Casualties of Trade Wars

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ABSTRACT

Although trade wars have existed throughout modern history, there is little empirical evidence as to how countries choose which industries to target for retaliatory tariffs. We develop a political economy model of trade policy to explain a country's choice of product for retaliation and test the implications of this model using the choices of seven countries in two retaliation episodes: (1) the US imposition of steel and aluminum tariffs in 2018 and (2) the US passage of the Continued Dumping and Subsidy Offset Act (CDSOA) in 2000. The empirical results from a binary choice regression indicate that countries are more likely to sanction products with higher trade values and those in which they can extract terms-of-trade welfare, suggesting that trade wars move countries back to a terms-of-trade driven prisoner's dilemma equilibrium. We find a significant amount of heterogeneity in the degree to which countries consider the political importance of the industry when developing their retaliation list; while countries such as the EU and Canada clearly targeted politically important industries in 2018, we find little evidence that emerging markets did so. There is also little evidence that the EU and Canada targeted politically important industries in retaliation against the CDSOA.

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I. Introduction

In the Spring of 2018, the United States imposed tariffs on steel and aluminum products of 25 and 10 percent, respectively, following an investigation that found that imports of these products posed a national security threat to the United States. Shortly thereafter, several US trading partners announced that they would take countermeasures, arguing that the steel and aluminum tariffs were essentially safeguard actions undertaken by the United States and under the World Trade Organization (WTO) safeguard agreement countries can retaliate by taking "equivalent action." For example, the European Union announced tariffs on large motorcycles, canoes and sinks; Canada announced tariffs on whiskey, orange juice, steel, and aluminum, among other products. By October 2018, six countries had imposed retaliatory tariffs on $120 billion of US exports, or slightly more than six percent of total US exports.[1]

Trade wars such as these have existed throughout modern history, but in recent years most retaliation has been regulated by the WTO and, specifically, Article 22 of the Dispute Settlement Understanding (DSU). Under Article 22, if a member fails to bring a measure that has been deemed inconsistent with the WTO into compliance within a "reasonable amount of time" then countries have the right to suspend concessions with the member as compensation. The agreement spells out that the level of suspension must be equal to the level of nullification of benefits (generally the value of lost imports from the complainant country) associated with the violation; if the two members cannot agree on the level of nullification then a dispute settlement panel determines the appropriate level of suspension.

Retaliatory sanctions have the potential to impose significant harm to the industries they target; Liebman and Tomlin (2015), for example, estimated that the costs associated with one episode of retaliatory tariffs *exceeded* the benefits accruing to domestic firms from the policy prompting the retaliation. Therefore, it is important for policy makers to understand how products are selected for suspension of concessions. The DSU does not explicitly specify how countries should undertake this suspension, although members are encouraged to first suspend concessions in the same sector(s) as the violation (i.e. steel and aluminum) and then turn to the suspension of concessions in other sectors that fall under the same agreement as the violation (i.e. the "Agreement on the Market Access of Goods"). If neither of these are practical, countries can suspend concessions covered in other WTO agreements. Members are directed to consider both "the importance" of trade in the chosen sector to the respondent and the "broader economic elements" related to the suspension. As Tijimes (2014) discusses, the DSU does not even specify whether the primary purpose of the suspension of concessions is to induce compliance with the Dispute Settlement Body (DSB) rulings or rebalance concessions in the face of the violation. He argues that although WTO arbitration reports have suggested that the primary purpose of the system is to rebalance concessions, the fact that members have relative freedom in choosing the method of suspension confirms that inducing compliance is another important role of the suspension process.

[1] Part of China's retaliatory tariffs were associated with a separate trade war launched by the United States designed to get China to change a number of trade and investment policies, such as those associated with the forced licensing of foreign technologies (Parilla and Bouchet, 2018).

Anecdotally, countries seem to consider both political and economic factors when choosing the products on which to suspend concessions. For example, Khabayan (2010) notes that the Canadian Department of Foreign Affairs and International Trade (DFAIT) tries to choose products that can be imported from other sources in order to avoid hurting domestic importers and consumers, while also choosing products that may encourage their trading partner to bring its measure into compliance; for example, when Canada chose products to retaliate against the US for passage of the *Continued Dumping and Subsidy Offset Act* (CDSOA) in 2004, it imposed tariffs on live swine, ornamental fish, oysters and cigarettes because these products were from specific Congressional districts of supporters of the CDSOA.

In this paper, we first develop a political economy model of trade policy to explain a country's choice of product for retaliation. We hypothesize that countries choose retaliatory tariffs by maximizing an objective function that is a weighted combination of domestic welfare and the pressure the tariffs place on its trading partner to bring its trade policy into compliance. We find that countries choose those products that will extract the greatest welfare from its trading partner; this is a function of both the country's ability to lower the trading partner's terms-of-trade *and* the political influence of the industry in the trading partner.

We then use the products chosen for retaliation in two examples: (1) the imposition of US steel and aluminum tariffs in 2018 and (2) the US passage of the Continued Dumping and Subsidy Offset Act in 2004 to empirically estimate the economic and political determinants of this choice across six countries: Canada, China, the European Union, Mexico, Russia, and Turkey. The sample allows us to compare retaliation strategies not only across a set of diverse countries that have different levels of retaliation capacity and experience negotiating with the United States, but across two very different episodes of retaliation. While the CDSOA retaliation episode was limited in scope and authorized by the WTO, the steel and aluminum retaliation episode accounted for a much larger share of global trade and occurred outside of the purview of the WTO DSU.

Our empirical estimates reveal that retaliating trade partners are more likely to sanction products with higher trade values, as well as those in which they can extract terms-of-trade welfare from the United States. This suggests that trade wars move countries back to a terms-of-trade driven prisoner's dilemma equilibrium that theoretical models such as those in Bagwell and Staiger (2011) hypothesize the WTO was designed to eliminate. The impact of other variables measuring the political importance of the US industry is less clear and appears to vary widely across countries. For example, the EU and Canada targeted politically sensitive industries, including those that had political action committees and were located in Presidential swing states and the districts of House and Senate leadership when retaliating in 2018, although not in 2004.

The rest of the paper is laid out as follows. Section II introduces a theoretical framework that may govern the choice of retaliatory product. Section III introduces the data and empirical methodology we use in this paper to test the resulting hypotheses, and Section IV presents the results. The final section discusses our key takeaways from our analysis.

II. A Theoretical Model of Retaliation

There is a rich literature studying the strategic interaction of nations in a trade war context. For example, Grossman and Helpman (1995) introduces government interaction into a political economy model of trade policy and finds that when governments set their tariffs in a non-cooperative fashion each fails to consider the welfare impact on factor owners and politicians in the trading partner country. van Ypersele (2005) introduces a model of retaliation in which tariff rates are determined by the median voter and concludes that an increase in the ratio of the scarce to abundant factor ownership in the median voter in one country will lead to a higher tariff in that country but a lower tariff in its trading partner. Another strain of this literature, including works by Blonigen and Bown (2003) and Feinberg and Reynolds (2006), study the role of retaliation or threat of retaliation in antidumping filings. However, while previous works have addressed setting tariffs in the face of a broad scale break down of international trade relations, in this paper we study the more limited, strategic retaliation decisions that have faced policy makers in recent years following a trade dispute. In other words, how do policy makers choose those products to retaliate against in a trade skirmish rather than a full-scale trade war?

