ENDOGENOUS TRADE POLICY IN THE PRESENCE OF LOBBYING AND HETEROGENEOUSLY IGNORANT VOTERS

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DECEMBER, 2019

Abstract. Based on the Protection for Sale approach of Grossman and Helpman (1994), we develop a theoretical model in which exogenously organised groups provide political contributions to influence trade policy. The incumbent government cares about contributions yet simultaneously takes into account the potential reactions of voters. We formally consider citizens' voting decisions, assuming they have heterogeneous ignorance thresholds, and explicitly derive the objective function of the policy-maker. We find that the resulting equilibrium structure of protection differs from the standard case. Free trade obtains only if no group lobbies and ignorance levels are the same. On average, more ignorant groups will have lower (if any) protection from the policy-maker and, also, groups represented by lobbies will not always be supported by the incumbent government.

Keywords: Endogenous Trade Policy, Lobbying, Voter Ignorance

JEL Classification: F13, D72

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The following people supported and influenced this paper through various fruitful discussions: Gerald Willmann, Herbert Dawid, Christoph Kuzmics, Ralf Ossa.

1. Introduction

In democracies, trade policy outcomes often arise from interactions between organized groups, voters, and policymakers. Many policy outcomes have been thoroughly examined and elucidated by analyzing the activities of interest groups involved in the processes. For instance, according to Anderson and Tollison (1985), the House of Commons repealed import duties on corn in 1846 primarily due to the Anti-corn Law League's efforts, supported by a cohesive and well-defined organized group, the British cotton textile industry. More recently, following the removal of restrictions on sugar purchases from Mexico under the North American Free Trade Agreement in 2008, the U.S. government faced organized opposition from U.S. sugar producers starting in 2014. These producers accused Mexican counterparts of price dumping. Consequently, within less than a year, the United States and Mexico negotiated a new agreement to prevent anti-dumping and countervailing duties on U.S. sugar imports from Mexico. This agreement reintroduced trade limitations, specifically setting minimum prices for raw and refined sugar imports and imposing volume and timing restrictions. Notably, during that period, sugar and sugar-cane farms constituted only 1.3 percent of the total farm and livestock production value in the U.S.A., yet they contributed significantly, providing 33 percent of campaign donations and 40 percent of lobbying expenditures for crop industries, as mentioned in Riley (2014).

The organized activities of special interest groups represent one dimension of the story. Policy-makers not only pay attention to political contributions but also recognize the importance of considering potential voter reactions to policy choices. In fact, an empirical study by Wegenast (2010) has found that an informed electorate reduces the total amount of campaign contributions, possibly because it limits the freedom of policy-makers to design policies that primarily favor specific interest groups.

Additionally, Ponzetto (2011) has demonstrated that increased news coverage of trade policy within a particular industry leads to greater demand for trade liberalization. He has shown that industries receiving more media attention tend to use fewer non-tariff barriers. This phenomenon aligns with what Bhagwati (1989) coined as the "Dracula Effect" in his book "Protectionism," which aptly describes the role of information in the trade liberalization process. According to Bhagwati, "the mere act of recognizing [protectionism] will help trigger a more corrective response. In this regard, we can rely on assistance from the Dracula Effect: exposing evil to sunlight helps destroy it."

While there exists a vast empirical and theoretical literature analyzing the role of special interest groups in the general policy determination process, as demonstrated in studies such as Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Mitra et al. (2002), Tovar (2009), Bombardini and Trebbi (2012), and

Imai et al. (2013), relatively little or inadequate attention has been dedicated to the significance of voters' ignorance (see footnote 2) in political economy models concerning trade policy formation.

To our knowledge, Downs (1957) was among the first to recognize the importance of voters' ignorance in the political process. In his seminal book, "Economic Theory of Democracy," he observes that "Many citizens who vote and consider voting important are nevertheless not well-informed on the issues involved in the election" (p.298).

In fact, theoretical models have often focused on these different aspects separately. In our paper, we construct a theoretical model in which organized groups provide political contributions to influence the decisions of the incumbent government regarding trade policy. The incumbent government is exogenously given and faces a utilitarian challenger in the upcoming election. To counter this challenge, the policy-maker places importance on donations while also taking into consideration the potential reactions of voters.

Within our model, we formally define voting decisions, account for the heterogeneity of voter ignorance, and explicitly derive the objective function of a policy-maker. Subsequently, we analyze the structure of protection that emerges within the political equilibrium of the model.

In McLaren (2016), when summarizing the political economy literature on trade policy determination, the problem is clearly delineated: "In a democracy, politicians campaign to win an election and thereby gain power; once they have gained power, they bargain with each other while being influenced by lobbyists, and the result is a realized policy. A full model would involve all three of the mechanisms, (i) electoral competition, (ii) legislative bargaining, and (iii) lobbying; but in practice, these three have tended to be studied separately."

While we abstract from the aspect of legislative bargaining, our focus is on the elements of electoral competition, taking into account the potential heterogeneity among voters and the influence of lobbying. Combining these elements of electoral competition and lobbying proves to be fruitful as it leads to the emergence of new theoretical insights.

We demonstrate that free trade prevails if and only if lobbyists do not represent any of the groups that own specific factors, and simultaneously, all groups share the same level of ignorance. Furthermore, when all groups are unorganized, our model predicts that groups with average ignorance levels lower than the overall average ignorance across all groups will receive positive government protection, while the opposite holds true for groups with higher average ignorance levels. This finding contrasts with the results of Grossman and Helpman (1994), as organized groups are not always favored in the political equilibrium of our model. Depending on the specific parameters, the policy-maker might also support unorganized groups. On average, groups characterized by higher levels of ignorance will receive lower (if any) protection from the government.

We structure the paper as follows: First, in Section 2, we provide a concise discussion of the related literature and outline the primary approaches that model the political process in trade policy determination. Moving on to Section 3, we introduce the general framework of our model and provide its technical intricacies. Subsequently, in Section 4, we analyze the political equilibrium within our model. Finally, we offer a summary and concluding remarks in the last section.

2. Related Literature

Throughout the paper, we shall relate our work to several streams of literature, both theoretical and empirical. However, in this section, we primarily concentrate on the major theoretical approaches that have been developed over time to explain the endogenous formation of trade policy.[1]

Based on the works of Stigler (1971) and Peltzman (1976), Hillman (1982) developed a model where tariffs are the result of the government's rational choice optimising the trade-off between the political support from industry and the dissatisfaction of consumers. In his model, rising domestic prices due to trade taxes increase the industry profits; and encourage more political support from that industry. At the same time, the higher prices caused by this policy decrease consumers' welfare. According to Hillman (1982), this trade-off between opposing interests of producers and consumers determines the tariff structure, as government maximises aggregate support represented by a reduced-form function. The reduced-form aggregate support function simplifies the analysis, but one can consider that the lack of micro-foundations is a weak ingredient of the model.

To underline the role of voters, Mayer (1984) developed a majority voting model to explain trade policy outcomes. According to his approach, the ownership structure of the economy and a median voter determine tariff rates. In the model, the higher the median voter's share of ownership of the sector-specific input, and the larger the sector's output, the higher the tariff rate will be. But as Helpman (1995) notes, the main shortcoming of the model is that if we consider a highly concentrated distribution of ownership of the specific factors, which is not unrealistic, we should not observe tariffs in such sectors.

