

Cooperative lobbying and endogenous trade policy*

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Abstract. This paper considers trade policies in a small open economy in which two influential interest groups lobby the government. Since competitive lobbying leads to excessive rent-seeking expenditures, the lobbies have an incentive to cooperate. The outcome of cooperative lobbying is characterized in terms of lobbying and bargaining power of the two groups. Two important results are derived. First, if the power of competing interest groups is balanced, then cooperation leads to free trade. Second, if it is unbalanced, cooperation may, on the contrary, increase protection.

1. Introduction

The literature on the political economy of trade¹ has – partly in response to normative trade theory that emphasizes the welfare maximizing effects of free trade – pointed out that a strong protectionist pressure arises from the interaction at the political market between self-interested politicians, voters and special interest groups leading to trade protection. Seen in this perspective, it is puzzling why liberal trade policies *despite the protectionist pressure* are chosen in many countries, and it raises the question whether liberal trade policies are consistent with standard political economy considerations.

One mechanism that reduces the protectionist pressure and levels the road for more liberal trade policies is cooperation at a centralized level. Grossman and Helpman (1995a, b) show how international trade talks can reduce the pressure by pitting interest groups in one country against those in another such that their effort to “buy” protection to some extent neutralizes each other. Hillman and Moser (1996) show how the pressure is reduced if a political support maximizing government exchanges access to its home markets with a partner.

In this paper, we present another mechanism, based on centralized cooperation at the political market in a given country, which (under some circumstances) reduces the protectionist pressure, and, by that, creates a leeway for

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more liberal trade policies than the literature, in general, leads us to predict. Our argument is based on the following line of reasoning. Competitive lobbying or rent-seeking, typically, leads to an excessive waste of real resources, not only from the point of view of the society, but also from the point of view of the lobbies or the rent-seekers themselves. The problem arises when each rent-seeker fails to take into account that his rent-seeking activities impose an external cost on the other rent-seekers. Hence, a rational rent-seeker, who realizes this *ex ante*, has a strong incentive to coordinate his lobbying activities with his competitors.

The purpose of the paper is to analyze how *cooperative lobbying* affects endogenous trade policy in a small open HOS economy in which a simple influence function characterizes the supply side of the political market and two influential factor lobbies dominate the demand side. In our model, competitive lobbying (almost always) leads to trade protection. Hence, the question is whether cooperative lobbying leads to more liberal trade policies than competitive lobbying. We relate the outcome under cooperative lobbying to two dimensions of the political environment. In one dimension, we use lobbying power (defined as membership of the two lobbies) to link the outcome back to the underlying competitive political process. In the other dimension, we use bargaining power to relate the outcome directly to the bargaining process. In particular, we derive sufficient conditions based on the distribution of lobbying and bargaining power of the two groups under which cooperative lobbying leads to the Pareto efficient outcome of free trade. In particular, we show that, although the influence function, which relates lobbying effort to a policy outcome, is a continuous function of effort, free trade is not a knife edge outcome of cooperative lobbying. Likewise, we derive conditions under which cooperative lobbying leads to *more* trade protection than competitive lobbying. Hence, overall, the effect of cooperative lobbying on trade policy (compared with competitive lobbying) is ambiguous.

We define cooperative lobbying as (costly) Nash bargaining between the lobbies over the set of Pareto-improving reductions in (competing) lobbying activities. We do not allow for side-payments between the groups for two reasons. First, we exclude side-payments to make the analysis non trivial. Since we are considering a small open competitive economy, free trade maximizes total factor income. Accordingly, if transaction costs involved in bargaining are negligible, then, by the Coase Theorem (see Coase, 1960), we can conclude that the lobbies would, by employing an appropriate compensation scheme, agree to stop competing for political rents altogether, and, thus, the trade regime would trivially be free trade. Second, thinking of any empirical evidence that would support the relevance of monetary compensation schemes between two competing interest groups is hard.

