t|| = \sqrt{(-t^*)^2 + \ell(t^*)^2}$$

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

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

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

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

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

$$\frac{proj_{v_t+v_p}(v_t)}{proj_{v_t+v_p}(v_t)+proj_{v_t+v_p}(v_p)} = \frac{\ell(t^*)^2+(t^*)^2+(1-\alpha)(A(p^*)-A(0))\ell(t^*)-\alpha(A(p^*)-A(0))t^*}{((1-\alpha)(A(p^*)-A(0))+\ell(t^*))^2+(\alpha(A(p^*)-A(0))-t^*)^2}$$

B EXPERIMENT ONE APPENDIX ITEMS

B.1 Ethics, Deception Description and Justification

Lucid recruits and compensates respondents in different ways. They can be recruited from panels or online ads. Depending on how they were recruited, some respondents are compensated with rewards points for various online retailers.

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 our use of deception entails minimal harm, if any, because our articles contain information commonly found in mainstream news outlets. A regular media consumer likely reads articles about globalization, offshoring, automation, and job losses. We also made respondents 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 then clearly described the deception used. It also provided links and information to published mainstream articles about the topics covered in our survey. (We omit the full debrief here for length, but it is available on request.)

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, tone, or magnitude of 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.

B.2 Balance Testing

The respondents were balanced across treatment conditions along a larger set of respondent characteristics. We used the procedure described in Hansen and Bowers (2008) to assess balance in respondent characteristics across treatment groups.[1] We fail to reject the null of no significant differences between respondents in the domestic versus foreign automation treatments ($p = 0.74$). There is some imbalance when comparing the foreign labor and domestic automation conditions. Males were overrepresented in the foreign labor condition. This is very unlikely to influence our inferences. All of the results below are robust to including controls for these observables.

Figure 5 shows the standardized differences in 12 respondent characteristics, across the foreign/domestic and automation/labor treatments. As mentioned in the main manuscript, we can generally reject the null hypothesis of imbalance and there are only isolated dimensions of imbalance.

B.3 Sensitivity Testing for Imbalanced Covariates

As shown in the main manuscript, imbalances in these observables do not confound the main estimates since we can include these variables as controls. However, the imbalance raises the possibility that - if there is imbalance in an observable we know about, then there could also be imbalance in an unobservable that isn't measured. Sensitivity testing is designed to assess the potential severity of this problem. For an application focusing on international politics, see Chaudoin et al (2018).[2] Here, we use the benchmarking approach developed in Cinelli and Hazlett (2020).[3] Unobserved confounding would have to involve a much, much stronger degree of imbalance than we observed in our sample - much worse than our observed imbalance - and this imbalance would have to pertain

[1] Hansen, Ben B., and Jake Bowers. "Covariate balance in simple, stratified and clustered comparative studies." *Statistical Science* (2008): 219-236.

[2] Chaudoin, Stephen, Jude Hays, and Raymond Hicks. "Do we really know the WTO cures cancer?." *British Journal of Political Science* 48.4 (2018): 903-928.

[3] Cinelli, Carlos, and Chad Hazlett. "Making sense of sensitivity: Extending omitted variable bias." *Journal of the Royal Statistical Society: Series B* (Statistical Methodology) 82.1 (2020): 39-67.

