

# Regional Trade Agreements and Cross-Border Lobbying: Empirical Evidence from the Canada-US Free Trade Agreement Negotiations

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## Abstract

This paper documents participation of special interest groups in negotiations of the Canada-US Free Trade Agreement. Using data on the tariff reduction schedules mandated by the agreement, it shows that industries represented by strong lobby groups were faced with more favorable tariff reduction paths in both countries: phase-out periods were longer at home and shorter in the partner country. This result provides evidence on the involvement of industry lobbying in negotiation of regional trade agreements and suggests that countries negotiating trade agreements are responsive to the interests of lobbying groups from across the border. Both results provide important implications for the political economy theory of trade agreements.

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*Key Words:* Free Trade Agreements, Lobbying, Trade policy, Canada-US FTA

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# 1 Introduction

In the absence of any substantial progress in multilateral trade liberalization since the Uruguay round of the WTO negotiations, many countries view preferential trade agreements (PTAs) as a preferred alternative to liberalize trade. The growing number of such agreements has attracted attention of many scholars. Among the central questions of this literature are the determinants of governments' incentives to establish PTAs and the motives of policymakers to revise trade policies subsequent to PTA formation. While a typical approach of earlier studies was to analyze PTA's policies set by welfare-maximizing governments, the focus of the more recent literature has shifted to frameworks with governments having political-economic objectives, influenced by both domestic and foreign interests. Since the theoretical models with different structures of government political preferences often lead to very different predictions regarding welfare properties of PTAs, identifying these preferences is an important empirical question which we examine in this paper. We demonstrate that both domestic and foreign interest groups were involved in the process of the Canada-US Free Trade Agreement (CUSFTA) negotiations. Using industry-level data on the Canadian and the US tariff reduction schedules, mandated by the CUSFTA and negotiated together with the agreement itself, the paper shows that these schedules reflect the interests of both domestic and partner country's industries, thus revealing cross-border political influences in the process of PTA negotiations. This finding provides an important guidance for all theories of endogenous PTA formation.

Among the political economy theories of endogenous trade policy formation, the "protection for sale" model (PFS) has acquired a disproportionately more attention since the pioneering work by Grossman and Helpman (1994). Its clear cut prediction about the relationship between the equilibrium level of protection and industrial political activity received a lot of empirical support (e.g., Goldberg and Maggi, 1999; Gawande and Bandyopadhyay, 2000; Mitra et al., 2002; McCalman, 2004; Bombardini, 2008). The empirical evidence on the role of the political economy factors in trade policy formation has motivated the literature on PTAs to analyze the effect of domestic lobbying on governments' incentives to participate in trade agreements. However, the PFS framework can generate different predictions regarding the effect of PTAs on tariffs. Whereas Grossman and Helpman (1995) and Krishna (1998) establish that domestic lobbying makes a

government more likely to join a welfare-reducing trade agreement, Ornelas (2005) found that the opposite is true if countries are allowed to adjust their trade policies in response to PTA formation.<sup>1</sup> At the same time, a number of studies on the political economy of PTAs introduced the possibility of cross-border lobbying between member countries or other forms of cross-border political influence and show that these modifications may have important implications for characteristics of PTAs being formed (Grossman and Helpman, 1995; Maggi and Rodriguez-Clare, 2007; Ornelas, 2008; Stoyanov, 2014).

The variation in predictions of different theoretical frameworks regarding welfare implications of foreign lobbying and the lack of consensus on the importance of domestic and foreign special interest groups in PTA negotiations calls for empirical evidence. The void of such evidence stems from the fact that the role of politics in trade agreement negotiations is very hard to estimate empirically. The first complexity arises from heterogeneity of lobbying interests across industries, which makes it difficult to relate industry-level lobbying activity to country-level decision to form an agreement. Second, the relationship between lobbying and PTA formation is hard to establish in general, since we never observe the counterfactual. That is, if a country has a certain number of trade agreements, it is impossible to say how many it would have had with a different lobbying structure.

Given these limitations faced by empirical research on the political economy of PTAs, the current paper focuses on testing the role of domestic and cross-border lobbying during PTA negotiations indirectly. Instead of relating lobbying activity to the outcome of PTA formation process, this paper demonstrates that both domestic and foreign lobbyists participate in PTA negotiations. Specifically, it shows that during the CUS-FTA talks, special interest groups in both countries were actively involved in negotiations of the terms of the prospective agreement. We use the Grossman and Helpman (1994) framework where special interest groups can only lobby their own governments for the terms of the proposed agreement. When the two governments negotiate a trade agreement, they would factor in the effect that it would have on domestic lobby group and exert pressure on the foreign government for the terms that favor special interests at home. Therefore,

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<sup>1</sup>Other studies which analyze the role of political economy considerations on various aspects of PTAs include Maggi and Rodriguez-Clare (1998), Maggi and Rodriguez-Clare (2007), Aghion, Antras, and Helpman (2007), Saggi and Yildiz (2011) and Stoyanov and Yildiz (2014), among others.

each government is responsive to foreign special interests even though there is no direct cross-border lobbying. We demonstrate that the CUSFTA tariff reduction schedules of the two countries, negotiated together with others terms of the agreement, reflect industry-level lobbying activity both at home and in the partner country. In this context, a politically active industry is sheltered against foreign competition during the implementation stage of the PTA in two ways. First, such industry enjoys a more protective tariff reduction schedule in its own country against the partner country imports. Second, a prospective PTA partner country responds to lobbying activity from abroad by providing an accelerated tariff reduction schedule for that industry, thus facilitating more rapid market access to the partner country's politically active firms.

The contribution of this paper to the literature is twofold. First, it demonstrates that special interest groups are involved in PTA negotiations by lobbying for more favorable terms of the agreement. Participation in PTA talks suggests that special interest groups also lobby for a particular trade regime, such as lobbying for or against a specific trade agreement, although we have no direct evidence on such lobbying activity. The empirical evidence on the role of special interest groups in PTA negotiations implies that the political economy factors should be taken into account in the theoretical analysis of preferential agreements.

Second, by examining the relationship between one CUSFTA member country's lobbying and the tariff reduction schedules of the other, this paper finds that negotiators of a trade agreement are responsive to the interests of lobbying groups from across the border and that both governments were concerned about the outcomes of their policies on the partner country's firms. This result has important implications for theoretical literature of endogenous PTAs as it points to the necessity to consider cross-border political influences in negotiations of trade agreements. This paper is admittedly not the first attempt to evaluate the effect of foreign lobby on trade policies. In their pioneering work, Gawande, Krishna, and Robbins (2006) demonstrate that the lobbying expenditure of foreign agents in the US is even greater than the political contributions made by national firms.<sup>2</sup> In the PTA context, Stoyanov (2009) show that U.S. firms with tariff free access to Canadian market under NAFTA will lobby the Canadian government for an import tariff increase, thus reinforcing the trade diverting potential of the agreement. Limao (2006) demonstrate that the

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<sup>2</sup>Kee, Olarreaga, and Silva (2007) use the same data to show that lobbying expenditures by Latin American countries is an important determinant of the tariff preferences these countries get from the US.

US tariffs tend to fall slower in industries with the greater share of preferential trade, suggesting that, once the PTA is formed, policymakers do not want to erode the export rent enjoyed by partner country's firms through preferential market access.<sup>3</sup> However, all these studies are concerned with the redistributive role of trade policies for a given trade regime, and do not analyze the role of politics in PTA negotiations.

