

# Trade Preferences of Organized Interest Groups and Interstate Conflicts

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## Abstract:

This paper studies both theoretically and empirically the impact of using trade as a peace instrument to avoid an anticipated interstate war between countries that share a historical conflict. The impact of trade is examined through the role of organized interest groups in influencing their governments' foreign policies. A game theoretical model is used to observe the dynamics at the domestic and international level of negotiating a peace agreement, possibly accompanied with a trade agreement. The main finding is that the probability of conflict depends on the contribution schedules offered by organized interest groups, weighted aggregate welfare, and military cost. The model is also estimated empirically using a linear probability model with fixed effects. The empirical results confirm the theoretical findings. The probability of interstate conflict is lower when the government uses trade liberalization policies in export-oriented products while it uses trade protectionism policies in import-competing products. The primary conclusion here is that organized interest groups are key when it comes to using trade to dampen conflicts. (*JEL F5*)

Keywords: Trade; Conflict; Negotiations; Lobbying.

## **I. Introduction**

War imposes high physical, psychological, and financial costs on civilians, governments, and economies of conflicting countries. Due to this toll, governments eventually sit on the negotiation table, either due to exhaustion from war or due to an international pressure to end this war in response to humanitarian or economic concerns. If the war cannot be resolved by solving the root problem peacefully, the governments may resort to another alternative; a trade agreement.

The idea behind using trade to avoid conflicts is referred to as the liberal peace theory which assumes that economic interdependence between countries increases the opportunity cost of waging future wars as a result of the financial losses that the countries incur when fighting with their trading partners (Polacheck, 1980). Although the liberal theory states that trade per se promotes peace, there has been numerous studies in the international relations literature that adopted different schools of thought and investigated this alleged relationship between trade and conflict. Economic realism, for example, claims that the opposite is true; increasing economic interdependence between countries increases their vulnerability and threatens their national security (Grieco, 1988). Democratic peace theory, on the other hand, states that the positive effect of trade on peace is conditional on the existence of democracy (Gelpi and Grieco, 2003, 2008). Finally, the pluralist theory proposes that governments are neither social welfare maximizers nor national security maximizers. Pluralists believe that a government's decisions depend mainly on the preferences of the organized interest groups in its country. An increase in economic interdependence could promote peace if it creates politically organized interest groups that are interested in maintaining the status quo (Simmons, 2003). McDonald takes this dynamic between interest groups, trade, and peace a step further and concludes that increasing economic interdependence and liberalizing trade will lead exporters to operate as peace keepers in order to keep peaceful trade going (2009).

The aforementioned studies were mainly empirical and have only found a strong correlation between trade, democracy, and peace. The studies lack a developed theoretical model that backs their claims up or attempts to explain the real mechanism behind war and peace decisions (Lipson, 2003). This is particularly critical when a politician adopts one of these schools of thought and mistakenly interprets the correlation as causation and acts on it in order to promote peace in a certain region. George W. Bush, for instance, claimed in his State of the Union Address in 2004 that his intention in the Middle East through the War on Iraq is merely to promote democratic peace (McDonald, 2009). Another attempt to promote peace in the same region were the Oslo Accords that the Israeli government and the Palestinian Liberation

Organization signed in 1993 and 1995 in order to end the Israeli-Palestinian conflict; the governments also created a customs union in 1994 to ensure the sustainability of their peace agreements. Due to the lack of understanding of the real mechanism behind peace, both of these attempts, among many other reasons, have failed and ended up making the political situation much worse compared to how it was before these actions were taken to promote peace.

The main goal of this paper is to develop a theoretical model that investigates the mechanism through which trade can promote peace, or ignite conflicts; that is, through political pressure by organized interest groups. To achieve this goal, I investigate three research questions. First, I examine the mechanisms through which organized interest groups influence the governments' relations with a foreign government with whom they share a historical conflict and a current political tension. Second, I investigate whether trade liberalization per se leads to peace, or whether it could, in certain cases, ignite conflicts. Third, I study the effect of different trade agreements on conflict-related decisions.

As was mentioned before, the current literature lacks a developed theoretical framework that explains the mechanism through which trade influences conflict-related decisions; this paper fills this gap in the literature. It also examines the role of interest groups in conflict-related decisions, and examines the effect of negotiating free trade agreements, preferential trade agreements, and other individual trade policies on peace. This paper also has an important empirical contribution via distinguishing between the role of export-oriented and import-competing industries in influencing militarized interstate disputes. The current literature has either been treating all industries similarly or focusing on export-oriented industries while neglecting the role of import-competing industries in promoting or dampening peace.

One of the main findings of this paper is that interest groups' contributions are critical when it comes to the government's decision to go to war. If the government ends up choosing a non-optimal policy that does not take into consideration the preferences of their organized interest groups, then that could lead to the eruption of conflict. Another finding is that the orientation of the organized interest groups is key in promoting peace. Liberalizing trade in export-oriented industries will promote peace; nonetheless, the opposite will be true if the politically strong import-competing industries were not exempted from trade liberalization. Contrary to the common belief, protectionism in certain cases could promote peace.

The remainder of the paper is organized as follows. The second section is an outline of the theoretical model and its main assumptions; it also includes a calculation of the optimal offer and the probability of conflict for three different proposed agreements and the solution to the theoretical model. The third section states the empirical model, discusses the measurements used to test the theoretical model, and lists the different data sources used. The fourth section discusses the results of the empirical model. The fifth section concludes.