Under the WTO DSU, retaliation in trade disputes is typically limited by the economic impact of the initial violation, although the agreement is vague as to how this constraint should be determined; Article 22.4 notes only that "the level of the suspension of concessions … shall be equivalent to the level of the nullification or impairment." If the two countries cannot agree on a level of suspension, the matter is referred to an arbitrator. Bagwell and Staiger (2002) proposed that this level should stabilize the value of exports and imports between countries, a so-called "reciprocity" approach, and previous studies (Bown, 2002; Bown and Ruta, 2010) have found some evidence in WTO case law that arbitrators are using a framework such as this to determine the level of suspension. In this paper we are agnostic as to what determines the constraint imposed upon the retaliating country and assume that it is determined exogenously. We instead focus on the choice of products conditional on this constraint.

Consider a simple, partial equilibrium model in which one country (the retaliator) chooses products for retaliation in response to a change in trade policy by its partner (the instigator). Following the notation in Bagwell and Staiger (2011), we assume that the welfare accruing to each country is a weighted sum of producer surplus (PS), consumer surplus (CS), and tariff revenue over N products indexed by i.:

$$W\left(p(p^w|\tau)\right) = \sum_{i=1}^{N} CS\left(p_i(p_i^w)\right) + \gamma_i PS\left(p_i(p_i^w)\right) + [p_i - p_i^w]\, M\left(p_i(p_i^w)\right). \quad (1)$$

Each country's domestic price, p, is a function of its domestic tariff (τ) and the world price, or the price at which world supply equals world demand, according to the equation $p = (1+\tau)p^w$. The term $M(p(p^w))$ is the volume of imports, and the parameter γ is a political economy term that measures the relative weight the government places on producer surplus over and above consumer surplus. We denote the instigator's variables with asterisks.

Prior to the trade dispute, we assume that each country sets its tariff rates at the "politically optimal" level as defined in Bagwell and Staiger (2011). This is the tariff rate that the GATT/WTO was designed to elicit from countries — the tariff the country would set if it did not

value the terms-of-trade consequences of its tariff choices. Specifically, the politically optimal tariff is defined by the equation:

$$W_p(p^{PO}, p^{w,PO}) = 0. \tag{2}$$

Note that if γ is equal to 1, or the domestic government does not place more welfare on producer surplus, then the politically optimal tariff as negotiated under the WTO would be zero.

An exogenous shock causes the instigator to change its trade policy in a way that is found to violate its obligations under the WTO. The retaliator is authorized to retaliate and moves to choose higher tariffs on those products that will put the maximum political pressure on the foreign country. Specifically, the home country sets retaliatory tariffs by maximizing an objective function that is a combination of (1) the welfare accruing to the retaliating country from the tariffs and (2) the political pressure the tariffs place on the instigator to change their policy through the negative impact the tariff has on the instigator's welfare:

$$G(p(\tau, p^w), p^w) = \sum_i W\left(p_i(\tau_i, {p_i}^w)\right) - \beta W^*({p_i}^*({p_i}^w)) \tag{3}$$

In this equation, the coefficient β captures the degree to which the home country values placing additional political pressure on the foreign country relative to maximizing their own domestic welfare. The retaliating country maximizes equation (3) subject to the constraint that the nullification of benefits imposed by the change in tariffs is less than the authorized retaliation amount.[2]

Define *C* as the set of products upon which the retaliating country chooses to impose retaliatory tariffs. In contrast to the politically optimal tariffs described above, the level of retaliatory tariffs (denoted by the superscript R) is defined by:

$$W_p({p_i}^R, {p_i}^{w,R}) \frac{\partial p}{\partial \tau} + W_{p^w}({p_i}^R, {p_i}^{w,R}) \frac{\partial p^w}{\partial \tau} \tag{4}$$

$$-\beta W^*_{P^*}(p_i^{*,R}, p_i^{w,R}) \frac{\partial p^*}{\partial p^w} \frac{\partial p^w}{\partial \tau} - \beta W^*_{p^w}({p_i}^{w,R}) \frac{\partial p^w}{\partial \tau} = 0 \ \forall \ i \in C$$

where

$$W(p_i(\tau_i, {p_i}^w), {p_i}^w) - \beta W^*({p_i}^*({p_i}^w)) \geq W\left(p_j\left(\tau_j, {p_j}^w\right), {p_j}^w\right) - \beta W^*({p_j}^*({p_j}^w)) \ \forall \ i \in C, j \notin C \tag{5}$$

and the nullification of benefits is less than or equal to the authorized retaliation amount. The constraint specified in equation (5) insures that imposing the tariffs on the products chosen in set

[2] More realistically, one could specify a dynamic model in which the choice of products for retaliation impacts the likelihood of the instigating country removing the WTO-violating policies, and the retaliating country must consider the impact the violating policy has on its domestic welfare. Because estimating this more complex model would require us to have data on the political power of industries in the retaliating country (which is unavailable for most of our sample), we opted for a static model in order to clearly illustrate the trade-off between the political power of industries in the *instigating* country and the terms-of-trade motivations of the retaliating country.

C will bring a greater amount of welfare to the retaliating country than choosing any other products.

Note from equation (1) that the partial derivative of the welfare function with respect to world price (W_{p^w}) is $-M(p(p^w))$. Following the notation in Bagwell and Staiger (2011), and deriving $\partial p^w / \partial \tau$ from the market clearing condition $M\left(p(p^w, \tau)\right) + M^*\left(p^*(p^w)\right) = 0$, equation (4) can be simplified to the following expression:

$$-\frac{W_p\left(p_i^R, p_i^{w,R}\right)}{p_i^{w,R}} = \frac{1}{p_i^R}\left[{M_i}^R + \beta W_{p_i^*}^*\right]\frac{{\sigma_i}^R}{{\omega_i}^R} \tag{6}$$

where σ_i is (the absolute value of) the elasticity of import demand and ω_i is the elasticity of export supply.[3] Plugging in the derivative of equation 1, this can be equivalently represented as:

$$-\frac{W_p\left(p_i^R, p_i^{w,R}\right)}{p_i^{w,R}} = \frac{1}{p_i^R}\left[(1+\beta)M_i + \beta({\gamma_i}^* - 1){Y_i}^*\right]\frac{{\sigma_i}^R}{{\omega_i}^R} \tag{7}$$

Where Y_i^* is the instigating country's total production of good *i*.

As described in Bagwell and Staiger (2011), the left-hand side of equation (7) can be thought of as the welfare impact associated with imposing a retaliatory tariff (holding the world price fixed), including the impact on the retaliating country's consumers and producers. In setting the retaliatory tariff, the domestic economy must balance the loss of domestic welfare associated with the higher tariff as captured in the left-hand side of the equation with the political pressure the retaliatory tariff would place on the partner country to remove the offending trade restriction, as captured by the right-hand side of the equation.

There are several things to note in the right-hand side of equation (7). First, if $\beta=0$, this equation is equivalent to equation (5) in Bagwell and Staiger (2011). Even absent the need to impose additional welfare loss on the partner country, the domestic country will choose the products that will extract the most welfare from the partner country, what is known as the "best response" tariff in Bagwell and Staiger (2011). This is the tariff set in in the terms-of-trade driven Nash equilibrium that occurs absent the WTO agreement in which the domestic country extracts welfare from the partner economy by lowering the world price. As the need to impose welfare loss on the domestic economy increases, or β increases, more weight is placed on the terms-of-trade driven motivation to increase tariffs.

The second thing to note is that as $\omega \longrightarrow \infty$, the domestic country becomes "small" in the sense that it cannot influence the terms of trade. In this case the tariff would remain at the politically optimal level and the domestic country would exclude the product from its retaliation list. In a "small country," the entire welfare burden of the tariff is borne by the domestic country, thus it makes sense that the domestic country would avoid these products.