The rest of the paper is organized as follows. Section 2 summarizes a theoretical model of endogenous trade policy, which we apply the analysis of the CUSFTA's tariff reduction schedules. Section 3 discusses empirical specification and describes the data used in this study. The estimation results are presented in Section 4 and Section 5 presents results for various extension and robustness tests. Concluding remarks are made in Section 6.

## 2 Methodology

In this section we first discuss the motivation for the empirical test that we will use to evaluate the role of lobbying in PTA negotiations, and then present a simple modification of the PFS model to rationalize the empirical specification for the test.

To develop an appropriate test for the role of lobbying in PTA formation, it is essential to match lobbying activity of special interest groups with trade policy outcomes. The empirical problem with such a test in the PTA context is that we only observe whether a country is an PTA member or not, therefore posing difficulty in constructing a counterfactual for estimating the effect of lobbying on PTAs. Moreover, while there is heterogeneity in firms' lobbying activity (firms from different industries may support or oppose the agreement), there is no variation in trade policy outcome across firms or industries - the PTA is either formed or not. In order to address these two issues, this project investigates quantifiable PTA policy outcomes that may reflect lobbying activities during negotiation phase of the trade agreement. Since such a measure is unavailable at the national scale, we use the trade preferences that each industry received as a result of the CUSFTA and confront them with industry-level measures of political activity.

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<sup>3</sup>Mai and Stoyanov (2014) obtained similar results for Canada.

Specifically, we use the fact that the CUSFTA tariffs were phased out gradually over a 10-year period, starting in 1989. If interest groups initiate FTA discussions, they should, and indeed would, necessarily participate in the negotiations of the terms and conditions of that particular FTA, including the pace and intensity of sector-based trade liberalization under the agreement. Therefore, if a certain Canadian industry are represented by a strong lobby group that is involved into trade agreement negotiations, then we would expect it to apply stronger political pressure on the Canadian government to bargain for longer grace periods in order to generate a more favorable position during the implementation phase of the agreement. Moreover, Canadian policymakers may further protect interests of this industry by urging for shorter phase-out periods for the U.S. tariffs, probably in exchange for concessions in other industries with weaker lobbying power. Thus, we hypothesize that the length of the CUSFTA phase-out period for Canadian (U.S.) tariffs on U.S. (Canadian) imports would be shorter for industries with strong U.S. (Canadian) lobby and longer for industries with strong Canadian (U.S.) lobby.

The testable hypothesis about the lobbying participation in FTA negotiations is derived from the Grossman and Helpman (1994) political economy model of trade policy. It posits that policymakers provide protection to industries in exchange for monetary political contributions, and over the last decade this theory has become the most influential in explaining government motives for using trade policy. The original model is modified in two ways. Firstly, we allow for firms from a prospective FTA partner country to participate in free-trade talks. With this extension, the model can be used to analyze the interplay between different lobby groups and the governments of the two countries with regards to the FTA trade policy negotiations. Secondly, the model of perfect competition is modified to a monopolistically competitive market structure with differentiated products and entry barriers. With this extension, sales revenue from foreign markets generates additional rents for exporters, stimulating them to lobby foreign governments for more liberal trade policies.<sup>4</sup>

The rest of this section deals with deriving the equilibrium relationship between trade policy outcomes

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<sup>4</sup>In the benchmark Grossman and Helpman (1994) model with assumptions of perfect competition and small home country, exporting prices are equal to marginal costs gross of import tariffs and firms have no incentives to lobby foreign governments for change in trade policies. Gawande, Krishna, and Robbins (2006) analyze behaviour of foreign lobby in oligopolistic markets.

under an FTA and lobbying activity by domestic and foreign interest groups. The exposition of the model relies heavily on Grossman and Helpman (1994).<sup>5</sup> The economy is assumed to consist of two sectors, one numeraire industry with homogeneous output  $X_0$  and one monopolistically competitive with a consumption index  $X$ . Production of one unit of the homogeneous product requires one unit of labour, which equates wage rate to unity. Two countries, home and a prospective partner country, are denoted by  $H, P$ . In each country  $j \in \{H, P\}$ , there are  $n_j$  symmetric firms that produce a differentiated product with the elasticity of substitution between varieties  $\sigma$ .<sup>6</sup> Production of a differentiated good requires labour and industry-specific capital with constant marginal costs  $c_j$ . Consumers at Home country have identical preferences represented by the utility function:

$$U = X_0 + \frac{\sigma}{\sigma - 1} \ln \left( n_H x_H^{\frac{\sigma-1}{\sigma}} + n_P x_P^{\frac{\sigma-1}{\sigma}} \right)$$

where  $\sigma$  is the elasticity of substitution between varieties of a differentiated product,  $x_j$  is a consumption of a product of a firm that operates in country  $j$ . The implied demand function for an individual variety produced in country  $j$  is

$$x^j = (p^j)^{-\sigma} R^{\sigma-1}$$

$$R = [n^H (p^H)^{1-\sigma} + n^P (p^P)^{1-\sigma}]^{\frac{1}{1-\sigma}}$$

Imports from country  $P$  is levied at Home with a specific import tariff  $t$ . Then the profit functions of domestic and foreign firms are

$$\pi_H = (p_H - c_H)q_H$$

$$\pi_P = (p_P - c_P - t_P)q_P$$

where  $q_j$  is the quantity of a good supplied by country  $j$ . In equilibrium, firms set price as a mark-up  $\left(\frac{\sigma}{\sigma-1}\right)$  over marginal costs and applied import tariff. In equilibrium, the total return to the specific factor owners in country  $j$  from selling in the Home country market is equal to  $\pi_j = \sigma^{-1} n_j p_j q_j$ .

Economy welfare,  $W$ , aggregates consumers' surplus, profits, and tariff revenue. Organized industries provide the government with political contributions  $C$  in attempt to influence the choice of a trade policy

<sup>5</sup>Detailed derivations of the model with monopolistically competitive markets can be found in Stoyanov (2009)

<sup>6</sup>Given the symmetry assumption, we omit the firm index from the derivations below.

and whether an industry is politically organized or not is assumed to be exogenous.<sup>7</sup> We denote the subset of those industries in country  $j$  with  $I_j$ . The government chooses import tariffs to maximize its objective function  $G$  which is the weighted sum of national welfare and political contributions received from organized industries:

$$G = W + aC = W + a \left( \sum_{i \in I_H} C_{iH} + b \sum_{i \in I_P} C_{iP} \right)$$

The weight on contributions  $a$  shows the government's preferences for political contributions relative to national welfare and indicates the extent of the government's political bias. Note that in this specification we model foreign political influence by assuming that the government is responsive to contributions from the partner country firms,  $C_P$ , which it may value differently from domestic contributions as reflected by the parameter  $b$ . Although political contributions from abroad are illegal in most countries, we implicitly assume here that the partner country government, protecting interests of local lobby groups, can exert political pressure upon the Home country. As a result, political contributions abroad will affect the policy choice of the Home country government indirectly through negotiations of the terms of the agreement with the partner country, and in the empirical section we construct  $C_P$  as the amount of political contributions the partner country government receives from organized local interest groups.<sup>8</sup>

We follow Maggi and Rodriguez-Clare (1998) and model the lobbying process as a Nash bargaining problem between the interest groups and government. The equilibrium in this bargaining process obtains when the tariff maximizes the joint surplus of the government and organized interest groups:

$$t_i^* = \arg \max_{\tau} \left\{ W + a \left( \sum_{i \in I_H} \pi_{iH} + b \sum_{i \in I_P} \pi_{iP} \right) \right\}$$

Solving the first-order condition for the above optimization problem, we obtain the Home country's

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<sup>7</sup>We also assume that the the ownership of specific factors of production is highly concentrated so that the proportion of the population that is represented by organized lobbies is negligible.