## **II. Formal Framework<sup>1</sup>**

Two small countries,  $s \in \{A, B\}$ , are disputing over a divisible object of value  $T$ . The object is a territory with historical importance to both countries, but no direct impact on production. Also, assume that the countries are similar in their political and economic systems, but may differ in their tastes, endowments, and political conditions. Due to the current dispute between the countries, and probably a historical conflict between them, no trade exists between countries A and B. The countries have two options to end their dispute: go to war,  $W$ , or negotiate,  $N$ . If they negotiate, there are three proposed solutions; they can sign a peace treaty,  $P$ , sign a peace treaty and a preferential trade agreement,  $TA$ , or sign a peace treaty and a free trade agreement,  $FTA$ <sup>2</sup>. If they fight, the winner gets the territory while the loser gets nothing, and both governments bear a cost,  $\mathcal{M}_s^W > 0$ ;  $\mathcal{M}_s^{R-w} = 0$  where  $R-w = \{P, TA, FTA\}$ . Assume that the cost of conflict is less than the value of the territory,  $\mathcal{M}_s^W < T$ . The peace treaty signed is an agreement to divide the territory among them. If the negotiations fail, there is still a possibility to go to war.

To study the dynamics of the decision-making process at both the domestic and international levels, a four-stage game with incomplete information will be used. The players of this game are the organized interest groups in both countries,  $L_A$  and  $L_B$ , and the governments of countries A and B. In the first stage, each interest group in each country will offer a contribution schedule,  $C_{is}^R(p_s, h_{-s}) \lesseqgtr 0$ , to its own government.<sup>3</sup> The contributions of most interest groups will be nonnegative; however, in certain cases in which the members of an organized interest group share a political ideology, they could “punish” the government if they deemed its policies

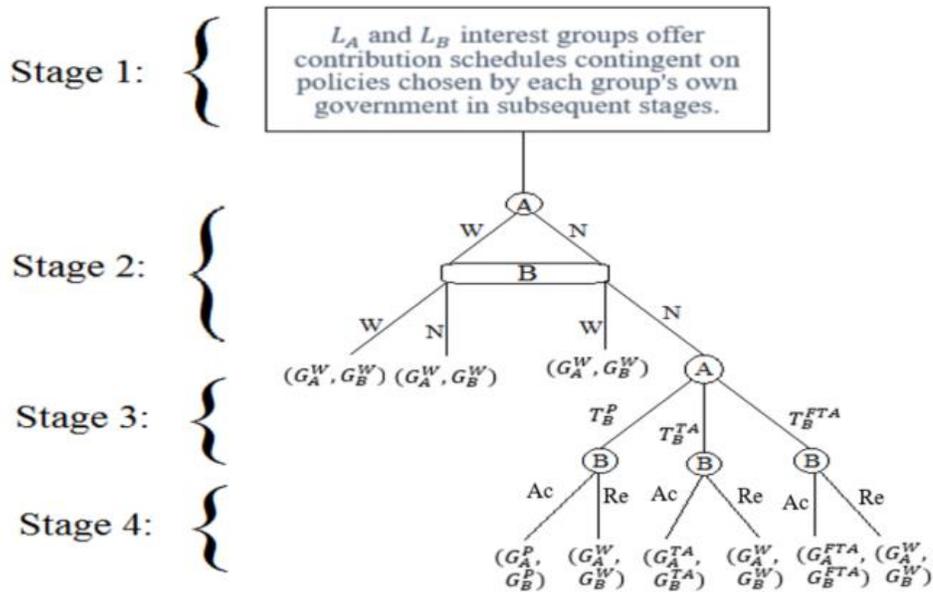
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<sup>1</sup> The objective function in the theoretical model is built heavily on the protection-for-sale model that was developed by Grossman and Helpman to study the equilibrium structure of trade protection and the politics of trade agreements (1994, 1995a, 1995b).

<sup>2</sup> The difference here between the preferential trade agreement and the free trade agreement is that there will still be positive tariffs levied on certain or all products in a preferential trade agreement. On the other hand, no products will be exempted from trade liberalization under a free trade agreement.

<sup>3</sup> The contribution schedules are set noncooperatively. No interest group will make an offer to the foreign country.

to be politically undesirable. Each contribution schedule is a continuous function of the interest group's home country's price vector that will be chosen based on the governments' decisions, and the hostility level of the other government. After receiving the offers, the governments decide simultaneously whether to fight or negotiate a peaceful settlement. If at least one country chooses to go to war, both countries will fight. If both countries decide to negotiate, they can negotiate either a peace agreement only, or they can accompany that with a preferential or a free trade agreement. The peace agreement negotiated will be an offer  $T_B^{R-W}$  that country A will make in the third stage.<sup>4</sup> In the fourth stage, country B will make its decision. If country B accepts, the dispute will end; B gets  $T_B^{R-W}$  of the territory, while A gets  $T_A^{R-W} = T - T_B^{R-W}$ . If B rejects, the countries will go to war. The following figure is the extensive form of this game.



Assume that individuals in each country  $s$  have similar utility functions. Also, assume that there is a numeraire good  $x_0$  and nonnumeraire goods  $x_i$ , where  $i = 1, \dots, n$ .<sup>5</sup> Assume that  $x_0$  is manufactured by labor only, while  $x_i$  is manufactured by both labor and a sector-specific input. Furthermore, assume that each individual endures some cost due to war,  $c_s^W > 0$ .<sup>6</sup> On the other hand, if the government chooses a peaceful solution while the other country is being hostile, each individual will face a cost of diplomatic normalization,  $\eta_s^{R-W}(h_{-s}) \geq 0$ , which is

<sup>4</sup> Assume that the territory is currently under A's control.

<sup>5</sup> "n" indexes the number of nonnumeraire goods in each country.