Magee et al. (1989) developed an electoral competition model for understanding the endogenous formation of trade policy. They construct the model where two candidates and two lobbies interact. One candidate is assumed to be pro-trade, while the other one is pro-protection. Lobbies give contributions to increase the probability of winning for their candidate. A two-stage game is considered. In the first stage, candidates commit to their trade policies, and in the second stage, lobbies decide on contributions. The Nash equilibrium of the game determines the structure of protection. Magee, Brock, and Young's model is not explicit about the political process, who the voters are, and how they vote. In addition, the restriction on candidates'

[1]For a detailed review of the literature see Helpman (1995), Rodrik (1995), van Winden (2004) and McLaren (2016).

platforms is ad hoc. For these reasons, their approach was vigorously criticised (for example, see Austen-Smith (1991) and Mayer and Li (1994)).

Magee, Brock, and Young were the first who explicitly consider the role of political contributions, albeit with some limitations, as in their model contributions influenced only the election outcomes and not the choice of trade policy. In contrast, Grossman and Helpman (1994) developed a theory where the influence motive of campaign contributions plays the central role. According to this theory, interest groups offer politicians campaign contributions contingent on policy choices. Subsequently, the politicians choose the policy to implement, knowing how the policy choice affects the decisions of organised groups. However, contributions are not the only factor that politicians consider; they also care for the well-being of the general public. The political objective function is a weighted sum of total political contributions and aggregate welfare, where the weights are exogenously given. Based on the work of Bernheim and Whinston (1986), the authors analyse a two-stage game and determine the equilibrium outcome. Like Magee et al. (1989), Grossman and Helpman (1994) do not provide an explicit picture of the political process. Moreover, in most of the models discussed above, complete information is assumed.[2]

Over the last 20 years, many theoretical variations (modifications of existing models) and empirical papers have appeared in the literature. A few interesting examples include: Facchini et al. (2006), Tovar (2011), Ponzetto (2011), Limão and Tovar (2011), Chamon and Kaplan (2013), and Saha (2019).[3] Among these papers, the most related to our work is the paper of Ponzetto (2011). He models tariff formation as the outcome of an electoral competition, where each agent endogenously acquires information about his employment sector. In equilibrium, trade policy for the industry is less protective when there is more public information available. Like Ponzetto (2011), we also consider the informational aspect of trade policy in citizens' voting decisions, though we treat it as exogenously given. Moreover, lobbying activities play a significant role in our work, in contrast to Ponzetto (2011), where it is absent.

In our work, we retain the basic structure of Grossman and Helpman (1994) model and their notion of equilibrium. Still, we explicitly model the political process, assuming that voters are heterogeneously ignorant about the effects of policy choices. Based on the citizens' voting decision, we derive the government's objective function when voting is probabilistic. Adding these new features allows us to formulate an explicit, micro-founded model of endogenous trade policy determination. Moreover, combining the elements of electoral competition and lobbying pays off as it generates some new theoretical results.

[2]Several papers consider the role of information in the policy determination process, but the approaches are dichotomous in the sense that the authors only consider informed and uninformed voters (for example, see Baron (1994), Grossman and Helpman (1996) and Bombardini and Trebbi (2012)).
[3]See Bombardini and Trebbi (2020) for a nice review of empirical work on lobbying.

3. Model

3.1. **General Framework.** We consider a small open economy. The economy is populated by individuals who are assumed to have identical preferences, and each represented by the following utility maximisation problem:

$$U(x) = x_0 + \sum_{m=1}^{M} u_m(x_m) \quad \text{s.t.} \quad x_0 + \sum_{m=1}^{M} p_m x_m = E \tag{1}$$

where x_0 is the consumption of a numéraire good produced by labour alone. Production technology for the numéraire good exhibits constant returns to scale, and an input-output coefficient equals to one. Furthermore, both the world and the domestic price of a good 0 are assumed to be equal to one. The aggregate supply of labour is large enough to ensure a positive supply of good 0. Note that our assumptions imply that the equilibrium wage rate will be one as well. M non-numéraire goods are produced, and p_m denotes the domestic price of good m, where $m \in M$. Since a small open economy is considered, for each good m, there exists an exogenously given world price, which we denote by p_m^w. The production technology for all non-numéraire goods is constant returns to scale and, contrary to numéraire good, manufacturing of each good m requires labour, L_m and a sector-specific input, K_m. The size of the total population is N, and every individual $i = (1, 2, ..., N)$ owns at most one specific factor of production; hence, each belongs to only one group of people holding precisely one type of specific factor. The number of people in each group can be different, and denoted by N_m with $N = \sum_{m=1}^{M} N_m$. Let E represent the total income of an individual. At last, the sub-utility function in equation (1) is assumed to be differentiable, increasing, and strictly concave.

The first-order conditions of an individual's utility maximisation problem imply that:

$$x_m = d_m(p_m) = u_m^{'-1}(p_m) \quad \text{and} \quad x_0 = E - \sum_{m=1}^{M} d_m(p_m) p_m$$

Then indirect utility for any individual can be written as:

$$v(p, E) = E + \sum_{m=1}^{M} u_m(d_m(p_m)) - \sum_{m=1}^{M} d_m(p_m) p_m = E + \sigma(p) \tag{2}$$

where $\sum_{m=1}^{M} u_m(d_m(p_m)) - \sum_{m=1}^{M} d_m(p_m) p_m$ represents a consumer surplus. We denote it by the following notation $\sigma(p)$.

While the equilibrium wage rate is one, the domestic price solely determines the reward to the specific factor employed in the production of good m. Let us denote this reward by $\pi_m(p_m)$, and define it as follows: $\pi_m(p_m) = max_{L_m}(p_m f(K_m, L_m) - L_m)$. By Hotelling's lemma, domestic output, or supply of good m, will be the first derivative of the reward function: $y_m(p_m) = \pi_m^{'}(p_m)$.

The incumbent government determines trade policy. Trade taxes and subsidies are the only policy instruments that politicians can deploy. A domestic price above the world price means an import tariff for imported goods and an export subsidy for exported goods. In contrast, local prices below the world prices are equivalent to import subsidies and export taxes. Furthermore, all income generated by trade policy is evenly rebated among citizens. Per capita tariff revenue from the government denoted as $r(p)$ will be:

$$r(p) = \sum_{m=1}^{M} (p_m - p_m^w)(d_m(p_m) - \frac{1}{N} y_m(p_m)) \tag{3}$$

In general, individuals receive income from three sources: labour income, income from owning a share of a specific factor, and tariff revenues from the government. Then the indirect utility of individual i holding some specific factor m, assuming that individuals' share in specific factor ownership is evenly distributed within groups[4], is:

$$v_i^m(p, E_m) = l_i + \frac{1}{N_m} \pi_m(p_m) + \sigma(p) + r(p) \tag{4}$$

The indirect utility functions will play a crucial role in the decision-making process when voting. A policy-maker cares about the votes while searching contributions from the business groups to run the election campaign. We assume that some business groups, more precisely, some of the owners of specific factors are organised and represented by a lobbyist, who decides how much to contribute for maximising the reward to the group they represent. There is an incumbent policy-maker (exogenously given) running the government, and it faces a trade-off between contributions and votes. In the end, precisely this trade-off will determine the political equilibrium of the game.