<sup>8</sup>Also note that we could have introduced foreign political influence in the form of "multilateral cooperation", as in Ornelas (2008), where the two governments set trade policy in order to maximize their joint objective functions. Although in this case trade policy will be closer to welfare-maximizing levels, the relationship between lobbying and policy outcome will be the same as in our model.

equilibrium level of tariff in industry  $i$ :

$$\frac{\varepsilon_i \sigma_i}{\sigma_i - 1} \tau_i = s_{iH} + \frac{1}{a} I_{iH} s_{iH} - \frac{b}{a} I_{iP} (1 - s_{iP}) \quad (1)$$

The main variable of interest,  $\tau_i = \frac{t_i}{p_i}$ , is the *ad-valorem* import tariff in industry  $i$ ,  $\varepsilon_i$  is the absolute value of the price elasticity of import demand,  $s_{ij}$  is the share of firms from country  $j$  ( $j = H, F$ ) in the home country market for product  $i$ , and  $I_{ij}$  is an indicator variable that shows whether sector  $i$  in country  $j$  is organized into a lobby group or not. All else equal, the model predicts that governments will provide more protection to industries with lower import penetration (high  $s_{iH}$ ), low import demand elasticity, and high substitution elasticity. Only the latter result differs from the benchmark GH model with perfect competition, reflecting the fact that tariffs are more efficient in reallocating consumer expenditure from foreign varieties to domestic ones when they are close substitutes. Also, industries that are represented by domestic lobby groups ( $I_{iP} = 1$ ) receive more protection against imports, while industries with foreign political pressure ( $I_{iP} = 1$ ) tend to have less restrictions on imports.

### 3 Empirical model and data

The equilibrium trade policy rule (1) allows for specification of the empirical model as follows:

$$\frac{\varepsilon_i \sigma_i}{\sigma_i - 1} \tau_i = \beta_0 + \beta_1 s_i^H + \beta_2 I_i^H s_i^H + \beta_3 I_i^F (1 - s_i^F) + \varepsilon_i \quad (2)$$

Equation (2) is a slight modification of the original GH model, estimated by several authors for different countries.<sup>9</sup> It allows for product differentiation and cross-country lobbying, and states the basic relationship between industrial lobbying activity and trade policy outcomes. Whereas previous tests of the model typically estimate a static relationship between lobbying and trade policy outcome, measured either with tariffs or non-tariff barriers, this section examines the effect of current lobbying efforts on the future trade liberalization path specified by the CUSFTA. Unlike many other trade agreements, the CUSFTA was not implemented immediately and import tariffs between the two countries were phased out over the ten year period between

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<sup>9</sup>Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Mitra, Thomakos, and Ulubasoglu (2002), McCalman (2004) estimate the PFS model with perfect competition using US, Turkish and Australian trade data.

1989 and 1998.<sup>10</sup> The process by which tariff reduction schedules were adopted is an outcome of political negotiations between the governments of the two countries, seeking to ease the transition process for the “most sensitive” domestic industries through prolonged protection and prompt elimination of the partner country’s import barriers for export-oriented industries.

Consequently, the tariff liberalization schedules for each country and industry can be viewed as a compromise between the interests of local producers, primarily operating in the domestic market, and foreign opposition to protection, i.e. exporters in a counterpart country. Since previous studies document the prominent role of the political economy factors in the trade policies of both U.S. and Canada, this paper posits that the CUSFTA tariff liberalization schedules can additionally reflect the lobbying activity of special interest groups. The CUSFTA thus represents a valuable case for analyzing the role of lobbying in the negotiations and implementation of FTAs, while further providing several advantages over previous empirical tests of PFS model which rely on the MFN tariffs or NTBs. First, CUSFTA tariff reduction schedules are the outcomes of *bilateral* negotiations between Canada and the US and, unlike many other forms of trade protection, are not subject to international regulations. Second, if we find that firms lobby over the terms of an FTA and participate in FTA negotiations, it would suggest that they are also involved in lobbying for or against the FTA itself. Finally, a relationship between the tariff reduction schedule of one country and industrial lobbying activity in its counterpart would signal the possibility for special interests to exert political pressure on a foreign country government by affecting the negotiation position of their own government. In this case, lobbying for an FTA in one country also affect the likelihood of its endorsement by a prospective FTA partner country.

In this paper we use four measures of sectorial tariff liberalization as the dependent variable in equation (2). As the first measure, we construct a country-specific industry-level cumulated import tariff by summing ad-valorem import tariffs over the ten year period during which the CUSFTA tariffs were phased out ( $\tau_{cumul}$ ). If FTA negotiators do not consider protection of some industry as a necessity, they would agree

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<sup>10</sup>For example, during the first two years of CUSFTA the share of ten-digit HTS product categories with import tariff less than 0.5% increased by only 3% for Canada and by 3.2% for the US. For 51% of Canadian and 62% of US product categories it took import tariffs five years or more to fall below 0.5%.

on instant open market access regardless of the initial level of protection. In contrast, industries with strong political influence will push policymakers to negotiate for a more gradual tariff elimination period. A related measure of trade liberalization is the present value of the cumulated import tariff with a 5% annual discount rate,  $\tau_{cumul}^d$ . This measure is constructed in order to take into account that lobbyists may be less concerned about future trade policies, although the opposite is also possible if the government expects trade flows, and hence duty payments, to increase considerably in future.

A potential problem with measuring the CUSFTA trade negotiation outcome from cumulated import tariffs over the phase-out period is its high correlation with the initial tariff rate. Although negotiators may have enough freedom in negotiating trade liberalization paths for industries with high starting tariff levels, they have significantly less flexibility in industries with low pre-CUSFTA tariff rates. Therefore, on average, industries with higher pre-FTA tariffs tend to be more protected during the transition period. At the same time, however, the initial tariff rate can be determined by multilateral tariff agreements and be unrelated to the CUSFTA negotiations. To address this concern, we construct two additional dependent variables,  $\tau_{relat}$  and  $\tau_{relat}^d$ , that capture the pace of trade liberalization relative to the initial level of protection by normalizing  $\tau_{cumul}$  and  $\tau_{cumul}^d$  by the pre-FTA tariff rate.<sup>11</sup> Table 1 provides descriptive statistics for these variables.

The home country's market shares on the right hand side of (2) are defined as the value of shipments (net of exports) relative to total consumption of good  $i$  produced domestically and imported from the partner country. The market share of the prospective partner country is defined similarly as the value of imports from that country divided by the total domestic consumption. To address the endogeneity problem of market shares, determined simultaneously with the level of protection, the standard set of instruments proposed in the earlier literature, such as factor shares, were employed. While these instruments will be described in more detail later, the necessity to use industry-level characteristics in regression analysis presents a problem due to different industry classifications used by statistical agencies of the two countries. Until 1996, the US Census Bureau collected manufacturing statistics using the US Standard Industry Classification (US-SIC)

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<sup>11</sup>While the correlation between cumulated tariffs and initial tariffs is around 0.94 for both countries, the correlation between initial tariffs and relative tariffs is only 0.1.

before switching to the North American Industry Classification System (NAICS) in 1997. On the other hand, Canadian manufacturing statistics prior to 1990 is based on the Canadian SIC classification which is different from the US and no one-to-one concordance exists between these two. In light of this, the model (2) is estimated for the two countries at different industry classifications.