<sup>6</sup> For example, this could be due to being traumatized by war. In this case,  $c_s^P = c_s^{TA} = c_s^{FTA} = 0$ .

increasing in the hostility level of the other country.<sup>7</sup> The utility function for each individual takes the following form:  $u_s = x_{0s} + \sum_{i=1}^{n_s} u_{is}(x_{is}) - c_s^R - \eta_s^R(h_{-s})$ . Let the demand for each good be  $x_{is} = d_{is}(p_{is})$  where  $d_{is}(\cdot)$  is the inverse of  $u'_{is}(x_{is})$  and  $p_{is}$  is the price of the nonnumeraire good  $i$  in country  $s$  where  $p_{is} = \tau_{is}\pi_i$ ;  $\tau_{is}$  is the ad valorem trade tax or subsidy on good  $i$  imposed by country  $s$  and  $\pi_i$  is the offshore price of good  $i$ . Let  $p_s$  be the price vector of all nonnumeraire goods in country  $s$ ;  $p_s = (p_{1s}, p_{2s}, \dots, p_{n_s})$ . Consumer surplus in country  $s$  is  $S_s(p_s) = \sum_i u_{is}[d_{is}(p_{is})] - \sum_i p_{is}d_{is}(p_{is})$ . Let  $\Pi_{is}^R(p_{is})$  be the aggregate rent accruing to the specific factor used in producing good  $x_i$  in country  $s$  and  $y_{is}^R(p_{is}) = \Pi_{is}^{R'}(p_{is})$  is the domestic output of good  $x_i$  in country  $s$ .<sup>8</sup> Let  $N_s$  be the population of country  $s$ . The per capita net revenue from all taxes and subsidies is  $r_s^R(p_s) = \sum_i (p_{is} - \pi_i)[d_{is}(p_{is}) - \frac{1}{N_s}y_{is}^R(p_{is})]$ .<sup>9</sup>

Assume that in country  $s$ , in some exogenous set of sectors, denoted  $L_s$ , the specific-factor owners have been able to overcome the free-riding problem and organize themselves into interest groups. Also, assume that unorganized factor owners and any individual who does not own any of the specific factors used in production refrain from making political contributions. Each interest group  $i \in L_s$  makes a campaign contribution,  $C_{is}^R(p_s, h_{-s})$ , to the incumbent government in their country to influence their decision in the negotiations with the opposing country.<sup>10</sup> This can be perceived as a common agency problem in which the government is an agent and the interest groups are principals. Bernheim and Whinston (1986) propose a solution to this common agency problem by allowing each principal to offer a menu of bids to win a specific prize, or a proportion of it, while each bidder considers the bids of everyone else. I follow the same framework in which I assume that interest groups compete to influence the government to choose their favorite policy that can maximize their welfare.<sup>11</sup> Each organized interest group offers a “menu” of campaign contributions contingent on the proposed policies. The proposed policies in this case represent a continuum of prices that will be imposed post-negotiations, or during war. The prices will be affected by going to war, and by trade volume and terms of trade,

<sup>7</sup> This can be attributed to patriotism, and it increases as normal relations increase between the governments. I.e., holding the hostility level of the other country constant,  $\eta_s^{FTA} > \eta_s^{TA} > \eta_s^P \geq \eta_s^W = 0$ .  $\eta_s^R(0) = 0$ .

<sup>8</sup> For simplicity, let  $\Pi_s^R = \sum_{i=1}^n \Pi_{is}^R(p_{is})$ ,  $Y_s^R = \sum_{i=1}^n y_{is}^R(p_{is})$ ,  $S_s^R = S_s^R(p_s)$ , and  $r_s^R = r_s^R(p_s)$ .

<sup>9</sup> The functions in this paragraph were defined by Grossman and Helpman (1994). They are mainly used in this paper to help make the assumptions necessary to solve the model.

<sup>10</sup> For simplicity, let  $C_s^R = \sum_{i \in L_s} C_{is}^R(p_{is})$ .

<sup>11</sup> Grossman and Helpman’s “protection-for-sale” model (1994) followed the same framework as in Bernheim and Whinston’s “Menu Auction” paper (1986).

if any trade were to occur, or by signing a free trade agreement. If the governments choose to go to war, a price vector  $p_s^W$  will be chosen as a result, and the government will receive any contributions that were offered contingent on choosing  $p_s^W$ . Similarly, if the governments decide to sign a free trade agreement, the price vector will be  $p^{FTA}$ , and each government will receive the contributions that were offered contingent on the government choosing  $p^{FTA}$  as its price vector. On the other hand, if the governments decide to sign a peace treaty, the tariffs or subsidies will be imposed by each government noncooperatively. Additionally, if they sign a peace treaty and a trade agreement, the tariffs and subsidies will be negotiated, and will be set cooperatively<sup>12</sup>. In either case, each organized interest group in each country offers a contribution schedule to its own government, and once the government chooses its preferred policy, it can collect the contributions offered contingent on that chosen policy.<sup>13</sup> Each offer in a contribution schedule cannot exceed the additional income and profit that the interest group would gain if the government were to choose the policy tied to this offer.

Each organized interest group,  $i$ , wants to maximize the joint welfare of its members,  $v_{is}^R = W_{is}^R(p_s, h_{-s}) - C_{is}^R(p_s, h_{-s})$ . The welfare function of the interest group,  $i$ , is:

$$W_{is}^R(p_s, h_{-s}) = \ell_{is}^R + \Pi_{is}^R(p_{is}) + \alpha_{is} N_s [r_s^R(p_s) + S_s^R(p_s) - c_s^R - \eta_s^R(h_{-s})] + J_{is}^R$$

where  $\ell_{is}^R$  is the labor income earned by members of interest group  $i$  and  $\alpha_{is}$  is the proportion of the population that are members of group  $i$  in country  $s$ .  $J_{is}^R$  represents the political ideology of the interest group and their likelihood of supporting or opposing a peaceful resolution. For example, by looking at political spectrum in Palestine and the government's relations with Israel, an interest group that belongs to the Palestinian National Initiative party is more likely to be pacific and support normal relations with Israel. In contrast, an interest group that belongs to Hamas is more likely to support militarized resistance and oppose normal relations with Israel. If an interest group does not have a shared political ideology, then  $J_{is}^R = 0$ .