The political process of trade policy determination plays out in two stages:

In the first stage, lobbyists, representing organised groups, non-cooperatively and simultaneously decide on contribution functions contingent on trade policy choices of the incumbent government.

In the second stage, the incumbent government observes the contribution functions offered by lobbyists, considers the possible responses from the voters, sets a trade policy, and collects from each lobby the contribution associated with the chosen policy. In the end, the election takes place. The citizens cannot abstain from voting.

3.2. **Political Process and Decisions of Agents.** We have already defined the indirect utility function of individual i owning some specific factor m. In order to determine how citizens vote, let us consider the

[4]The ownership structure in our model is slightly different from Grossman and Helpman (1994). In their paper, individuals might not own any specific factor.

indirect utility evaluated at world prices:

$$v_i^m(p^w, E_m^w) = l_i + \frac{1}{N_m}\pi_m(p_m^w) + \sigma(p^w) \tag{5}$$

$v_i^m(p^w, E_m^w)$ is the indirect utility of an individual i owning some specific factor m in the case there is no distortion to free trade. This variable indicates what would be the welfare of agent i under world prices.[5]

In our model, voters differ from one another in the ability/desire to determine the relationship between trade policies and the difference in their indirect utilities, $v_i^m(p, E^m) - v_i^m(p^w, E_w^m)$. One might think that citizens have a different levels of ignorance for policies that deviate from socially optimal strategy (see footnote 5). In practice, there could be several potential reasons why citizens are ignorant concerning policies. In some cases, it might be that the different levels of ignorance are just outcomes of rational choices of agents or citizens might have different thresholds of cognitive limitations,[6] or individuals are miscellaneously limited by the information they have.[7] Another reason could be the trade preferences of individuals, including the biases of the agents.

For our theoretical model, it does not matter what the source of ignorance is. We assume that the distribution of ignorance among the citizens is a factor (industry) specific. It is exogenously given.[8] We introduce parameter β to capture the ignorance of the voters. More specifically, β_i^m measures the ability of a voter i owning some specific factor m to map the trade policy choice of the incumbent policy-maker on the improvement or deterioration of his/her welfare.

[5]Note that for a small, competitive economy free trade is in general the social welfare maximising policy. The same is true for our model as well. Based on the individual indirect utilities (equation (5)), aggregate welfare is $\sum_{m=1}^{M}\sum_{i=1}^{N_m} v_i^m(p, E_m) = \sum_{m=1}^{M}\sum_{i=1}^{N_m}(l_i + (1/N_m)\pi_m(p_m) + \sigma(p) + r(p)) = N + \sum_{m=1}^{M}\pi_m(p_m) + N(\sigma(p) + r(p))$ (N stands for total labor income in the economy as the equilibrium wage is one). Now the maximisation of the aggregate welfare results in the following first order condition: $(p_k - p_k^w)(Nd_k^{'}(p_m) - y_k^{'}(p_k)) = 0$ for all $k \in M$, which is satisfied only under free trade. As the challenger is utilitarian, citizens will evaluate any distortionary trade policy relative to free trade policy.

[6]For example, Conconi et al. (2014) indirectly show that voters might have some depreciation rate for information about trade policy. There is no difference in how the members of the House (who serve 2-year terms) and the Senate members (who serve 6-year terms) vote for trade liberalisation when a Senator is in the last two years of his/her term. While early in their election period, the members of a Senate, who serve 6-year terms more often vote for open trade. The voting pattern can be considered as an indication of the imperfect memory of voters. They might differ in this respect from one another.

[7]Ponzetto (2011) shows that in an unbalanced panel of 162 countries from 1975 to 2003, tariffs are significantly lower the higher the rate of television ownership. The finding is both economically and statistically significant even after controlling the essential economic variables.

[8]There is empirical evidence that sector of employment and education matters, for example, in the formation of trade policy preferences among voters (see Irwin (1996), Beaulieu (2002) and Blonigen (2011)). Education is a more robust determinant of trade policy preferences. If we suppose that education matters in the determination of the ignorance of the voters as well, then a factor (industry) specific distribution of ignorance seems a reasonable assumption as various industries have a different composition of the labor force by education.

For expositional clarity, we assume that β_i^m is distributed uniformly[9] and the upper bounds of distributions may differ across the specific factor holders (industries). For all sectors $m \in M$, we have that:

$$\beta_i^m \sim U[0, \Phi_m] \tag{6}$$

The upper bound of the distribution (Φ_m) determines how ignorant is the group m of specific factor holders. The higher is Φ_m, the lower is the density ($1/\Phi_m$), therefore implying, on average, higher ignorance for the group m. If Φ_m is low (the density ($1/\Phi_m$) is high) for a group m, then the voters in the group m are concentrated near 0 and, on average, the group has lower ignorance.

Another variable that we introduce is the general popularity of the incumbent government, denoted by δ. The incumbent cannot directly control the general popularity, but the policy-maker exploits contributions from organised groups to campaign, and the campaign spending affects the general popularity. Following the literature (see Persson and Tabellini (2002)) the general popularity of a policy-maker is determined as follows:

$$\delta = \widehat{\delta} + \eta \sum_{j \in L} C_j(p) \text{ with } \eta > 0 \tag{7}$$

where $C_j(p)$ is a contribution function from the organised group j depending on the prices for all numéraire goods, L is the set of organised groups ($L \leq M$) and η measures the effectiveness of campaign spending.[10] The incumbent government knows the distributions of ignorance across different groups, but it does not know its average popularity, as $\widehat{\delta}$ is a random uniform shock ($\widehat{\delta} \sim U[-\Psi, \Psi]$). Before the election, a positive or a negative shock may occur that together with campaign spendings determines the general popularity.

In the end, the following three elements will determine citizens' voting decisions. The first one is the difference between indirect utilities, with and without trade policy distortions. This element is group-specific as individuals do not differ regarding utilities within the groups. The second element is the ignorance level of an individual, which is agent-specific. The third one is the general popularity of the incumbent, common to all voters in the country. Now we define the voting behaviour of individuals in the model. An individual i owning the specific factor m will vote for the incumbent if

$$v_i^m(p, E_m) - v_i^m(p^w, E_m^w) + \beta_i^m + \delta \geq 0 \tag{8}$$

[9] Persson and Tabellini (2002), p.57 conclude that in a similar set-up the usage of any unimodal distribution instead of a uniform distribution does not change the results qualitatively.

[10] In the model, organised groups give political contributions to incumbent government only. This abstraction is not very restrictive as the financial advantage enjoyed by incumbents, in general, is a well-documented fact. See Fouirnaies and Hall (2014) and Ansolabehere and Snyder (2002).