[3] For simplicity sake, we set the instigating country tariff, τ^*, at zero in this equation without loss of generality.

In addition to the terms-of-trade driven welfare cost placed on the partner country, the model suggests that there will be a bigger retaliation tariff the larger the partner country's industry (as measured by production in the partner country) and the more weight the partner government places on the welfare of its producers in the industry (γ^*). One would expect the γ^* parameter would increase the more political powerful the industry, whether because of their political campaign contributions or importance to the electorate.

III. Empirical Methodology and Data

Although the model above posits a world in which countries set optimal retaliatory tariffs, countries rarely choose variable levels of retaliatory tariffs and instead set the same level of retaliatory tariffs on all chosen products. As a result, in the empirical work that follows we empirically analyze the choice of product for retaliation using a binary choice model. Omitting the asterisks for the instigating country-level variables (which in our case is the United States), we define y_{ij}* as the value of the retaliating country *j*'s objective function when product *i* is chosen for retaliation, and y_{ij} to equal 1 if product *i* is chosen for retaliation by country j. If we standardized the value of the objective function for the marginal product not chosen for retaliation at zero, the probability of choosing product *i* can be expressed as:

$$y_{ij}^* = \delta_1 \ln(M_{ij}) \ln\left(\frac{\sigma_{ij}}{\omega_{ij}}\right) + \delta_2 \ln(Y_i) Political_i \ln\left(\frac{\sigma_{ij}}{\omega_{ij}}\right) + u_j + \varepsilon_{ij}, y_{ij} = \begin{matrix} 1 \; if \; y_{ij}^* > 0 \\ 0 \; if \; y_{ij}^* \leq 0 \end{matrix} \qquad (8)$$

where $Political_i$ is an empirical measure of the political power of industry *i* in the United States. Although the variables in equation (7) are measured in levels, heterogeneity in the value of shipments, imports, and elasticities makes it difficult to compare the impact of changes in these variables across countries and disputes. To better standardized measurement across observations, our estimating equation is theoretically motivated by equation (7) but the variables are measured in logs. We estimate the model using a standard binary choice probit model.[4] The resulting coefficients should not be interpreted as structural parameters of the model described above, but rather evidence of the degree to which countries consider terms-of-trade motivations and the industry's political power in the instigating country's when choosing products for retaliation.

Most of our specifications include a wide variety of control variables, which we discuss in more detail below. In order to control for other unobserved retaliating country-specific factors that may influence the choice of products, such as the total value of the suspension of concessions, we include country-specific fixed effects in all of our panel specifications. We also estimate the model separately across each country to better explore country-level heterogeneity in the determinants of the retaliation choice.

[4] Results from the estimation of a linear probability model were qualitatively similar to those presented here and available from the author upon request.

We include three-digit NAICS industry fixed effects to control for other unobserved, industry-specific variables in our primary specifications. The tables presented below include robust standard errors.[5]

Data

To estimate the model described above, we construct a country-product panel of economic and political characteristics by six-digit Harmonized System (HS) products. Although many of the products chosen by countries for retaliation were originally defined at the eight- to ten-digit level of disaggregation within the Harmonized System, the more aggregated six-digit HS level allows us to use product definitions that have been standardized across countries. We test for the sensitivity of our results to this aggregation using a sub-sample from the European Union and Canada for which we were able to collect trade data by eight-digit HS code. The list of products chosen for retaliation for the 2018 steel and aluminum tariffs come from a variety of sources, including the US Department of Commerce's International Trade Administration, Bown et al. (2018) and Schott et al. (2018). We collect the products on which Canada and the European Union chose to suspend concession in the face of the WTO's CDSOA ruling using official notifications to the WTO.

Figure 1 displays the share of value, respectively, of retaliation by product category in response to the 2018 section 232 tariffs. Several things should be noted from this figure. First, the value of products chosen for suspension by Canada is much greater than the value chosen by all the other retaliating countries. This stems from the fact that Canada is the largest foreign supplier of steel to the US and was thus most adversely impacted by the Section 232 measures.[6] Note that although the Section 232 retaliation was not authorized by the WTO DSB, each country seemed to calculate their "allowance" of trade suspension as the expected decrease in value of steel and aluminum exports to the US due to the 232 tariffs. Second, iron, steel and aluminum products top the list of those products chosen for retaliation in 2018, which seems to be in the spirit of the DSU recommendation to first choose products in the same sector as the initial violation.

However, there is also evidence that the countries may be using the nuances of the US political system to pressure the United States to rescind the steel and aluminum tariffs. For example, the European Union targeted both whiskey and motorcycles; over 25 percent of US distilled liquor is produced in Kentucky, home of then Senate Majority Leader Mitch McConnell and motorcycle producer Harley Davidson is headquartered in Wisconsin, home of then Speaker of the House Paul Ryan.[7] In contrast, China focused its' retaliation on food commodities, for which it has served as an important customer, and its sanctioning of these US exports has been highly

[5] Specifications that exclude industry-specific fixed effects and include standard errors that allow for correlations across industries (specifically clustered at the four-digit HS product level and six-digit NAICS industry level) are available from the authors upon request. Although most of the coefficients retained their significance in these specifications, the elasticity variable capturing the terms-of-trade motivations for retaliation was insignificant. This is likely due to the fact that our preferred elasticity variable is measured at the four-digit HS level, as discussed in more detail below. Results from specifications estimating the model at the more aggregated six-digit NAICS industry level are also available from the authors and are qualitatively similar to those presented here.

[6] Canada and Mexico were exempted from the Section 232 steel and aluminum tariffs by the United States in May 2019; in August 2020, Canada's exemption was rescinded by the United States.

[7] Harley Davidson was not headquartered in the Congressional district of Ryan, however.

publicized. All countries seemed to choose a relatively diverse set of products rather than choosing a single product that could alone account for the full value of suspension of concessions.

The full list of products targeted for retaliation by Canada and the European Union in 2002 are included in Table 1. Note that in the CDSOA example the level of suspension authorized by the WTO was relatively small--$11.1 million for Canada and $27.8 million for the European Union, and those values listed in the table slightly overestimate the true value of suspension associated with each product because some 8- or 10-digit HS codes within the six-digit HS category may have been excluded from the suspension. If the EU and Canada tried to target products within the same sector as the CDSOA, one might expect this list to include those products that earned the most subsidies under this provision like ball bearings (Liebman and Reynolds, 2006). Instead, the EU and Canada seem to be choosing a scattershot of products designed to impose political pressure.

Trade determinants of retaliation

The theoretical model predicts that the likelihood of choosing a product for retaliation should increase with both the value of imports *(M_i)* and the ratio of the import demand to export supply elasticity ($\frac{\sigma_i}{\omega_i}$). For our estimation, we use the value of six-digit HS product imports from the United Nation's Comtrade database.[8] Most of our specifications utilize the import demand and export supply elasticities calculated in Soderberry (2018), which are estimated using data between 1991 and 2007. Although these elasticities are calculated at a more disaggregated level of trade (four-digit HS code) than other elasticity estimates, they have the advantage of identifying the retaliating country's US-specific trade elasticities. As explained in Soderberry (2018), allowing for partner-specific heterogeneity in elasticities captures the differences that may arise due to the composition of trade with a specific trading partner. To check the sensitivity of our results to our choice of elasticities, we also report results using elasticities calculated by Crowley and Yu (2013) and the Rauch (1999) index of product differentiation.