Each government's objective function is to maximize  $G_s^R = C_s^R + a_s W_s^R + T_s^R - \mathcal{M}_s^R$  where  $T_s^R$  is the proportion of the territory that each country  $s$  gets to keep after ending the dispute, and might vary with the method chosen to end the dispute.  $a_s$  is the weight of the

<sup>12</sup> This is similar to the cooperative and noncooperative equilibria that were found by Grossman and Helpman (1995b).

<sup>13</sup> Assume that an interest group can only give contribution offers to its own government but not to the government of the other country.

aggregate welfare that the government in country  $s$  includes in its objective function;  $a \in [0,1]$ .<sup>14</sup>  $W_s^R$  is the aggregate welfare in country  $s$ ,

$$W_s^R = W_s^R(p_s, h_{-s}) = \ell_s^R + \Pi_s^R + N_s[r_s^R(p_s) + S_s^R(p_s) - c_s^R - \eta_s^R(h_{-s})]$$

where  $\ell_s^R$  is the total labor income in country  $s$  and  $\Pi_s^R$  is the total profit gained by all owners of the factors of production, both organized and unorganized, in country  $s$ .

The probability of winning the war primarily depends on how prepared each country is to fight. Assuming that neither country knows how prepared the other country is, and given the assumption that the disputed territory has a historical importance to each government, I assume that not doing anything to end the dispute is not an option.<sup>15</sup> Each government has to make a decision in the second stage of this game. If a war were to erupt, one of the countries will win the territory; the probability of A winning the war is  $\rho \in [0,1]$ . Assume that there is a fixed resource in each country that can be used either for production of civilian goods or military goods. In other words, if the governments decide to fight, they will have to take resources away from production of consumption goods and use them to prepare for war. For simplicity, assume that this resource is labor. Since, in a state of war, more soldiers are needed, the military will recruit more soldiers either as volunteers or for mandatory service. Labor available for production will decrease. Consequently, total labor income will decline, or at least it will be less than the income if a peace treaty were to be signed;  $\ell_s^W < \ell_s^{R-w}$ .<sup>16</sup> Furthermore,  $Y_s^W < Y_s^{R-w}$ . Since there will be no trade between A and B if they fight, there will be less revenue from tariffs, and therefore,  $r_s^W < r_s^{R-w}$ . In addition, since production will be lower, and there will be no trade with the other country, less goods, in quantity and variety, will be available for domestic consumption. Hence, consumer surplus will be lower in a state of war;  $S_s^W < S_s^{R-w}$ .

Some factor owners might benefit from war; for instance, arms producers tend to make more profit in a state of war. Other interest groups might benefit from either the political

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<sup>14</sup> Think of  $a$  as how much the government values a dollar in the hands of the people as opposed to a dollar in the hands of the government itself (i.e., contributions gained by government, value of the territory that it gets to keep, or the amount of money the government would have to spend in case of war).

<sup>15</sup> If a country elects to neither fight nor negotiate, that could send a signal to the opposing country that it is not prepared for war, and therefore, can be easily targeted and is more likely to lose the war. Also, the tension between the two governments will remain until some action to solve the dispute is taken.

<sup>16</sup> One might argue that in a state of war, more soldiers will be needed which can lower unemployment and increase total income. However, we are assuming that at the aggregate level, financial gains under peace exceed financial gains under war. We can also assume that soldiers, on average, get paid less than civilian laborers, but this depends on the nature of the country; this last assumption is not necessary here.

instability or from having a relatively closed economy. As a result, if at least one of these groups is organized, then  $C_s^W > 0$ . On the other hand, many interest groups will lose if war were to break out;  $\Pi_s^W < \Pi_s^{R-w}$ .<sup>17</sup> Thus,  $C_s^{R-w} > 0$ . Whether  $C_s^W < C_s^{R-w}$  depends on which interest groups are organized and the political ideology of these organized interest groups.

By comparing the aggregate welfare if the government were to solve the dispute peacefully and aggregate welfare if they fight, we get:  $W_s^W < W_s^{R-w}$

$$\begin{aligned} \Leftrightarrow \ell_s^W + \Pi_s^W + N_s[r_s^W(p_s) + S_s^W(p_s) - c_s^W] \\ < \ell_s^{R-w} + \Pi_s^{R-w} + N_s[r_s^{R-w}(p_s) + S_s^{R-w}(p_s) - \eta_s^R(h_{-s})] \end{aligned}$$

The following are the expected objective functions for the governments of A and B if they fight.

$$\begin{aligned} G_A^W &= C_A^W + a_A W_A^W + \rho T - \mathcal{M}_A^W \\ G_B^W &= C_B^W + a_B W_B^W + (1 - \rho)T - \mathcal{M}_B^W \end{aligned}$$

Alternatively, if the countries decide to negotiate one of the peaceful proposals,  $R_{-w} \in \{P, TA, FTA\}$ , country A will make the first move and offer  $T_B^{R-w}$  to country B. B can accept the offer and end the dispute or reject it and go to war. If the offer is rejected, the countries can go back to negotiate a new offer proposed by B, and A would accept it or reject it. However, since the size of T is fixed, and there is a cost of war that is borne by each country if they fight, A will want to avoid this. Therefore, A should make an offer such that B's expected payoff from signing the treaty would be at least as much as its expected payoff if it goes to war. If A and B sign the agreement, A's and B's objective functions will be the following:

$$\begin{aligned} G_A^{R-w} &= C_A^{R-w} + a_A W_A^{R-w} + T - T_B^{R-w} \\ G_B^{R-w} &= C_B^{R-w} + a_B W_B^{R-w} + T_B^{R-w} \end{aligned}$$

Given the objectives functions above, B will accept an offer if and only if  $G_B^{R-w} \geq G_B^W$ .

$$\text{Accept} \Leftrightarrow \mathcal{M}_B^W \geq [C_B^W - C_B^{R-w}] + a_B [W_B^W - W_B^{R-w}] + (1 - \rho)T - T_B^{R-w}$$

$$\text{Reject} \Leftrightarrow \mathcal{M}_B^W < [C_B^W - C_B^{R-w}] + a_B [W_B^W - W_B^{R-w}] + (1 - \rho)T - T_B^{R-w}$$