Besides the literature on the political economy of trade, the present paper relates to other branches of the literature. First, as our main argument suggests, it is closely related to the traditional rent-seeking literature (see, e.g., the surveys by Tollison, 1982; Hillman, 1989: Ch. 6; Brooks and Heijdra, 1989; and Nitzan, 1994). From a normative perspective this literature is concerned with the social cost of rent-seeking or lobbying activities. That is, rent-seeking is considered a social waste and the main research question has been to find out to what extent rents are dissipated by the competitive process of capturing them. Here, we go beyond the standard competitive rent-seeking model and argue that the rent-seekers (the lobbies) foresee the potential welfare losses arising from competitive rent-seeking (lobbying) and that they, consequently, have an incentive to lobby cooperatively. Three conditions are necessary to validate our argument: 1) competitive lobbying arises in a non-cooperative equilibrium; i.e., the groups do in fact enter the rent-seeking contest; 2) the lobbying expenses of competing groups, to some extent, neutralize each other and 3) resources used on rent-seeking have positive shadow prices. The two first conditions relate closely to the properties of the influence function. Hirshleifer (1989) has pointed out that a ratio specification of the influence function, typically, induces everybody to enter the contest leading to a “lobbying war”. Other specifications, for instance those based on the difference between the lobbying effort of the various groups, may, on the other hand, lead to asymmetric equilibria in which only one group lobbies (one-sided submission) or to equilibria in which no-one lobbies (peace), and, by that, undermine the argument in favor of cooperative lobbying. Regarding the third condition, Bhagwati and various coauthors (see, e.g., Bhagwati, 1980, 1982b, and Bhagwati, Brecher, and Srinivasan, 1984) have pointed out that rent-seeking (or Direct Unproductive Profit-seeking) may, contrary to the common presumption, prove *beneficial* to society in the sense that the cost of protection is lower with tariff-seeking than with an equivalent exogenously imposed tariff. The point is that at a tariff-distorted equilibrium resources may have negative shadow prices. Hence, it pays for society to use resources on a zero-output activity such as lobbying. Bhagwati (1982b) offers a taxonomy based on whether or not the initial (i.e., before lobbying takes place) and the final (i.e., after lobbying takes place) situation are distorted or not. Only if the initial situation is distorted, lobbying may be beneficial rather than immiserizing. Hence, to satisfy condition three, assuming that the initial situation is distortion-free is sufficient, i.e., to argue that the only important trade distortions in the economy are those generated endogenously by interest group competition.

Second, by extending the competitive rent-seeking model with elements of bargaining between the interest groups, our paper is, in a broad sense, related

to the political science literature on corporatism (see, e.g., Williamson, 1989). Corporatist theory is concerned with relationships between interest groups and the state in which policy arises from bargaining between the parties rather than as a result of competitive lobbying. Here, we link the incentive of the groups to enter a corporatist relationship to the underlying competitive political environment as well as to the attributes of the bargaining process itself.

Third, our paper is related to Becker (1983, 1985). Becker argues that although interest groups have opposite stakes in policy making, they would, nevertheless, all prefer more efficient instruments of taxation to less efficient ones. The reason being that a switch to a more efficient instrument allows each lobby to achieve the same rent at a lower cost because the deadweight loss is reduced. Hence, the claims that competition between interest groups leads to politically efficient policies. In the same spirit, we argue that competing lobbies with opposite stakes in trade policy all prefer cooperative lobbying to competitive lobbying because it reduces excessive rent-seeking expenditures. So, if the interest groups lobby cooperatively, the efficiency of the political process increases in the sense that less resources are wasted in the process of “buying” a given level of protection.

The remainder of the paper is organized as follows. Section 2 states the basic model. Section 3 derives trade policy under conditions of competitive lobbying as a one shot non-cooperative Nash equilibrium. Section 4 analyzes trade policy under conditions of cooperative lobbying. In Section 5, we discuss some casual Danish evidence. Section 6 concludes and discusses the generality of our results.

2. The outline of the model

Consider a small open HOS economy with two produced goods, X_1 and X_2 . International prices are π and 1, respectively. Sector 1, (X_1), is labor intensive and sector 2, (X_2), is capital intensive. For the relevant range of the domestic terms of trade, $p = \pi(1+t)$, X_1 is imported and X_2 is exported. Both goods are produced at home in equilibrium. The endowments of two mobile factors of production, capital and labor, are K_0 and L_0 . Capitalists own capital and workers own labor. The number of capitalists and workers are Q_K and Q_L , respectively. For simplicity, we assume that each agent owns either one unit of capital or labor.

The Stolper-Samuelson Theorem predicts that an increase in the relative price, p , of good 1 raises the real return to labor (w/p , $w/1$) and reduces the real return to capital (r/p , $r/1$) in terms of both goods. This motivates workers and capitalists to form lobbies along factor lines.² That is, capitalists organize

to lobby for export subsidies ($t < 0$), and workers organize to lobby for import tariffs ($t > 0$).³

Successful lobbying is a public good. That is, any, say, capitalist gains from an export subsidy irrespectively of whether or not he contributes to the effort of bringing it about. Thus, the lobbies face, as pointed out by Olson (1965), free rider problems that they, somehow, need to solve. We do not consider how this is done. Instead, we assume that an exogenously given number of capitalists, H_K , and workers, H_L , join the two lobbies. Members contribute to the cost of lobbying by withdrawing a proportional share of their endowment of the relevant factor from production and supplying it to the lobby. These resources are, in turn, used to influence trade policy. For instance, the lobbies may give campaign contributions to their favored political party or they may engage in informational lobbying. Overall, we refer to contributions of capital and labor to politics as *lobbying effort*. Finally, for reasons that become obvious in the next section, we, simply, define *lobbying power*, i.e., a lobby's capacity to "buy" political favors, as membership.

