

Protection for Sale: Agenda-Setting and Ratification in the Presence of Lobbying

Yeongkwan Song
Korea Institute for International Trade Policy

Working Paper Series Vol. 2008-22
August 2008

The views expressed in this publication are those of the author(s) and do not necessarily reflect those of the Institute.

No part of this article may be used reproduced in any manner whatsoever without written permission except in the case of brief quotations embodied in articles and reviews. For information, please write to the Centre.

Protection for Sale: Agenda-setting and Ratification in the Presence of Lobbying

Yeongkwan Song

Korea Institute for International Trade Policy

August 14, 2008

Abstract

One of the most prominent models in political economy literature concerning trade policy is Grossman and Helpman's (1994) "Protection for Sale" model. Along with its great merits, however, this model has three unrealistic features. First, it essentially assumes that lobby groups exercise full agenda-setting power. Second, lobby groups are represented as offering an entire schedule of contributions for all possible trade policy options. Finally, the model neglects the actual legislative processes of trade policy. In the U.S., trade policy is initiated by the executive branch of government and subject to ratification by the legislative branch under fast-track authority. This paper develops a delegation model to address these limitations of Grossman and Helpman's model by incorporating the possibility that lobbying behavior may be influenced by the behavior of policymakers and by incorporating the institutional feature of trade policy. The main question that I want to address with this model is that, considering the influence of policymakers on the lobbying behavior through agenda-setting power as well as the influence of lobby groups on the behavior of policymakers through political contributions, what kind of trade policy will be proposed by the executive branch of government? Also, this paper shows that when free trade is not politically feasible, legislative bodies capture all the surplus that the policy generates even when executive bodies devise trade policy. This may provide an answer to the question of why the U.S. Congress voluntarily delegated tariff-setting authority to the president.

KEY WORDS: Trade Policy, political economy, lobby, agenda-setting power, ratification.

This is a revision of the second chapter of my PhD dissertation at the University of Wisconsin-Madison. I have been indebted to Robert W. Staiger, Yeon-Koo Che, and Robert E. Baldwin for their valuable comments and encouragement. An earlier version of this paper was presented at the Econometric Society North American Summer Meeting at Northwestern University in 2003. This revision was made during my visit to the International Center for the Study of East Asian Development (ICSEAD) in Kitakyushu, Japan in 2008. I would like to thank the ICSEAD for its general support. Any mistakes are my own.

1 Introduction

The welfare theorems of international trade theory indicate with some qualifications that free trade maximizes a country's aggregate welfare by permitting the achievement of maximal aggregate consumption possibilities. The theorems also imply that direct redistribution mechanisms through lump-sum transfers can ensure that free trade favors every individual within an economy. A country's trade policy affects the domestic distribution of income, but in the absence of such transfers or other income adjustments, free trade is not necessarily in the self-interest of every individual.

The political economy of protection focuses on the role of income-distribution motives in explaining the conduct of trade policy. It views protection as endogenously emerging from the political process in which conflicting economic interests try to influence the distribution of income in their own favors through the adoption of suitable trade policies. To this end, self-interested behavior is imputed to policymakers (or candidates for political office), and the conduct of trade policy is shown to depend on two things—first, the objectives of policymakers, and second, the institutional setting that governs the interactions between those policymakers and the entities that gain and/or lose from protection.

The political economy approach to trade policy has increasingly gained attention, and various models have been developed in the last few decades.¹ Among them, one of the most influential models in this literature is Grossman and Helpman's (1994). Grossman and Helpman develop a model that focuses on the political influence of a set of organized special interest groups that care only about the welfare of their members on government's decisions.²

¹Nelson (1988), Hillman (1989), Baldwin (1989), Magee, Brock, and Young (1989), Riezman and Wilson (1995), and Rodrik (1995) provide various surveys of this approach.

²In U.S. politics, lobby groups have played a visible role in the formation of policies. Although the 1974 amendment of the Federal Election Campaign Act prohibits corporations, unions, trade associations, and most other groups from making direct campaign contributions to federal candidates, it allows these organizations to establish intermediaries, known as *political action committees* (PACs), to make contributions to federal candidates. Since 1974, there has been a remarkable growth in the number of PACs, especially of corporate PACs. At the end of 1988, 1,816 corporate PACs (among a total of 4,268 PACs of all kinds) were registered with the Federal Election Commission. Since then, however, the number of corporate PACs has decreased slightly. At the end of 1996, there were 1,642 corporate PACs (among a total of 4,079 PACs) remaining. There are some restrictions on PACs. Each PAC is allowed to collect donations of up to \$5,000 per year from an individual or another PAC. An organization must raise money from at least fifty donors and spend it on five or more federal candidates in order to qualify as a PAC. Each PAC is allowed to contribute a maximum of \$5,000 per congressional candidate during each phase of the election cycle, and to make contributions up to \$15,000 per year to the federal accounts of national party committees. For more details about PACs, see Herrnson (1998) and Rozell and Wilcox (1999). A possible explanation for the proliferation of corporate PACs is that campaign contributions may influence

In the Grossman-Helpman (G-H) model, there is a single incumbent government, and the lobby problem is viewed as a common agency problem. Lobby groups, representing industry interests, serve as principals and move first by offering contingent contribution schedules for all possible trade policy options. The incumbent, an agent for the various lobby groups, then sets trade policy to maximize his or her own objective. With a reasonable refinement of the set of Nash equilibria, the G-H model predicts that organized lobbies tilt trade policy in their favor and against the unorganized population. The size of the benefits to organized interest groups is limited by two facts: first, members of lobby groups also have consumer-interests, and second, the incumbent government is, to a certain extent, concerned about the interests of the rest of the population (or, more specifically, about the deadweight loss that trade policy generates).

The G-H model has laid a foundation for understanding how political lobbying shapes a government's trade policy. It provides excellent microfoundations for the reduced-form political-support function approach used by, for example, Hillman (1982) and Long and Vousden (1991). Also, even though it provides a structural form solution rather than a closed-form solution, the G-H model derives the level of protection for each industry as a function of industry-specific and other political factors.³ Along with its great merits, however, the G-H model seems to have three unrealistic features. First, by allowing lobby groups to move first with their offers and by having the government react passively to these lobbying initiatives, the G-H model essentially assumes that lobbyists exercise full agenda-setting power. The government merely acts as a broker of the interests of voters and lobby groups in order to maximize political support. Therefore, even though their model captures how lobby groups influence the policymaker through political contributions, the G-H model ignores the possibility that policymakers are also able to influence lobbying behaviors by exercising their agenda-setting power. Since policy agendas affect the lobbying behavior and policymakers finally determine these agendas, there is a way that policymakers are able to influence lobbying behavior by setting policy agendas. In their model, trade policy agendas are exogenous. So they don't consider strategic motives of policymakers in setting policy agendas. As a result, lobby groups play an active role in shaping trade policy, but not the incumbent policymaker. Although special interest groups may influence policy-making agendas to some extent in practice, it would be unrealistic to think that

policy decisions.

³This feature allows empirical investigations of the G-H model. For empirical tests of the model, see Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000).

the government enjoys no power to influence those agendas. Second, lobby groups are modelled to offer an entire schedule of contributions for all possible trade policy options. This lobbying feature does not appear to be descriptive of the real-world lobby, which seems to focus on very limited policy options, at most. Finally, by assuming there is a single incumbent government, the G-H model neglects actual legislative processes of trade policy, which are important because they impose constraints on the behavior of political actors, at least in the United States.

Article I of the United States Constitution grants Congress sole power to regulate commerce with foreign nations. This article also provides the legislative branch with the authority to levy duties. Meanwhile, Article II of the Constitution grants the executive branch the responsibility to conduct diplomatic negotiations and to negotiate treaties subject to the approval of Congress. Thus, this arrangement specifies separation of powers between the legislative and executive branches: only Congress has the authority to set tariffs, and only the executive branch can negotiate trade policies with foreign countries. With the Reciprocal Trade Agreements Act of 1934, however, Congress delegated the power to set tariffs to the executive branch and has restrained itself in exercising its constitutional authority over trade policy for most of the period since 1934. With the exception of a few agricultural quotas, the legislative branch rarely initiated unilateral trade policies before the Omnibus Trade and Competitiveness Act of 1988.⁴ Instead, it periodically passed trade laws to extend or limit presidential negotiatory authority, such as the Reciprocal Trade Act Renewals in the 1950s and larger authorization-related acts, including the Trade Expansion Act of 1962 and the Trade Reform Act of 1974. Under fast-track authority (now called Trade Promotion Authority), the executive branch (currently the Office of the U.S. Trade Representative) devises U.S. trade policy, and Congress has an up-or-down vote over it without the option of amending it.⁵

The purpose of this paper is to develop a model by incorporating the possibility that lobbying behavior may be influenced by the behavior of policymakers and by incorporating the institutional feature of trade policy. The main question that I want to address with this model is that, considering the influence of policymakers on the lobbying behavior through agenda-setting power as well as the influence of lobby groups on the behavior of policymakers through political contributions, what kind of trade policy will be proposed by

⁴Even the Omnibus Measure of 1988 did not restrict imports directly through tariff setting. It revised U.S. trade laws to make it easier for firms to qualify for import relief, and strengthened unilateral trade retaliation instruments such as Section 301.