The optimal offer,  $T_B^{R-w}$ , can be calculated by solving the following maximization problem.

$$\begin{aligned} T_B^{R-w*} &= \text{argmax} \{EG_A^{R-w}\} = \text{argmax} \{G_A^W \times Pr(B \text{ rejects}) + G_A^{R-w} \times Pr(B \text{ accepts})\} \\ T_B^{R-w*} &= \frac{(C_B^W - C_B^{R-w}) + a_B (W_B^W - W_B^{R-w}) - (C_A^W - C_A^{R-w}) - a_A (W_A^W - W_A^{R-w}) - 2\rho T + 2T - 1 + \mathcal{M}_A^W}{2} \end{aligned}$$

<sup>17</sup> Keep in mind that  $\Pi_{is}^W(p_{is}) \geq \Pi_{is}^{R-w}(p_{is})$  for some  $i$ . However,  $\sum_i^{n_s} \Pi_{is}^W(p_{is}) < \sum_i^{n_s} \Pi_{is}^{R-w}(p_{is})$ .

The probability of conflict can be calculated by plugging the optimal offer in the rejection rule.

$$\Pr(\text{war})^{R-w} = \Pr(B \text{ rejects } T_B^{R-w*})$$

$$\Pr(\text{war})^{R-w} = \frac{(C_B^W - C_B^{R-w}) + a_B (W_B^W - W_B^{R-w}) + (C_A^W - C_A^{R-w}) + a_A (W_A^W - W_A^{R-w}) + 1 - \mathcal{M}_A^W}{2}$$

Despite the similarities in the three peaceful proposals, they are still different in some respects. First, negotiating a peace-only agreement could lead to an increase in trade between the countries; however, the trade policies in this case will be set noncooperatively. Per Grossman and Helpman (1995b), when governments set trade policies noncooperatively, they impose an avoidable cost on each other; i.e., setting tariffs cooperatively leads to a higher joint welfare for both countries. This suggests that negotiating trade policies along with a peace agreement could leave both governments better off. Nonetheless, even if a trade component was added to the peace negotiations, negotiating a free trade agreement will lead to different results when compared to negotiating any other preferential trade agreement. One result that was repeatedly found in the trade-conflict models, when the countries are similar in size and economic interdependence, is that the more the countries trade, the less is the likelihood of conflict between them. On the other hand, free trade eliminates bilateral trade barriers between countries, and, therefore, increases trade between the two countries. This has two implications. First, with no trade barriers, the people in each nation would be able to buy goods at non-distorted prices; this would increase consumer surplus,  $S_s^{FTA} > S_s^{TA}$ , but reduce per capita net tariff revenue,  $r_s^{FTA} < r_s^{TA}$ . Free trade also leads to an increase in the variety of goods available for consumers, and it also leads to an increase in the trade volume. If we assume that trade creation caused by the free trade agreement exceeds the trade diversion that will result, then that would lead to an increase in  $\ell_s$  and  $\Pi_s$ .  $W_s^{FTA} > W_s^{TA}$  if and only if  $(\ell_s^{FTA} - \ell_s^{TA}) + (\Pi_s^{FTA} - \Pi_s^{TA}) + N_s(S_s^{FTA} - S_s^{TA}) > N_s(r_s^{TA} - r_s^{FTA}) - (\eta_s^{TA} - \eta_s^{FTA})$ . Second, because free trade eliminates trade barriers, industries that want to be protected would increase their contributions hoping to influence the government's decision. If industries in favor of free trade know how strongly other interest groups are willing to lobby to avoid the losses that will be accrued if a free trade agreement is signed, they will also increase their lobbying, and thus their contributions, to influence the government to sign the agreement. Thus,  $C_s^{FTA}$  may or may not be larger than  $C_s^{TA}$ .

### **II.a. Subgame Perfect Equilibrium**

To get the subgame perfect equilibrium (SPE), reduce the game to a three-stage game by using the probability of B rejecting the optimal offer to find the expected payoff conditional on each offer. In this reduced game, the interest groups will offer contribution schedules contingent on the price vectors that would maximize the joint welfare of the group and the government's expected payoff if one of the optimal offers is chosen. Then, each government decides whether to fight or to negotiate one of these optimal offers. Finally, country A makes an offer if both countries decide to negotiate. Using backward induction, the SPE of this game can be found. Starting from the last stage, A knows that they would maximize their expected payoff and induce B to accept the offer if they offer exactly  $T_B^{R^*-w}$  when they negotiate any of the peaceful solutions. If they offer less than that, they increase the probability of B rejecting the offer. On the other hand, they do not have an incentive to offer anything larger than  $T_B^{R^*-w}$ , since this is the argmax of their expected payoff. Based on that, A chooses between three peaceful proposals, it can negotiate a peace agreement and offer  $T_B^{P^*}$ , or accompany that with a preferential trade agreement and offer  $T_B^{TA^*}$ , or a free trade agreement and offer  $T_B^{FTA^*}$ . To determine which offer to make, A would have to compare its expected payoff across these three offers. Regardless of which offer A makes, B will always choose to negotiate this offer since B's preferences are taken into account when the optimal offers are chosen. Furthermore, A prefers negotiating over fighting whenever the joint gain in contributions and welfare for both countries under the peaceful resolution exceeds the military cost that will be imposed on A if a war erupts.

The first part of the equilibrium is that each interest group  $i \in L_S$  would offer a contribution schedule contingent on price vectors that would jointly maximize their governments' expected payoff,  $EG_S^R$ , and their own welfare, which is affected by the hostility level of the foreign country. The second part is that B will always negotiate an optimal offer while A will only negotiate if the joint net gain in contributions and welfare exceeds the military cost of war. The following table summarizes the third parts of the subgame perfect equilibrium under various scenarios and its effect on the probability of war.