Construction of the political organization dummies,  $I_{iH}$  and  $I_{iP}$ , requires a measure of industrial political activity in the two countries. Most of the literature relies on industry-level monetary contributions by Political Action Committees (PACs) to determine whether an industry is lobbying for protection or not. Although the original PFS model explicitly assumes that lobbyists provide policymakers with contribution schedules in exchange for protection, more recent studies<sup>12</sup> have started using lobbying expenditure data to determine the level of industrial political involvement since this approach provides several important advantages over using PAC contributions. One of these advantages is that lobbying money is evidently spent in order to affect public policy choice, while campaign contributions can be made to affect other policies or can be just a form of political participation (Ansolabehere, Figueiredo and Snyder, 2002). But more importantly, lobbying expenditure can be classified according to its objective, allowing researchers to isolate those specifically directed at trade policy. Despite these advantages, lobbyists' registry data cannot be used for the current project as Canadian lobbying data is only available for 1996 and the following years.

Therefore, we measure the political activity of an industry using the amount of campaign contributions to political candidates and parties by that industry. However, in order to address the above critique that only a small number of contributors are concerned with the trade policy, the procedure for collecting PAC contributions data was modified relatively to previous studies. Specifically, for the purpose of this project, we focus on political contributions only to those politicians who were engaged in the CUSFTA trade discussions and negotiations.<sup>13</sup> This assumes that without contributing money to politicians participating in FTA consultations, lobbying with the intention of influencing the terms and conditions of the CUSFTA is

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<sup>12</sup>e.g. Bombardini and Trebbi (2011), Ludema, Mayda, and Mishra (20).

<sup>13</sup>For the US, these are the members of the Ways and Means committee with a subcommittee in trade (in the House) and the subcommittee on International Trade and Global Competitiveness of the Finance Committee (in the Senate). For Canada, these are members of the Standing Committee on External Affairs and International Trade and the Standing Committee on Finance, Trade and Economic Affairs.

ineffective. Moreover, financial campaign contributions to the candidates actively involved in the CUSFTA negotiations are much more likely to be linked to trade policy issues. Thus, we use these contributions to determine which industries were politically organized during the free trade talks. The CUSFTA negotiations took place between 1985 and 1988,<sup>14</sup> so political contributions data were collected for the four years during this time period.

Along with a more distinct relationship to trade policy issues, measuring special-interest pressure by placing focus solely on the contributions to politicians involved in the FTA discussions offers additional advantages including a more appealing mechanism of classifying industries as politically organized. For example, Table 1 shows that during the 1987-88 election cycle, only 55% of U.S. and 35% of Canadian 4-digit SIC industries provided positive contributions to respective politicians, making the construction of political organization dummies straightforward: according to the PFS model, industries that provide positive contributions for trade policy issues are considered to be politically organized. In contrast, previous studies that rely on contributions to all candidates document positive contributions for all 4-digit industries, which require some ad-hoc assumptions for the construction of political organization dummies. Goldberg and Maggi (1999), for instance, use a minimum threshold in PAC contributions to classify sectors as organized, assuming that only the industries that exceed this threshold lobby for trade policy issues. Recently, Imai, Katayama, and Krishna (2008) criticized this approach, indicating that depending on the degree of import penetration, politically organized industries can make relatively small contributions. Hence, focusing on a subsample of all contributions provides a clear advantage in constructing political organization dummies without making additional assumptions. In the robustness section we use different approaches to categorize industries according to their political organization.

A concern with using only a subsample of contributions is their small absolute value relative to the loss of welfare caused by extended protection. During the 1987-88 election cycle, contributions to the U.S. politicians involved in the CUSFTA negotiations accounted for only 8% of all contributions, which in turn represent only a small fraction of total lobbying expenditure by organized interests. This implies that contributions

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<sup>14</sup>In 1985 the Canadian government proposed an FTA with the U.S., the negotiations started in May 1986, and in October 1988 the agreement was signed.

to the CUSFTA negotiators is not the main channel used by special interests to affect policy outcomes and, therefore, should not be interpreted literally as money buying protection. Instead, these contributions should be viewed only as one of several means of corporate political involvement and as an indicator of industrial political activity.<sup>15</sup>

Elasticities of substitution for both countries,  $\sigma_i$ , were estimated from trade data using methodology developed by Feenstra (1994) and Broda and Weinstein (2006). The mean values of the elasticity of substitution for Canada and the U.S., presented in Table 1, are 5.76 and 3.06 respectively, which are broadly in line with those found by Feenstra, Markusen, and Zeile (1992) and Feenstra and Weinstein (2010). The import demand elasticity,  $\varepsilon_i$ , is a deterministic function of the elasticity of substitution and domestic firms' market share.<sup>16</sup> Robustness tests in Section 5 show that the results are not very sensitive to exclusion of elasticity terms from equation (2).

As with the earlier empirical tests of the PFS model, the similar set of instruments is used to address the endogeneity issue of market shares and political organization variables. For the U.S., the set of instruments includes factor shares of physical capital, production and non-production labour, intermediate input, inventories, fuel and electricity, as well as various measures of industry concentration such as CR-4, the Herfindahl-Hirschman index, average scale and unionization. All instrumental variables for the US are obtained for 379 4-digit US-SIC industries from the 1987 Economic Census. Unfortunately, collecting similarly detailed data for Canada is problematic. Until 1990, when Statistics Canada switched to NAICS classification, it did not provide information on capital and industry concentration. For this reason, we use the 1990 Canadian Annual Survey of Manufacturers, collected at 6-digit NAICS level, to construct instruments for the Canadian tariff equation.<sup>17</sup> The list of instruments for Canadian market shares and political

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<sup>15</sup>Despite small monetary value of political contributions, several studies demonstrate high correlation between different forms of political activity. For example, Hansen and Mitchell (2000) and Ludema, Mayda, and Mishra (20) show that lobbying expenditure and PAC contributions are positively and significantly correlated at the firm level.

<sup>16</sup>Stoyanov (2009) show that in the monopolistically competitive markets with fixed number of firms  $\varepsilon_i = \sigma_i - (\sigma_i - 1) s_{iH}$ .

<sup>17</sup>This implies that the model (2) is estimated for two countries using different industry classification: NAICS for Canada and US-SIC for the U.S. This, however, causes no problems since the two models are independent and can be estimated separately. Moreover, it is easier to assign both NAICS and US-SIC industry codes to each lobbying firm rather than converge data of one country into another industry classification when no one-to-one concordance table exists.

organization dummies includes average industry scale and the shares of capital, materials, production and non-production workers, fuel and electricity in industry output. To address the problem of non-linearity of endogenous variables on the right-hand side of equation (2), the final list of instruments also includes cross-products of exogenous variable excluded from the market share equation and from the political organization dummy equation.<sup>18</sup> The model is estimated with the two-step GMM estimator.