⁵See O'Halloran (1994), Destler (1995) and Eckes (1999) for more details.

the executive branch of government? The main framework used in this paper is borrowed from the G-H model, except for its representation of governmental institution setting. Like the G-H model, the current model serves to explain political economy aspects of unilateral trade policy of a small economy with complete information, but it generates very different results from Grossman and Helpman's.⁶

Two things distinguish this paper from previous ones. First, the previous literature about political economic aspects of trade policy does not consider the possibility that policy makers are able to influence lobbying behavior through trade policy agenda setting. Second, the previous literature does not consider the institutional feature of trade policy. Institutional feature is important because it set rules about the behavior of policy makers. So it affects lobbying behavior. This model yields a host of implications unavailable in the extant work. First, in stark contrast to what other political economy literature concerning trade policy suggests, the status quo trade policy plays an active role in shaping a trade policy alternative. When we look at trade policy as an outcome of balancing the domestic conflict between the gainers and losers from trade policy, it seems natural that the status quo policy determines who would be the gainer or loser from a new trade policy. By making this determination, the status quo trade policy affects lobbying behavior and the ratification constraint. Therefore, an equilibrium trade policy alternative, devised by the executive body, which faces the ratification constraint imposed by the legislative body, is affected by the status-quo trade policy. Second, when the objective of the executive body is to maximize social welfare, the delegation induces the equilibrium trade policy that deviates less from free trade, which maximizes social welfare in this model. This result provides a formal analysis of the informal argument made by, for example, Pincus (1986) and Baldwin (1991) that the delegation was chiefly responsible for the subsequent tariff reductions in the U.S.; these scholars presume that the president is less susceptible to special interest groups. Third, in many cases, the legislative body captures all the surplus that a trade policy alternative generates, even when the executive body devises a trade policy with the objective of maximizing social welfare. This may provide an answer to the question, "why did the self-interested U.S. Congress voluntarily delegate the power to set trade policy to the executive branch?" This paper also finds that special interest groups do not always lobby. Sometimes, they strategically refrain from lobbying even when they

⁶ Admittedly, fast-track authority is in essence bilateral and/or multilateral trade negotiating authority. However, it is still interesting to analyze the unilateral incentives that the delegation of tariff setting power provides to trade negotiators who represent a government.

would be affected positively or negatively from a trade policy alternative.

2 Overview

In this current model, there are two bodies within a government: the executive and the legislative. The executive body is in charge of devising trade bills, while the legislative body is in charge of ratifying them without making any amendments. There is a single incumbent in each body, and an equilibrium trade policy is the outcome of a political game among the executive body, the legislative body, and exogenously determined lobby groups who represent industry interests.

To analyze this political game, one must impute self-interested behavior to policymakers. It seems almost a truism that legislators are highly susceptible to special interests.⁷ Thus, the objective of the legislative body is assumed to be the same as that of the government in the G-H model: to maximize a weighted sum of political contributions from lobby groups and general social welfare.⁸ Concerning the objective of the executive body, Baldwin (1991) argues that it is to maximize social welfare.⁹ This paper adopts this view and analyzes a trade policy proposed by the executive body.¹⁰

With complete information, the current model suggests that lobby groups do not have

⁷In his famous study of the 1930 Smoot-Hawley Tariff Act, Schattschneider (1935) concludes that special interests dominated the policy process as Congress completed this Act. Tasca (1938) states that “[t]he history of the American tariff records the triumph of special interests over the general welfare” and Chamberlain (1946) argues that “up to the early 1930s, it was a commonplace that tariff legislation of the United States had been a paradise of pressure groups” (p. 85). Adopting the view that legislators are influenced by lobby groups, some “interest-group models” have been developed. These models predict that special interest groups will receive benefits from the political process at the expense of more diffuse interests. Stigler (1971) is credited with pioneering this approach. The models of Pelzman (1976), Hillman (1982), Becker (1983), and Grossman and Helpman (1994) are in line with this approach.

⁸Therefore, the purpose of political contributions in this model is viewed as buying policy. Hall and Wayman (1990) provide a strong sense of the importance of moneyed interests in the legislative process. The nature of campaign contributions, however, is quite controversial among political scientists. For literature that addresses various views about political contributions, see Herndon (1982), Wright (1990), Austen-Smith (1995), and references therein.

⁹Baldwin (1991) argues that “[t]he objective of a political leader charged with formulating national and international policies seems best described as attempting to maximize national welfare rather than as maximizing power or influence and wealth. These latter goals seem unduly limiting in describing the behavior of modern national leaders” (p. 271). This view is also provided by many political scientists. See, for example, Neustadt (1960), Robinson (1967), Sundquist (1981), Pincus (1986), Margolis (1986), and Schlesinger (1989).

¹⁰O’Halloran (1994) provides another view about the executive body’s objective when it devises a trade policy: its objective is to serve the interests of the legislative branch. According to her view, therefore, the objective of the executive body is the same as that of the legislative body. This case is analyzed in Song (2003).

incentives to make political contributions to the executive body, because the executive body presumably does not care about the contribution it may receive from them. The special interest groups only have incentives to lobby the incumbent legislative body that cares about their political contributions. Based on this consideration, this paper studies political games with the following sequential moves: first, the executive body proposes a trade policy alternative, lobby groups then bid up-or-down on the alternative, and finally, the legislative body decides whether to ratify the proposed trade policy.¹¹ This model thus allows the executive body of the government, rather than lobby groups, to set the policy agenda, and allows the lobby groups to bid only up-or-down on the alternative policy option instead of on all possible trade policy options. The fact that the executive body has the full agenda-setting power in this model is somewhat extreme, but it enables the government to play an active role in politics and allows us to analyze strategic motives that the executive branch may have in devising trade policy to serve its own various objectives. Moreover, incorporating the governmental institutional change, we are able to examine the effects of delegation on unilateral trade policy.

The remainder of this paper is organized as follows: Section 3 describes the model. In Section 4, the political game between lobby groups and the legislative body is described and equilibrium trade policies is derived. Rent sharing among the participants of political lobbying game is also analyzed in Section 4. Section 5 explores the effects of delegation and Section 6 summarizes this paper.

3 The Political Economic Framework

3.1 Demand

This is a multisectoral specific-factor model with $n+1$ goods. A small country is populated by individuals with identical preferences but different specific-factor endowments. Each individual maximizes his or her utility, which is represented as

$$u = x_o + \sum_{i=1}^n u_i(x_i)$$

where x_i denotes consumption of good i , and the sub-utility function $u_i(\cdot)$ is differentiable, increasing, and strictly concave. Good 0 serves as numeraire, with a world and domestic

¹¹Alternatively, lobby groups move first by offering their political contributions contingent on all possible policy options, then the executive body devises a trade bill, and then the legislative body finally moves. Once again, however, this lobbying behavior seems unrealistic. Therefore, this case will not be considered.

price equal to 1. With these preferences, the demand function for each nonnumeraire good, denoted by $d_i(p_i)$, is the inverse of $u'_i(x_i)$ and indirect utility for an individual spending an amount E takes the form

$$V(P, E) = E + s(P) \quad (1)$$

where $P \equiv (p_1, p_2, \dots, p_n)$ is a vector of domestic prices of the nonnumeraire goods and $s(P) \equiv \sum_i u_i [d_i(p_i)] - \sum_i p_i d_i(p_i)$ is the consumer surplus derived from these goods.