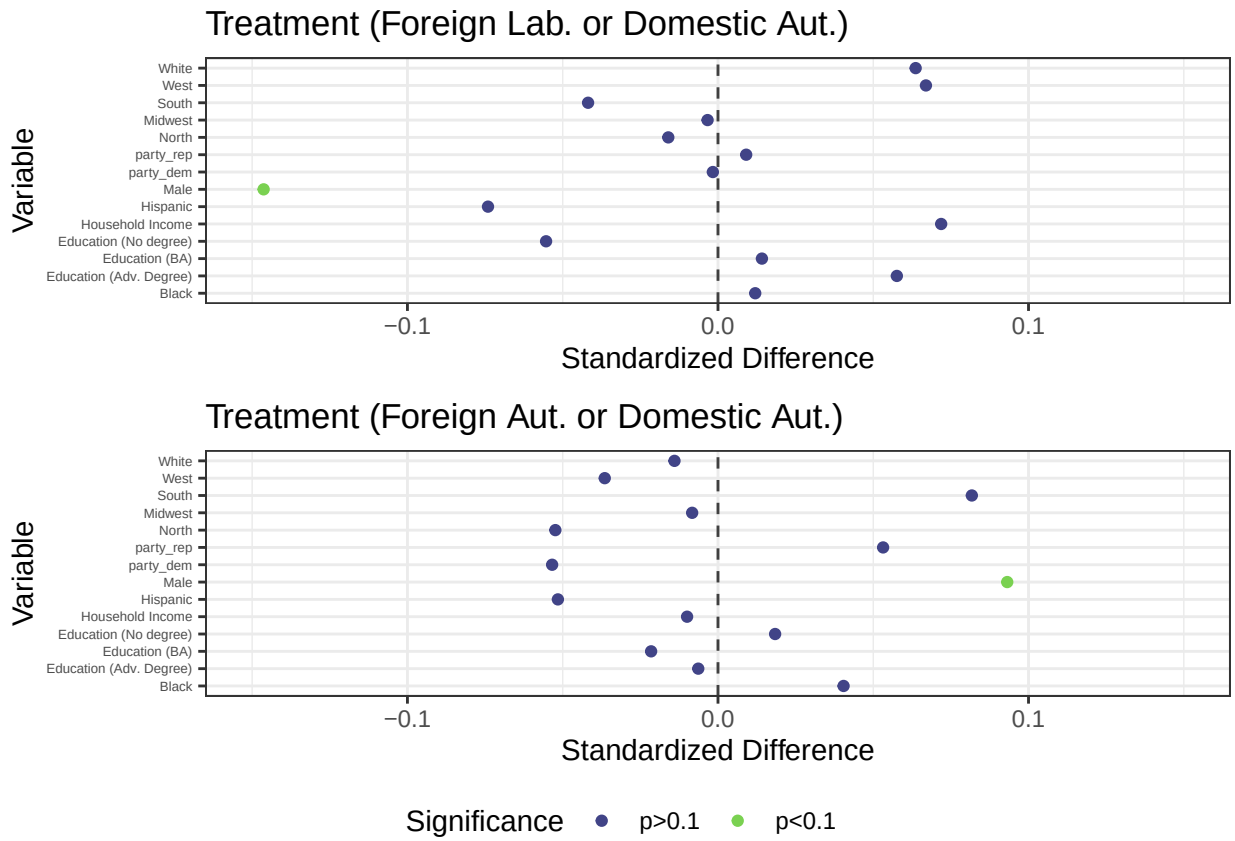

Figure 5: The Bowers and Hansen (2008) omnibus test p values are 0.13 for the Foreign Labor / Domestic Automation treatment and 0.78 for the Foreign/Domestic Automation treatment.

to an unobservable that was much more strongly correlated with outcomes than our observables. We therefore conclude that unobservables are unlikely to have strongly influenced our conclusions.

Figure 6 shows a graphical representation of the thought exercise. The bottom left corner shows our original estimate (for the effect of foreign labor treatment on the dependent variable, as in Table 2). Each contour shows how that estimate would change in the presence of an unobservable with a particular strength of correlation with treatment and the outcome measure. The dashed line shows the contour for unobservables whose strength of correlation with treatment/outcome is sufficient to drive our estimate to zero. The red diamond shows the observed relationship between the male variable and treatment/outcome. The diamond is very close to the bottom left and far from the dashed contour lines. In other words, unobserved confounding would have to involve a much, much stronger degree of imbalance than we observed in our sample - much worse than our observed

imbalance - and this imbalance would have to pertain to an unobservable that was much more strongly correlated with outcomes than our observables. We therefore conclude that unobservables are unlikely to have strongly influenced our conclusions.

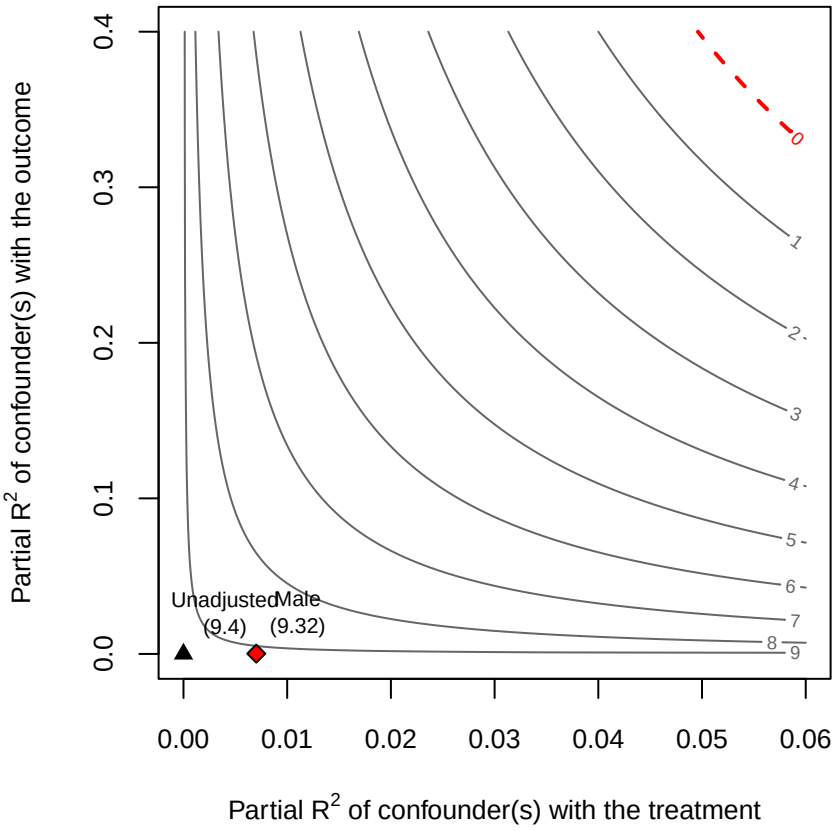

Figure 6: Sensitivity analysis, benchmarking with imbalanced observable (Male)

B.4 Sample Comparison to National Demographics

Table 5 compares demographic characteristics from our sample with those found in the 2020 Census Bureau American Community Survey. Our sample matched theirs fairly closely. The largest difference is that Black and Hispanic respondents are underrepresented in our sample.