## 4 Benchmark results

Table 2 presents the GMM parameter estimates of equation (2) with different measures of the CUSFTA trade policies as the dependant variable. In all specifications the Sargan J-test never rejects the null hypothesis of exogeneity of the instruments. Together with the fact that the first-stage F-statistics indicate that the instruments are always jointly significant at the 1% confidence level in explaining the endogenous variables, we can conclude that we have a valid set of instruments.

Columns (1) and (6) report estimation results for specification with the 1988 import tariffs as a measure of protection. These results in fact represent an empirical test of the PFS model with foreign lobbying and monopolistically competitive markets and are highly supportive of both extensions of the model. Estimates of all reduced form coefficients are of the correct sign and are statistically significant for both countries. The coefficient on the domestic market share is positive, indicating that industries which are not organized into lobby groups still receive a positive level of protection from the government when markets are imperfectly competitive. Consistent with many other studies, the presence of an active domestic lobby group is associated with more protection granted to industries they are representing, as reflected by positive and statistically significant  $\beta_2$  coefficient.

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<sup>18</sup>The traditional approach that has been used in the literature to deal with systems which are non-linear in endogenous variables but linear in parameters is to include square terms and cross-products of all exogenous variables to the instrument list. This approach, however, can generate too many instruments and selecting the most relevant one becomes fairly arbitrary. Wooldridge (2001, p.235) shows that cross-products of two sets of exogenous variables are the most relevant instruments when dealing with the product of two endogenous variables, and this is the approach we use in this paper.

Further, political activity of foreign firms from a prospective FTA partner country is negatively related to import tariffs, which attests to their interests in expanding into a partner country's market. Gawande, Krishna, and Robbins (2006) estimate a similar negative effect of lobbying by foreign firms on U.S. trade barriers using 1982 tariff data, yet interpretation of their results is different. Gawande et al focus on the lobbying activities of foreign firms in the U.S., measured by the total foreign lobbying expenditure inside the U.S. Thus, their results are broadly consistent with the PFS model in a sense that money, although of foreign origin, directly buy trade policy outcomes. In contrast, this paper measures foreign political activity with political contributions of foreign firms abroad, so that policymakers do not receive money from foreign sources. Yet lobbying expenditure made in one country is found to influence trade policy in the other. This result suggests the presence of non-monetary channels which special interest groups can use to affect trade policies.<sup>19</sup> We interpret the negative and significant  $\beta_3$  coefficient as evidence of trade policy being determined by interactions between policymakers, organized domestic interest groups, and foreign government, representing the interests of foreign special interest groups.

Results for the specification with cumulated import tariff as the dependant variable, presented in columns (2)-(3) and (6)-(7), show similar pattern:  $\beta_2$  and  $\beta_3$  have signs predicted by the theory and statistically different from zero. The estimated coefficient on the domestic political activity dummy interacted with the market share is positive for both countries. Hence, the governments of each country managed to negotiate more favorable trade liberalization conditions for politically active industries during the CUSFTA transition period. According to the regression results in columns (2) and (7), a politically organized industry with an average market share received an additional 51% cumulated trade protection in Canada and 24% in the U.S.

Negative  $\beta_3$  coefficients imply that both governments also protected interests of organized domestic industries in the free trade talks by negotiating more rapid tariff reduction schedules in the counterpart country. This result shows that industrial political activity in one country is a negative and significant determinant of trade liberalization path in a prospective FTA partner country. However, protecting the interests of foreign firms does not increase national welfare or the well-being of policymakers directly. It is

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<sup>19</sup>While it is also possible that political contributions in the home country can be correlated with lobbying expenditure in the foreign country, we have no direct evidence of such relationship.

rather a concession made to the foreign government during the negotiation process as a bargaining chip for more favorable trade policies for domestic special interest groups. Therefore, negotiators seem to sacrifice the interests of unorganized industries to satisfy those of organized ones.

Interestingly, the coefficients  $\beta_2$  and  $\beta_3$  are very close in magnitude. This implies that the coefficient  $b$  is close to one and purports that in trade negotiations each country considers the interests of its own lobby groups at a similar level as it does the interests of foreign lobbyists, represented by the foreign government. Applying the estimates in column (2) to the average US manufacturing industry, we find that the cumulative tariff over the CUSFTA phase-out period was 18 percentage points bigger due to lobbying by domestic firms and 12.3 percentage points lower due to the presence of foreign political pressure. The same estimates for Canada, based on column (7), yield 40.6 and 47.8, respectively. Although the two effects largely offset each other, the contribution of the US lobbying to tariff schedules in both countries is slightly greater due to a larger share of politically organized industries in the US.

Columns (4)-(5) and (9)-(10) of Table 2 present the parameter estimates when the CUSFTA trade negotiation outcome is measured with cumulated tariffs normalized by the pre-FTA tariff rate. One can see that the coefficients on domestic and foreign lobbying preserve the correct signs and are statistically significant at least at a 10% confidence level. Despite seemingly large difference in the magnitude of the two coefficients, this difference is never statistically significant. In short, the results indicate that industries with a domestic lobby were better protected during the CUSFTA phase-out period relatively to the original level of protection, while tariffs in industries faced with foreign opposition were removed relatively faster.

Overall, empirical results of this section illustrate that there was a considerable variation in the pace of the CUSFTA trade liberalization schedules across industries, and that political economy factors have an important role in explaining this variation. Tariff reduction schedules, negotiated between the two countries during 1986-87 and implemented in 1989-98, are indeed related to industry-level political involvement during the period of 1984-87. Therefore, it can be argued with a high degree of certainty that the decision to form and implement the CUSFTA was not based solely on welfare-maximization principles and that special interest groups were involved in the free trade talks on both sides. Moreover, the tariff reduction schedules of one

country are identified to be responsive to the industrial lobbying activity in the other. These results not only demonstrate that governments protect the interests of export-oriented lobby groups in trade negotiations, but further reveals a channel by which firms from one country can affect trade policy decisions in the other using the domestic government as a mediator in trade negotiations.

## 5 Robustness tests

This section presents some robustness tests for the empirical results of Section 4. Tables 3-8 report sensitivity analysis of the main results to the model specification and construction of its key variables.

In Table 3 we report estimates of equation (2) with bootstrapped standard errors leaving out a constant term to make the estimation model fully consistent with the theory. Whereas the PFS model predicts that only market shares and political organization variables matter for trade policy formation, many studies also include a constant term as a simple way to control for other factors outside of the model. In specifications with pre-FTA and cumulated tariffs the coefficient on the domestic market share becomes positive and significant at 1% confidence level for both countries. Most importantly, the estimates of the  $\beta_2$  and  $\beta_3$  coefficients are of a very similar magnitude and significance as in the benchmark estimations. Compared to the model with the constant, only the estimates with relative tariffs are different: the effect of Canadian lobbying becomes insignificant both at home and abroad, although both effects are estimated with correct signs.