Although not specific to the model, we include two other control variables describing the product-specific trade relationship between the retaliating country and the United States: the share of US product-level exports going to the retaliating country *(Share of US Exports)* and the share of the retaliating country's product-level imports from the United States *(Share of Imports from the US)*. Presumably, US industries that send a large share of their exports to a country would be more vulnerable to retaliation by that country. Retaliating countries may choose to avoid targeting products that are primarily imported from the United States because tariffs on these products would be more likely raise domestic prices and cause economic hardship to consumers of that product.

In specifications testing the determinants of retaliation for the steel and aluminum tariffs, we include a dummy variable controlling for whether the industry was a beneficiary of the US

[8] As noted above, in order to test the sensitivity of our results to the aggregation to the six-digit HS code level, we also collect eight-digit HS level trade from Eurostat (the EU) and the US International Trade Commission's Dataweb (Canada), which utilizes Canadian import statistics to report US-Canada trade.

policy that elicited retaliation *(Same Sector)*. Recall that the WTO DSU suggests that countries first consider products within the same sector as the initial violation when choosing their list of products targeted for suspension of concessions. We omit this variable from our CDSOA sample, as neither the EU nor Canada chose for retaliation products that were beneficiaries of the CDSOA.

Political determinants of retaliation

The theoretical model also predicts that the likelihood of choosing a product for retaliation should increase with the value of US production *(Yi)*, at least for those US industries that have some political sway as captured by the parameter γ. Because these measures are not available at the six-digit HS code level, we instead collect these measures by six-digit North American Industry Classification (NAICS) industries and merge them with our panel using the concordance developed in Pierce and Schott (2012).[9]

The total value of shipments in the six-digit industry comes from the Annual Survey of Manufacturing. Capturing which industries have more political sway is more challenging. Following other political economy of trade protection papers like Goldberg and Maggi (1999), in our baseline specifications we code industries as political organized if they engaged in any Political Action Committee (PAC) donations during the 2004 (CDSOA sample) or 2016 (Steel/Aluminum sample) election cycle. We utilize the PAC data in Gimpel et al. (2014), which was already matched to individual NAICS industry, to measure political organization in 2004, and contribution data from Open Secrets to measure political organization in 2018.[10]

However, political sway may also be measured in a number of other ways, thus we consider other control variables using industry-level employment data by Congressional District to capture this possibility.[11] First, previous studies such as Busch and Reinhardt (1999) have shown that geographically concentrated industries are more likely to benefit from import protection; to account for this possibility we include a Spatial Gini Coefficient to measure the degree of geographical concentration of industry employment across congressional districts. As noted above, anecdotally it seems as if countries may be targeting products of individual members of Congress. To proxy for this motivation, we include the share of industry employment in the House and Senate leadership districts; we define the leadership positions as the House and Senate majority and minority leader and the Speaker of the House, where the Congressional

[9] Approximately 13 percent of six-digit HS codes are matched to more than one NAICS code; in these cases, we take the simple average of variables such as the value of shipments across the NAICS codes concorded to the HS code.

[10] PAC contribution data from the 2016 election cycle was downloaded from https://www.opensecrets.org/open-data and coded to NAICS industries using coding generously provided in Gimpel et al. (2014); we assigned new PACs (those not appearing in the Gimpel database) using internet search tools or industry coding by Open Secrets. In cases in which a single PAC appeared to be associated with more than one NAICS code, we assigned the PAC to what appeared to be the dominant sector of business.

[11] The US Bureau of the Census County Business Patters provides industry-level employment by county. We then map county employment into Congressional Districts as defined by the 109th (and 115th) Congressional District using population weights downloaded from the Geocorr 2000 (and 2018) database, accessed at http://mcdc.missouri.edu/applications/geocorr2000.html. We calculate the spatial Gini correlation as in Ellison and Glaeser (1997): $Gini_i = \sum_j (s_{ij} - x_j)^2$, where s_i is the share of industry i's employment in Congressional district j and x_j is Congressional district j's share of total US employment.

districts of these leadership positions were collected from House and Senate historical records.[12] Finally, retaliating countries may choose to instead impose pressure through the executive branch, particular following the steel and aluminum tariffs which were widely supported by President Trump. We include the share of industry employment in swing states, with a swing state defined as a state in which the margin of victory in the Presidential election was within 5 percentage points.[13]

Table 2 includes summary statistics for our variables of interest. Our panel estimating the determinants of the steel and aluminum retaliation includes slightly more than 24,000 observations; because we exclude those products in which the retaliating country had no trade with the United States from consideration, the number of six-digit HS products in our panel ranges from 2,501 in Russia to 4,717 in the European Union.

IV. Results

We present coefficient estimates regarding the impact of our explanatory variables on the retaliatory response of US trade partners to the 2018 Section 232 tariffs in Table 3. We begin by pooling the retaliatory responses of Canada, the EU, India, Turkey, China, Mexico, and Russia to maximize the sample size and facilitate our inclusion of 3-digit industry fixed effects as well as country-specific effects.

Column 1 displays parameter estimates for the econometric specification that most closely matches our theoretical model (equation 7), in which the ratio of the retaliating country's import demand to export supply elasticity is interacted with the value of industry imports and the size of the US industry *(Shipments)*. Although we do not claim to be estimating the structural parameters of the model, this specification assumes that the parameter estimates capture the relative importance the retaliating country places on political pressure motives (β) and the average weight the US places on the producer surplus (γ) of the industry. The coefficient on the interaction between US industry size and the ratio of import demand/export supply elasticity is highly significant, suggesting that larger US industries are more likely to targeted.

Given the fact that we are not estimating a structural model, our preferred specifications exclude these interaction effects, and instead separates the elasticity ratio variable from US industry size and import value in order to better gauge the relative impact of each of these variables. We also introduce variables measuring the relative political importance of the industry in the United States. In column (2), we include only a dummy variable for the US industries that have political action committees *(Organized)*, as well as the interaction of this variable with US industry shipments. In subsequent columns, we include the full set of control variables described in Section 3, including a dummy variable for steel and aluminum products *(Same Sector)* in order to control for WTO DSU direction to first consider products in the same sector for retaliation.

[12] Specifically, "Congress Profiles," accessed at https://history.house.gov/Congressional-Overview/Profiles/107th/ on January 9, 2019 and "107th United States Congress" accessed at https://en.wikipedia.org/wiki/107th_United_States_Congress#Leadership on January 9, 2019.
[13] This is the methodology used by Conconi et al. (2017).

Virtually all specifications indicate that terms-of-trade motivations are an important determinant of the choice of product for retaliation. Industries with a higher ratio of the import demand to the export supply elasticity face an increased likelihood of being targeted, suggesting that policymakers seek terms-of-trade gains when drawing up their retaliation lists. This finding is insensitive to whether we estimate the impact of import demand and export supply elasticities separately (Column 5), use a dummy variable for those industries with a ratio of import demand to export supply elasticity in the top quartile (*High σ/ω*, Column 4), or a dummy variable for differentiated products (*Differentiated Products Rauch*, Column 6), which should theoretically have a higher import demand to export supply elasticity ratio. This result is sensitive to other elasticity measures; for example, Column 7 replaces uses elasticities estimated in Crowley and Yu (2013); while the coefficient remains positive it is statistically insignificant.

Results provide clear evidence that one of the other factors from our theoretical model is an important determinant of the choice of product for retaliation: countries are more likely to target products that account for a greater value of imports. Although not part of our theoretical model, we consistently find that countries are more likely to target "same sector" industries as recommended by WTO statutes.