3.2 Production

The production of good 0 uses only labor, with one unit of labor required per unit of output. It is assumed that the total supply of labor is large enough to ensure a positive domestic supply of good 0. Since the domestic price of good 0 is 1, the competitive wage must equal 1 in any equilibrium in which good 0 is produced. Each good i is manufactured with constant returns to scale by labor and a sector-specific factor. The markets of these goods are competitive, and each producer takes the world market price p_i^* as given. We denote by p_i its domestic price. The various specific factors are available in inelastic supply.

3.3 Lobby Group

The owners of a specific factor used in producing good i have the total reward $\pi_i(p_i)$, and the aggregate domestic supply of good i is $y_i(p_i)$, where $y_i(p_i) = \pi'_i(p_i) > 0$ for $\forall i$. Returns to specific factors consist of rents remaining after wages have been paid. Since the reward function $\pi_i(p_i)$ is increasing with p_i , all specific-factor owners have a common interest in seeing higher domestic prices of their goods when they are concerned only about their rents.

It is government policy that drives a wedge between domestic and world prices. The government is assumed to implement only trade taxes and subsidies. Therefore, any domestic price in excess of the world price corresponds to a positive import tariff for an imported good, or a positive export subsidy for an exported good. Likewise, a domestic price below the world price implies a positive import subsidy for an imported good, or a positive export tax for an exported good. The net revenue of the government from its policy, expressed on a per capita basis, is

$$r(P) = \sum_{i=1}^n (p_i - p_i^*) \left[d_i(p_i) - \frac{1}{N} y_i(p_i) \right] \quad (2)$$

where N measures the total (voting) population. The government is assumed to redistribute revenue from all taxes and subsidies uniformly to all of the country's voters and $r(P)$ represents the net government transfer to each individual.

The sources of income for an individual are wages and government transfers, and possibly the ownership of some sector-specific factors, which is nontradable. Each individual is assumed to have at most one type of sector-specific input. Those who own some specific factors have a particular interest in seeking to influence trade policy to increase their rents. At the same time, however, (1) implies that they are concerned about the effects of trade policy on the government revenue and the consumer surplus. The joint welfare of i specific-factor owners is denoted by W_i , and

$$W_i(P) \equiv l_i + \pi_i(p_i) + \alpha_i N [r(P) + s(P)] \quad (3)$$

where l_i is the total labor supply (and also the labor income) of i specific-factor owners and α_i is the fraction of the voting population of these owners.

It is assumed that there is some exogenous set of sectors, denoted by I , of which the specific-factor owners have been able to organize themselves into special-interest groups. These groups lobby the legislative body to influence its decisions in their favor. Lobby group i represents the interests of all factor-specific owners of sector i and coordinates campaign giving decisions. Each lobby i makes its political contribution C_i contingent on the trade policy being implemented by the government and tailors its proposal to maximize the total net welfare of its members, which is $V_i = W_i - C_i$.

3.4 The Executive and the Legislative

It is assumed that there is a single incumbent in both the executive and the legislative. The executive body devises trade bills and its objective is assumed to maximize social welfare $W(P)$, where $W(P)$ is the sum of total labor income l , rents, government revenues, and consumer surplus:

$$W(P) \equiv l + \sum_{i=1}^n \pi_i(p_i) + N [r(P) + s(P)].$$

The role of legislative body is to ratify a trade bill, which is devised by the executive body, without making any amendments. The incumbent legislator values the contributions he or she receives from lobby groups: political contributions are assumed to be used to buy votes among voters without specific-factor ownerships and help him or her to get re-elected. Therefore, all the contributions the legislator receives are assumed to be redistributed to

voters who do not have ownership of any specific factor and they are the beneficiaries of campaign spending.¹² The legislator, however, may also care about the well-being of general voters. Therefore, the objective of the legislative body is assumed to maximize $\sum_{i \in I} C_i + aW(P)$, where $a \geq 0$.

4 Trade Policy Making

4.1 Game Structure

With the aforementioned model, we will examine what kind of trade policy the executive body will propose, knowing its influence on lobbying behaviors as well as lobby groups' influence on the legislative body's decision. This trade policy is the outcome of a three-stage noncooperative dynamic game among the executive body, lobby groups, and the legislative body. A subgame-perfect equilibrium in this game consists of the trade policy proposed by the executive, the political contribution from each lobby group, and the legislative body's choice. In this section, we shall analyze the lobbying game between lobby groups and the legislative body, and then we will investigate the trade policy alternatives the executive body proposes. This game can be solved by backward-induction.

After a trade policy alternative P is devised by the executive body, lobby groups simultaneously choose their contribution proposals and tenders them to the legislative body. After that, the legislative body determines the fate of a proposed trade bill P in order to maximize its own welfare. This lobbying game between lobby groups and the legislative body has the structure of a first-price complete-information menu auction developed by Bernheim and Whinston (1986). In such an auction, bidders announce a "menu" of offers for the various possible actions available to the auctioneer and then pay their announced bids for the choice made by the auctioneer that maximizes the auctioneer's payoff. One of the most important properties of this menu auction is that, for a certain reasonable refinement of the Nash equilibrium set (Truthful Nash Equilibria), this auction implements an efficient outcome in all Truthful Nash Equilibria.¹³ When the executive body devises a trade-policy alternative P , it faces ratification constraint, which is affected

¹²With this assumption, we have that political contributions do not change the level of social welfare. Like the assumption that the government redistributes revenue uniformly to all of the voters, this assumption simplifies the analysis. If we define social welfare after the political contributions as $W - \sum C_i$, the trade policy proposed by the executive body with the objective of maximizing social welfare may be different from the one analyzed in Section 3. This point will be discussed further in that section.

¹³"Efficient" is used here in the sense that the action chosen by the auctioneer yields the highest joint payoff to the auctioneer and all bidders.

by lobbying. Given the behavior of the legislative body and lobby groups, the executive body devises a trade-policy alternative to maximize its own objective.

4.2 Proposed Trade Policy

Since the country is small, each trade policy can be equivalently related to the realized vector of domestic prices of nonnumeraire goods, and each P represents a trade policy. After the executive body proposes a trade policy alternative P , given the status-quo-trade-policy P^0 each lobby belongs to one of three groups: the group of industries that would benefit from a policy alternative P , the one that would lose from P , or the group that would be indifferent to the choice between P and P^0 . Therefore, the current trade policy P^0 is the reference point for evaluation of the gainers and losers from an alternative P . The first and second groups are denoted by $B(P; P^0)$ and $L(P; P^0)$, respectively, so that

$$W_i(P^0) < W_i(P) \text{ for } \forall i \in B(P; P^0)$$

and

$$W_i(P^0) > W_i(P) \text{ for } \forall i \in L(P; P^0).$$

Only a special interest group in $B(P; P^0)$ or $L(P; P^0)$ has an incentive to lobby the legislative body. The special-interest groups in $B(P; P^0)$ lobby for the ratification of P , while those in $L(P; P^0)$ lobby against it. The contribution proposal of any lobby i in $B(P; P^0)$ is denoted by $C_i(P; P^0)$, while that of any lobby i in $L(P; P^0)$ is denoted by $C_i(P^0; P^0)$.

Before we analyze the lobbying game between lobby groups and the legislative body, we first consider what kind of trade policy each lobby wants. As noted in (3), the welfare of each lobby group depends on the government transfer and the consumer surplus as well as on the rents that its members receive. We find from (2) and (3) that

$$\frac{\partial W_i}{\partial p_j} = (\delta_{ij} - \alpha_i) y_j(p_j) + \alpha_i (p_j - p_j^W) m'_j(p_j) \quad (4)$$

for $\forall j = 1, 2, \dots, n$, where δ_{ij} is an indicator variable that equals 1 if $i = j$ but 0 otherwise, and $m_i(p_i) \equiv Nd_i(p_i) - y_i(p_i)$ represents the net import demand function. Equation (4) reveals how marginal policy changes affect the welfare of each lobby i . An increase in the domestic price of good i above its free-trade level benefits lobby group i . However, i specific-factor owners' consideration of the government transfer and its consumer surplus imposes a limit on their desired price for good i ($m'_i(p_i) < 0$), which would be infinite

without it. Also, it is this consideration that causes i specific-factor owners not to favor higher prices for other goods than their world prices.