Table 1: Preferred Proposal under Different Scenarios		
Preferred proposal	Scenario	Impact on probability of war
Free Trade Agreement	Welfare and contributions are maximized under a FTA	$\Pr(\text{war})^{FTA} < \min \{\Pr(\text{war})^{PTA}, \Pr(\text{war})^P\}$
	Welfare is maximized but interest groups are in favor of the preferential trade agreement	$\Pr(\text{war})^{FTA} < \Pr(\text{war})^P$ $\Pr(\text{war})^{FTA} < \Pr(\text{war})^{PTA}$ if the gain in welfare is significantly larger than the loss in contributions
	Contributions are maximized but aggregate welfare is not	$\Pr(\text{war})^{FTA} < \min\{\Pr(\text{war})^{PTA}, \Pr(\text{war})^P\}$ if $W_s^{FTA} > W_s^P$ and if the gain in contributions is significantly larger than the loss in welfare
Preferential Trade Agreement	Welfare and contributions are maximized under a PTA	$\Pr(\text{war})^{PTA} < \min\{\Pr(\text{war})^{FTA}, \Pr(\text{war})^P\}$
	Welfare is maximized but interest groups are in favor of the free trade agreement	$\Pr(\text{war})^{PTA} < \Pr(\text{war})^P$ $\Pr(\text{war})^{PTA} < \Pr(\text{war})^{FTA}$ if the gain in welfare is significantly larger than the loss in contributions
Peace Agreement	Contributions are maximized but aggregate welfare is not	$\Pr(\text{war})^P < \min\{\Pr(\text{war})^{FTA}, \Pr(\text{war})^{PTA}\}$ if the gain in contributions is significantly larger than the loss in welfare

The SPE under each one of these scenarios suggests that the size of the contribution schedules offered by the organized interest groups is key if one is interested in minimizing the probability of conflict. The size of the contributions depends on the structure and organization of the industries in each country. Nonetheless, the preferences of these organized interest groups will determine the relative size of each contribution offered under each proposed agreement. The preferences depend on the orientation of the industries to which the interest groups belong. Interest groups that belong to export-oriented industries will lobby their government to liberalize trade. In contrast, interest groups that belong to import-competing industries will lobby for higher protectionism. The following hypotheses can be driven from the results above.

**Hypothesis I:** Interest groups in *export-oriented* industries will pay higher contributions to *minimize* the tariffs on their products. As a result, higher trade *liberalization* in export-oriented industries will lead to a *lower* probability of conflict, while higher *protectionism* will lead to a *higher* probability of conflict.

**Hypothesis II:** Interest groups in *import-competing* industries will pay higher contributions to *maximize* the tariffs on their products. As a result, higher trade *liberalization* in import-competing industries will lead to a *higher* probability of conflict, while higher *protectionism* will lead to a *lower* probability of conflict.

### III. Empirical Model

In order to test the aforementioned hypotheses, data on the interest groups' contributions, and the industries' organization and orientation are needed. Due to data limitations, I use proxies to measure these variables. First, to distinguish between organized and unorganized interest groups, I assume that any industry with comparative advantage compared to the rest of the world is an export-oriented organized interest group. On the other hand, any industry whose share of imports exceeds the global import share and still manages to report any exports in its products is an import-competing industry.<sup>18</sup> Balassa (1965) developed the revealed comparative advantage (RCA) index to calculate the relative advantage or disadvantage of a certain class of goods or services based on trade flows. The RCA for exports ( $Ex$ ) and imports ( $Im$ ) for country  $s$  in product  $p$  can be calculated using the following equations:

$$RCA_{Ex_{sp}} = \frac{Ex_{sp}}{\sum_{p' \in P} Ex_{sp'}} \bigg/ \frac{\sum_{s' \in S} Ex_{s'p}}{\sum_{s' \in S, p' \in P} Ex_{s'p'}} \quad RCA_{Im_{sp}} = \frac{Im_{sp}}{\sum_{p' \in P} Im_{sp'}} \bigg/ \frac{\sum_{s' \in S} Im_{s'p}}{\sum_{s' \in S, p' \in P} Im_{s'p'}}$$

Where  $p$  and  $p'$  are product indices (defined at the Harmonized System chapter level),  $P$  is the set of all commodities,  $s$  and  $s'$  are country indices, and  $S$  is the set of all world countries. After calculating  $RCA_{Ex_{sp}}$  and  $RCA_{Im_{sp}}$ , I use their values to differentiate between export-oriented and import-competing industries. The following definitions are used.

**Definition I:** An industry is an organized *export-oriented* industry if  $RCA_{Ex_{sp}} > 1$  and

$$RCA_{Ex_{sp}} > RCA_{Im_{sp}}.$$

**Definition II:** An industry is an organized *import-competing* industry if  $RCA_{Im_{sp}} > 1$  and

$$RCA_{Ex_{sp}} < 1.$$

**Definition III:** Any industry in which  $RCA_{Im_{sp}} < 1$  and  $RCA_{Ex_{sp}} < 1$  is *unorganized* and has no political power to influence the government's decisions.

Due to the lack of available data regarding both explicit and implicit contributions offered by interest groups to their governments in developing countries, I use the difference between bound tariffs and bilateral tariffs as a proxy for campaign contributions. Bound tariffs are the maximum Most Favored Nation (MFN) tariff level that each government negotiates upon joining the World Trade Organization (WTO). Both applied MFN and any bilateral tariffs with

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<sup>18</sup> The exports here indicate that the industry is an infant industry that produces the goods and tries to compete with foreign products in the same sector.

other WTO members are set below the bound tariff level. The actual contributions paid by the organized interest groups is expected to be highly correlated with whether their desired policies are implemented or not. An export-oriented industry will lobby the government to increase the gap between the applied bilateral tariffs and the bound tariff. If the gap shrinks, the export-oriented groups will lobby their government to widen this gap, possibly by pressuring their government to have more peaceful relations with the foreign government. On the other hand, an import-competing industry will lobby for more trade protection on their products. Their desired trade policy is to minimize the difference between the bound tariff and the applied bilateral tariff. If the government widens the gap between the bound and bilateral tariffs for the import-competing products, those interest groups will attempt to influence trade policies through pressuring the government to worsen its relations with its trading partner. Both bound tariffs and applied bilateral tariffs used in the dataset are at the Harmonized System subheading level.