We follow Findlay and Wellisz (1982, 1983), Young (1982) and Wellisz and Wilson (1986) and use a simple influence function to characterize the supply side of the political market. Accordingly, the equilibrium tariff, and, hence, the domestic terms of trade are related to the supply, L and K , of lobbying effort from the two groups⁴:

$$p(L, K) = \pi(1 + t(L, K)) = \pi(L + 1)^c(K + 1)^{-c}, c \in (0, 1) \quad (1)$$

where $L \leq H_L$ and $K \leq H_K$.

The influence function is increasing in L and decreasing in K , both at a decreasing rate. With an equal amount of lobbying effort ($L = K$), the domestic and international terms of trade are the same, i.e., $p(L, K) = \pi$ for $L = K$. Assume that $\pi = 1$. Then $L > K$ implies that $p > 1$ and $K > L$ implies $p < 1$. That is, if the labor lobby invests more effort than the capital lobby, then a tariff is the policy outcome and *vice versa*.

We assume that the two sectors produce by means of a Cobb-Douglas technology. So, with an appropriate normalization of units, the conditions for an equilibrium with incomplete specialization are given as:

$$\begin{aligned} c_1(r, w) &= r^\alpha w^{1-\alpha} = p \\ c_2(r, w) &= r^\beta w^{1-\beta} = 1 \\ \text{with } &0 < \alpha < \beta < 1 \end{aligned} \quad (2)$$

c_1 and c_2 are the unit cost functions. Solve the two equations in (2) to get the equilibrium values of r and w :

$$\begin{aligned} w &= p^M, & M &= \frac{-\beta}{\alpha-\beta} > 0 \\ r &= p^Z, & Z &= \frac{1-\beta}{\alpha-\beta} < 0. \end{aligned} \quad (3)$$

Furthermore, we assume that all consumers have identical Cobb-Douglas preferences, i.e., $v[Y,p] = Yp^{-\lambda}$, where Y is income and $0 \leq \lambda \leq 1$. We assume that the interest groups do truly represent the interest of their membership. Hence, the objective functions of the two groups are derived from the indirect utility of the members:

$$v_K = \sum_{i=1}^{H_K} \left[1 - \frac{K}{H_K} \right] r p^{-\lambda} = [H_K - K] p^n, \text{ where } n = Z - \lambda < 0 \quad (4)$$

$$v_L = \sum_{i=1}^{H_L} \left[1 - \frac{L}{H_L} \right] w p^{-\lambda} = [H_L - L] p^m, \text{ where } m = M - \lambda > 0. \quad (5)$$

Insofar as the economy deviates from free trade, tariff revenue is created or a tax is levied to finance the subsidy. These transfers could, of course, be made subject to rent-seeking as argued by Bhagwati and Srinivasan (1980). The result would be a two-stage lobbying process. First, the lobbies compete over trade policy, and, second, they compete to capture a given revenue or avoid paying tax.⁵ This kind of two-stage lobbying has been discussed by Bhagwati (1982a) and Tullock (1981). However, in the proceeding analysis, we, for simplicity, exclude all revenue-seeking activities. As for the public finance aspect of a deficit arising from an equilibrium export subsidy, we assume that the government levies the necessary lump sum taxes on consumers directly. Likewise, a given revenue is transferred lump sum to the consumers. Hence, the public finance aspect does not enter the considerations of the lobbies.

3. The tariff equilibrium with competitive lobbying

In this section we consider endogenous trade policy in the presence of competitive lobbying. It is used as a bench mark for the discussion of cooperative lobbying in the next section. The lobbies contribute to the political process to maximize their payoffs given by (4) and (5). It is easily shown that in a one shot non-cooperative Nash equilibrium, the two lobbies provide the following amounts of lobbying effort⁶:

$$K_N = \frac{-cnH_K - 1}{1 - cn} \quad (6)$$

$$L_N = \frac{-cmH_L - 1}{1 + cm} \quad (7)$$

L_N and K_N are positive if $-cnH_K > 1$ and $cmH_L > 1$ and zero if not. That is, the two lobbies devote resources to politics only after membership has reached a certain limit. If L_N and K_N are positive in equilibrium, the domestic terms of trade are

$$p_N = \left(-\frac{m(1-cn)(H_L+1)}{n(1+cm)(H_K+1)} \right)^c. \quad (8)$$

Verifying that the lobbying effort and the Nash-payoff of each lobby both are increasing in “own membership” and that the Nash-payoffs are decreasing in the membership of the competing lobby is easy. Moreover, the domestic terms of trade depend on the ratio of H_L and H_K . So, it does make sense to use H_L and H_K to define *lobbying power*: The more powerful, say, the labor lobby is, the more favorable are the terms of trade to workers.