We rely on Bernheim and Whinston (1986) to analyze the current lobbying game: we focus on a Truthful Nash Equilibrium of this game.¹⁴ Now we should make this current lobbying game fit into a menu auction setup. The incumbent legislator, as an auctioneer, faces only two possible choices: ratifying a proposed bill P or rejecting it. The legislative body is considered as having chosen P if it ratifies a trade policy alternative P , and as having chosen the status quo trade policy P^0 otherwise. Thus, the action space of the legislative body only consists of P and P^0 . Since each special interest group i in $B(P; P^0)$ lobbies the legislative body to ratify the proposed trade policy alternative P , its contribution proposal $C_i(P; P^0)$ can be considered a bid for P . Similarly, any contribution proposal $C_i(P^0; P^0)$ from any special interest group i in $L(P; P^0)$ can be considered a bid for P^0 . The net welfare, $V_i(s; P^0) = W_i(s) - C_i(s; P^0)$, is the payoff function of each lobby i for its bid for s , where s is P or P^0 . Note that neither lobby bids for both P and P^0 .¹⁵ Therefore, $C_i(P^0; P^0)$ and $C_i(P; P^0)$ are zeros for each lobby i in $B(P; P^0)$ and each lobby i in $L(P; P^0)$, respectively. Given contribution proposals from all lobby groups, the legislative body chooses an action s that maximizes its own payoff. On the basis of (??), the legislative body chooses s^* , where

$$s^* \equiv \arg \max_{s \in \{P, P^0\}} \left[\sum_{i \in B(P; P^0) \cup L(P; P^0)} C_i(s; P^0) + aW(s) \right]. \quad (5)$$

If the legislative body is indifferent to the choice between a trade policy alternative P and the current trade policy P^0 , it is assumed that the body resolves its indifference to ensure an equilibrium.¹⁶

Theorem 2 in Bernheim and Whinston (1986) shows that in any Truthful Nash Equi-

¹⁴Any Truthful Nash Equilibrium consists of truthful strategies and the equilibrium choice of the auctioneer. Theorem 1 in Bernheim and Whinston (1986) provides a rationale for focusing on truthful strategies: for any set of offers by his or her opponents, each bidder's best-response set contains a truthful strategy. Furthermore, truthful equilibria possess a strong stability property whenever communication among the bidders is possible.

¹⁵In a Nash Equilibrium, neither lobbyist in $B(P; P^0)$ or $L(P; P^0)$ ever bids for both P and P^0 . Otherwise, bidder i could do strictly better by lowering both bids slightly without changing the legislative body's choice.

¹⁶This means that the legislative body resolves its indifference in favor of the trade policy that results in the highest joint payoff for all participants in this lobbying game. This problem is an artifact of the infinite divisibility of money in this model, and it is a general property of equilibrium that the auctioneer always resolves his or her indifference in this way. If P and P^0 induce the same level of joint payoff, the legislative body is assumed to resolve its indifference in favor of P .

librium, an action chosen by the auctioneer maximizes all participants' joint payoff, which is

$$JP(s) \equiv \sum_{i \in B(P; P^0) \cup L(P; P^0)} W_i(s) + aW(s)$$

in the current model. Therefore, the legislative body would choose P if $J(P) \geq J(P^0)$, but would otherwise choose P^0 in any Truthful Nash Equilibrium. For the sake of notational simplicity, let

$$JW(P) \equiv \sum_{i \in I} W_i(P) + aW(P).$$

$JW(P)$ is the joint welfare function of all lobby groups and the legislative body that consists of all lobby groups' welfare and the inherent preference of the auctioneer, $aW(P)$, over trade policy. Note that $JW(P)$ is the sum of $JP(s)$ and the joint welfare of all lobby groups that are indifferent to the choice between P and P^0 . Since $W_i(P)$ is equal to $W_i(P^0)$ for such lobby i , $JW(P) \geq JW(P^0)$ if and only if $JP(P) \geq JP(P^0)$ and we have the following lemma from the efficiency property of the menu auction.¹⁷

Lemma 1: *In all Truthful Nash Equilibria, the legislative body ratifies P if and only if $JW(P) \geq JW(P^0)$.* ■

The above lemma implies that the legislative body rejects P if and only if $JW(P) < JW(P^0)$. Throughout the rest of this paper, a policy alternative P is called *politically feasible* if $JW(P^0) \geq JW(P)$, which is called *political feasibility condition*. Otherwise, P is called *politically infeasible*. To be politically feasible, a trade policy P should not reduce the current sum of lobby groups' joint welfare and the legislative body's inherent preference, $aW(P)$. The political feasibility condition can be restated as

$$\sum_{i \in L(P; P^0)} [W_i(P^0) - W_i(P)] + aW(P^0) \leq \sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)] + aW(P). \quad (6)$$

The left-hand side of (6) is the sum of the joint welfare losses of the lobby groups in $L(P; P^0)$ that a trade policy alternative P would incur and a times the current level of social welfare. Therefore, it reflects political opposition against a trade policy alternative P . The right-hand side of (6) is the sum of the joint welfare gains of the lobby groups in

¹⁷If the legislative body is assumed to reject P when $Z(P) = Z(P^0)$, then P would be politically feasible when $Z(P) > Z(P^0)$ but infeasible otherwise. In the case of this assumption, we face unnecessary complexities in solving this model without gains because of the infinite divisibility of money. Therefore, we stick to our original assumption that the legislative body ratifies P when $Z(P) = Z(P^0)$.

$B(P; P^0)$ and a times the new level of social welfare that are induced by a trade policy alternative P . Thus, it reflects political support for P from lobby groups and the legislative body. (6) reveals the following: to be politically feasible, political support should be more than or equal to political opposition.

The objective of the executive body we consider here is to maximize social welfare $W(P)$. In this case, without the influence of lobby groups, the executive body would propose a trade policy that maximizes social welfare and the legislative body would ratify it. According to the definition of $W(P)$, we have

$$\nabla_i W \equiv \frac{\partial W}{\partial p_i} = (p_i - p_i^*) m_i'(p_i) \quad (7)$$

for $\forall i = 1, 2, \dots, n$, and this indicates that $W(P)$ reaches its unique maximum at free trade $P^* = (p_1^*, p_2^*, \dots, p_n^*)$. Therefore, free trade would be the equilibrium outcome if there is no lobby group. Due to lobbying, however, a proposed trade policy by the executive body is not necessarily free trade.

When the executive body devises a trade-policy alternative P , it faces ratification constraint, which is affected by lobbying. As noted in Lemma 1, lobbying determines whether a trade policy is politically feasible or not and, therefore, influences a trade-policy alternative devised by the executive body. The status quo trade policy P^0 also plays an active role in shaping equilibrium trade policies in the current model by affecting lobbying behaviors. Given the behavior of the legislative body and lobby groups, the executive body devises a trade-policy alternative to maximize its own objective, which is to maximize social welfare $W(P)$.

When the executive body's objective is to maximize social welfare, it would not devise a trade bill that cannot be implemented. Therefore, as Lemma 1 shows, the executive body devises a policy alternative $P^{W*}(P^0) = (p_1^{W*}(P^0), p_2^{W*}(P^0), \dots, p_n^{W*}(P^0))$, such that

$$\begin{aligned} P^{W*}(P^0) &\equiv \arg \max_P W(P) \\ \text{s.t. } JW(P^0) &\leq JW(P). \end{aligned}$$

It is clear that $P^{W*}(P^0)$ is free-trade policy P^* when free trade is politically feasible. Now suppose that free trade policy is not politically feasible. In this case, the next lemma shows that $P^{W*}(P^0)$ has an interesting property: it induces the level of the joint welfare of all lobby groups and the legislative body as the same as that of the joint welfare at the status quo trade policy.