The evidence on the relative importance of the political power of the industry in the United States is slightly more mixed. We do find strong evidence that foreign policymakers disproportionately target politically active industries *(Organized)* and larger industries *(Shipments)*. However, while the theoretical model suggests that the likelihood of retaliation should increase with the size of the industry just for politically organized industries, the coefficient on the interaction between organized and industry size is negative and significant, suggesting that organized industries are less likely to face sanctions as they get bigger. It may be that larger, politically organized US industries are also more capable of influencing foreign policymakers to avoid retaliation.

Starting in column 3, we introduce additional political controls, including the geographic concentration of the industry across Congressional districts, the share of industry employment in Presidential swing states, and the share of industry employment in House and Senate Leadership voting districts. Of these variables, only the geographic concentration of the industry proves to be statistically significant.

Finally, industries that receive a greater share of their imports from the US face an increased likelihood of retaliation. It may be the case that such industries simply provide a more visible target even though retaliating against such products may force domestic consumers to shift more heavily towards other import sources.

Heterogeneity Across Countries

As discussed above, the theoretical model suggests that the relative importance countries place on imposing pressure on the instigating country *(β)* may differ across retaliating countries. In tables four and five, we explore heterogeneity across the countries in our sample in their choice of retaliation following the imposition of the Section 232 tariffs. Coefficient estimates from country-specific probit regressions are reported in Table 4. Table 5 reports the marginal impact

of a one standard deviation change in our explanatory variables on the likelihood of a product being chosen for retaliation; these marginal effects are calculated using the results from probit estimates of the same specification in Table 4 but pooling two groups of countries: high-income (Canada and the European Union) and emerging markets (India, Turkey, Russia, China, and Mexico). The parameter estimates in Table 4 find strong evidence that most countries are more likely to target products within the same sector, as recommended by the WTO DSU, and those that are politically organized.[14] Because of this, we report the change in the response probabilities separately for these sub-samples of industries to make it easier to interpret the interaction effects across variables.

There is some heterogeneity in the degree to which countries consider terms-of-trade motivations when choosing products for retaliation. Although the parameter estimates for the ratio of import demand to export supply elasticity is positive but statistically insignificant in the Canada and the EU sub-samples in Table 4, calculation of the marginal effects across the pooled sample of the two high-income countries suggests that these terms-of-trade motivations play an important role. For example, products within the broad categories of steel and aluminum *(Same Sector)* were 2.5 percentage points more likely to be chosen for retaliation by Canada and the EU for each one standard deviation increase in the log ratio of import demand to export supply elasticity. On average, the marginal effects suggest that countries in emerging markets also consider terms-of-trade driven motivations; however, the results in Table 4 indicate that only Turkey, Russia, and China were more likely to choose products in which they could extract terms-of-trade welfare from the United States. The coefficient on this variable in the sub-sample of products from India and Mexico is negative and significant, contrary to the predictions of the model.

Also supportive of our model, all countries except China disproportionately targeted products with higher import values; the marginal effect of the value of imports is higher for the EU and Canada. For example, for each one standard deviation increase in the value of log imports in the EU and Canada, the likelihood of choosing a product within the steel and aluminum sector increases 16 percentage points and the likelihood of choosing a product outside of these sectors increases 2.6 to 4.3 percentage points. Similar marginal effects for the subset of emerging markets are approximately five percentage points in the steel and aluminum sector and 1.5 percentage points for other products.

Country-specific results confirm the counter-intuitive result discussed earlier that the size of the industry only matters when the industry is not politically organized. Recall that the model described above predicts that the likelihood of choosing a sector for retaliation should increase with the size of the industry, at least for industries that are more politically important (as measured by γ), which we proxy using a dummy variable for those industries that belong to a political action committee. Although the coefficient estimate for the impact of the size of the US industry is positive and significant in Canada, the EU, Turkey, Mexico and China, the interaction of this variable with the dummy for industries that are political organized is negative and significant for the same set of countries. Marginal effects adjusting for the interaction of the two variables confirm this result; the likelihood that products within the steel and aluminum sector face sanctions by Canada and the EU *falls* by 9.7 percentage points for each one standard

[14] In contrast, Turkey and Russia choose very few products within the aluminum and steel sector as part of their retaliation efforts, so we had to exclude this variable from the estimation of these two sub-samples.

deviation increase in the log value of industry shipments, but only in organized industries. For non-organized US steel and aluminum industries, the likelihood of retaliation increases 3.7 percentage points for the same increase in size. A similar pattern emerges outside of the steel and aluminum sector. The likelihood of being chosen for retaliation also increases with the size industries in emerging markets, but only for those that are not politically organized; for example, in the steel and aluminum sector the likelihood of being chosen for retaliation increases 3.4 percentage points for each one standard deviation in the size of the US industry.

Generally, the EU and Canada seem to be more likely than emerging economies to choose products that will put political pressure on the United States to remove the offending trade policy using knowledge of the peculiarities of the US political system. For example, Canada is the only country that appears to have targeted products with greater employment shares in the voting districts of *both* House and the Senate leaders. It also disproportionately sanctioned products made in Presidential swing states. The EU also targeted products with greater employment in the states of Senate leaders. As reported in Table 5, a one standard deviation increase in the share of employment in Presidential swing states increases the likelihood of Canadian and the EU sanctioning steel and aluminum products by 4.3 to 4.5 percentage points, and other products by slightly less than 1 percentage point. Similarly, for each one standard deviation increase in the share of employment in the Congressional districts of Senate and House leadership, the likelihood of the EU and Canada imposing sanctions against steel and aluminum products increases approximately 2.3 and 4.0 percentage points, respectively. The increased likelihood of Canada and the EU sanctioning non-steel/aluminum producers in these politically sensitive locations, although positive and statistically significant, is less than one percentage point. In contrast, although there is some evidence that Russa was more likely to target products in Presidential swing states and Turkey was more likely to target products in the states of Senate leadership, we find little evidence that emerging market countries were on average more likely to target industries in these politically sensitive locations.

Although not part of our theoretical model, Canada was the only country that was more likely to sanction those US industries that exported a greater share of their exports to the retaliating countries. The EU was the only country that was less likely to sanction products in which the US accounted for a greater share of retaliating country imports (thus choosing these products would have a larger negative impact on domestic consumers). This is consistent with other EU trade policies. The EU is one of the few countries that requires agencies to specifically consider the impact of antidumping duties on consumers when making antidumping duty determinations. In contrast, emerging economies (particularly Turkey and China) were more likely to target products in which the United States accounted for a large share of their imports.

Heterogeneity Across Retaliation Episodes

Given the results discussed above, it appears that the EU and Canada tend to be more in tune to the US political system and use this knowledge to choose products for retaliation. One possible explanation for such behavior is that both Canada and the EU have more experience retaliating against US protectionism. A second explanation stems from the fact that both Canada and EU are close allies of the US, and more aligned both politically and economically to the US than the other nations that retaliated against the Section 232 tariffs.

To further explore the history of Canadian and EU retaliation against the EU, Table 6 reports the coefficient estimates from a probit estimation of the determinants of choice of product in two retaliation episodes (1) the US passage of the CDSOA in 2004 (Columns 1 and 2) and (2) the Section 232 tariffs in 2018 (Columns 3 and 4). While the previous tables estimated the empirical model using six-digit HS product codes, we take advantage of other data sources to estimate this subsample at the eight-digit HS product code level. This disaggregation will better allow us to estimate the importance of the value of imports of the chosen products.