In the second exercise, we use import demand elasticities from Gawande and Bandyopadhyay (2000) to construct the left-hand side variables in (2). This modification is associated with several problems. Firstly, these estimates are available only for the U.S. so robustness results are reported only for this country. Secondly, the theoretical model behind these estimates is based on perfectly competitive markets and for 40% of all industries the substitution elasticities cannot be constructed because the derived value of  $\sigma$  is less than one. Therefore, the substitution elasticity term on the left-hand side was dropped. Finally, for many industries the elasticity estimates are unavailable, which reduces the sample size considerably. Columns (1)

to (3) of Table 4 provide estimation results. Surprisingly, the role of political economy factors in determining 1988 import tariffs becomes insignificant. At the same time, the effects of domestic and foreign lobbying on cumulated tariffs have the correct signs and are statistically significant, although estimated with less precision and wider confidence intervals. Overall, results with GB elasticities look less supportive to the hypothesis of domestic and foreign lobbying participation in the CUSFTA negotiations, and even predictions of the benchmark PFS model are rejected. However, keeping the pitfalls described above in mind, it is difficult to say whether these results go against the theoretical model or the elasticity estimates are not appropriate for the model based on a monopolistically competitive market structure. The last six columns of Table 4 compare the earlier results with estimates obtained without elasticity terms on the left-hand side of equation (2). All parameter estimates of coefficients  $\beta_2$  and  $\beta_3$  are very similar to those obtained earlier.

The third set of robustness tests analyzes the sensitivity of the results to the construction of political organization dummies. The PFS model is not very specific regarding these variables: all industries that participate in a tariff-setting game are considered to be politically organized. Assuming that participating industries provide political contributions to politicians involved in the CUSFTA negotiations is only one possible way to categorize them as organized or not. We use four other approaches in the construction of political organization dummy variables to check whether the results of Section 4 are driven by specific assignment of these variables. First, we follow Gawande and Bandyopadhyay (2000) and regress political contributions on the import penetration ratio interacted with 2-digit SIC industry dummies (3-digit NAICS dummies for Canada) and a constant term. We assigned the value of one to political organization dummies for all industries with positive coefficients on these interactions and zero for those with negative coefficients. The intuition behind this definition of political organization is that industries threatened more by import competition will seek for more protection from the government. Since this methodology provides no rationale for constructing foreign political organization dummies, we use the benchmark definition to measure foreign political activity. The results, presented in Table 5 are consistent with those found previously: all reduced form coefficients preserve their signs and are statistically significant at least at 10% confidence level.

The second alternative mechanism for constructing political organization dummies follows Matschke

(2008): political contributions (normalized by value added) are regressed on the deadweight loss of protection (also normalized by value added) interacted with 2-digit SIC dummies (3-digit NAICS dummies for Canada). As before, all domestic industries with positive coefficients and foreign industries with negative coefficients are assumed to be politically organized. This specification is motivated by the theoretical prediction that in industries with larger welfare losses from protection domestic (foreign) interest groups should spend more (less) resources on lobbying.<sup>20</sup> Table 6 shows that when political organization is measured this way all fundamental predictions of the model are still supported by the data. Only in specification with relative tariffs the effect of Canadian lobbying on the U.S. policy is insignificant.

As a third robustness test for the construction of political organization dummies, we use 25% percentile threshold on political contributions (divided by value added). Industries with (contributions/VA) ratio above the threshold are assumed to be politically organized. Such censoring is supposed to deal with those industries that provide positive amounts of contribution but are too small to make any effect on policy decisions.<sup>21</sup> When industries with relatively small amounts of contributions are treated as politically unorganized, results in Table 7 look similar to the benchmark model except for the effect of Canadian lobbying on the U.S. relative tariffs: as in the previous case, this effect is negative but not statistically significant.

The fourth modification in construction of political organization dummies uses an alternative measure of industrial lobbying activity. Stoyanov (2009) quantify domestic and foreign lobbying activity in Canada at NAICS industry classification using 1997 lobbying registry data. Specifically, the information on the number of officially registered lobbyists, representing interests of Canadian and U.S. manufacturing producers, was collected for each industry, and those with a positive number of lobbyists were treated as politically organized. Though the lobbying data is available only for 1997 it may still be useful in the presence of high autocorrelation of lobbying activity at the industry level. The main advantage of this measure in the current framework is its independence of political contributions, which are often argued to be a secondary channel

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<sup>20</sup>Note that this relationship does not need to hold with political contributions data because contributions represent only a small fraction of total lobbying expenditure.

<sup>21</sup>Recently, Imai, Katayama, and Krishna (2008) argue against this method of categorization because, under certain conditions, organized industries can provide relatively small contributions to politicians. However, in the environment where contributions are made for a wide range of reasons, small values are less likely to be related to trade policy negotiations.

for lobbying expenditure in the presence of various restrictions on campaign contributions. The results, presented in Table 8, illustrate that under the alternative measurement of domestic and foreign political activity in Canada all qualitative predictions of the theory are still confirmed by the data. It is worth emphasizing that the effect of U.S. lobbying in Canada switched sign as a result of the CUSFTA. Prior to the agreement, U.S. lobbying is estimated to have negative effect on Canadian tariffs in 1988, while Stoyanov (2009) estimated a positive effect on post-FTA tariffs in 1997 using the same classification of politically organized industries.

## 6 Conclusion

This article has investigated empirically the role of special interest groups in the process of negotiating an FTA. While many recent theoretical studies of FTAs have analyzed the welfare properties of agreements formed by politically biased governments, there was no empirical evidence that special interest groups participate in FTA negotiations. Our analysis reveals that some conditions of the Canada-US FTA favour special interest groups in both countries, suggesting that politically active industries were engaged in the CUSFTA negotiations and, perhaps, were also involved into lobbying for/against the agreement itself. We demonstrate that the CUSFTA tariff reduction schedules, negotiated together with the agreement and phased out over the ten year period subsequent to its commencement, are systematically related to various measures of industry-level lobbying activity both at home and in the prospective partner country. The fact that special interest groups were involved in negotiations of the terms of the CUSFTA allows us to suggest that the decision to form and implement the CUSFTA was based not only on welfare-maximization principles but also on the interests of industry lobby groups in both countries. Furthermore, we also demonstrate that the tariff reduction schedules of one CUSFTA member country are responsive to the industrial lobbying activity in the other. These results not only demonstrate that governments protect the interests of export-oriented lobby groups in trade negotiations, but further reveal a channel by which firms from one country can affect trade policy decisions in the other using the domestic government as a mediator in trade negotiations. To the best of our knowledge, this paper is the first one to document participation of lobby groups in FTA

formation and has important implications for theory of endogenous PTA formation.

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Table 1. Summary statistics

Variable	Description	Mean	Median	Std.Dev.	Minimum	Maximum
<b>Canada</b>						
$\tau$	Ad-valorem tariff for US imports, 1988	0.07	0.06	0.06	0	0.25
$\tau_{cumulat}$	Cumulated import tariff, 1989-98	0.32	0.23	0.30	0	1.28
$\tau_{cumulat}^d$	Cumulated import tariff discounted, 1989-98	0.29	0.21	0.27	0	1.09
$\tau_{relat}$	(cumulated tariff)/tariff	3.86	3.95	1.24	0	6.99
$\tau_{relat}^d$	(discounted cumulated tariff)/tariff	3.51	3.59	1.18	0	8.02
$PAC^H$	Canadian political contributions, 1984-88	1,185	400	1,704	0	7,500
$PAC^F$	US political contributions, 1984-89	23,330	4,800	59,495	0	489,983
$I^H$	Polit. org. dummies, Canadian firms	0.55	1	0.50	0	1
$I^F$	Polit. org. dummies, US firms	0.70	1	0.46	0	1
$s^H$	Domestic firms market share	0.87	0.92	0.14	0.23	1
$\sigma$	Elasticity of substitution	5.78	4.95	3.01	1.43	21.47
$\varepsilon$	Import demand elasticity	1.56	1.35	0.69	1.00	5.79
<b>USA</b>						
$\tau$	Ad-valorem tariff for Canadian imports, 1988	0.04	0.03	0.04	0	0.29
$\tau_{cumulat}$	Cumulated import tariff, 1989-98	0.20	0.12	0.23	0	1.58
$\tau_{cumulat}^d$	Cumulated import tariff discounted, 1989-98	0.18	0.11	0.21	0	1.38
$\tau_{relat}$	(cumulated tariff)/tariff	4.60	4.77	1.92	0	13.25
$\tau_{relat}^d$	(discounted cumulated tariff)/tariff	3.93	4.04	1.92	0	11.85
$PAC^H$	US political contributions, 1984-89	12,804	1,500	38,939	0	433,705
$PAC^F$	Canadian political contributions, 1984-88	657	0	1,251	0	7,300
$I^H$	Polit. org. dummies, US firms	0.55	1	0.50	0	1
$I^F$	Polit. org. dummies, Canadian firms	0.35	0	0.48	0	1
$s^H$	Domestic firms market share	0.98	0.99	0.05	0.47	1
$\sigma$	Elasticity of substitution	3.06	2.84	1.09	1.31	6.91
$\varepsilon$	Import demand elasticity	1.05	1.02	0.09	1.00	1.95