For comparison, we define first best as a situation in which national income is maximized, i.e., $L = K = t^* = 0$. With competitive lobbying, aggregated welfare is reduced compared with first best on two accounts. First, the wedge between the domestic and the world market price creates a distortion, and, second, resources with a positive shadow price are withdrawn from production and used unproductively to lobby the government. Only if the two lobbies are too small to engage in competitive lobbying, the economy achieves first best; a case that we do not consider in this paper.⁷

Free trade in the sense that $t^* = 0$, but $L, K > 0$, occurs only in the knife edge case in which

$$\frac{H_L+1}{H_K+1} = -\frac{n(1+cm)}{m(1-cn)} \quad (9)$$

Hence, free trade is a very unlikely outcome of competitive lobbying, and is, of course, not first best. The society is, accordingly, worse off with competitive lobbying than without. More interesting, the lobbies may also lose. In particular, this is the case if competitive lobbying results in free trade! The next proposition, which is basically due to Magee et al. (1989), expands on this point.

Proposition 1 (Magee et al., 1989)

A case of unbalanced lobbying power

- A) If competitive lobbying leads to a tariff, then the capital lobby always loses compared with first best, whereas the labor lobby gains if it is sufficiently powerful, i.e., H_L/H_K is “big”.
- B) If competitive lobbying leads to a subsidy, then the labor lobby always loses compared with first best, whereas the capital lobby gains if it is sufficiently powerful, i.e., H_L/H_K is “small”.

A case of balanced lobbying power

If H_L/H_K is of intermediate size, then both lobbies lose compared with first best.

Proof. See Appendix 1.

Q.E.D.

The driving force behind the proposition is the fact that each lobby fails to internalize the externality that its lobbying effort imposes on the competitor. The potential gain from lobbying derives from the Stolper-Samuelson (SS) effect. The potential losses are due to reallocation of inputs from production into lobbying⁸ and the deadweight loss associated with the resulting distortion. If the SS effect moves against a lobby, then the lobby certainly loses. If the SS effect, on the other hand, is favorable to a lobby, it must be sufficiently large to offset the two negative effects. The latter condition is satisfied if lobbying power is unbalanced, i.e., if H_L/H_K is either “small” or “big”. If, on the contrary, lobbying power is balanced, i.e., H_L/H_K is of intermediate size, neither of the lobbies has the power to induce a favorable shift in the terms of trade that are sufficient to outweigh the two costs.

In any case, the rivalry between the two groups counter-lobbying each other significantly reduces *ex post* gains from lobbying since to some extent lobbying expenditures simply neutralize each other leaving unaffected prices and real income. Realizing this *ex ante*, gives the two groups an incentive to cooperate to internalize the negative externality associated with competitive lobbying. In the next section, we explore the consequences of cooperative lobbying on trade policy.

4. Trade policy with cooperative lobbying

Our formulation of cooperative lobbying involves a mixture of cooperative and non-cooperative elements. At one extreme, we have the Coasian tradition (see Coase, 1960) which assumes that transaction costs are negligible and that side-payments can be made between the affected parties. At the other extreme, the standard political economy model of competitive lobbying (considered in Section 3) assumes that transaction costs are prohibitive and that side-payments between the parties are excluded. In this paper, on the one hand, we hold that the cost of negotiating, writing, monitoring and enforcing an agreement is not prohibitive, but still positive, such that (binding) agreements on Pareto improving reductions in rent-seeking activities can be entered via Nash Bargaining. On the other hand, we do not, for various reasons discussed in Section 1, allow side-payments to be used.

To characterize trade policy under cooperative lobbying, we focus on two dimensions of the political environment. In the first dimension, the lobbying power of the two groups relates the outcome of the bargaining process to the underlying competitive political process. In the other dimension, the bargaining power of the two groups relates the outcome directly to the groups' position in the bargaining process. To structure the discussion, we consider how the distribution of bargaining power affects trade policy with balanced and unbalanced lobbying power (as defined in Proposition 1). We assume that the transaction costs are zero, but return to the implications of positive transaction costs at the end of the section.