Suppose we do not consider the ignorance level of individuals and the general popularity of the incumbent government. In that case, the agent will vote for the incumbent only if the change in his/her welfare from the distortionary trade policy is positive. Ignorance becomes an essential ingredient when the net change in the indirect utility from the distortionary trade policy is negative. Such a situation may occur if, for example, some groups of specific factor holders other than group m are supported by the government. Then individuals in group m are harmed as consumers. In general, in the presence of ignorance, the voters with a lower ignorance threshold will be more responsive to policy changes.

The next question to address is what motivates the incumbent government's trade policy choice. Grossman and Helpman (1994) assume that the government maximises the weighted sum of total political contributions and aggregate welfare. We deviate from this assumption and follow the predominant view in the literature that the policy-maker conceives policy as a means to winning the election. As Downs (1957) notes, "Party members have as their chief motivation the desire to obtain the intrinsic rewards of holding office; therefore they formulate policies as means to holding office rather than seeking office in order to carry out preconceived policies."

In our model, the incumbent is concerned with winning the election, so his/her expected utility depends on the probability of winning, Π and on the return from being elected, which is considered to be some positive constant. In the case of losing the election, the return is zero. To derive the expression for the policy maker's objective function, we first have to determine the probability of winning.

The incumbent knows that after implementing the trade policy, in each group m of the specific factor holders, there will be a voter who is indifferent between voting and not voting for the incumbent. Let us call such voter the swing voter of that group. Under the uniform distribution assumption for ignorance, every group will have the swing voter, which is determined by the condition in equation 8. Subsequently, every voter in the group m that has a higher ignorance level than the ignorance of the swing voter (denoted as β_s^m) will vote for the incumbent. As β_i^m is distributed uniformly, the share of voters in a group m who will vote for the incumbent will be:

$$\Omega^m = (\Phi_m - \beta_s^m)\frac{1}{\Phi_m} = 1 - \frac{1}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m) - \delta) \tag{9}$$

If we consider all groups we can derive the total share of citizens who vote for the incumbent:

$$\begin{aligned}\Omega &= \sum_{m=1}^{M} \alpha_m \Omega^m = \sum_{m=1}^{M} \alpha_m (1 - \frac{1}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m) - \delta)) \\ &= 1 - \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m)) + \delta\frac{1}{\underline{\Phi}}\end{aligned} \tag{10}$$

where $\alpha_m = N_m/N$ and $1/\underline{\Phi} = \sum_{m=1}^{M} \alpha_m/\Phi_m$ is the average density of ignorance in a country.

The incumbent wins the election if $\Omega > 1/2$. The condition is satisfied whenever

$$\delta > \underline{\Phi} \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m)) - \frac{1}{2}\underline{\Phi} \tag{11}$$

Equation (7) and the requirement $\Omega > 1/2$ are equivalent to the following condition

$$\widehat{\delta} > \underline{\Phi} \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m)) - \eta \sum_{j \in L} C_j(p) - \frac{1}{2}\underline{\Phi} \tag{12}$$

Let us denote the right-hand side expression of equation (12) by $\underline{\delta}$ and recall that $\widehat{\delta}$ is a random variable which is distributed uniformly. Then the probability of winning the election will be defined as follows:

$$\Pi[\ \widehat{\delta} > \underline{\delta}\ ] = (\Psi - \underline{\delta})\frac{1}{2\Psi} \tag{13}$$

After some manipulations (see Appendix A.1) similar to the derivation of the equations (9) and (10), we get

$$\Pi[\ \widehat{\delta} > \underline{\delta}\ ] = \frac{\underline{\Phi}}{2\Psi} \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{2\Psi} \sum_{j \in L} C_j(p) + \frac{\underline{\Phi}}{4\Psi} + \frac{1}{2} \tag{14}$$

The incumbent will maximise the probability of winning given in equation (14). Note that in the end, the rational behaviour of the policy-maker boils down to the maximisation of the following expression:

$$\sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} C_j(p) \tag{15}$$

The policy-maker considers the effects of trade policy on the swing voters in each group of the specific factor holders weighted by the combination of group density of ignorance and the group's share in the total population. In addition, the incumbent government cares for political contributions. The effectiveness of campaign spending and the average density of ignorance determine the weight that the policy-maker assigns to political donations. At large, if the incumbent government is interested only in winning the election and the ignorance densities are different in the various groups of specific factor owners, then the policy-maker does not need to take into account the overall welfare of the society. It suffices to concentrate only on the swing voters in each group in addition to the political contributions.

In Grossman and Helpman (1994) when the government doesn't care about the campaign contributions, free trade is the optimal strategy as the social welfare is maximised under such a policy. Now let us consider the case that η equals zero or L is an empty set in our model. In the first case, the policy-maker does not have any incentive to collect political donations, while no one wants to contribute to the incumbent in the

second case. In any of the two cases, contrary to Grossman and Helpman (1994), the free trade still might not be a politically optimal strategy.[11]

As a last step of formulating the model, we present the decision problem of lobbyists who behave on behalf of the organised groups. Like the incumbent government, the lobbyists have information about the distributions of ignorance in the various groups of specific factor holders, and they also possess knowledge about the distribution of the political shock that might unfold before the election. Therefore, all lobbies can correctly anticipate the policy-maker's best responses to the contribution schedules. Moreover, we assume that the lobbyists cannot influence the ignorance among the specific factor holders. Recall that there are M groups of factor holders, but only some of them are organised. The lobbyist objective is to maximise the return on specific capital:

$$\pi_j(p_j) - C_j(p) \tag{16}$$

where $\pi_j(p_j)$ is the reward to specific factor owned by the group $j \in L$, which depends only on its price.

3.3. **Equilibrium and Structure of Trade Policy.** To solve a two-stage game between the lobbies and the incumbent government, let's assume that the policy-maker chooses its policy from a bounded set of domestic price vectors denoted by $\mathcal{P}$. We retain the equilibrium notion of Grossman and Helpman (1994) taken from Bernheim and Whinston (1986), as it directly applies to our set-up.[12] Then the sub-game perfect Nash equilibrium of a two-stage trade policy game can be defined as follows:

Definition 1. *The collection* $(\{C_j^o(p^o)\}_{j\in L}, p^o \in \mathcal{P})$ *is a sub-game perfect Nash equilibrium of a two-stage game if and only if the policy vector* p^o *is in the policy maker's best-response set to* $C_j^o(p)$ *and given* $\{C_l^o(p^o)\}_{l\in L\setminus j}$*, no lobby* j *has any other feasible strategy* $C_j(p)$ *that would yield a higher payoff.*

Definition 1 can be further operationalised in Proposition 1, where we characterise the sub-game perfect Nash equilibrium of a trade policy game:

Proposition 1. *The collection* $(\{C_j^o(p^o)\}_{j\in L}, p^o \in \mathcal{P})$ *is a sub-game perfect Nash equilibrium if and only if the following conditions are satisfied:*

1. $C_j^o(p^o)$ *is feasible for every* $j \in L$*;*
2. $p^o \in \mathcal{P}$ *maximises*

[11] Assume one of the conditions, $\eta = 0$ or L is empty, holds. Then the first-order conditions from government's maximisation problem are: $y_k(p_k)[\underline{\Phi}/\Phi_i - 1] + (p_k - p_k^w)m_k^{'}(p_k) = 0$ for all $k \in M$. It is clear that $p_k = p_k^w$ is not a sufficient requirement for the first-order conditions to be satisfied. Moreover, in equilibrium, we get that those groups of the specific factor owners who have a higher density of ignorance (voters in the group are less ignorant) than the country average will be supported in equilibrium even though there are no political contributions. The following equation demonstrates the result: $p_k - p_k^w = [(1/\Phi_i)/(1/\underline{\Phi}) - 1][(y_k(p_k))/(-m_k^{'}(p_k))]$ for all $k \in M$.