B.5 Levels of support for different responses

Table 1 in the main manuscript showed how different types of shocks affected the relative weight placed on particular responses. Figure 7 shows the distribution of responses by treatment condition - foreign versus domestic - for each of the different policy responses. This lets us show the main

Group	Sample Percentage	ACS Percentage
Female	54.76%	51.30%
20 to 34 years of age	20.70%	27.51%
35 to 54 years of age	36.81%	33.88%
55 to 64 years of age	17.69%	17.21%
65 years of age and over	22.19%	21.40%
Hispanic	9.42%	18.20%
White	76.54%	75.10%
Black	9.61%	14.20%

Table 5: Sample Comparison with American Communities Survey (5 year sample from 2020)

results in a slightly different way. Looking at the top left pane, moving from domestic to foreign labor treatments increases support for tariffs, and moves that support to a higher level than domestic automation (top right pane). Looking at the top and bottom right panes, making automation foreign increases support for restricting automation and decreases support for benefits, widening the difference between those two support levels and increasing the weight places on automation restrictions.

B.6 Main Estimates: Restricting sample based on speed

In the main manuscript, we excluded respondents who took less than 30 seconds to complete the survey. We can make those restrictions more strict and show how results are similar. We reproduced the estimates from Table 2 in the main manuscript, with the additional exclusion of all respondents whose time to completion was only in the first quartile (330 seconds). Results are slightly stronger for the first prediction, comparing foreign labor and domestic automation. Results are slightly weaker for the second prediction, comparing foreign and domestic automation. In all cases, signs are the same and each achieves conventional levels of statistical significance. (Table omitted for appendix length.)

B.7 Effect of Treatment on Shares

We prefer using differences as the outcome measure in the main analysis instead of shares for two reasons. First, based on simulations we conducted, using differences greatly weakens statistical power in the face of even small amounts of measurement error. This can lead to Type 2 errors, where we fail to reject a null hypothesis that should have been rejected. Second, using shares also

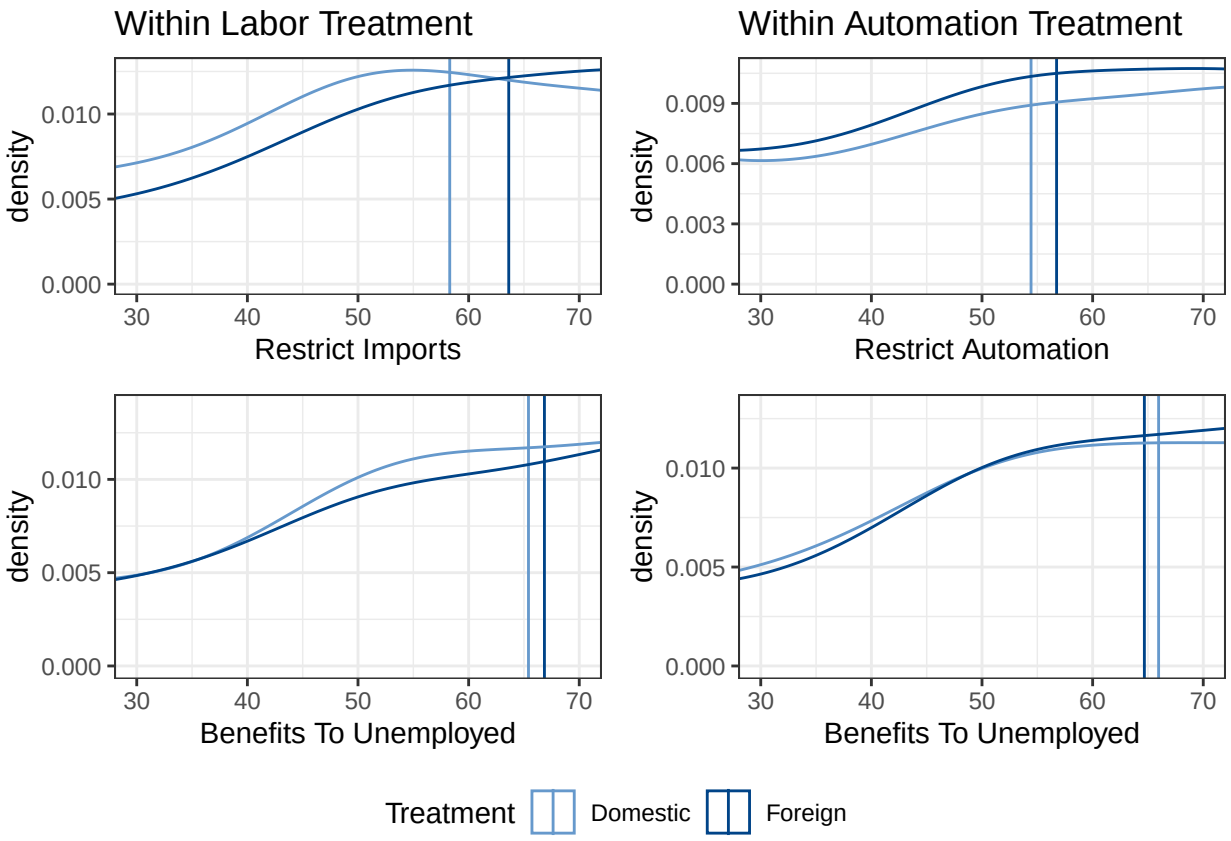

Figure 7: Levels of preferred policy response by treatment condition. Graphs in columns are subsetted to either a Labor shock or an Automation shock treatment. Vertical lines represent the mean response by treatment condition.

risks Type 1 errors, because, if treatment affects the variance of outcome measures, it can create the appearance of treatment effects, even if there are none.[4] There is some evidence that treatment determines the variance of the how much respondents wish to restrict imports. These differences could have a theoretical impact on results where the dependent variable is calculated as a share.