4.1. *The case of balanced lobbying power*

An agreement is a set: $A = \{L^A, K^A\}$, $L^A, K^A \geq 0$. We have imposed two reasonable requirements on the set of feasible agreements. First, individual rationality requires that the payoff from an agreement be at least as big as the Nash payoff: $v_L(L^A, K^A) \leq V_L^N$ and $v_K(L^A, K^A) \geq V_K^N$. Next, group rationality requires that any agreement be efficient in the sense that no alternative agreement which yields higher payoffs simultaneously to both lobbies is feasible. Name the set of group and individually rational agreements Ω .

Now, consider Figure 1. It shows, in (L, K) space, the structure of the game with balance in lobbying power. The set of individually rational (IR) agreements is OK_1NEL_1 . L_1 is the value of the labor lobby's effort for which the capital lobby is indifferent between cooperation and competitive lobbying, given that the latter does not provide any effort on its own. K_1 is similarly defined with respect to the labor lobby.

To derive the set of group rational (GR) agreements, consider a given IR agreement, $A = \{L^A, K^A\}$. Assume that A involves lobbying effort from both lobbies and yields the equilibrium tariff, t_1 . Now, consider another agreement $A' = \{L'^A, K'^A\}$ which involves less lobbying effort by both lobbies, but results in the same equilibrium tariff, t_1 . Clearly, since $L^A > L'^A$ and $K^A > K'^A$, both lobbies are better off with A' than with A : The tariff is the same, but more resources are left to production. That is, agreement A is not group rational. However, repeating the argument shows that A' is not group rational either. In fact, for any agreement with $L^A > 0$ and $K^A > 0$, there is another agreement that Pareto dominates it. This implies that any group rational agreement involves zero effort from at least one lobby. Accordingly, agreements of type $A_1 = \{L^A, 0\}$ and $A_2 = \{0, K^A\}$ are GR. In Figure 1, Ω is shown with A_1 agreements at the horizontal axis and A_2 agreements at the vertical axis. Moreover, agreements of type A_1 have $t > 0$ (a tariff), whereas those of type A_2 have $t < 0$ (an export subsidy). Finally, agreements

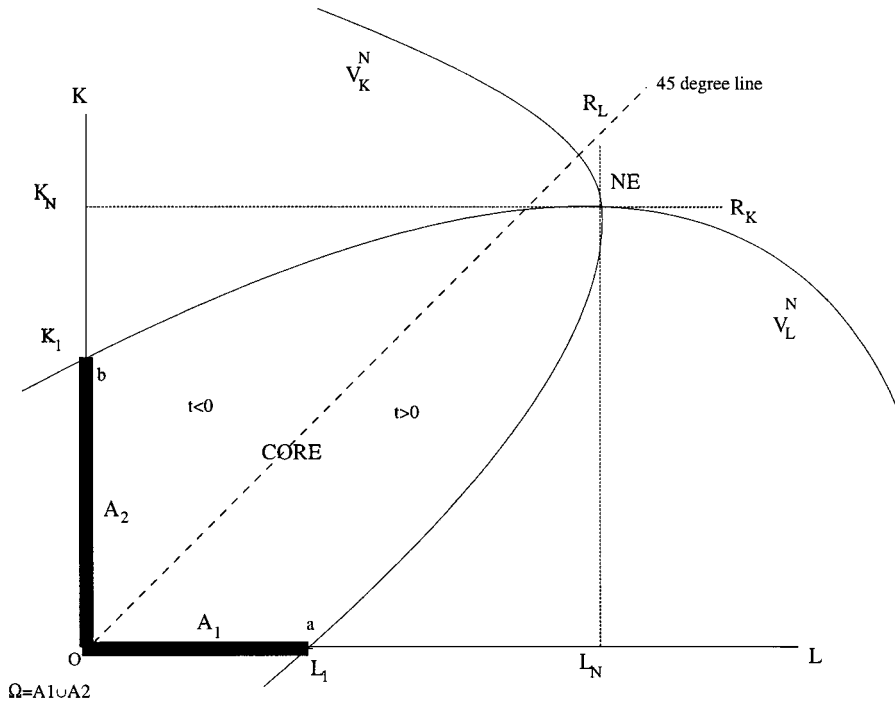


Figure 1. The case of balanced lobbying power.

of type A_1 have the property that the payoff of the capital lobby is decreasing in L^A , while that of the labor lobby is increasing. That is, the capital lobby's most-preferred type A_1 agreement have $L^A = K^A = t^* = 0$, while that of the labor lobby involves effort of size L_1 . Similar arguments apply to agreements of type A_2 .