Like the Section 232 retaliation, the CDSOA retaliation by Canada and the EU stemmed from perceptions of unfair US trade behavior. However, there are some important differences between the two retaliation episodes. First, retaliation against the CDSOA was governed by the WTO through the dispute settlement process, while retaliation against the Section 232 tariffs were implemented independently of the WTO. Second, Presidential politics may have played a larger role in the Section 232 retaliation because these tariffs were authorized by President Trump while the CDSOA was passed by Congress.[15]

The results in Table 6 indicate that both countries were more likely to sanction products representing a greater value of imports in 2018, while only the EU displayed such behavior in 2004. This is likely reflective of the relative size of the retaliation constraint in the two episodes. While Canada chose over $11 billion in US imports for retaliation in the Section 232 case, it was only authorized to retaliate against $11 million in the CDSOA example. Because the retaliation was so limited in the CDSOA example, there is significantly less variation in the dependent variable in this sub-sample, making it more challenging to estimate the coefficients of the model. We also note the magnitude of the coefficient on the value of imports even is much smaller in the Section 232 subsample than in earlier tables, reflecting the disaggregation of the products.

There are some similarities in the results between the two periods. The EU considered terms-of-trade motivations in drawing up its list of products to retaliate against both the CDSOA and the Section 232 tariffs, as reflected in the coefficient on the ratio of import demand to export supply elasticity. As in Table 4, this coefficient is positive but statistically insignificant in both Canadian sub-samples.

Both sample periods suggest that the EU is less likely to target products in which US industries supply a greater share of its imports. Targeting such industries could harm EU consumers that depend more heavily on US imports of these products. In contrast, Canada is more likely to target US industries that provide a larger share of Canadian imports.

In general, however, our results suggest that both countries appear to have shifted towards targeting products in more politically sensitive voting districts in 2018 when compared to the 2004 retaliation episode. We find evidence of Canada and the EU targeting politically important industries, whether measured through their PAC contributions *(Organized)* or the share of

[15] The CDSOA was a provision attached to the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act 2001. While President Clinton signed the Appropriations Act, he nevertheless voiced opposition to the CDSOA and called on Congress to repeal the provision.

employment in politically important Congressional districts and States only in the Section 232 sub-sample. Similarly, Canada targeted larger US industries in 2018, but not in 2004.

V. Conclusions

President Trump's Section 232 tariffs on steel and aluminum in 2018 drew global consternation and a slew of retaliatory measures from US trade partners. Given the large negative impact of these retaliatory measures, it is important to understand how products are chosen for retaliation. In this paper we develop a political economy model of trade retaliation in which countries choose which products to retaliate against by maximizing a weighted function of (1) domestic welfare and (2) the negative impact of retaliation on their trading partner. We find that countries are more likely to choose products in which they can extract terms-of-trade gains from their trading partner and those produced by industries that are politically important to the trading partner.

Guided by this model, we econometrically estimate the determinants of the likelihood of a product being targeted by retaliatory duties across a sample of seven countries and two retaliation episodes: the US implementation of the CDSOA in 2004 and the US imposition of the Section 232 steel and aluminum tariffs in 2018. We find strong evidence that countries are more likely to target products with larger trade values and products in which they can extract terms-of-trade gains, as predicted by our model. This result suggests that trade wars move countries back to a terms-of-trade driven prisoner's dilemma equilibrium that theoretical models such as those in Bagwell and Staiger (2011) hypothesize the WTO was designed to eliminate. There is also strong and consistent evidence that countries are more likely to target products within the same sector as the initial violation (in this case, steel and aluminum products), as recommended by the WTO Dispute Settlement Understanding.

However, there is a wide degree of heterogeneity in the degree to which countries choose politically important industries in the United States when developing their retaliation lists. While there is some evidence that emerging market countries choose larger US industries (as measured by the value of shipments) for retaliation, there is little evidence that they choose industries that are politically strategic, as measured by campaign contributions or employment in key Congressional districts or states. In contrast, there is evidence that the EU and Canada targeted industries that had Political Action Committees (PAC) and were located in the districts of House and Senate leadership and Presidential swing states when retaliating against the Section 232 tariffs.

We find little evidence that the CDSOA elicited the strategic targeting of politically sensitive industries that was evident in the retaliatory response to President Trump's Section 232 tariffs. An interesting question that remains is whether the difference between the 2004 and 2018 sub-samples simply reflects differences in the size of the trade skirmish or the role of the WTO in the retaliation, or whether there was increased politicization of retaliation against the Section 232 tariffs because of the role of President Trump, who openly undermined the WTO's role as arbiter of global trade. The increased politicization could represent a new norm, following widespread exasperation with the WTO retaliatory process viewed by many as cumbersome and ineffective.

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Figure 1
Value U.S. Exports of Products Chosen for Retaliation, 2018