Table 6 reproduces Table 2, only it uses $\frac{\text{relevant policy}}{\text{relevant policy+transfers}}$ as the outcome measure. For Labor shocks, the shares for the relevant policy is defined as $\frac{\text{restrict imports}}{\text{restrict imports+benefits}}$. For Automation shocks, the shares for the relevant policy is defined as $\frac{\text{restrict automation}}{\text{restrict automation+benefits}}$. Results are similar to those in the main text. Results are also similar using $\frac{\text{relevant policy}}{\text{tariffs+regulate automation+transfers}}$ as the outcome measure (table omitted for length).

[4]We thank a reader for pointing this out to us.

Table 6: Effect of Treatment on Policy Shares

	(1)	(2)	(3)	(4)
For. Labor	0.070***	0.073***		
	(0.010)	(0.010)		
For. Auto.			0.036***	0.034***
			(0.010)	(0.009)
Constant	0.422***	0.393***	0.418***	0.404***
	(0.009)	(0.031)	(0.009)	(0.030)
Controls?	N	Y	N	Y
Observations	1,541	1,467	1,530	1,459
Note:			*p<0.1; **p<0.05; ***p<0.01	

B.8 Results with long control list

The regressions in Table 2 used binned versions of some variables instead of categorical variables for all possible responses to all of the control questions. For example, we collapsed some answers to the education question into a smaller number of categories. Here, we replicate the main specifications with the much longer list of controls, in Table 7. The results from Table 2 obtain.

B.9 Results for Mismatched Policies

As described in Section 4.2, the survey experiment asked respondents about their support for three policies regardless of treatment condition: support for regulations, support for tariffs, and support for transfers. Our preferred specification compares support for tariffs or support for new regulations with support for transfers under the assumption that citizens are matching backpedaling policies to shock type. But it is also possible that citizens might respond by preferring an unanticipated variety of backpedaling policy. For example, it is conceivable that respondents might react to foreign automation by demanding tariffs rather than new regulations.

We can check for changes in demand in mismatched policies because all respondents are given the same outcome measures regardless of treatment. Table 8 shows the main specifications without controls alongside analogous models where the dependent variable is switched to the mismatched backpedaling policy. In each case, the dependent variable is represented as a difference between

Table 7: Main results with long control list

	Dependent variable:			
	restrict imports difference		restrict automation difference	
	(1)	(2)	(3)	(4)
Foreign Labor	5.944***	6.698***		
	(1.884)	(1.822)		
Foreign Automation			3.749**	3.535**
			(1.608)	(1.598)
Sept Sample	1.886	3.141*	1.898	1.604
	(1.932)	(1.859)	(1.662)	(1.694)
Controls	No	Yes	No	Yes
Subsample	DA + FL	DA + FL	DA + FA	DA + FA
Observations	1,564	1,450	1,566	1,458
Note:				*p<0.1; **p<0.05; ***p<0.01

support for backpedaling and transfers. The results show that respondents primarily react to shocks using the matched backpedaling policy. However, foreign labor shocks do seem to increase support for restricting automation as well, but to a smaller extent than they increase demand for tariffs. Figure 8 shows the means and distributions (truncated between −25 and 25) of the responses for each backpedaling policy type and subsample.

B.10 Moderation Results: Party ID and education

We thank the reviewers for making good arguments about potential moderation by party and by education level. The Foreign Labor versus Domestic Automation comparison changes the foreign/domestic aspect of the shock, but it also changes the policy remedy from regulations to tariffs. It is possible that an increase in support for tariffs comes not from the foreignness aspect of the treatment, but because of respondents' familiarity with or preference for tariffs. Note that this potentially issue does not apply to comparisions between Foreign Automation and Domestic Automation, since the policy remedy is the same in both (regulations).

We looked at two likely candidates for moderation: party identification and education. If a pen-