[12] For a general discussion of the common agency problem see Dixit et al. (1997).

$$\sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} C_j^o(p);$$

3. $p^o \in \mathcal{P}$ *maximises*

$$\pi_j(p_j) - C_j^o(p) + \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} C_j^o(p);$$

4. For every $j \in L$ *there exists a* $p^j \in \mathcal{P}$ *that maximises*

$$\sum_{m}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} C_j^o(p)$$

such that $C_j^o(p^j) = 0$.

In general there might be many contribution schedules that satisfy equilibrium conditions, but we restrict our attention to the *truthful contribution schedule* defined in Bernheim and Whinston (1986). The truthful contribution function takes the following form:

$$C_j^T(p, B_j) = max(0, \pi_j(p_j) - B_j) \tag{17}$$

where B_j is some number determined in the equilibrium.

Bernheim and Whinston (1986) have shown that there is no cost for players to choose truthful strategies, because the set of best response functions always includes such strategies. Moreover, all equilibria supported by truthful strategies are stable as only these equilibria are Coalition Proof Nash Equilibria.[13]

With contribution functions that are differentiable, the fact that p^o is the optimal price vector implies that the following first-order conditions should be satisfied in equilibrium:

$$\sum_{m=1}^{M} \bigtriangledown \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} \bigtriangledown C_j^o(p) = 0 \tag{18}$$

$$\bigtriangledown \pi_j(p_j) - \bigtriangledown C_j^o(p) + \sum_{m=1}^{M} \bigtriangledown \frac{\alpha_m}{\Phi_m}(v_s^m(p, E_m) - v_s^m(p^w, E_m^w)) + \frac{\eta}{\underline{\Phi}} \sum_{j \in L} \bigtriangledown C_j^o(p) = 0 \tag{19}$$

Combining equation (18) with equation (19) results in

$$\bigtriangledown \pi_j(p_j) = \bigtriangledown C_j^o(p) \tag{20}$$

Equation (20) shows that for any small change in a policy, each lobby alters its contribution schedule in the way that the difference in the contribution exactly matches the effect of policy change on the lobby's welfare.

To derive the structure of protection in the model's equilibrium, it suffices to consider the effect of a marginal policy change on swing voters' welfare and industry returns. Let's assume that the price p_k

[13] For thorough discussion of Truthful Contribution Schedules with detailed proofs see Grossman and Helpman (1994), chapter 8, Dixit et al. (1997), and Rausser et al. (2011), pp 155-164.

changes (we provide the detailed derivations of the equilibrium conditions in Appendix A.2) and consider the effect on a swing voter in a group m.

$$\frac{\partial v_s^m(p, E^m)}{\partial p_k} = (\frac{\varepsilon_{mk}}{N_m} - \frac{1}{N})y_k(p_k) + \frac{1}{N}(p_k - p_k^w)m_k^{'}(p_k) \tag{21}$$

where $m_k^{'}(p_k)$ is a derivative of import with respect to p_k and equals $(Nd_k^{'}(p_k) - y_k^{'}(p_k))$. ε_{mk} is an indicator function, that equals 1 when $m = k$ and 0, otherwise.

The effect of a marginal policy change on industry j's return will be:

$$\frac{\partial \pi_j(p_j)}{\partial p_k} = \theta_{jk} y_k(p_K) \tag{22}$$

where θ_{jk} is an indicator function as well and it equals 1 when $j = k$ and 0, otherwise.

To exploit the first-order equilibrium conditions (18) and (20), which helps us to derive the overall effect of a marginal change in the price p_k, we have to sum up the effect of price change over all swing voters and sum up the effect of a marginal policy change over all organised industry returns. Note that $v_s^m(p^w, E_m^w)$ does not depend on p_k. Then we get

$$\frac{1}{N}(p_k - p_k^w)(-m_k^{'}(p_k)) = \eta I_k y_k(p_k) + \frac{1}{N} y_k(p_k)(\frac{\Phi}{\Phi_k} - 1) \tag{23}$$

where $I_k = \sum_{j \in L} \theta_{jk}$ and it represents an indicator function, which equals 1, when the industry k is organised and represented by a lobbyist and 0, if industry k is not organised.

Arranging terms in equation (23) results in the following expression, which should be satisfied in the equilibrium:

$$p_k^o - p_k^w = (\eta I_k N + \frac{1/\Phi_k}{1/\underline{\Phi}} - 1)\frac{y_k(p_k^o)}{(-m_k^{'}(p_k^o)} \tag{24}$$

We can reformulate the equation (24) using the trade taxes and subsidies and state the result as a proposition. Note that $t_k = (p_k - p_k^w)/p_k^w$.

Proposition 2. *Let us consider the contribution schedules that are differentiable around the equilibrium, and the equilibrium that lies in the interior of $\mathcal{P}$. Then, the government chooses the trade policy that satisfies the following condition:*

$$\frac{t_k^o}{1 + t_k^o} = (\eta I_k N + \frac{1/\Phi_k}{1/\underline{\Phi}} - 1)\frac{z_k(p_k^o)}{e_k(p_k^o)} \quad \textit{for all} \quad k \in M$$

$z_k(p_k^o) = y_k(p_k^o)/m_k(p_k^o)$ is the equilibrium ratio of domestic output to imports; $e_k(p_k^o) = (-m_k^{'}(p_k^o))p_k^o/m_k(p_k^o)$ is the elasticity of import demand or export supply.

Ceteris paribus industries with lower import or export supply elasticities (in absolute value) will have higher support from the government. Also, the local prices relative to the world prices will be higher for industries whose domestic output is more extensive. In addition to economic variables, the relation of group density of ignorance to the overall average density of ignorance and the effectiveness of political spending play a vital role in determining trade policy choices. The higher is the latter variable, more protection an organised group can buy. For each contributed dollar, the special interest group gets higher protection. When the overall average density of ignorance in society is higher (the citizens are less ignorant and more responsive to trade policy), the protection of any organised group will be lower. Similarly, higher sector ignorance to the average societal ignorance results in lower (if any) protection of that sector. A more thorough analysis of the equilibrium trade policy structure is presented in the next section.

4. Analysis

In this section, we shall further explore the implications of Proposition 2. First, we shall determine when free trade is the equilibrium outcome of a trade policy game. In our set-up, the absence of political contributions is not sufficient for a free trade regime to prevail (see footnote 11). As the incumbent government is not a social welfare maximiser, and when ignoring the political donations one should not expect free trade to be the equilibrium outcome in such a case.

In Corollary 1 we present the first major implication of Proposition 2.