From the theoretical model, the following can be derived.

$$\Pr(MID_s) = f(W_s^R, C_{Ex_s}^R, C_{Im_s}^R, \mathcal{M}_s^R)$$

Where  $MID_s$  is the highest hostility level of militarized interstate dispute (MID) that country  $s$  takes against the other country.  $C_{Ex_s}^R$  and  $C_{Im_s}^R$  refer to the sum of campaign contributions offered by export-oriented industries and import-competing industries, respectively.  $\mathcal{M}_s^R$  is the military cost that country  $s$  will incur under each chosen regime. The following relations are expected:

$$\frac{\partial \Pr(MID_s)}{\partial W_s} < 0 \quad \frac{\partial \Pr(MID_s)}{\partial C_{Ex_s}} < 0 \quad \frac{\partial \Pr(MID_s)}{\partial C_{Im_s}} > 0 \quad \frac{\partial \Pr(MID_s)}{\partial \mathcal{M}_s} < 0$$

The following empirical model is estimated:

$$\begin{aligned} \Pr(MID)_{sy} = & \alpha + \beta(\text{Bound MFN}_{sp} - \text{bilateral tariff}_{sp})_{y-1} \\ & + \theta(\text{Bound MFN}_{spEx} - \text{bilateral tariff}_{spEx})_{y-1} \\ & + \delta(\text{Bound MFN}_{spIm} - \text{bilateral tariff}_{spIm})_{y-1} \\ & + \gamma \mathcal{M}_{sy} + \zeta \text{Democracy}_{sy} + \eta \text{Regime}_{sy} + \epsilon_{spy} \end{aligned}$$

Where  $\beta$  here is an estimate of the welfare effect of trade liberalization on the probability of an MID.  $\theta$  and  $\delta$  estimate the impact on MID of trade liberalization of export-oriented products and import-competing products, respectively.  $\mathcal{M}_{sy}$  includes the country's material capabilities, military expenditures, military personnel, and a binary variable for civil wars to control for any

unavailability of military forces or vulnerability of states. Controls for the country's democracy level and regime characteristics are included along with the hostility level of the other country.

The model is estimated using a linear probability model with fixed effects. To estimate the model, I use a sample of 12 countries that makes up 16 disputing dyads in Asia, South America, and Eastern Europe. Due to data limitations, I only use data from the years 1999 to 2010. All the dyads in the sample are contiguous countries that have had at least one change in their national borders in the last two centuries and have had at least one militarized dispute over territory in the last two decades. None of the dyads had an all-out war during the sample period, although many of them have used militarized force against each other.

The dataset used in this study was collected from various sources. The militarized interstate disputes, national capability and military data, the intrastate conflicts, and the national border data were all collected from the Correlate of War Project database. All of the bound MFN data were collected from the Trade Analysis Online database from the WTO. All of the preferential rates data were collected from UNCTAD TRAINS from the World Bank database. Also, all of the export and import data that were used to calculate the revealed comparative advantage were collected from COMTRADE from the World Bank database.

#### **IV. Results**

Using the linear probability model with fixed effects, I find support for the two hypotheses mentioned earlier. First, trade liberalization in export-oriented industries in a certain year has a negative significant effect on the probability of their country displaying force against their trading partner in the following year. This supports the hypothesis that as trade liberalization increases, export-oriented industries will pressure their governments to avoid any hostile actions toward the other government that could disturb the trade flows and lower their financial gains. In contrast, trade liberalization in import-competing industries in a certain year has a positive significant effect on the probability of the country displaying force against their trading partners. This also supports the hypothesis that if the government chooses trade policies that are perceived to be undesirable to organized import-competing industries, they will use their political power to lobby the government to distort its relations with the other government. Additionally, lowering tariffs on all goods, produced by either organized or unorganized groups, will lower the probability of the country using certain actions like show of force, nuclear alert, mobilization, fortifying their border or border violation. Nonetheless, trade liberalization will

increase the probability of conflict when the other country is being hostile. This could be attributed to some “ideological” preferences or patriotism that could be part of the export-oriented interest groups’ objective function, that also aligns with the people’s preferences. It could also be attributed to the realist view that trade liberalization increases the country’s vulnerability, and in this case both the people and the export-oriented groups will try to stand by their country when it is under attack and prioritize their nation’s interests over their own financial interests. Remarkably, trade liberalization in import-competing industries has no impact on the probability of using force when the hostility level of the dispute is already high. This indicates that when the hostility level is high, import-competing industries will dial back their lobbying against peaceful relations with the foreign country since the government is more likely to move towards autarky regardless of their lobbying.

The following table summarizes the results.