Table 2. Benchmark estimation results

Regression equation	$\frac{\varepsilon_i \sigma_i}{\sigma_{i-1}} \tau_i = \beta_0 + \beta_1 s_i^H + \beta_2 I_i^H s_i^H + \beta_3 I_i^F (1 - s_i^F) + \varepsilon_i$									
	USA					Canada				
Dep. var:	$\tau_{88}$ (1)	$\tau_{cumulat}$ (2)	$\tau_{cumulat}^d$ (3)	$\tau_{relat}$ (4)	$\tau_{relat}^d$ (5)	$\tau_{88}$ (6)	$\tau_{cumulat}$ (7)	$\tau_{cumulat}^d$ (8)	$\tau_{relat}$ (9)	$\tau_{relat}^d$ (10)
$s^H$	0.726*** (0.148)	4.435*** (0.820)	4.048*** (0.785)	-28.780* (17.424)	-10.390 (15.844)	0.064 (0.253)	-2.242 (1.833)	-1.992 (1.609)	-7.794 (7.533)	-6.002 (6.567)
$I^H s^H$	0.071*** (0.024)	0.522*** (0.135)	0.519*** (0.135)	5.006*** (1.086)	4.094*** (1.011)	0.192*** (0.054)	1.608*** (0.406)	1.460*** (0.356)	3.514** (1.534)	3.270** (1.338)
$I^F (1 - s^F)$	-0.095*** (0.031)	-0.566*** (0.160)	-0.528*** (0.154)	-2.694** (1.344)	-2.131* (1.201)	-0.274*** (0.086)	-1.486*** (0.458)	-1.284*** (0.402)	-6.569*** (2.220)	-5.452*** (1.935)
<i>constant</i>	-0.650*** (0.146)	-4.100*** (0.815)	-3.765*** (0.780)	34.338** (17.057)	15.738 (15.507)	0.161 (0.190)	2.629* (1.407)	2.309* (1.235)	17.118*** (5.844)	14.205*** (5.094)
Hansen-J test <sup>(a)</sup>	25.97 (0.409)	30.12 (0.263)	28.78 (0.273)	25.14 (0.620)	34.50 (0.221)	10.70 (0.152)	3.79 (0.705)	3.56 (0.736)	4.98 (0.759)	5.71 (0.679)
N	370	354	354	324	324	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous. (b) p-value of the Angrist-Pischke test for the strength of the instruments in the first stage regressions. (c) F-statistics for the joint significance of instruments in the first stage regressions

Table 3: Robustness analysis: results without a constant and with bootstrapped standard errors

	USA					Canada				
	$\tau_{88}$ (1)	$\tau_{cumulat}$ (2)	$\tau_{cumulat}^d$ (3)	$\tau_{relat}$ (4)	$\tau_{relat}^d$ (5)	$\tau_{88}$ (6)	$\tau_{cumulat}$ (7)	$\tau_{cumulat}^d$ (8)	$\tau_{relat}$ (9)	$\tau_{relat}^d$ (10)
$S^H$	0.075*** (0.016)	0.316*** (0.083)	0.278*** (0.073)	6.666*** (0.893)	6.027*** (0.714)	0.267*** (0.074)	1.200*** (0.309)	1.028*** (0.265)	14.389*** (2.667)	12.372*** (2.116)
$I^H S^H$	0.075*** (0.027)	0.379*** (0.121)	0.366*** (0.134)	3.055*** (1.093)	2.213** (1.009)	0.165*** (0.038)	1.069*** (0.255)	0.985*** (0.175)	1.046 (1.626)	1.258 (1.301)
$I^F(1 - s^F)$	-0.140*** (0.030)	-0.554*** (0.136)	-0.516*** (0.121)	-0.996 (1.459)	-1.050 (1.425)	-0.276*** (0.088)	-1.597*** (0.370)	-1.377*** (0.339)	-7.911*** (2.781)	-6.547*** (2.410)
Hansen-J test <sup>(a)</sup>	27.69 (0.186)	22.64 (0.253)	23.80 (0.204)	23.72 (0.592)	20.86 (0.647)	10.82 (0.147)	6.99 (0.430)	6.98 (0.431)	3.77 (0.806)	3.52 (0.833)
N	370	354	354	324	337	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.

Table 4: Robustness analysis: sensitivity to the elasticity of substitution variable.

	USA			USA			Canada		
	$\tau_{88}$	$\tau_{cumulat}$	$\tau_{relat}$	$\tau_{88}$	$\tau_{cumulat}$	$\tau_{relat}$	$\tau_{88}$	$\tau_{cumulat}$	$\tau_{relat}$
	GB elasticity on the LHS (1)	(2)	(3)	No elasticities on the LHS (4)	(5)	(6)	No elasticities on the LHS (7)	(8)	(9)
$S^H$	0.380* (0.223)	2.275** (1.101)	-40.392 (64.103)	0.362*** (0.098)	2.287*** (0.565)	6.266 (9.232)	-0.092 (0.182)	-0.816 (1.041)	5.562 (4.373)
$I^H S^H$	0.031 (0.041)	0.404* (0.210)	13.057*** (4.476)	0.048*** (0.016)	0.328*** (0.100)	2.374*** (0.609)	0.167*** (0.040)	0.896*** (0.231)	1.740** (0.834)
$I^F(1 - s^F)$	-0.057 (0.059)	-0.433** (0.216)	-7.339 (6.073)	-0.064*** (0.020)	-0.417*** (0.119)	-1.329* (0.686)	-0.141*** (0.050)	-0.907*** (0.260)	-4.309*** (1.214)
<i>constant</i>	-0.289 (0.213)	-1.904* (1.087)	46.411 (63.516)	-0.318*** (0.096)	-2.068*** (0.558)	-2.359 (9.017)	0.161 (0.138)	1.125 (0.799)	0.992 (3.327)
Hansen-J test <sup>(a)</sup>	15.04 (0.774)	14.60 (0.68)9	32.76 (0.245)	18.74 (0.539)	16.88 (0.532)	27.12 (0.512)	6.28 (0.393)	3.55 (0.737)	4.82 (0.682)
N	216	202	180	379	363	332	240	236	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.