It is convenient to consider “payoff agreements” instead of “effort agreements”. Accordingly, we transform the set of IR and GR agreements from (L, K) space to payoff space. Combining the payoffs of the two lobbies, in case they reach an agreement of type A_1 , yields the following relationship between v_L and v_K :

$$v_L = (H_L + 1) \left(\frac{v_K}{H_K} \right)^{\frac{m}{n}} - \left(\frac{v_K}{H_K} \right)^{\frac{cm+1}{cn}}, \quad v_K \in [v_K^N, H_K]. \quad (10)$$

Likewise, if they reach an agreement of type A_2 , the relationship between v_L and v_K is given as

$$v_K = (H_K + 1) \left(\frac{v_L}{H_L} \right)^{\frac{n}{m}} - \left(\frac{v_L}{H_L} \right)^{\frac{cn-1}{cm}}, \quad v_L \in [v_L^N, H_L] \quad (11)$$

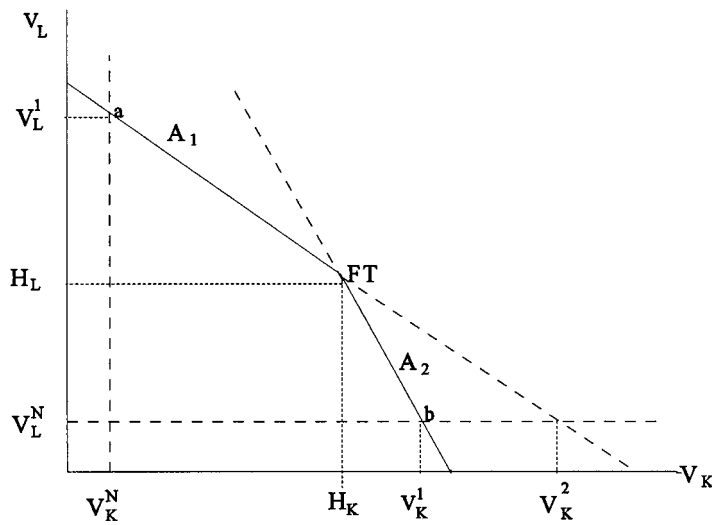


Figure 2. The payoff frontier when lobbying power is balanced.

Equations (10) and (11) define the payoff frontier of the game when lobbying power is balanced. Notice the negative tradeoff between v_L and v_K : The frontier is downwards sloping in (v_L, v_K) space. Moreover, it has a kink at (H_L, H_K) .

To facilitate the analysis, we linearize the payoff frontier by means of a first order Taylor approximation around the cooperative free trade equilibrium, $\{H_L, H_K\}$:

$$\begin{aligned}
 v_L &= H_L + \theta(v_K - H_K), & v_K \in [v_K^N, H_K] \\
 v_L &= H_L + \gamma(v_K - H_K), & v_K \in [H_K, v_K^1] \\
 \text{where } \theta &= \frac{cmH_L - 1}{cnH_K} < 0 & \gamma = \frac{cmH_L}{cnH_K + 1} < 0.
 \end{aligned} \tag{12}$$

The labor lobby achieves maximum payoff, $v_L^1 = H_L + \theta(v_K^N - H_K)$, with an A_1 agreement in which the capital lobby is indifferent between competitive and cooperative lobbying. Likewise, the capital lobby achieves a maximum payoff, $v_K^1 = H_K + (v_L^N - H_L)/\gamma$, with an A_2 agreement in which the labor lobby is indifferent. If K_N and L_N are strictly positive, then $\theta > \gamma$, and the payoff frontier is concave.⁹ Accordingly, the payoff frontier can be drawn as in Figure 2.

We interpret cooperative lobbying as Nash bargaining between the two groups. The Nash bargaining solution to the game is based on the assumption that the two lobbies know that if they do not agree, each lobby will lobby competitively and provide its individually most-preferred lobbying effort,

i.e., the Nash efforts, $\{L^N, K^N\}$. These and the corresponding Nash payoffs characterize the “disagreement point”. Notice that it is via the disagreement points that the distribution of lobbying power affects the outcome of cooperative lobbying. The Nash bargaining solution to the game is the solution to the following problem:

$$[v_K^*, v_L^*] = \arg \max_{v_K, v_L} (v_K - v_K^N)^\rho (v_L - v_L^N)^{1-\rho} \quad s.t. \quad (12) \quad (13)$$