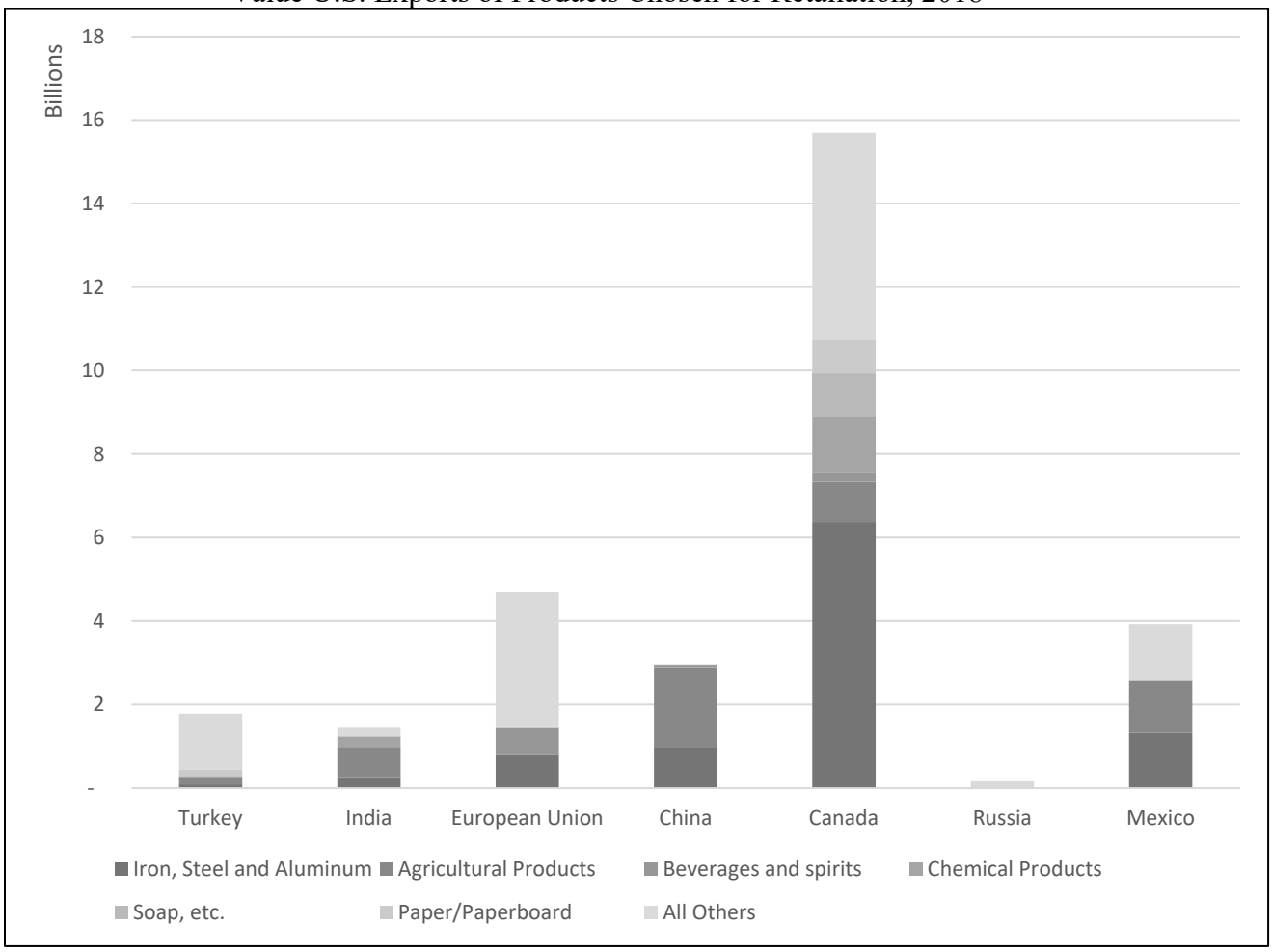

Figure Notes: Value of the six-digit HS imports from the United States targeted for retaliation by each country in billions of dollars.

Table 1
Products Targeted for Retaliation for Passage of the CDSOA (2002)

Canada			European Union		
Product	Value	Share of Total	Product	Value	Share of Total
Cigarettes (240220)	12.7	50.9%	Paper and paperboard products (482010, 482030, 482090, 482050)	20.8	48.5%
Mollusks and oysters (030710)	4.8	19.1%	Frames and mountings for spectacles (900319)	12.2	28.5%
Fish, ornamental (030110)	4.3	17.3%	Women's trousers (620469, 620463, 610463)	3.4	8.0%
Fish, frozen (030379)	2.1	8.5%	Vehicles, crane lorries (870510)	2.9	6.7%
Swine, live (010392, 010310, 010391)	1.1	4.2%	Men's trousers (620343,610343)	2.6	6.1%
			Vegetables, sweetcorn (071040)	1.0	2.3%

Table Notes: Value of US exports (in millions of dollars) may overestimate the true value of the suspension of concessions, which may exclude certain 10-digit HS codes within the six-digit category.

Table 2
Summary Statistics, Determinants of Section 232 Retaliation (2018)

Variable	Mean	Std. Err.	Min	Max
Retaliation	0.02	0.14	0.00	1.00
Value of Imports (Millions)	31.00	304.86	0.00	20,368.79
U.S. employment (thousands)	46.33	56.86	0.73	641.50
U.S. Shipments (Millions)	22.20	33.85	0.23	367.38
Share of Imports from US	0.22	0.29	0.00	1.00
Share of US Exports	0.10	0.17	0.00	1.00
Sector Benefitting from Protection	0.04	0.19	0.00	1.00
US Industry Organized	0.15	0.36	0.00	1.00
ln(Import Demand Elasticity)	1.11	0.41	0.07	12.07
ln(Inverse Export Supply Elasticity)	-0.52	4.92	-34.21	15.17
Location Gini Coefficient	0.01	0.02	0.00	0.54
Share of Employment in Swing State	0.31	0.11	0.00	0.86
Share of Employment in Senate Leadership District	0.03	0.04	0.00	0.67
Share of Employment in House Leadership District	0.04	0.08	0.00	0.57
No. of Observations	24,665			

Table 3
Probit Coefficients of the Determinants of Section 232 Retaliation, 2018

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln(σ/ω)*ln(Import Value)	0.002						
	(0.002)						
ln(σ/ω)*ln(Shipments)	0.003***						
	(0.001)						
Same Sector	1.303***	1.168***	1.158***	1.150***	1.149***	1.229***	1.166***
	(0.092)	(0.103)	(0.104)	(0.103)	(0.104)	(0.106)	(0.101)
ln(σ/ω)		0.028***	0.028***				0.013
		(0.007)	(0.007)				(0.009)
High σ/ω				0.148***			
				(0.050)			
ln(σ)					0.131***		
					(0.031)		
ln(1/ω)					0.027***		
					(0.006)		
Differentiated Products (Rauch)						0.171***	
						(0.059)	
ln(Import Value)		0.157***	0.156***	0.158***	0.156***	0.149***	0.156***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)
ln(Shipments)		0.120***	0.140***	0.136***	0.142***	0.125***	0.139***
		(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.030)
Organized		2.434***	2.597***	2.527***	2.606***	2.061***	2.520***
		(0.697)	(0.668)	(0.673)	(0.668)	(0.649)	(0.660)
Organized*ln(Shipments)		-0.248***	-0.266***	-0.259***	-0.267***	-0.212***	-0.259***
		(0.071)	(0.067)	(0.068)	(0.068)	(0.065)	(0.067)
Share of US Exports		0.044	0.044	0.040	0.047	0.071	0.037
		(0.125)	(0.125)	(0.125)	(0.125)	(0.126)	(0.124)
Share of Imports from US		0.204*	0.219**	0.212*	0.229**	0.213**	0.193*
		(0.109)	(0.109)	(0.109)	(0.109)	(0.106)	(0.105)
Gini			2.846***	2.687**	2.795***	3.682***	2.515**
			(1.083)	(1.077)	(1.077)	(1.214)	(1.080)
Share of Employment in Swing State			-0.494	-0.486	-0.516	-0.703**	-0.516
			(0.327)	(0.327)	(0.327)	(0.334)	(0.318)
Share of Employment in Senate Leader			0.506	0.606	0.468	0.295	0.691
			(0.504)	(0.501)	(0.502)	(0.527)	(0.496)
Share of Employment in House Leader			0.708	0.673	0.706	0.822	0.784
			(0.891)	(0.858)	(0.891)	(0.979)	(0.899)
Observations	23,172	23,159	23,159	23,159	23,159	23,023	24,721
(Pseudo) R-squared	0.230	0.302	0.305	0.302	0.305	0.300	0.302

Table Notes: Coefficient estimates from a probit regression in which the dependent variable equals 1if the country chose the six-digit HS code as one of the products targeted for retaliation following the imposition of US steel and aluminum tariffs in 2018. Robust standard errors are in parentheses. ***, ** indicates p-values < 0.01, 0.05, respectively. All specifications include year and three-digit NAICS industry fixed effects. Columns 1-5 utilize elasticities calculate by Soderberry (2015) while column 7 uses elasticities calculated by Crowley and Yu (2013).