Lemma 2: *Suppose free-trade policy P^* is politically infeasible. Then $JW(P^{W^*}(P^0)) = JW(P^0)$. ■*

An explanation of this result is in order at this point. Let $P^{JW^*} = (p_1^{JW^*}, p_2^{JW^*}, \dots, p_n^{JW^*})$ be the domestic price vector that maximizes $JW(P)$:

$$P^{JW^*} \equiv \arg \max_P JW(P).$$

On the basis of (4) and (7),

$$\nabla_j JW \equiv \sum_{i \in I} \nabla_j W_i + a \nabla_j W = (I_j - \alpha_I) y_j(p_j) + (a + \alpha_I) (p_j - p_j^*) m'_j(p_j) \quad (8)$$

for $\forall j = 1, 2, \dots, n$, where I_j is an indicator variable that equals one if industry j is organized but equals zero otherwise, and $\alpha_I \equiv \sum_{i \in I} \alpha_i$ denotes the fraction of the total population of voters that is represented by a lobby. (8) shows that $p_i^{JW^*}$ is higher than its world price p_i^* if sector i is organized, or lower than p_i^* otherwise.¹⁸

For any organized sector i , $JW(P)$ increases and $W(P)$ decreases as p_i increases toward $p_i^{JW^*}$ from its world price p_i^* . Likewise, $JW(P)$ increases and $W(P)$ decreases as p_j decreases toward $p_j^{JW^*}$ from its world price p_j^* for any unorganized sector j . According to the definition of political feasibility, $JW(P^*)$ is less than $JW(P^0)$, which is not greater than $JW(P^{W^*}(P^0))$. Since $JW(P^{W^*}(P^0))$ is greater than $JW(P^*)$, there is an organized sector i such that $p_i^{W^*}(P^0)$ is greater than p_i^* , or an unorganized sector j such that $p_j^{W^*}(P^0)$ is less than p_j^* . Suppose k is such an organized sector so that $p_k^{W^*}(P^0)$ is greater than p_k^* . If $JW(P^{W^*}(P^0))$ is greater than $JW(P^0)$, then social welfare could be increased by lowering $p_k^{W^*}(P^0)$ without violating the political feasibility constraint. The similar logic applies to the case where k is such an unorganized sector so that $p_k^{W^*}(P^0)$ is less than p_k^* . This shows that the executive body does not have an incentive to devise $P^{W^*}(P^0)$ in such a way that $JW(P^{W^*}(P^0))$ is greater than $JW(P^0)$.

Lemma 2 allows us to look at $P^{W^*}(P^0)$ more closely when free trade is politically infeasible. Since $JW(P^{W^*}(P^0))$ is equal to $JW(P^0)$, the Lagrangian for the executive body's constrained optimization problem is set as

$$L(P, \lambda) \equiv W(P) + \lambda [JW(P) - JW(P^0)] \quad (9)$$

¹⁸If $\alpha_I = 1$ or $a = \infty$, P^Z is free-trade policy P^W . In this case, P^W is always politically feasible by the definition of P^Z and $P^{MW^*}(P^0) = P^W$.

and we have the following proposition on the basis of (7) and (8).¹⁹

Proposition 1: *Suppose free trade is not politically feasible. Then the equilibrium trade policy $P^{W^*}(P^0)$ is*

$$\frac{t_i^{W^*}(P^0)}{1 + t_i^{W^*}(P^0)} = \frac{I_i - \alpha_I}{[\rho^{W^*}(P^0) + a] + \alpha_I} \left(\frac{z_i^{W^*}(P^0)}{e_i^{W^*}(P^0)} \right)$$

for $\forall i = 1, 2, \dots, n$, where $t_i^{W^*}(P^0) \equiv \frac{p_i^{W^*}(P^0) - p_i^*}{p_i^*}$ is the equilibrium ad valorem trade taxes and subsidies, $z_i^{W^*}(P^0) \equiv \frac{y_i(p_i^{W^*}(P^0))}{m_i(p_i^{W^*}(P^0))}$ is the equilibrium ratio of domestic output to imports (negative for exports), $e_i^{W^*}(P^0) \equiv -\frac{m'_i(p_i^{W^*}(P^0))p_i^{W^*}(P^0)}{m_i(p_i^{W^*}(P^0))}$ is the elasticity of import demand or export supply, and $\rho^{W^*}(P^0) \equiv \frac{1}{\lambda^{W^*}(P^0)}$ is a positive constant such that $JW(P^{W^*}(P^0)) = JW(P^0)$. ■

Proposition 1 states that, when free trade is politically infeasible, every sector represented by a lobby group gets positive protection while the other sectors have their domestic prices less than their world prices. As the more sectors are represented by lobby groups, the less $P^{W^*}(P^0)$ deviates from free trade. All else being equal, the organized sector with larger domestic output gets higher protection. The structure of equilibrium trade policy $P^{W^*}(P^0)$ mimics the Ramsey Rule. All else being equal, the executive body is averse to protecting industries with high import demand or export supply elasticities (in terms of absolute value).

$\rho^{W^*}(P^0)$ reflects the role of status quo trade policy P^0 . $\rho^{W^*}(P^0)$ is the inverse of the Lagrange multiplier $\lambda^{W^*}(P^0)$, which adjusts the level of $JW(P^{W^*}(P^0))$ to that of $JW(P^0)$ and measures the effect of a unit decrease in the level of $JW(P^0)$ on $W(P^{W^*}(P^0))$. When free trade is politically infeasible, there are unique $\rho^{W^*}(P^0)$ and $P^{W^*}(P^0)$ for each level of $JW(P^0)$. All else being equal, the higher $\rho^{W^*}(P^0)$ there is, the

¹⁹Without the assumption that political contributions are redistributed to the voters who do not have ownership of any specific factor, the executive body's objective function is $GE = W(P) - C(P; P^0)$. As noted in Grossman and Helpman (1994), the legislative body's objective function still have the same form as in (??) without the above assumption as far as the incumbent legislator values a dollar in his/her campaign coffers more highly than a dollar in the hands of the public. When the executive body's objection function is $GE = W(P) - C(P; P^0)$, Lemma 2 implies that $GE = (1 + a)W(P) + \sum_{i \in L(P; P^0)} W_i(P) - [aW(P^0) + \sum_{i \in L(P; P^0)} W_i(P^0)]$ if politically feasible P lies within $C^{B+}(P^0)$, and $GE = W(P)$ otherwise. Therefore, without further specification of the model, we cannot tell whether $P^{MW^*}(P^0)$ lies within $C^{B+}(P^0)$ or not. If $P^{MW^*}(P^0)$ lies within $C^{B+}(P^0)$, the above argument shows that it is the trade policy that gives extra weight on the welfare of the lobby groups that would lose from it.

less $P^{W*}(P^0)$ is deviated from free trade, and the higher social welfare $P^{W*}(P^0)$ induces. Note that $JW(P^{W*}(P^0))$ decreases as $W(P^{W*}(P^0))$ increases.²⁰ Since $JW(P^{W*}(P^0))$ is the same as $JW(P^0)$ when free trade is politically infeasible, this implies that the lower the level of $JW(P^0)$, the higher $W(P^{W*}(P^0))$ there is. Therefore, the lower the level of $JW(P^0)$, the higher $P^{W*}(P^0)$ there is, and the less $P^{W*}(P^0)$ deviates from free trade. If the level of $JW(P^0)$ is so low that free trade is politically feasible, then $P^{W*}(P^0)$ is free-trade policy.

4.3 Rent Sharing

Our next task is to study the equilibrium contributions from lobby groups.²¹ To this end, we need to look at Truthful Nash Equilibria more closely. Following Bernheim and Whinston (1986), we define truthful strategies and a Truthful Nash Equilibrium in the current lobbying game as follows:

Definition (B-W): $C_i^*(s; P^0)$ is a *truthful strategy relative to s^** if and only if for all $s \in \{P, P^0\}$, either

1. $W_i(s) - C_i(s; P^0) = W_i(s^*) - C_i^*(s^*; P^0)$,

or,

2. $W_i(s) - C_i(s; P^0) < W_i(s^*) - C_i^*(s^*; P^0)$ and $C_i(s; P^0) = 0$.

$(\{C_i^*(s; P^0)\}_{i \in B(P; P^0) \cup L(P; P^0)}, s^*)$ is a *Truthful Nash Equilibrium* if and only if it is a Nash Equilibrium, and $\{C_i^*(s; P^0)\}_{i \in B(P; P^0) \cup L(P; P^0)}$ are truthful strategies relative to s^* . ■

²⁰This is because $p_i^{MW*}(P^0)$ is between its world price p_i^W and p_i^Z for $\forall i = 1, 2, \dots, n$ and $\nabla_i W$ and $\nabla_i Z$ have different signs for each i within this price range. The reason for this is as follows. According to (8), p_i^W is not higher than p_i^Z for each organized industry i . First note that $p_i^{MW*}(P^0)$ cannot be lower than its world price p_i^W for any lobby group i . Otherwise, (7) and (8) show that both $W(P)$ and $Z(P)$ increase as $p_i^{MW*}(P^0)$ moves toward its world price p_i^W , and therefore, there is a way to increase social welfare $W(P)$ without violating the political feasibility constraint. Also $p_i^{MW*}(P^0)$ cannot be higher than p_i^Z for any lobby group i . Otherwise, as (7) and (8) also make clear, both $W(P)$ and $Z(P)$ increase as $p_i^{MW*}(P^0)$ moves toward p_i^Z . Similar logic applies to the case of each unorganized industry, so that $p_i^{MW*}(P^0)$ is between its world price p_i^W and p_i^Z for any industry i .