Corollary 1. *Free trade prevails if and only if lobbyists represent none of the groups owning the specific factors and all groups share the same ignorance density.*

Proof. In order for a free trade regime to prevail in the model, it is necessary and sufficient that the following condition holds:

$$\eta I_k N + \frac{1/\Phi_k}{1/\underline{\Phi}} - 1 = 0 \quad \text{for all} \quad k \in M \tag{25}$$

We have to consider three cases: when lobbyists represent none of the groups of the specific factor owners, when lobbyists represent all of the groups, and when they represent only some of the groups.

First, let us consider the case when none of the groups of owners of the specific factors is organised. Under such condition $I_k = 0$ for all $k \in M$. Then from equation (25) we get that for a free trade regime to be an equilibrium of a trade policy game, it has to be that $1/\Phi_k = 1/\underline{\Phi}$ for any $k \in M$. This condition can only be satisfied if all groups share the same density of ignorance.

Next, let us consider that lobbyists represent all groups. Then a free trade regime to be an equilibrium, we should have that

$$\frac{1}{\Phi_k} = \frac{1}{\underline{\Phi}}(1 - \eta N) \quad \text{for every} \quad k \in M \tag{26}$$

Equation (26) implies that densities of ignorance in all groups should be the same. Recall that $1/\underline{\Phi} = \sum_{m=1}^{M}(\alpha_m/\Phi_m)$ and $\eta > 0$, then we get contradiction.

Finally, we consider that there are some organised and some unorganised groups. Under free trade, for any unorganised group $k \notin L$ the following condition should be satisfied $1/\Phi_k = 1/\underline{\Phi}$ and for any organised group $j \in L$, the following one $1/\Phi_j = 1/\underline{\Phi}(1 - \eta N)$. Recall that L is the set of the organised groups and $L < M$, then by the definition of the average density of ignorance, we should have:

$$\frac{1}{\underline{\Phi}} = \sum_{j=1}^{L} \frac{\alpha_j}{\Phi_j} + \sum_{k=L+1}^{M} \frac{\alpha_k}{\Phi_k} = \frac{1}{\underline{\Phi}}[(1 - \eta N) \sum_{j=1}^{L} \alpha_j + \sum_{k=L+1}^{M} \alpha_k] \tag{27}$$

We get contradiction.

As a result, only if none of the groups of the specific factor holders are organised and share the same density of ignorance, free trade is an equilibrium of a trade policy game. □

The intuition behind the result given in corollary 1 is straightforward. Since lobbyists represent no group and every group has similar densities of ignorance, the incumbent does not have incentives to support any group. As policy-maker cannot exploit the ignorance of any group, free trade prevails. Moreover, contrary to Grossman and Helpman (1994) we do not get free trade as an equilibrium when all groups are organised, even in the case when they share the same density of ignorance. In such a case, the incumbent government designs the trade policy based on the economic fundamentals of the model (domestic output to import or export and the elasticity of import demand or export supply) and the effectiveness of the campaign spendings. Generally, when all groups are organised and share a similar density of ignorance, all else equal, industries with high import demand or export supply elasticities (in absolute value) will have smaller support from the government. In contrast, the sectors with higher domestic output to import or export ratio will get higher protection.

Grossman and Helpman (1994) argue that all sectors that are represented by lobbies are protected by import tariffs or export subsidies in the equilibrium, while import subsidies and export taxes are applied to all sectors that have no organised representation. Which groups will the policy-maker support in the equilibrium in our set-up? Is it always the case that the incumbent government will support the organised groups? Or can unorganised groups get some support from the government as well? The following implication of the proposition 2 stated as a corollary answers these questions.

Corollary 2. *Organised groups are not always supported in equilibrium. Moreover, there are cases when the incumbent government will support unorganised groups.*

Before we present the proof of Corollary 2, notice that the policy-maker's decision to protect an industry depends on whether the industry is organised or not. Further, the policy choice depends on the effectiveness of the campaign spendings[14] and the relation of ignorance density of the sector to the average ignorance of the society at large.

Proof. In general, the government will protect the group $k \in M$ in equilibrium if

$$\eta I_k N + \frac{1/\Phi_k}{1/\underline{\Phi}} - 1 > 0$$

First, notice that if $1/\Phi_k > 1/\underline{\Phi}$, it does not matter what is the value of I_k and whether $\eta N < 1$ or $\eta N > 1$, Proposition 2 implies that in equilibrium the government will support all such groups.

Now we have to consider the cases when $1/\Phi_k < 1/\underline{\Phi}$. Several scenarios should be assessed.

1. If $\eta N < 1$ and $I_k = 0$, the industry k will not be supported.
2. If $\eta N < 1$ and $I_k = 1$, all organised sectors whose ignorance density falls in the interval $(1/\underline{\Phi}(1 - \eta N), 1/\underline{\Phi})$ will be protected. But all organised groups with ignorance density satisfying the following condition $1/\Phi_k < 1/\underline{\Phi}(1 - \eta N)$ will not be protected in the equilibrium.
3. If $\eta N > 1$ and $I_k = 0$, industry k will not be supported in equilibrium.
4. If $\eta N > 1$ and $I_k = 1$, all such industries will be supported in the equilibrium.

□

Why might government decide to protect the unorganised groups? Recall that trade policy affects each group of the specific factor holders through two channels. First, protection of the industry generates higher factor income. Second, the same industry representatives are consumers; therefore, supporting other sectors decreases their consumer surplus. When a group is unorganised, but it has higher ignorance density to overall average ignorance density, the government might want to protect the group to compensate losses of its consumer surplus due to trade policy. In general, defending the specific factor holders, who are more responsive to policy choices, gives the policy-maker more freedom to design the trade policy. One should remember that all these calculations happen at the margin under the clear trade-off between political contributions and votes.

The incentives of the incumbent government to protect an industry decreases when the density of ignorance in that industry decreases. The logic applies to the organised groups as well if the effectiveness of the

[14] One can interpret ηN as the effectiveness of each unit of the campaign spending in terms of the number of votes.

campaign spendings is not high enough (see the proof of corollary 2). The collection of political donations from ignorant organised groups does not pay off in terms of votes for the policy-maker. But if the effectiveness of political spendings reaches some threshold, the incumbent government will support all organised sectors.

Figure 1 summarises the results from the proof of corollary 2. It shows when the government will and will not support organised and unorganised sectors in the equilibrium of a trade policy game. The decision largely depends on the relative ignorance density of industry to overall ignorance density. Note that if η is approaching zero, implying that the political spendings cannot affect the general popularity of the incumbent government, two lines in the graph will get closer to each other.