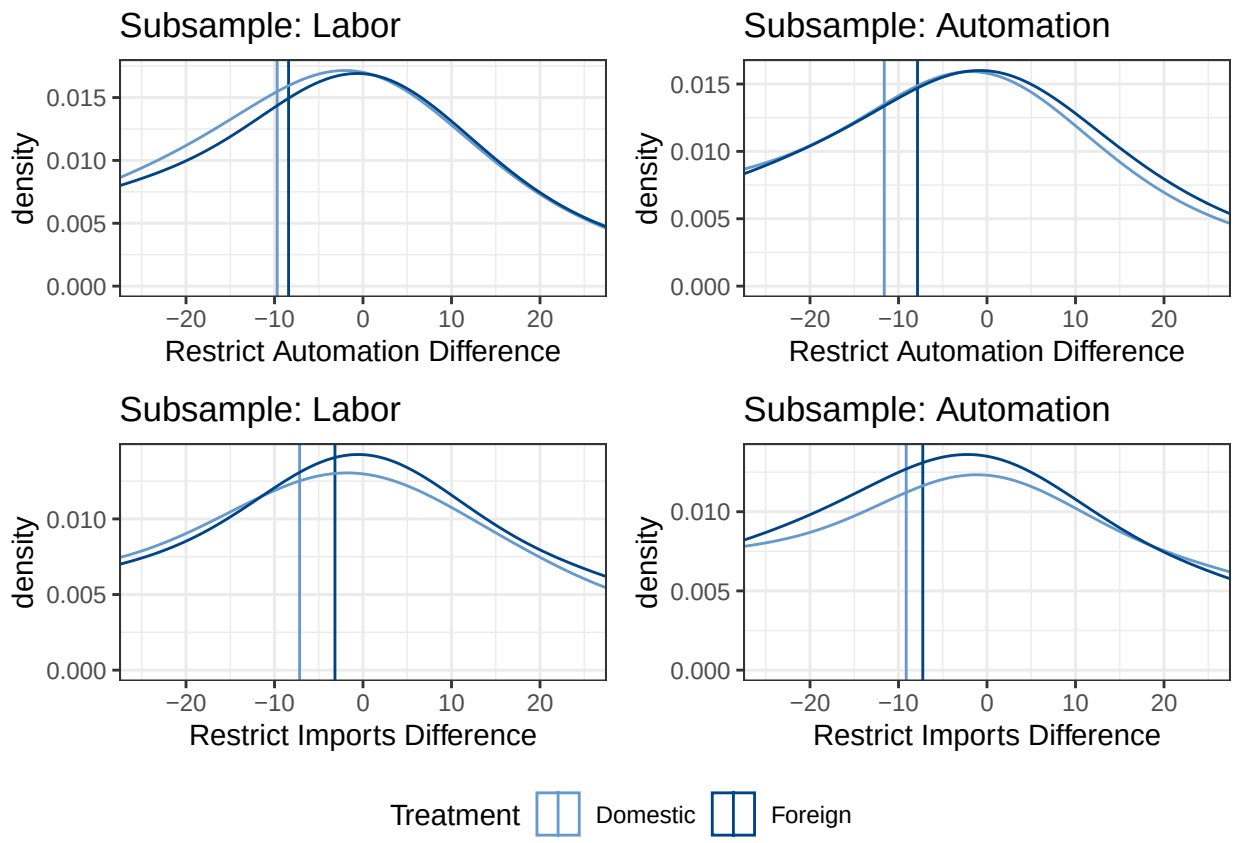

Figure 8: Differences of preferred policy response from transfers by treatment condition. Graphs in columns are subsetted to either a Labor shock or an Automation shock treatment. Vertical lines represent the mean response by treatment condition.

chant for tariffs explained the Foreign Labor treatment's effects, then we would expect Republicans to be most responsive to that treatment. Existing work generally suggests that more educated respondents dislike tariffs, either because of factor-endowments arguments (eg Scheve and Slaughter (2001)) or because of the direct effect of college education on attitudes (eg Hainmueller and Hiscox (2006)). These arguments would lead us to expect that more educated respondents were less responsive to the Foreign Labor treatment. They should be least likely to react with increased support for tariffs.

We replicated the main regression analyses including interaction terms for Republican and Independent respondents (baseline is Democrats). Column 1 does this for the Foreign Labor - Domestic Automation comparison. Column 2 does this for the Foreign Automation - Domestic Automation

Table 8: Main results with mismatched policies

	Dependent variable:			
	restrict imports difference	restrict automation difference	restrict imports difference	restrict automation difference
	(1)	(2)	(3)	(4)
Foreign Labor	5.944***	3.205**		
	(1.884)	(1.632)		
Foreign Automation			1.872	3.749**
			(1.861)	(1.608)
Sept Sample	1.886	−1.462	1.962	1.898
	(1.932)	(1.658)	(1.899)	(1.662)
Controls	No	No	No	No
Subsample	DA + FL	DA + FL	DA + FA	DA + FA
Observations	1,564	1,561	1,565	1,566
Note:				*p<0.1; **p<0.05; ***p<0.01

comparison. Columns 3 and 4 do the same thing, only they use interaction terms for whether the respondent had No Degree or an Advanced Degree (baseline is a BA degree).

Republicans *were* more responsive to the Foreign Labor treatment, though we did not see this same moderation result for the Foreign Automation treatment. The latter is reassuring that foreignness plays a distinct role in the treatment effect. We also did not see strong moderation by education level. If anything, people without a degree were *less* responsive to the Foreign Labor treatment, which is contrary to expectations.

We also did the same moderation analysis with the Experiment 2 data and did not find party or education moderation effects.

C EXPERIMENT TWO APPENDIX ITEMS: ASPECTS OF NATIONALISM

We fielded our follow-up experiment again using Lucid Theorem to recruit respondents in May of 2022. We pre-registered the follow-up (details omitted for anonymity). The sample consisted

of 2182 US respondents, aged 18 or older. Our sampled was similar in respondent characteristics to the main experiment and similarly well-representative of the overall population. (We omit the comparison table for length.)

C.1 Treatments and Outcome Measures

We structured our experiment to allow for between- and across-respondent comparisons. Respondents all read the following brief introduction about automation and its impacts:

Please read the following information carefully. We will then ask you how you think the government should address these challenges.

A major issue these days is how the nature of work is changing. Many manufacturing firms have replaced jobs that were previously done by employees with advanced robots that can perform similar tasks. This can help manufacturing firms, but it also means the number of people working in manufacturing jobs has decreased.

Analysts argue that this type of automation technology can help US firms produce goods more efficiently.

They then all answered the same two questions from the main experiment about how the government should respond (increased benefits to the unemployed, regulations to limit replacement of workers with automation). Respondents indicated their agreement or disagreement using a slider, ranging from 0 (Strongly disagree) to 100 (Strongly agree). The order of the two items was randomized across respondents.