²¹One might wonder if a coordination failure problem would not arise in this lobbying game. However, truthful strategies eliminate this problem. See Lemma A.1. in the Appendix for details. Alternatively, coordination failure problems can be avoided if we assume that each lobby does not play weakly dominated strategies. If we assume this, there is actually a unique pure-strategy Nash equilibrium in this game when the winning lobby groups offer positive bids in an equilibrium.

In any Truthful Nash Equilibrium, each bidder offers a political contribution $C_i^*(s; P^0)$ for the legislative body's action s that exactly reflects his or her net willingness-to-pay for s as opposed to s^* . Suppose P is the legislative body's equilibrium choice. Then, the truthful strategy of each lobby group i in $L(P; P^0)$ is to bid on P^0 the amount $C_i^*(P^0; P^0) = W_i(P^0) - W_i(P)$, which is his or her net willingness-to-pay for P^0 as opposed to P . Likewise, the truthful strategy of each lobby group i in $B(P; P^0)$ is to bid on P the amount $C_i^*(P; P^0) = W_i(P) - W_i(P^0)$ if P^0 is the equilibrium choice of the legislative body. Based on this observation, the next lemma specifies the equilibrium contribution that the lobby groups in $B(P; P^0)$ offer as a whole when a policy alternative P is politically feasible.

Lemma 3: *If P is politically feasible, the legislative body receives $\sum_{i \in B(P; P^0)} C_i^*(P; P^0)$ from the lobby groups in $B(P; P^0)$ in any Truthful Nash Equilibrium, such that*

$$\sum_{i \in B(P; P^0)} C_i^*(P; P^0) = \begin{cases} \Delta^L(P; P^0) + a[W(P^0) - W(P)], & \text{if } P \in C^{B+}(P^0) \\ 0, & \text{otherwise} \end{cases}$$

where $\Delta^L(P; P^0) \equiv \sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) = \sum_{i \in L(P; P^0)} [W_i(P^0) - W_i(P)]$ and $C^{B+}(P^0) = \{P | \sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) > aW(P)\}$. ■

As noted above, $\Delta^L(P; P^0) \equiv \sum_{i \in L(P; P^0)} C_i^*(P^0; P^0)$ is the total political contributions that the lobby groups in $L(P; P^0)$ offer for rejection of a trade policy alternative P in a Truthful Nash Equilibrium if P is politically feasible. Now consider the case in which politically feasible P lies within $C^{B+}(P^0)$. Then, on the basis of the definition of $C^{B+}(P^0)$,

$$\sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) > aW(P). \quad (10)$$

The left-hand side of inequality (10) is the legislative body's payoff if it chooses P^0 . The right-hand side of that inequality is the legislative body's payoff for choosing P if no lobby group in $B(P; P^0)$ makes a positive contribution. Therefore, the lobby groups in $L(P; P^0)$ could sway the legislative body's choice in their favor if the lobby groups in $B(P; P^0)$ do not make political contributions, and positive bids from the lobby groups in $B(P; P^0)$ are required to ensure the equilibrium action P of the legislative body. We can rewrite the political feasibility condition as

$$\sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) \leq \sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)] + aW(P). \quad (11)$$

(10) and (11) imply that there must be a lobby group that would benefit from a trade policy alternative P if it is politically feasible and lies within $C^{B+}(P^0)$. Given positive bids on P ,

$$\sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) = \sum_{i \in B(P; P^0)} C_i^*(P; P^0) + aW(P)$$

in any Nash equilibrium. Therefore, the legislative body's payoffs from P and P^0 must be the same. Otherwise, any lobby i that makes a positive bid could do strictly better by lowering its bid slightly without changing the legislative body's choice. This shows that the lobby groups in $B(P; P^0)$ offer the sum of what the lobby groups in $L(P; P^0)$ offer and the difference of the legislative body's inherent preference in any Truthful Nash Equilibrium.²² All else being equal, the lobby groups in $B(P; P^0)$ pay more, as the joint welfare of the lobby groups in $L(P; P^0)$ or the social welfare induced by a trade policy alternative P decreases.

For any politically feasible P such that $P \notin C^{B+}(P^0)$,

$$\sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) \leq aW(P). \quad (12)$$

(12) shows that the payoff that the legislative body would get by choosing P^0 is not bigger than the payoff that it would get by choosing P without political contributions from the organized sectors that lobby for the ratification of a policy alternative P . Therefore, the legislative body would choose P even if there were no positive bid on P . This could happen when social welfare gains from a trade policy alternative P were very large and/or welfare losses of the lobby groups in $L(P; P^0)$ from P were very small. Knowing this, no lobby group in $B(P; P^0)$ would promise a positive contribution in order to maximize the total net welfare of its members. The above arguments imply that the legislative body receives a positive contribution by ratifying P if and only if politically feasible P lies within $C^{B+}(P^0)$. Thus, we derive the condition under which any lobby group in $B(P; P^0)$ participates in the lobbying process to sway the legislative body's decision.

Lemma 3 shows that P^0 and P determine lobbying behaviors. Since it is the executive body which devise a new policy alternative P , the executive body is able to influence lobbying behaviors by choosing a policy alternative strategically. The executive body acts as the Stackelberg leader in this model and utilizes its first-mover advantage by

²²Even though $\sum_{i \in B(P; P^0)} C_i^*(P; P^0)$ is unique, each $C_i^*(P; P^0)$ for $i \in B(P; P^0)$ may or may not be unique in a Truthful Nash Equilibrium. In the case of $Z(P) = Z(P^0)$, however, it is always unique.

exercising its agenda-setting power. Next we shall analyze trade policies devised by the executive body and subject to ratification by the legislative body. Given the status quo, the executive body devises a trade policy alternative P to maximize its own objective. To be implemented, however, an alternative P must be ratified by the legislative body, which is susceptible to lobby groups.

We shall consider rent sharing between the legislative body and lobby groups. As noted earlier, whether or not the legislative body receives positive contributions depends on where $P^{W^*}(P^0)$ lies. Lemma 3 shows that the legislative body does not receive positive contributions when $P^{W^*}(P^0)$ lies outside $C^{B^+}(P^0)$. Now we have the following lemma.

Lemma 4: *If the executive body proposes P such that $JW(P) = JW(P^0)$, the legislative body captures all the welfare gains that $B(P; P^0)$ has from P . When the executive body proposes P such that $JW(P) > JW(P^0)$, $B(P; P^0)$ captures all welfare gains that it has from P if $P \notin C^{B^+}(P^0)$ and $JW(P) - JW(P^0)$ if $P \in C^{B^+}(P^0)$.*

Proof See the Appendix.

Consider the trade policy $P^{W^*}(P^0)$, which maximizes social welfare $W(P)$ subject to the political feasibility constraint. Since $P^{W^*}(P^0)$ must be politically feasible, how much lobby groups and the legislative body gain from $P^{W^*}(P^0)$ depends on whether $P^{W^*}(P^0)$ lies within $C^{B^+}(P^0)$ or not. Suppose free-trade policy P^* is politically feasible and $P^{W^*}(P^0)$ is P^* . If there are lobby groups that would benefit from free trade and P^* lies outside $C^{B^+}(P^0)$, Lemma 4 implies that each lobby group in $B(P^*; P^0)$ captures all the surplus that free trade generates to it, and the legislative body gains by the social welfare increase induced by free-trade policy P^* . If P^* lies within $C^{B^+}(P^0)$, Lemma 4 shows that the lobby groups in $B(P^*; P^0)$ and the legislative body gain by the increase in $JW(P)$ and by the total welfare loss of lobby groups induced by free trade policy P^* , respectively. Now we have the following proposition on the basis of Lemma 2 and 4.