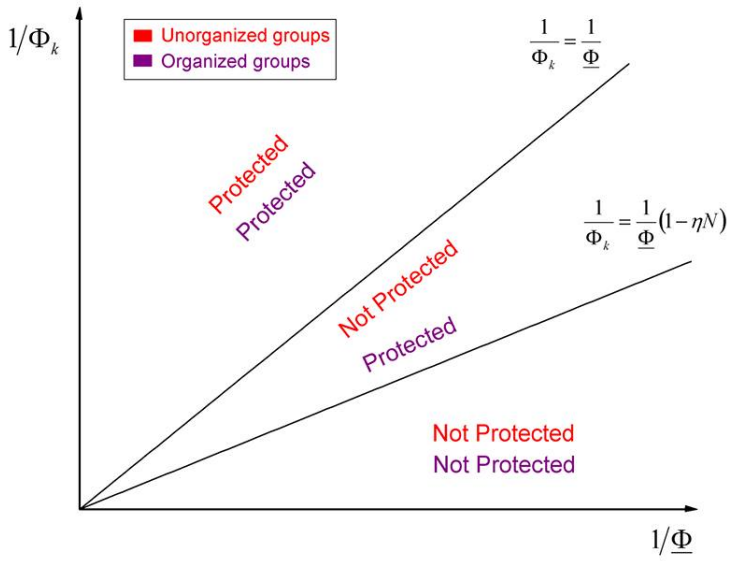

FIGURE 1. Relative ignorance density and policy-maker's decision

Overall, the incumbent government will protect relatively more policy-responsive groups. Thus, lobby representation of a sector is not a sufficient determinant for selling the protection.

5. Conclusions

Despite the consensus among economists that free trade permits maximal social welfare in a small, competitive economy, in reality, we observe extensive deviations from the free trade regime through government policies. There is a vast literature that aims to explain the political process behind protection. The goal of the paper is to contribute to this literature.

In our work, the incumbent government faces a trade-off between the campaign contributions and votes. The policy-maker cares about winning the upcoming election. We retain the basic structure of Grossman and Helpman (1994) model and their notion of equilibrium. Still, we explicitly model the political process, assuming that voters are heterogeneously ignorant with respect to the effects of policy choices. Based on the voting decision of citizens, we derive the government's objective function when voting is probabilistic. Incorporating additional features to the Grossman and Helpman model we manage to formulate an explicit micro-founded model of endogenous trade policy determination.

Examining the structure of a political equilibrium of the model shows that groups represented by lobbies are not always supported in equilibrium. Besides, there are cases when the incumbent might support groups without any lobby representation, although they do not provide any campaign contributions. On average, more ignorant groups will always experience lower (if any) protection from the policy-maker.

Our work substantiates several possible extensions of the model which are worthy of future investigation: 1. In the model, we assume that the lobbyists cannot influence the ignorance density of the group they represent. In practice, the special interest groups through different information channels can affect the ignorance of voters and, in this way, force the policy-maker to implement some desirable policy. Intuitively, the effectiveness of such informational channels will influence the incumbent's capability of collecting the campaign contributions and the structure of the equilibrium trade policy. 2. We assume that the challenger is utilitarian and the lobbyists contribute political donations to the incumbent only. Under such assumptions, we abstract to a large extent from the potentially interesting strategic interaction between the incumbent and the challenger. It is interesting to analyse the structure of the equilibrium trade policy when lobbyists can contribute to both the incumbent and the challenger while the latter is not utilitarian. 3. The model generates interesting theoretical predictions, which in the case of availability of a good proxy for voters' ignorance can be tested empirically.

References

Anderson, G. M. and R. D. Tollison (1985): "Ideology, Interest Groups, and the Repeal of the Corn Laws," *Journal of Institutional and Theoretical Economics*, 141, 197–212.

Ansolabehere, S. and J. M. Snyder (2002): "The Incumbency Advantage in U.S. Elections: An Analysis of State and Federal Offices, 1942–2000," *Election Law Journal*, 1, 315–338.

Austen-Smith, D. (1991): "Rational consumers and irretional Voters: A review Essay on Black Hole Tariffs and Endogenous Policy Theory," *Economics & Politics*, 3, 73–92.

Baron, D. (1994): "Electoral Competition with Informed and Uniformed Voters," *The American Political Science Review*, 88, 33–47.

Beaulieu, E. (2002): "Factor or Industry Cleavages in Trade Policy? An Empirical Analysis of the Stolper–Samuelson Theorem," *Economics & Politics*, 14, 99–131.

Bernheim, D. B. and M. D. Whinston (1986): "Menu Auctions, Resource Allocation, and Economic Influence," *The Quarterly Journal of Economics*, 101, 1–31.

Bhagwati, J. N. (1989): *Protectionism*, The MIT Press.

Blonigen, B. A. (2011): "Revisiting the evidence on trade policy preferences," *Journal of International Economics*, 85, 129 – 135.

Bombardini, M. and F. Trebbi (2011): "Votes or money? Theory and evidence from the US Congress," *Journal of Public Economics*, 95, 587 – 611.

——— (2012): "Competition and political organization: Together or alone in lobbying for trade policy?" *Journal of International Economics*, 87, 18 – 26, symposium on the Global Dimensions of the Financial Crisis.

——— (2020): "Empirical Models of Lobbying," *Annual Review of Economics*, 12, 391–413.

Chamon, M. and E. Kaplan (2013): "The Iceberg Theory of Campaign Contributions: Political Threats and Interest Group Behavior," *American Economic Journal: Economic Policy*, 5, 1–31.

Conconi, P., G. Facchini, and M. Zanardi (2014): "Policymakers' horizon and trade reforms: The protectionist effect of elections," *Journal of International Economics*, 94, 102 – 118.

Dixit, A., G. M. Grossman, and E. Helpman (1997): "Common Agency and Coordination: General Theory and Application to Government Policy Making," *Journal of Political Economy*, 105, 752–769.

Downs, A. (1957): *An Economic Theory of Democracy*, Harper and Row, 1st ed.

Facchini, G., J. V. Biesebroeck, and G. Willmann (2006): "Protection for sale with imperfect rent capturing," *Canadian Journal of Economics*, 39, 845–873.

Fouirnaies, A. and A. B. Hall (2014): "The Financial Incumbency Advantage: Causes and Consequences," *The Journal of Politics*, 76, 711–724.

Gawande, K. and U. Bandyopadhyay (2000): "Is Protection for Sale? Evidence on the Grossman-Helpman Theory of Endogenous Protection," *The Review of Economics and Statistics*, 82, 139–152.

Goldberg, P. K. and G. Maggi (1999): "Protection for Sale: An Empirical Investigation," *American Economic Review*, 89, 1135–1155.

Grossman, G. M. and E. Helpman (1994): "Protection for Sale," *The American Economic Review*, 84, 833–850.

——— (1996): "Electoral Competition and Special Interest Politics," *The Review of Economic Studies*, 63, 265–286.

——— (2001): *Special Interest Politics*, MIT University Press, 1st ed.

Helpman, E. (1995): "Politics and Trade Policy," Working Paper 5309, National Bureau of Economic Research.

Hillman, A. (1982): "Declining Industries and Political-Support Protectionist Motives," *The American Economic Review*, 72, 1180–1187.

Imai, S., H. Katayama, and K. Krishna (2013): "A quantile-based test of protection for sale model," *Journal of International Economics*, 91, 40 – 52.

Irwin, D. A. (1996): "Industry or class cleavages over trade policy? Evidence from the British general election of 1923," in *The political economy of trade policy: Papers in honor of Jagdish Bhagwati*, ed. by R. C. Feenstra, G. M. Grossman, and D. A. Irwin, MIT Press, 53–76.