Table 2: Trade Liberalization and the Probability of Conflict

Dependent Variable:	Use of Force	Display of Force
Difference between Bound MFN and bilateral tariff in pervious year	0.000457*** (0.000057)	-0.000204*** (0.000032)
Difference between Bound MFN and bilateral tariff in pervious year in export-oriented industries	0.000229*** (0.0000065)	-0.000127* (0.000066)
Difference between Bound MFN and bilateral tariff in pervious year in import-competing industries	-0.000067 (0.000056)	0.000288*** (0.000053)
Observations	78,814	78,814
Controls	Yes	Yes
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
$R^2$ : Overall	0.689	0.755
$R^2$ : Between	0.405	0.883
$R^2$ : Within	0.759	0.683

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## **V. Conclusion**

This paper studies both theoretically and empirically the impact of organized interest groups' lobbying and trade liberalization and protectionism on the probability of interstate conflict. If one wants to use trade as a peace instrument to solve or dampen interstate conflicts, it should not be used superficially; it is not a one-size-fits-all kind of policy as the literature seems to suggest. Trade liberalization by itself will not lead to peace just like trade protectionism by itself will not cause war. The impact of trade on conflict depends on both the structure and organization of the economy and the conflict's hostility level. When the hostility level is relatively low, export-oriented industries will lobby their government to make sure that their hostility level will stay low. Nonetheless, the opposite will be true when the foreign country is being hostile. Import-competing industries appear to lobby for distorted relations with the foreign country when the hostility levels are low. In contrast, they seem to take a *laissez-faire* approach when hostility levels are high.

Although the empirical model supports the theoretical findings in this paper, it still needs more work to get more robust results. First, the model does not account for the income level of the country or the revealed comparative advantage of the industries compared to the other country and not just to the rest of the world. It also needs to account for the industries' orientation in both countries to see if the governments are subject to competing pressures. The empirical model also does not account for international pressure in the form of foreign aid or major powers alliances. Neither does it account for the number, severity, or recency of historical conflicts between the countries. These factors were found to be correlated with peace and conflict. Therefore, they need to be considered as a robustness check to the results at hand.

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## Appendix

Table 3: Trade Liberalization and the Probability of Conflict  
(Using the Tariff Gap as a Fraction of MFN Bound tariff)

VARIABLES	(1) Use of Force	(2) Display of Force	(3) No Militarized Action <sup>†</sup>
Tariff gap as a fraction of Bound MFN tariff in pervious year	0.138*** (0.00588)	-0.0899*** (0.00402)	0.0636*** (0.00447)
Tariff gap as a fraction of Bound MFN in pervious year in export-oriented industries	0.0180*** (0.00266)	-0.0134*** (0.00322)	0.0143*** (0.00262)
Tariff gap as a fraction of Bound MFN in pervious year in import-competing industries	-0.00632*** (0.00198)	0.0158*** (0.00219)	-0.00963*** (0.00197)
National Capability Index	-1,044*** (20.58)	-1,147*** (49.27)	1,114*** (51.33)
Military expenditures in thousands	2.61e-07*** (3.34e-09)	1.05e-07*** (7.97e-09)	-1.46e-07*** (8.02e-09)
Military personnel in thousands	0.00203*** (6.63e-05)	0.0155*** (0.000162)	-0.00469*** (0.000224)
Ongoing civil war in the country	-0.492*** (0.00407)	0.491*** (0.00892)	-0.209*** (0.0100)
Polity Score	0.0240*** (0.00189)	0.0743*** (0.00271)	-0.231*** (0.00265)
State Fragility Index	0.325*** (0.00289)	0.0830*** (0.0108)	-0.313*** (0.0105)
Regime durability	0.0112*** (0.000306)	-0.0179*** (0.000495)	0.0122*** (0.000447)
Highest violent action from the other state	-0.0457*** (0.000272)	0.0628*** (0.000349)	-0.0361*** (0.000560)
Constant	-4.933*** (0.0490)	-2.331*** (0.191)	7.145*** (0.187)
Observations	77,925	77,925	77,925
Military Controls	Yes	Yes	Yes
Country Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes
R <sup>2</sup> : Overall	0.693	0.757	0.482
R <sup>2</sup> : Between	0.410	0.892	0.922
R <sup>2</sup> : Within	0.764	0.685	0.417

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>†</sup> “No Militarized Action” refers to the government’s action during an ongoing dispute.

Table 4: Trade Liberalization and the Probability of Conflict  
(Using the Difference between Bilateral Tariff and MFN Bound tariff)

VARIABLES	(1) Use of Force	(2) Display of Force	(3) No Militarized Action <sup>†</sup>
Difference between Bound MFN and bilateral tariff in pervious year	0.000450*** (5.60e-05)	-0.000197*** (3.64e-05)	0.000297*** (2.84e-05)
Difference between Bound MFN and bilateral tariff in pervious year in export-oriented industries	0.000201*** (5.89e-05)	-0.000101 (7.51e-05)	0.000207*** (3.87e-05)
Difference between Bound MFN and bilateral tariff in pervious year in import-competing industries	-7.94e-05 (5.29e-05)	0.000299*** (5.95e-05)	-5.97e-05 (3.92e-05)
National Capability Index	-1,067*** (20.92)	-1,131*** (49.34)	1,109*** (51.21)
Military expenditures in thousands	2.64e-07*** (3.37e-09)	1.02e-07*** (7.98e-09)	-1.44e-07*** (7.99e-09)
Military personnel in thousands	0.00217*** (6.50e-05)	0.0154*** (0.000160)	-0.00465*** (0.000223)
Ongoing civil war in the country	-0.497*** (0.00403)	0.494*** (0.00889)	-0.212*** (0.0100)
Polity Score	0.0291*** (0.00196)	0.0711*** (0.00274)	-0.230*** (0.00262)
State Fragility Index	0.322*** (0.00285)	0.0836*** (0.0108)	-0.313*** (0.0105)
Regime Durability	0.0103*** (0.000315)	-0.0173*** (0.000498)	0.0118*** (0.000445)
The highest act of violence from the other country in the previous year	-0.0457*** (0.000256)	0.0630*** (0.000344)	-0.0365*** (0.000553)
Constant	-4.838*** (0.0480)	-2.385*** (0.191)	7.182*** (0.187)
Observations	78,814	78,814	78,814
Military Controls	Yes	Yes	Yes
Country Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes
R <sup>2</sup> : Overall	0.689	0.755	0.482
R <sup>2</sup> : Between	0.405	0.883	0.926
R <sup>2</sup> : Within	0.759	0.683	0.416

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>†</sup> “No Militarized Action” refers to the government’s action during an ongoing dispute.