Proposition 2: *Suppose free trade is not politically feasible. Then lobby groups have nothing to gain from $P^{W^*}(P^0)$, and the legislative body captures all the surplus that $P^{W^*}(P^0)$ generates. ■*

5 The Effects of Delegation

Suppose the legislative body chooses a trade policy among exogenously determined trade policy options with the influence of lobby groups. Thus, we ignore the possibility that

the legislative body chooses trade policy options strategically. Lobby groups move first and offer their contribution schedules for all possible trade policy options to the legislative body. After that, the legislative body choose a trade policy that maximizes its own welfare. Therefore, the legislative body only plays an passive role in shaping trade policy in this case. This lobbying game also has the structure of the first-price complete-information menu auction and, basically, is the same as that analyzed by Grossman and Helpman (1994). By applying the efficiency property of a first-price complete-information menu auction, we have that the equilibrium trade policy in any Truthful Nash Equilibrium maximizes $JW(P)$, the joint welfare of all lobby groups and the legislative body. Therefore, the equilibrium trade policy is P^{JW*} if we assume that there is an interior solution and (8) implies that

$$\frac{t_i^{JW*}}{1 + t_i^{JW*}} = \frac{I_i - \alpha_I}{a + \alpha_I} \left(\frac{z_i^{JW*}}{e_i^{JW*}} \right) \text{ for } \forall i = 1, 2, \dots, n \quad (13)$$

where $t_i^{JW*} \equiv \frac{p_i^{JW*} - p_i^*}{p_i^*}$, $z_i^{JW*} \equiv \frac{y_i(p_i^{JW*})}{m_i(p_i^{JW*})}$, and $e_i^{JW*} \equiv -\frac{m'_i(p_i^{JW*})p_i^{JW*}}{m_i(p_i^{JW*})}$.

5.1 Active Executive

The executive body is modelled to exercise full agenda-setting power in this paper. In this way, the government plays an active role in shaping trade policy. Whether we consider the influence of the government on lobbying behavior through agenda-setting power or not has important implications on trade policy. We can see this by considering the case in which the legislative body devises trade policy without exercising agenda-setting power but with the influence of lobby groups, and by comparing this case to the case we have analyzed in this paper.

(13) reveals that p_i^{JW*} is not lower than its world price p_i^* , if industry i is organized, and not higher than that, otherwise. Now we compare equation (13) to the one in Proposition 1. This shows that the strategic motive of the executive body to maximize social welfare induces trade policy closer to free trade. The Lagrangian shown in (9) makes the reason for this clear: the executive body implicitly puts the weight of $[\rho^{W*}(P^0) + a]$ on social welfare $W(P)$, rather than the weight of a as in P^{JW*} , against the joint welfare of lobby groups when it devises $P^{W*}(P^0)$.²³

²³Goldberg and Maggi (1999) estimate key structure parameters of the G-H model and find that the weight of social welfare in the government's objective function is many times larger than the weight of contributions. Proposition 1 raises the possibility of misspecification in their study.

If we interpret P^{JW^*} as a trade policy devised by the legislative body before the delegation, Proposition 1 and (13) allow us to analyze the effect of delegation on trade policy. Note that there is no constraint when the legislative body shapes trade policy. In this sense, delegation of trade-policy-setting to the executive body changes trade-policy-making from a matter of unconstrained optimization problems to a matter of constrained optimization problems and induces trade policy closer to free trade.

5.2 Legislative body's Welfare

Now we shall consider the effects of delegation on the legislative body's welfare by comparing P^{JW^*} to $P^{W^*}(P^0)$. Proposition 2 in the previous section implies that the delegation of tariff setting authority to the executive body does not favor lobby groups if free trade is politically infeasible. In general, the equilibrium political contributions from lobby groups are not unique in the case of P^{JW^*} . This feature makes it impossible to derive the general implications of delegation on the legislative body's welfare change. However, when the number of organized industries is one or two, an equilibrium political contribution is unique in the case of P^{JW^*} . We will next consider these two cases and see whether the legislative body loses from delegation. We rely on the analysis in Grossman and Helpman (1994) for the legislative body's welfare induced by P^{JW^*} .

Example 1: A Single Lobby – The lobby contributes the amount that reflects the exact excess burden that the equilibrium trade policy P^{JW^*} imposes on society, and the legislative body's welfare is $aW(P^*)$. In the case of $P^{W^*}(P^0)$, the legislative body's welfare depends on the status quo policy P^0 . First note that there is no political contribution in this case. If the lobby would benefit from $P^{W^*}(P^0)$, $\sum_{i \in L(P^{W^*}(P^0); P^0)} [W_i(P^0) - W_i(P^{W^*}(P^0))] = 0$ and $P^{W^*}(P^0)$ lies outside $C^{B+}(P^0)$. Thus, there is no political contribution according to Lemma 2. If the lobby would lose from $P^{W^*}(P^0)$, it proposes a political contribution in order to make the legislative body reject $P^{W^*}(P^0)$, and the legislative body does not receive any contribution by ratifying $P^{W^*}(P^0)$. Therefore, the present model predicts that the legislative body's welfare is $aW(P^{W^*}(P^0))$. If P^* is politically feasible, then the delegation does not change the legislative body's welfare. Otherwise, the delegation reduces the legislative body's welfare.

Example 2: Two Lobbies and All Voters Represented by Them – Equation (13) reveals that P^{JW^*} is free-trade policy P^* when all voters are represented by lobby

groups. Since $JW(P)$ achieves its maximum at P^{JW^*} , free trade is politically feasible and $P^{W^*}(P^0)$ is also free-trade policy. Suppose there are only two lobby groups, and $i = 1$ and 2. Then P^{JW^*} induces the legislative body's welfare as $C_1^* + C_2^* + aW(P^*)$, where

$$\begin{aligned} C_1^* &= [W_2(P^{-1}) + aW(P^{-1})] - [W_2(P^*) + aW(P^*)], \\ C_2^* &= [W_1(P^{-2}) + aW(P^{-2})] - [W_1(P^*) + aW(P^*)], \end{aligned}$$

and

$$P^{-i} = \arg \max [W_j(P) + aW(P)], j \neq i.$$

Note that it is not the case that both lobby groups would lose from free trade in the present model. If both lobby groups would lose from free trade, $W_i(P^*) < W_i(P^0)$ for $i = 1, 2$, and we have $W(P^*) < W(P^0)$ since $W(P) = W_1(P) + W_2(P)$. If both lobby groups would benefit from free trade, politically feasible P^* lies outside of $C^{B+}(P^0)$ because $\sum_{i \in L(P^*, P^0)} [W_i(P^0) - W_i(P^*)] = 0$, and the welfare of the legislative body is $aW(P^*)$. Therefore, $P^{W^*}(P^0)$ induces the legislative body's welfare lower than that at P^{JW^*} . Without loss of generality, now consider the case in which lobby 1 would lose, and lobby 2 would gain from free trade. If P^* lies outside $C^{B+}(P^0)$, there is no political contribution and the legislative body's welfare is $aW(P^*)$. On the basis of the definition of $C^{B+}(P^0)$, politically feasible P^* lies within $C^{B+}(P^0)$ if and only if

$$[W_1(P^0) - W_1(P^*)] > \frac{a}{1+a} [W_2(P^*) - W_2(P^0)]$$

All else being equal, the lower a is, the more likely it is that free-trade policy P^* lies within $C^{B+}(P^0)$. If P^* lies within $C^{B+}(P^0)$, Lemma 3 implies that the legislative body's welfare is $[W_1(P^0) - W_1(P^*)] + aW(P^0)$, which is greater than $aW(P^*)$, because politically feasible free-trade policy P^* lies within $C^{B+}(P^0)$. The above argument indicates that it is unclear whether the legislative body gains or loses from delegation.

6 Summary

This paper investigates how an equilibrium trade policy, like tariffs, emerges from the interaction between lobby groups and self-interested policymakers by considering the possibility that lobbying behavior may be influenced by the behavior of policymakers and by

incorporating the institutional feature of trade policy. This paper has various implications. First, Proposition 1 shows that delegation induces equilibrium trade policy that deviates less from free trade when the objective of the executive body is to maximize social welfare. Second, status quo trade policy plays an active role in trade policy-makings. This paper also attempts to address the question of why the self-interested U.S. Congress voluntarily delegated the power to set trade policy to the executive branch by showing that the legislative body captures all the surplus that a trade policy alternative generates in many cases under the terms of Proposition 2. However, the fact that the equilibrium political contributions from lobby groups are not unique in the G-H model in general prevents us from analyzing this question completely.