Table 4
Probit Coefficients of the Country-Specific Determinants of Section 232 Retaliation, 2018

VARIABLES	CAN	EU	IND	TUR	RUS	MEX	CHN
ln(σ/ω)	0.014	0.013	-0.026*	0.028**	0.120***	-0.099***	0.148***
	(0.011)	(0.010)	(0.016)	(0.013)	(0.021)	(0.022)	(0.032)
Same Sector	2.610***	0.916***	1.455***			1.810***	1.240***
	(0.140)	(0.163)	(0.300)			(0.241)	(0.222)
ln(Import Value)	0.166***	0.151***	0.458***	0.081***	0.171***	0.231***	0.044
	(0.024)	(0.023)	(0.060)	(0.027)	(0.036)	(0.044)	(0.030)
ln(Shipments)	0.090*	0.081*	-0.003	0.412***	-0.402***	0.633***	0.975***
	(0.050)	(0.048)	(0.113)	(0.088)	(0.048)	(0.166)	(0.150)
Organized	3.066***	3.211***	3.714*	1.264	-5.079***	8.578***	6.854***
	(0.834)	(0.909)	(2.099)	(1.033)	(0.652)	(2.164)	(1.615)
Organized*ln(Shipments)	-0.303***	-0.310***	-0.416*	-0.118	0.566***	-0.823***	-0.844***
	(0.085)	(0.095)	(0.219)	(0.105)	(0.068)	(0.201)	(0.140)
Share of US Exports	1.133***	-0.327	-0.565	-0.245	0.713	-0.919**	0.423
	(0.193)	(0.331)	(0.636)	(0.671)	(0.662)	(0.452)	(0.425)
Share of Imports from	-0.237	-1.335***	0.325	1.030***	-0.003	0.449	0.961***
US	(0.208)	(0.435)	(0.554)	(0.291)	(0.645)	(0.299)	(0.322)
Gini	-1.105	-0.534	-13.313	6.827***	-69.127***	-12.815*	-20.738**
	(2.048)	(2.032)	(9.415)	(2.336)	(12.050)	(7.020)	(8.683)
Share of Employment in	1.353***	0.816	0.525	-5.737***	3.524***	-5.868***	-12.789***
Swing State	(0.479)	(0.683)	(1.183)	(1.009)	(0.821)	(1.725)	(1.679)
Share of Employment	2.520**	1.125	-0.698	5.022***	2.684*	-2.512	-48.180***
in Senate Leader	(1.103)	(1.100)	(4.211)	(1.377)	(1.375)	(3.196)	(8.972)
Share of Employment	1.280**	1.149**	0.498	-2.659	0.117	-3.070	-39.467***
in House Leader	(0.559)	(0.566)	(4.852)	(2.101)	(1.028)	(6.475)	(7.311)
Pseudo R-squared	0.528	0.135	0.359	0.285	0.207	0.429	0.531
Observations	4,663	4,717	3,107	2,573	2,501	3,630	3,826

Table Notes: Coefficient estimates from a probit regression in which the dependent variable equals 1if the country chose the six-digit HS code as one of the products targeted for retaliation following the imposition of US steel and aluminum tariffs in 2018. Robust standard errors are in parentheses. ***, ** indicates p-values < 0.01, 0.05, respectively.

Table 5

Marginal Effects of One Standard Deviation Change in Determinants of Retaliation, 2018

European Union and Canada

	Within the Same Sector		Outside the Same Sector	
	Organized	Non-Organized	Organized	Non-Organized
P(Suspended=1|Sector, Organization Status)	0.441	0.336	0.030	0.015
Ln(σ/ω)	0.025 (0.004,0.046)	0.024 (0.003,0.044)	0.005 (0.000,0.009)	0.003 (0.000,0.005)
Ln(Value of Imports)	0.164 (0.135,0.193)	0.165 (0.133,0.197)	0.043 (0.029,0.058)	0.026 (0.017,0.035)
ln(Shipments)	-0.097 (-0.140,-0.053)	0.031 (0.005,0.057)	-0.014 (-0.022, -0.006)	0.003 (0.000,0.007)
Share of US Exports	0.039 (0.021,0.056)	0.037 (0.020,0.054)	0.008 (0.003,0.012)	0.004 (0.002,0.006)
Share of Imports from US	-0.034 (-0.061,-0.007)	-0.032 (-0.057,-0.007)	-0.006 (-0.010,-0.001)	-0.003 (-0.005,-0.001)
Share of Employment in Swing State	0.045 (0.009,0.080)	0.043 (0.009,0.077)	0.009 (0.001,0.017)	0.005 (0.000,0.009)
Share of Employment in Senate Leadership	0.023 (0.005, 0.041)	0.022 (0.004,0.039)	0.004 (0.000,0.008)	0.002 (0.000,0.004)
Share of Employment in House Leadership	0.041 (0.017,0.064)	0.039 (0.016,0.062)	0.008 (0.002,0.013)	0.004 (0.001,0.007)

Turkey, India, Russia, Mexico, and China

	Within the Same Sector		Outside the Same Sector	
	Organized	Non-Organized	Organized	Non-Organized
P(Suspended=1|Sector, Organization Status)	0.064	0.070	0.011	0.013
Ln(σ/ω)	0.014 (0.002,0.025)	0.014 (0.003,0.026)	0.003 (0.001,0.006)	0.004 (0.001,0.007)
Ln(Value of Imports)	0.052 (0.032, 0.071)	0.053 (0.035,0.072)	0.014 (0.008, 0.020)	0.016 (0.010, 0.021)
ln(Shipments)	0.012 (-0.000,0.024)	0.034 (0.021,0.046)	0.003 (-0.000,0.006)	0.009 (0.005,0.013)
Share of Imports from US	0.022 (0.010,0.033)	0.023 (0.011,0.034)	0.006 (0.003,0.009)	0.006 (0.003,0.009)

Table Notes: Marginal effects on the probability of a product being chosen for retaliation from a one standard deviation change in the independent variable. Calculated from the parameters of a probit model estimated based on the specification presented in Table 4 but using a pooled sample of either Canada and the European Union or Turkey, India, Russia, Mexico, and Canada. Country fixed effects included in both specifications. 95 percent confidence intervals in parentheses.

Table 6
Probit Coefficients of the Episode-Specific Determinants of Retaliation

VARIABLES	EU CDSOA	Canada CDSOA	EU Section 232	Canada Section 232
ln(σ/ω)	0.039***	0.003	0.017**	0.010
	(0.011)	(0.014)	(0.008)	(0.008)
Same Sector			1.262***	2.661***
			(0.120)	(0.130)
ln(Import Value)	0.160***	-0.009	0.089***	0.135***
	(0.032)	(0.057)	(0.015)	(0.020)
ln(Shipments)	-0.258***	0.189*	0.052	0.099**
	(0.049)	(0.109)	(0.037)	(0.042)
Organized	-2.395***	-1.481*	4.771***	2.776***
	(0.545)	(0.875)	(0.696)	(0.697)
Organized*ln(Shipments)	0.219***	0.055	-0.460***	-0.270***
	(0.058)	(0.098)	(0.075)	(0.071)
Share of US Exports	-2.292**	-0.578	-0.638***	0.863***
	(1.022)	(0.888)	(0.245)	(0.138)
Share of Imports from US	-28.530**	0.000*	-0.947	0.142**
	(13.908)	(0.000)	(0.703)	(0.068)
Gini	-5.821**	0.772	2.459**	0.288
	(2.784)	(1.489)	(0.990)	(1.554)
Share of Employment in Swing State	-0.252	0.536	-0.550	0.440
	(0.347)	(0.818)	(0.424)	(0.411)
Share of Employment in Senate Leader	-2.858*	-24.531**	0.993	2.051**
	(1.551)	(11.156)	(0.675)	(0.998)
Share of Employment in House Leader	7.710	-37.962***	1.005***	0.328
	(6.109)	(12.193)	(0.356)	(0.451)
Constant	0.351	-3.841***	-2.595***	-4.033***
	(0.442)	(1.131)	(0.419)	(0.467)
Pseudo R-Squared	0.185	0.172	0.157	0.505
Observations	8,464	5,598	7,843	5,327

Table Notes: Coefficient estimates from a probit regression in which the dependent variable equals 1if the country chose the eight-digit HS code as one of the products targeted for retaliation following the imposition of the Continued Dumping and Subsidy Offset Act (CDSOA-2004) and the Section 232 US steel and aluminum tariffs (2018). Robust standard errors are in parentheses. ***, ** indicates p-values < 0.01, 0.05, respectively.