Respondents were then randomly assigned to one of two treatments, describing the source of automation as domestic or foreign. Those assigned to the domestic treatment condition read "Additionally, manufacturing firms purchased many of these advanced robots from American technology companies." Those assigned to the foreign treatment read "U.S. manufacturing firms purchased many of these advanced robots from foreign technology companies located outside the United States, in countries like Germany and China." They then answered the same two outcome measure questions, after the prompt "With this additional information, how do you think the government should respond?"

Finally, the respondents assigned to the foreign treatment then read an additional, randomly assigned treatment emphasizing a particular aspect of foreigness, tied to economic nationalism. The

three treatments - shown below - gave information about reliance on foreign technology, relative gains, and coded information about the impact of foreign automation on different parts of America. We chose the wording of the third treatment to reflect the ways that political rhetoric discusses trade, subtly emphasizing manufacturing workers in the Midwest who are often white.[5] Respondents then answered the same questions about regulations and unemployment benefits as before.

C.2 Randomization, Balance, and Attention

We used the same procedure as the main manuscript to assess balance across treatment groups. The overall χ^2 statistic for imbalance across groups is insignificant ($p = 0.152$). There were some differences in specific observables. Respondents in the foreign treatment had higher household incomes and were less likely to come from the Midwest region. The standardized differences are significant at conventional levels, though the differences are unlikely to affect the results we present here. Below, we control for these observables in our specifications. Additionally, we can use sensitivity testing to show that the imbalance in these observables is not likely to suggest sufficient imbalance in unobservables to threaten our main results. (Results omitted for length.)

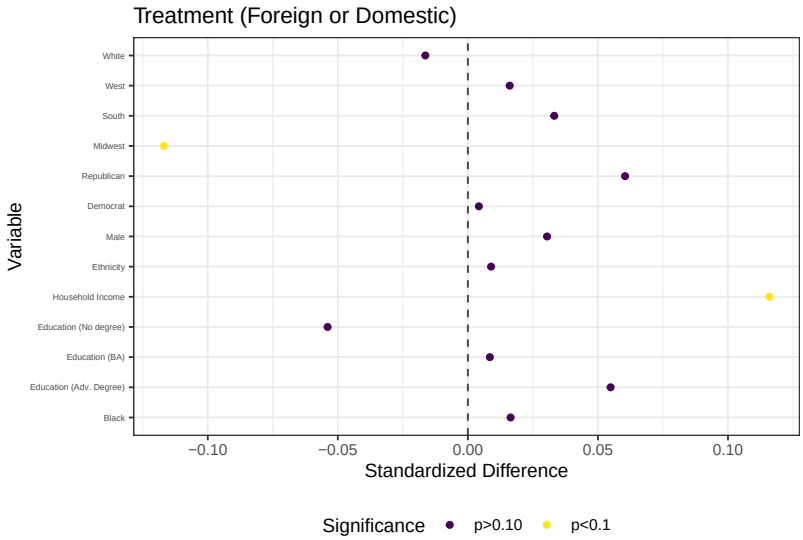

Figure 9: Balance across foreign/domestic. The Bowers and Hansen (2008) omnibus test p values is 0.32.

Our respondents generally did internalize the treatments we gave them. After answering our

[5] Guisinger, Alexandra. 2017. American Opinion on Trade: Preferences Without Politics. Oxford University Press.

outcome measure questions the final time, we asked them "Of the automation technology used in America, what is your best guess at how much comes from foreign firms, as opposed to US firms?" They responded with a slider ranging from 0 (no imports) to 100 (all imported). In general, respondents receiving one of the foreign treatments thought this percentage was between 3.9 and 5.1 percentage points higher.

C.3 Results

For analyzing treatment effects, we use the difference in how much a respondent agreed with the question about increasing regulating and the question about increasing unemployment benefits.[6] Our expectation is that the foreign treatments will increase this difference, showing that the respondents placed a greater weight on regulating automation when told that it was foreign-source, as opposed to domestically sourced.

C.3.1 Between respondent results

For analyzing treatment effects between respondents, we used the differences outcome measure after the domestic treatment for respondents receiving the domestic treatment and after the full foreign treatment – i.e. learning that automation is foreign and receiving an argument about the implications of that – for respondents in one of the foreign treatments. Table 9 shows estimates from regressing (OLS) this difference on an indicator for whether a respondent received one of the foreign treatments, with and without respondent controls, and with and without controlling for their initial support levels for regulations and unemployment benefits. These regressions thus pool all three foreign treatments.

Results are similar across all specifications. Respondents receiving one of the three foreign treatments had a larger difference in their support for regulations versus transfers, and the difference is always positive. In other words, those respondents placed a greater weight on regulations, as opposed to transfers. They generally increased their weight on regulations by 2-4 percentage points, relative to their agreement with a statement about increased transfers. Table 10 then shows the same series of regressions, using indicator variables for each of the three foreign treatments, rather

[6] In our pre-analysis plan, we said that we would analyze *shares*, not differences. For the reasons stated above, in section B.7, we departed from this part of our analysis plan after conducting extensive simulations.

than pooling them together. The base category is thus the domestic automation treatment.

The reliance and relative gains treatments consistently have greater effects than the within-country effects treatment. The reliance and relative gains treatments generally increase the respondent's weights on regulations by 2.6 - 4.6 points, compared to support for benefits. The within-country treatment generally has smaller and always statistically insignificant effects.