$\rho(1 - \rho)$ is the bargaining power of the capital (labor) lobby. Once a solution is derived in payoff space, a solution in effort space can readily be found. If parameters are such that they reach an agreement of type A_1 , then the solution is characterized by

$$v_K^{A_1} = \rho H_K + \frac{\rho(v_L^N - H_L)}{\theta} + (1 - \rho)v_K^N, \quad v_K^{A_1} \in [v_K^N, H_K] \quad (14)$$

$$v_L^{A_1} = H_L + \theta(v_K^{A_1} - H_K), \quad v_L^{A_1} \in [H_L, v_L^1]. \quad (15)$$

On the other hand, if they reach an agreement of type A_2 , then the solution is characterized by

$$v_K^{A_2} = \rho H_K + \frac{\rho(v_L^N - H_L)}{\gamma} + (1 - \rho)v_K^N, \quad v_K^{A_2} \in [H_K, v_K^1] \quad (16)$$

$$v_L^{A_2} = H_L + \gamma(v_K^{A_2} - H_K), \quad v_L^{A_2} \in [v_L^N, H_L]. \quad (17)$$

From Figure 1 and 2, we notice that free trade, in the sense $L = K = t^* = 0$, is a potential equilibrium. More significantly, the next proposition shows, if the *political system is in balance* in the sense that both lobbying and bargaining power of the two groups are balanced, cooperative lobbying does in fact lead to free trade.

Proposition 2

If $\rho \in [\rho_1, \rho_2]$, then cooperative lobbying leads to free trade. ρ_1 and ρ_2 are given as

$$\rho_1 = \frac{H_K - v_K^N}{v_K^2 - v_K^N}, \quad \rho_2 = \frac{H_K - v_K^N}{v_K^1 - v_K^N} \quad (18)$$

where v_K^2 is the solution to $v_L^N = H_L + \theta(v_K^2 - H_K)$ (see Figure 2).

Proof. ρ_1 in (18) is derived by setting (14) equal to H_K , while ρ_2 is derived by setting (16) equal to H_K . Q.E.D.

Free trade is the outcome of cooperative lobbying, if the two lobbies are not too different in terms of lobbying (H_L/H_K is of intermediate size) and bargaining ($\rho \in [\rho_1, \rho_2]$) power.¹⁰ Accordingly, if the political system is in balance, then cooperative lobbying, arising from the fact that the two interest groups realize that competitive lobbying is too expensive, leads to a Pareto efficient equilibrium. Moreover, although the influence function is a continuous function of effort, we see that cooperation on free trade is not a knife edge case.

Of course, other outcomes than free trade are possible. If $\rho \notin [\rho_1, \rho_2]$, cooperative lobbying leads to trade protection, i.e., if $\rho < \rho_1$, then the government protects the import competing sector and if $\rho > \rho_2$, then the export sector is subsidized. If we restrict attention to situations in which the government protects the same sector under either cooperative or competitive lobbying, it is, furthermore, easy to see that cooperative lobbying *increases* protection (either the tariff or the subsidy) if the relevant group is given all bargaining power. Consider, for instance, the situation in Figure 1. In the competitive (lobbying) equilibrium, a tariff protects the import competing section. If the labor lobby has all bargaining power, the cooperative equilibrium is a point a. Since the capital owners at this point is indifferent between cooperative and competitive lobbying, but under cooperative lobbying have reduced their lobbying effort to zero, it must be the case that the tariff in the cooperative equilibrium has increased accordingly. The intuition is simple. Although the total amount of resources going into politics ($L + K$) decreases, the fact that only one lobby contributes makes these resources more efficient in “buying” protection and at the end of the day protection may increase.

4.2. *The case of unbalanced lobbying power*

With unbalanced lobbying power, we recall from Proposition 1 that compared with first best, one lobby gains and the other loses from the engagement in competitive lobbying. Accordingly, an agreement $\{L, K\} = \{0, 0\}$ is not individually rational, and *cooperative lobbying cannot lead to free trade*. So, a necessary (but not sufficient) condition for cooperative lobbying to lead to the Pareto efficient outcome of free trade is that lobbying power is balanced.

Of course, although the efficient equilibrium is unattainable, cooperation is still beneficial to the two lobbies. Figure 3 shows the case of a labor lobby with much lobbying power.¹¹ Agreements at the bolded segment belong to the set, Ω , of IR and GR agreements, and they all involve trade protection of the import competing industry, i.e., the terms of trade under cooperative lobbying, $p_{co} = (L^A + 1)^c$, are greater than 1. How high the tariff is depends, of course, on the distribution of bargaining power. In particular, we have the

following proposition:

Proposition 3

Let lobbying power be unbalanced with a “powerful” labor lobby. If $\rho < \rho^*$ ($\rho > \rho^*$), then the equilibrium tariff is higher (lower) under cooperative than under competitive lobbying, where ρ^* is implicitly defined by $L^A(\rho^*) = (p_N)^{1/c} - 1$.