Limão, N. and P. Tovar (2011): "Policy choice: Theory and evidence from commitment via international trade agreements," *Journal of International Economics*, 85, 186–205.

Magee, S. S., W. A. Brock, and L. Young (1989): *Black Hole Tariffs and Endogenous Policy Theory: Political Economy in General Equilibrium*, Cambridge University Press, 1st ed.

Mayer, W. (1984): "Endogenous Tariff Formation," *The American Economic Review*, 74, 970–985.

Mayer, W. and J. Li (1994): "Interest groups, Electoral Competition, and Probabilistic Voting for Trade Policies," *Economics & Politics*, 6, 59–77.

McLaren, J. (2016): "The Political Economy of Commercial Policy," in *Handbook of Commercial Policy*, ed. by K. Bagwell and R. W. Staiger, North-Holland, vol. 1, 109 – 159.

Mitra, D., D. D. Thomakos, and M. A. Ulubaşoğlu (2002): "Protection for Sale in a Developing Country: Democracy vs. Dictatorship," *The Review of Economics and Statistics*, 84, 497–508.

Peltzman, S. (1976): "Toward a More General Theory of Regulation," *The Journal of Law and Economics*, 19, 211–240.

Persson, T. and G. Tabellini (2002): *Political Economics: Explaining Economic Policy*, The MIT Press, 1st ed.

Ponzetto, G. A. M. (2011): "Heterogenous information and trade policy," *Barcelona GSE Working Paper Series*.

Rausser, G. C., J. Swinnen, and P. Zusman (2011): *Political Power and Economic Policy: Theory, Analysis, and Empirical Applications*, Cambridge University Press, 1st ed.

Riley, B. (2014): "U.S. Trade Policy Gouges American Sugar Consumers," Tech. rep., The Heritage Foundation.

Rodrik, D. (1995): "Political Economy of Trade Policy," in *Handbook of International Economics*, Elsevier, vol. 3, chap. 28, 1457 – 1494.

Saha, A. (2019): "Trade policy and lobbying effectiveness: Theory and evidence for India," *European Journal of Political Economy*, 56, 165–192.

Stigler, G. (1971): "The Theory of Economic Regulation," *The Bell Journal of Economics and Management Science*, 2, 3–21.

Tovar, P. (2009): "The effects of loss aversion on trade policy: Theory and evidence," *Journal of International Economics*, 78, 154 – 167.

——— (2011): "Lobbying costs and trade policy," *Journal of International Economics*, 83, 126–136.

van Winden, F. (2004): "Interest Group Behavior and Influence," in *The Encyclopedia of Public Choice*, ed. by C. K. Rowley and F. Schneider, Boston, MA: Springer US, 118–129.

Wegenast, T. (2010): "Uninformed Voters for Sale: Electoral Competition, Information and Interest Groups in the US Congress," *Kyklos*, 63, 271–300.

Appendix A. Derivations

A.1. **Election winning probability.** In equation (12) we denoted the right-hand side of the inequality by $\underline{\delta}$.

$$\underline{\delta} = \underline{\Phi} \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p^w, E_m) - v_s^m(p, E_m^w)) - \frac{1}{2}\underline{\Phi}$$

Recall that $\widehat{\delta}$ is distributed uniformly ($\widehat{\delta} \sim U[-\Psi, \Psi]$). Then using equation (13)

$$\Pi[\ \widehat{\delta} > \underline{\delta}\ ] = (\Psi - \underline{\delta})\frac{1}{2\Psi}$$

we have

$$\Pi[\ \widehat{\delta} > \underline{\delta}\ ] = \frac{1}{2} - \frac{1}{2\Psi}[\frac{1}{\underline{\Phi}} \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(v_s^m(p^w, E_m^w) - v_s^m(p, E_m)) - \eta \sum_{j \in L} C_j(p) - \frac{1}{2}\underline{\Phi}] \tag{28}$$

After the simple manipulation equation (28) results in equation (14).

A.2. **Equilibrium Conditions.** Recall that the following formulas give the effects of a marginal trade policy change on a specific swing voter and an industry:

$$\frac{\partial v_s^m(p, E^m)}{\partial p_k} = (\frac{\varepsilon_{mk}}{N_m} - \frac{1}{N})y_k(p_k) + \frac{1}{N}(p_k - p_k^w)m_k^{'}(p_k)$$

where ε_{mk} is an indicator function, that equals 1 when $m = k$ and 0, otherwise.

$$\frac{\partial \pi_j(p_j)}{\partial p_k} = \theta_{jk} y_k(p_k)$$

where θ_{jk} is an indicator function as well and it equals 1 when $j = k$ and 0, otherwise.

To exploit the equilibrium first-order conditions, we have to sum up the effects over all swing voters and industries respectively. First let's consider the swing voters:

$$\begin{aligned} \sum_{m=1}^{M} \frac{\partial v_s^m(p, E^m)}{\partial p_k} &= \sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}((\frac{\varepsilon_{mk}}{N_m} - \frac{1}{N})y_k(p_k) + \frac{1}{N}(p_k - p_k^w)m_k^{'}(p_k)) \\ &= \frac{1}{N}\frac{1}{\underline{\Phi}}(p_k - p_k^w)m_k^{'}(p_k) + y_k(p_k)\sum_{m=1}^{M} \frac{\alpha_m}{\Phi_m}(\frac{\varepsilon_{mk}}{N_m} - \frac{1}{N}) \\ &= \frac{1}{N}\frac{1}{\underline{\Phi}}(p_k - p_k^w)m_k^{'}(p_k) + y_k(p_k)(\frac{1}{N_k}\frac{\alpha_k}{\Phi_k} - \frac{1}{N}\frac{1}{\underline{\Phi}}) \end{aligned} \tag{29}$$

Now derive the effect of a marginal policy change on all organized industries:

$$\sum_{j\in L}\frac{\partial\pi_j(p_j)}{\partial p_k}=\sum_{j\in L}\theta_{jk}y_k(p_k) \tag{30}$$
$$=I_k y_k(p_k)$$

where

$$I_k=\begin{cases}1 & \text{if industry } k \text{ is organized;}\\ 0 & \text{if industry } k \text{ is unorganized.}\end{cases}$$

Based on equation (20) the first-order condition in equation (18) can be written as follows:

$$\sum_{m=1}^{M}\bigtriangledown\frac{\alpha_m}{\Phi_m}(v_s^m(p,E_m)-v_s^m(p^w,E_m^w))+\frac{\eta}{\underline{\Phi}}\sum_{j\in L}\bigtriangledown\pi_j(p_j)=0 \tag{31}$$

Based on equation (31), considering only the change in one dimension, in the price p_k, the relevant first-order condition accordingly will be:

$$\frac{1}{N}\frac{1}{\underline{\Phi}}(p_k-p_k^w)m_k^{'}(p_k)+y_k(p_k)(\frac{1}{N_k}\frac{\alpha_k}{\Phi_k}-\frac{1}{N}\frac{1}{\underline{\Phi}})+I_k y_k(p_k)=0 \tag{32}$$

After some simple manipulations, equation (23) follows directly.