Table 9: Effect of Foreign Treatment on Difference (Regul. - Transfers), Between-respondent estimates

	(1)	(2)	(3)	(4)
Foreign	3.879**	3.411**	2.441**	2.183**
	(1.689)	(1.656)	(1.022)	(1.029)
Initial Trans.			−0.795***	−0.767***
			(0.020)	(0.022)
Initial Regs.			0.738***	0.738***
			(0.021)	(0.021)
Controls?	N	Y	N	Y
Observations	2,133	2,078	2,128	2,073
Note:				*p<0.1; **p<0.05; ***p<0.01

C.3.2 Within respondent results

We also find that the Foreign Reliance treatment had the strongest effect on increasing the weight respondents put on regulations, using within-respondent comparisons. For these comparisons, we use the difference outcome measured after the different foreign treatments have been administered and we control for the respondent's level of support for regulations and benefits *after* the initial foreign/domestic treatment has been administered. In other words, these estimates describe how much more weight the respondent places on regulations, even after she has already been told that automation is foreign in origin.

Table 11 shows these estimates with and without other controls. We set the within-country treatment as the base/reference category, since it had the weakest effects in the previous sections. The reliance treatment increases the weight respondents place on regulation, compared to the within-country treatment, by about 2.4 points. The relative gains treatment has a similar effect, though it

Table 10: Effect of Specific Foreign Treatments on Difference (Regul. - Transfers), Between-respondent estimates

	(1)	(2)	(3)	(4)
For. - Reliance	4.629**	3.731*	3.844***	3.402***
	(2.056)	(2.014)	(1.251)	(1.263)
For. - Rel. Gains	4.515**	4.532**	2.632**	2.623**
	(1.996)	(1.963)	(1.253)	(1.260)
For. - Within	2.495	1.984	0.844	0.539
	(2.031)	(1.982)	(1.244)	(1.254)
Initial Trans.			−0.796***	−0.768***
			(0.020)	(0.022)
Initial Regs.			0.738***	0.738***
			(0.021)	(0.021)
Constant	2.763*	−3.398	4.564***	0.570
	(1.490)	(3.561)	(1.237)	(2.340)
Controls?	N	Y	N	Y
Observations	2,133	2,078	2,128	2,073
Note:				*p<0.1; **p<0.05; ***p<0.01

is smaller and we cannot reject the null of no additional effect of this treatment, compared to the Within treatment.

C.3.3 Between-respondent results, excluding speeders

Results in the follow up experiment are generally similar when we exclude respondents who took the survey very quickly. (Results omitted for length.)

D RACE RESULTS APPENDIX ITEMS

D.1 Racial Breakdowns

Racial identities can influence how citizens view economic dislocation. Several works link the appeal of anti-globalization policies with racial identity. Mutz et al (2021) argue that American whites are particularly attracted to protectionism because they have higher prejudice against racial outgroups, stronger social dominance orientations, and greater feelings of national superiority.[7] In

[7]Mutz, Diana, Edward D Mansfield, and Eunji Kim. 2021. "The Racialization of International Trade." *Political Psychology* 42 (4): 555–73.

Table 11: Effect of Specific Foreign Treatments on Difference (Regul. - Transfers), Within-respondent estimates

	(1)	(2)
For. - Reliance	2.384**	2.246**
	(1.017)	(1.035)
For. - Rel. Gains	0.819	0.868
	(0.991)	(1.006)
Prior Regs.	0.835***	0.832***
	(0.018)	(0.019)
Prior Trans.	−0.875***	−0.857***
	(0.017)	(0.020)
Constant	3.043***	−0.885
	(1.040)	(2.177)
Controls?	N	Y
Observations	1,592	1,551
Note:	*p<0.1; **p<0.05; ***p<0.01	

explaining the consequences of attributing job loss to trade, rather than automation, Mutz (2021) argues that whites react more negatively to trade because it positions the dominant in-group – American whites – against a threatening outgroup – non-white foreigners – in a way that automation does not.[8] Baccini et al (2023) find that those who think globalization disproportionately harms whites are especially prone to support "thick" populist platforms.[9]

For our results, these arguments imply that the treatment effect of comparing foreign labor with domestic automation should be especially strong among whites. And indeed our results replicate this finding. Column 1 of Table 12 shows results from regressing support for a backpedaling policy on an indicator for the foreign labor treatment, interacted with an indicator that equals one for white respondents and zero otherwise. Column 2 shows the same thing, using the difference measure (policy minus support for transfers) as the dependent variable.

The treatment effect of moving from Domestic Automation to Foreign Labor *is* stronger among

[8]Mutz, Diana 2021. "(Mis) Attributing the Causes of American Job Loss: The Consequences of Getting It Wrong." *Public Opinion Quarterly* 85 (1): 101–22.

[9]Baccini, Leonardo, Costin Ciobanu, and Krzysztof Pelc. 2023. Working Paper. "Why Different Economic Shocks Have Different Political Effects."

whites. Among white respondents, the Foreign Labor treatment significantly increases their support for a backpedaling policy. This, in turn, significantly increases the difference between support for backpedaling versus transfers. Among non-white respondents, the Foreign Labor treatment weakly decreases support for backpedaling.