Table 5: Robustness analysis: sensitivity to political organization variables.

	USA					Canada				
	$\tau_{88}$ (1)	$\tau_{cumulat}$ (2)	$\tau_{cumulat}^d$ (3)	$\tau_{relat}$ (4)	$\tau_{relat}^d$ (5)	$\tau_{88}$ (6)	$\tau_{cumulat}$ (7)	$\tau_{cumulat}^d$ (8)	$\tau_{relat}$ (9)	$\tau_{relat}^d$ (10)
$s^H$	0.619*** (0.139)	3.351*** (0.763)	3.013*** (0.720)	-16.593 (19.143)	0.492 (10.660)	0.461** (0.225)	3.962*** (1.138)	3.636*** (1.000)	5.698 (6.326)	6.386 (5.590)
$I^H s^H$	0.047*** (0.015)	0.332*** (0.075)	0.322*** (0.071)	1.704** (0.798)	1.272* (0.722)	0.680*** (0.191)	2.801*** (0.758)	2.475*** (0.666)	7.321* (4.175)	6.458* (3.689)
$I^F(1 - s^F)$	-0.107*** (0.029)	-0.664*** (0.152)	-0.621*** (0.144)	-2.567* (1.514)	-2.644* (1.448)	-0.231** (0.103)	-1.679*** (0.505)	-1.456*** (0.444)	-7.226*** (2.765)	-5.932** (2.443)
<i>constant</i>	-0.519*** (0.136)	-2.839*** (0.748)	-2.551*** (0.706)	24.469 (18.878)	6.769 (10.513)	-0.169 (0.180)	-2.002** (0.980)	-1.889** (0.861)	7.072 (5.584)	4.950 (4.934)
Hansen-J test <sup>(a)</sup>	23.02 (0.518)	27.65 (0.324)	27.52 (0.281)	35.41 (0.158)	31.19 (0.309)	4.44 (0.728)	2.43 (0.876)	2.96 (0.814)	4.45 (0.726)	5.36 (0.616)
N	370	354	354	324	337	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.

Table 6: Robustness analysis: construction of political organization variables from implied deadweight loss.

	USA					Canada				
	$\tau_{88}$ (1)	$\tau_{cumulat}$ (2)	$\tau_{cumulat}^d$ (3)	$\tau_{relat}$ (4)	$\tau_{relat}^d$ (5)	$\tau_{88}$ (6)	$\tau_{cumulat}$ (7)	$\tau_{cumulat}^d$ (8)	$\tau_{relat}$ (9)	$\tau_{relat}^d$ (10)
$s^H$	0.663*** (0.132)	4.221*** (0.790)	4.100*** (0.760)	-15.078 (18.158)	8.134 (10.050)	0.268 (0.171)	2.330*** (0.844)	2.153*** (0.766)	1.803 (6.024)	3.223 (5.519)
$I^H s^H$	0.028** (0.014)	0.257*** (0.073)	0.265*** (0.071)	2.284*** (0.724)	1.272* (0.659)	0.298*** (0.052)	1.410*** (0.254)	1.275*** (0.231)	4.062** (1.676)	3.374** (1.535)
$I^F(1 - s^F)$	-0.046*** (0.017)	-0.353*** (0.104)	-0.308*** (0.097)	-1.474 (0.990)	-0.758 (0.923)	-0.074* (0.044)	-0.598*** (0.229)	-0.488** (0.207)	-3.450** (1.485)	-2.954** (1.360)
<i>constant</i>	-0.562*** (0.131)	-3.665*** (0.785)	-3.612*** (0.752)	22.799 (17.919)	-1.189 (9.956)	-0.143 (0.140)	-1.599** (0.700)	-1.499** (0.635)	6.494 (5.046)	4.508 (4.623)
Hansen-J test <sup>(a)</sup>	29.73 (0.098)	32.18 (0.074)	28.75 (0.070)	28.69 (0.428)	35.13 (0.200)	5.41 (0.610)	3.61 (0.730)	3.52 (0.741)	5.83 (0.666)	6.65 (0.575)
N	370	354	354	324	337	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.

Table 7: Robustness analysis: construction of political organization dummies by applying 25% threshold on contributions.

	USA					Canada				
	$\tau_{88}$ (1)	$\tau_{cumulat}$ (2)	$\tau_{cumulat}^d$ (3)	$\tau_{relat}$ (4)	$\tau_{relat}^d$ (5)	$\tau_{88}$ (6)	$\tau_{cumulat}$ (7)	$\tau_{cumulat}^d$ (8)	$\tau_{relat}$ (9)	$\tau_{relat}^d$ (10)
$s^H$	0.915*** (0.163)	4.159*** (0.770)	3.936*** (0.733)	-19.752 (16.183)	7.743 (9.044)	-0.227 (0.219)	-2.192* (1.206)	-1.856* (1.059)	-16.403*** (6.182)	-12.913** (5.392)
$I^H s^H$	0.053** (0.025)	0.304** (0.125)	0.323*** (0.118)	4.695*** (1.023)	3.529*** (0.976)	0.260*** (0.051)	1.587*** (0.276)	1.426*** (0.242)	5.270*** (1.220)	4.741*** (1.064)
$I^F(1 - s^F)$	-0.054* (0.030)	0.519*** (0.135)	-0.459*** (0.128)	-1.484 (1.163)	-1.713 (1.112)	-0.229*** (0.075)	0.891*** (0.317)	-0.764*** (0.278)	-5.003*** (1.808)	-4.004** (1.577)
<i>constant</i>	-0.839*** (0.161)	3.729*** (0.766)	-3.571*** (0.729)	25.326 (15.834)	-2.073 (8.904)	0.348* (0.189)	2.285** (1.010)	1.944** (0.887)	22.532*** (5.404)	18.469*** (4.713)
Hansen-J test <sup>(a)</sup>	13.84 (0.678)	16.14 (0.762)	16.75 (0.669)	30.75 (0.328)	33.71 (0.250)	8.19 (0.316)	11.14 (0.084)	10.71 (0.098)	6.86 (0.552)	7.39 (0.495)
N	370	354	354	324	337	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.

Table 8: Robustness analysis: construction of political organization variables from lobbying registry data.

	<b>Canada</b>				
	$\tau_{88}$	$\tau_{cumulat}$	$\tau_{cumulat}^d$	$\tau_{relat}$	$\tau_{relat}^d$
	(1)	(2)	(3)	(4)	(5)
$s^H$	-0.369 (0.312)	-0.848 (1.588)	-0.645 (1.401)	-9.897 (8.441)	-6.857 (7.510)
$I^H s^H$	0.472*** (0.119)	2.164*** (0.575)	1.924*** (0.507)	6.800** (2.876)	5.753** (2.559)
$I^F(1 - s^F)$	-0.315*** (0.119)	-1.934*** (0.603)	-1.656*** (0.532)	-7.173** (3.179)	-5.946** (2.829)
<i>constant</i>	0.340 (0.250)	0.899 (1.270)	0.699 (1.121)	15.594** (6.769)	12.303** (6.023)
Hansen-J test <sup>(a)</sup>	6.33 (0.502)	9.35 (0.155)	9.57 (0.144)	8.47 (0.293)	8.87 (0.262)
N	239	236	236	221	221

Notes: \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Robust standard errors are in parentheses. (a) Test for overidentifying restrictions with p-value in parentheses. The null hypothesis is that instruments are exogenous.