References

- AUSTEN-SMITH, D. (1995): "Campaign Contributions and Access," *American Political Science Review*, 89, 566–81.
- BALDWIN, R. E. (1989): "The Political Economy of Trade Policy," *Journal of Economic Perspectives*, 3(4), 119–35.
- (1991): "The Political-Economy Perspective on Trade Policy," in *Markets and Politicians: Political Economic Choice*, ed. by A. L. Hillman, pp. 263–82. Kluwer Academic Publishers, Norwell, MA.
- BECKER, G. S. (1983): "A Theory of Competition among Pressure Groups for Political Influence," *Quarterly Journal of Economics*, 98(3), 371–400.
- BERNHEIM, B. D., AND M. D. WHINSTON (1986): "Menu Auctions, Resource Allocation, and Economic Influence," *Quarterly Journal of Economics*, 101(1), 1–32.
- CHAMBERLAIN, L. V. H. (1946): *The President, Congress and Legislation*. AMS Press, New York, NY.
- DESTLER, I. M. (1995): *American Trade Politics*. Institute for International Economics with the Twentieth Century Fund, New York, NY.
- ECKES, JR., A. E. (1999): "U.S. Trade History," in *U.S. Trade Policy: History, Theory, and the WTO*, ed. by W. A. Lovett, A. E. Eckes, Jr., and R. L. Brinkman, pp. 51–105. M.E. Sharpe, Inc., Armonk, NY.
- GAWANDE, K., AND U. BANDYOPADHYAY (2000): "Is Protection for Sale?: Evidence on the Grossman-Helpman Theory of Endogenous Protection," *Review of Economics and Statistics*, 82, 139–52.
- GOLDBERG, P. K., AND G. MAGGI (1999): "Protection for sale: An Empirical Investigation," *American Economic Review*, 89(5), 1135–55.
- GROSSMAN, G. M., AND E. HELPMAN (1994): "Protection for sale," *American Economic Review*, 84(4), 833–50.
- HALL, R. L., AND F. W. WAYMAN (1990): "Buying Time: Moneyed Interests and the Mobilization of Bias in Congressional Committees," *American Political Science Review*, 84, 797–820.

- HERNDON, J. F. (1982): "Access, Record, and Competition as Influences on Interest Group Contributions to Congressional Campaigns," *Journal of Politics*, 44, 996–1019.
- HERRNISON, P. S. (1998): "Interest Groups, PACs, and Campaigns," in *The Interest Group Connection: Electioneering, Lobbying, and Policymaking in Washington*, ed. by P. S. Herrnison, R. G. Shaiko, and C. Wilcox, pp. 37–51. Chatham House Publishers, Inc., Chatham, NJ.
- HILLMAN, A. L. (1982): "Declining Industries and Political-Support Protectionist Motives," *American Economic Review*, 72(5), 1180–87.
- (1989): *The Political Economy of Protection*. Chur: Harwood.
- LONG, N. V., AND N. VOUSDEN (1991): "Protectionist Responses and Declining Industries," *Journal of International Economics*, 30, 87–103.
- MAGEE, S. P., W. A. BROCK, AND L. YOUNG (1989): *Black Hole Tariffs and Endogenous Policy Theory: Political Economy in General Equilibrium*. Cambridge University Press, Cambridge.
- MARGOLIS, L. (1986): *Executive Agreements and Presidential Power in Foreign Policy*. Praeger, New York, NY.
- NELSON, D. (1988): "Endogenous Tariff Theory: A Critical Survey," *American Journal of Political Science*, 32(3), 796–837.
- NEUSTADT, R. E. (1960): *Presidential Power: the Politics of Leadership*. Wiley, New York, NY.
- O'HALLORAN, S. (1994): *Politics, Process, and American Trade Policy*. The University of Michigan Press, Ann Arbor, MI.
- PELZMAN, S. (1976): "Toward a More General Theory of Economic Regulation," *Journal of Law and Economics*, 19, 211–48.
- PINCUS, J. J. (1986): "Why have U. S. Tariffs Fallen Since 1930?," in *Issues in World Trade Policy*, ed. by R. H. Snape, pp. 238–53. St. Martin's Press, New York, NY.
- RIEZMAN, R., AND J. D. WILSON (1995): "Politics and Trade Policy," in *Modern Political Economy: Old Topics, New Directions*, ed. by J. S. Banks, and E. C. Hanushek, pp. 108–44. Cambridge University Press, New York, NY.

- ROBINSON, J. A. (1967): *Congress and Foreign Policy-Making: A Study in Legislative Influence and Initiative*. Dorsey Press, Homewood, IL.
- RODRIK, D. (1995): "Political Economy of Trade Policy," in *Handbook of International Economics, Vol. 3*, ed. by G. M. Grossman, and K. Rogoff, pp. 1457–94. North-Holland, Amsterdam.
- ROZELL, M. J., AND C. WILCOX (1999): *Interest Groups in American Campaigns: The New Face of Electioneering*. A Division of Congressional Quarterly Inc., Washington, DC.
- SCHATTSCHEIDER, E. E. (1935): *Politics, Pressure, and the Tariff: A Study of Free Private Enterprise in Pressure Politics, as Shown in the 1929-1930 Revision of the Tariff*. Archon Books, Hamden, CT.
- SCHLESINGER, A. M. (1989): *The Imperial Presidency*. Houghton Mifflin, Boston, MA.
- SONG, Y. (2003): "Protection for Sale: Agenda-Setting and Ratification in the Presence of Lobbying II," Mimeo.
- STIGLER, G. J. (1971): "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science*, 2(1), 3–21.
- SUNDQUIST, J. L. (1981): *The Decline and Resurgence of Congress*. Brookings Institution, Washington, DC.
- TASCA, H. J. (1938): *The Reciprocal Trade Policy of the United States: A Study in Trade Philosophy*. University of Pennsylvania Press, Philadelphia, PA.
- WRIGHT, J. R. (1990): "Contributions, Lobbying, and Committee Voting in the U.S. House of Representatives," *American Political Science Review*, 84, 417–38.

A Appendix

Lemma A.1: *Coordination failure problems never arise if all lobby groups play truthful strategies.*

Proof Suppose a proposed policy P is politically feasible. In that case, $JP(P^0)$ is not greater than $JP(P)$. If a coordination failure problem arises and the legislative body chooses P^0 , then

$$C_i^*(P; P^0) \geq W_i(P) - [W_i(P^0) - C_i^*(P^0; P^0)] \text{ for } \forall i \in B(P; P^0) \cup L(P; P^0)$$

according to the definition of a truthful strategy. Since $C_i(P^0; P^0)$ is zero for each lobby i in $B(P; P^0)$, and since $C_i(P; P^0)$ is zero for each lobby i in $L(P; P^0)$, we can sum up the aforementioned inequalities as follows:

$$\begin{aligned} \sum_{i \in B(P; P^0)} C_i^*(P; P^0) &\geq \sum_{i \in B(P; P^0) \cup L(P; P^0)} W_i(P) \\ &\quad - \left[\sum_{i \in B(P; P^0) \cup L(P; P^0)} W_i(P^0) - \sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) \right] \end{aligned}$$

so that:

$$\sum_{i \in B(P; P^0)} C_i^*(P; P^0) + aW(P) \geq J(P) - J(P^0) + \left[\sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0) \right].$$

Since $J(P^0)$ is not greater than $J(P)$,

$$\sum_{i \in B(P; P^0)} C_i^*(P; P^0) + aW(P) \geq \sum_{i \in L(P; P^0)} C_i^*(P^0; P^0) + aW(P^0).$$

Therefore, the legislative body will choose P if all lobby groups employ truthful strategies. In that case, however, we have a contradiction. Similar logic applies to the case in which a proposed policy is not politically feasible, and truthful strategies eliminate the possibility of any coordination failure problems. \blacksquare

Proof of Lemma 4

This proposition is the direct consequence of Lemma 2. Suppose $JW(P) = JW(P^0)$. This condition can be rewritten as

$$\sum_{i \in L(P; P^0)} [W_i(P^0) - W_i(P)] + a[W(P^0) - W(P)] = \sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)].$$

Therefore, Lemma 3 shows that $C^B(P; P^0) = \sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)]$ if $P \in C^{B+}(P^0)$. Also, we have that $\sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)] = 0$ if $P \notin C^{B+}(P^0)$. This is because $\sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)] \geq 0$ by definition. Thus, the legislative body captures all the surplus that $B(P; P^0)$ gains from P . If $Z(P) > Z(P^0)$ and $P \notin C^{B+}(P^0)$, according to Lemma 3, P is ratified without a positive contribution and $B(P; P^0)$ captures all the surplus from P . If $JW(P) > JW(P^0)$ and $P \in C^{B+}(P^0)$, we have that $\sum_{i \in B(P; P^0)} [W_i(P) - W_i(P^0)] - C^B(P; P^0) = JW(P) - JW(P^0)$ based on Lemma 3, and $B(P; P^0)$ captures $JW(P) - JW(P^0)$. ■