Table 12: Effect of Treatment on Backpedaling Policy and Differences

	Backpedal	Difference	Reg. Auto.	Difference
	(1)	(2)	(3)	(4)
For. Lab.	−3.177	0.037		
	(3.190)	(3.305)		
For. Auto.			0.950	4.991
			(3.331)	(3.083)
White	−5.088	−5.411	−4.501	−2.091
	(3.570)	(3.436)	(3.577)	(3.329)
White*For. Lab.	17.175***	12.250***		
	(3.659)	(3.837)		
White*For. Auto.			2.179	−1.525
			(3.831)	(3.589)
Constant	56.425***	−12.240**	50.266***	−15.658***
	(5.340)	(5.573)	(5.431)	(5.271)
Observations	1,495	1,490	1,500	1,494
Note:				*p<0.1; **p<0.05; ***p<0.01

However, theoretical arguments about race also imply that emphasizing the foreignness of automation, as opposed to domestic automation, should also have a stronger effect among whites. If different reactions to globalization and automation are because foreignness triggers whites, and globalization is foreign while automation is not, then this implies that making automation foreign should lead to larger reactions among whites. For example, the theory in Mutz (2021) does not necessarily distinguish between foreign labor and automation: "attributing job loss to foreigners is likely to produce a defensive reaction among Americans high in ingroup favoritism" (105).

We do not find consistent evidence that whites are more responsive to foreign automation treatments. Columns 3 and 4 of Table 12 replicate the first two columns, comparing responses for the foreign and domestic automation treatments. We cannot reject the null hypothesis that whites react

in similar ways to non-whites. The Foreign Automation treatment increases support for automation regulations moreso among whites, but not to a significant degree. The Foreign Automation treatment also increases the difference in support for regulation versus transfers for whites and non-whites, but this effect is slightly *smaller* for whites. This is because the Foreign Automation treatment increases support for transfers among whites to a greater degree.

The above shows results from the first experiment broken down by white versus non-white respondents. Table 12 showed results for specifications that included control variables. Table 13 replicates those same results excluding control variables. The patterns are very similar.

Table 13: Effect of Treatment on Backpedaling Policy and Differences, no controls

	Backpedal	Difference	Reg. Auto.	Difference
	(1)	(2)	(3)	(4)
For. Lab.	−4.552	−1.610		
	(3.124)	(3.309)		
For. Auto.			−0.288	4.618
			(3.290)	(3.136)
White	−9.659***	−0.772	−9.655***	−0.750
	(2.741)	(2.517)	(2.743)	(2.518)
White*For. Lab.	18.069***	13.490***		
	(3.601)	(3.887)		
White*For. Auto.			3.183	−1.163
			(3.787)	(3.648)
Constant	63.268***	−10.952***	62.949***	−12.140***
	(2.588)	(2.424)	(2.609)	(2.392)
Observations	1,571	1,565	1,572	1,566
Note:				*p<0.1; **p<0.05; ***p<0.01

The main manuscript also did not show full tables for similar regressions in the second experiment. Table 14 shows results for the effect of the foreign automation treatments, pooled. The first two columns show models with support for regulating automation as the outcome variable, with and without controls. Columns 3-4 show models using the difference measure as the outcome variable. In all specifications, the foreign treatment increases support for regulations among both white and non-white respondents. It also increases the difference between support for regulations and trans-

fers. Additionally, the treatment effects *are* generally stronger for whites, though the interactions terms do not ever reach statistical significance. We cannot reject the null hypothesis that treatment effects are equivalent for whites and non-whites.

Table 15 follows the same structure as Table 14, only it breaks down each of the three types of Foreign Automation treatments. The patterns are similar. Each of the three treatments increases support for regulations for both groups. This effect is generally weakly stronger for whites, although with some exceptions. In some specifications, the within-group treatment, which should be strongest for whites, has a weaker effect for whites.

Table 14: Effect of Foreign Treatment on Regulations and Differences, Between-respondent estimates

	Reg. Auto.	Reg. Auto.	Difference	Difference
	(1)	(2)	(3)	(4)
Foreign	3.677	5.256*	2.372	2.979
	(2.790)	(2.839)	(3.527)	(3.513)
White	−8.012***	−2.019	4.209	−1.131
	(2.853)	(3.150)	(3.643)	(3.814)
Foreign*White	2.897	1.657	2.102	0.580
	(3.300)	(3.322)	(4.015)	(3.978)
Constant	59.029***	48.453***	−0.380	−3.022
	(2.417)	(3.795)	(3.240)	(4.254)
Controls?	N	Y	N	Y
Observations	2,134	2,079	2,133	2,078
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 15: Effect of Specific Foreign Treatments on Regs, Between-respondent estimates, white respondents

	Reg. Auto.	Reg. Auto.	Difference	Difference
	(1)	(2)	(3)	(4)
For. - Reliance	2.439	3.870	2.337	2.360
	(3.420)	(3.440)	(4.032)	(4.076)
For. - Rel. Gains	5.652*	6.855**	3.224	3.599
	(3.431)	(3.416)	(3.946)	(3.985)
For. - Within	2.920	5.033	1.533	2.991
	(3.397)	(3.497)	(4.153)	(4.128)
White	−8.012***	−1.996	4.209	−1.138
	(2.853)	(3.149)	(3.643)	(3.814)
Reliance*White	6.623	5.176	3.196	1.852
	(4.050)	(4.045)	(4.687)	(4.687)
Rel. Gains*White	1.041	0.294	1.829	1.262
	(4.075)	(4.037)	(4.575)	(4.587)
Within*White	1.088	−0.437	1.323	−1.358
	(4.022)	(4.083)	(4.759)	(4.695)
Constant	59.029***	48.396***	−0.380	−3.058
	(2.417)	(3.794)	(3.240)	(4.257)
Controls?	N	Y	N	Y
Observations	2,134	2,079	2,133	2,078

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