Proof. Define L^* as $(p_N)^{1/c} - 1 > 0$. Let L_1 be defined implicitly by $v_K^A = H_K(L_1 + 1)^{cn} = v_K^N = (H_K - K_N)(p_N)^n$, and let L_2 be defined by the relationship $v_L^A = (H_L - L_2)(L_2 + 1)^{cm} = v_L^N = (H_L - L_N)(\rho_N)^m$, where a unique solution is insured by the fact that v_L^A is strictly increasing in L^A for $L^A < L_N$. If Ω is non empty, then $L_2 < L_1 < L_N$ (see Figure 3). Claim 1: $L_1 > L^* > L_2$. Let $L^A = L_2$. Suppose that $p_{co} > p_N$. Then $v_L^A > v_L^N$, which is a contradiction. We conclude that $p_{co} < p_N$ and so $L_2 < L^*$. Let $L^A = L_1$. Suppose that $p_{co} < p_N$. Then $v_K^A < v_K^N$, which is a contradiction. We conclude that $p_{co} < p_N$ and so $L_1 > L^*$. Claim 2: v_K^A is strictly increasing in ρ . It follows directly from equation (14) and the fact that $H_K > v_K^N$ and $H_L < v_L^N$. Since $K = 0$, we conclude that p_{co} , and, hence, L^A is strictly decreasing in ρ . $L^A(\rho)$ is invertible and so $\rho^* \in (0,1)$ is well-defined. Q.E.D.

So, if the labor lobby has a strong position in the bargaining ($\rho < \rho^*$), then the government protects the import competing industry more under cooperative than under competitive lobbying and *vice versa* if $\rho > \rho^*$.

4.3. *Positive transaction costs*

Until now, we have disregarded transaction costs. This is, however, an unrealistic assumption: It is costly to negotiate, monitor and enforce agreements. Now, suppose that some of the Nash payoffs, D_i , is used to cover these expenses. Thus, the disagreement payoffs become $v_i^N - D_i = K, L$. Referring to Figure 1 and 3, we see that Ω shrinks since the “Nash indifference curves” shift in and down, respectively. However, unless transaction costs are very large, there would still be a scope for cooperative lobbying, and, so, Proposition 2 generalizes to the case of positive, but moderate, transaction costs.

4.4. *Sustainability of the cooperative solution*

Although we use the parameter, D_i , to capture the cost of sustaining cooperation, we know that the equilibrium in the one shot cooperative game is not, in

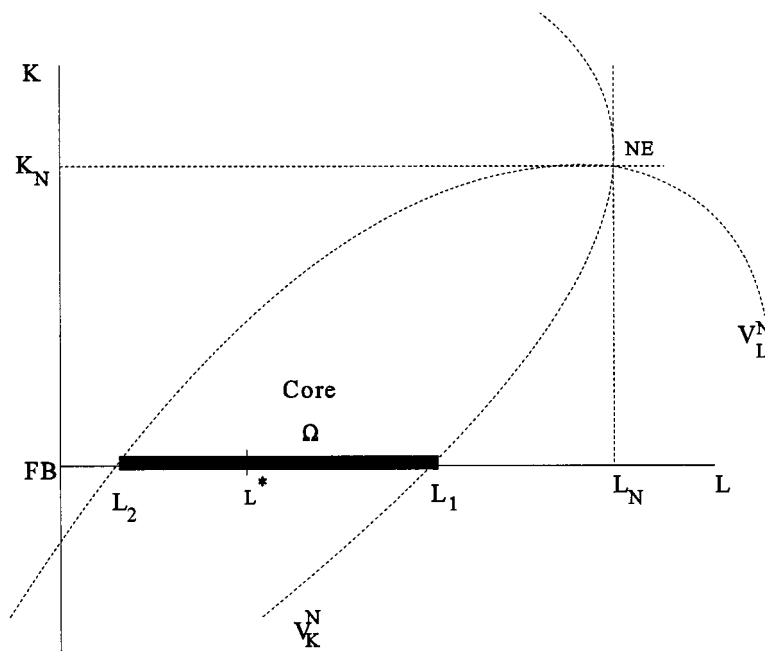


Figure 3. The case of unbalanced lobbying power. A powerful labor lobby.

general, time-consistent. It is, however, also known from the Folk Theorem that any feasible, individually rational payoffs can be sustained as an equilibrium in the infinitely repeated game if players value the future highly enough (see, e.g., Fudenberg and Tirole, 1991: Ch. 5). In particular, if lobbying power is balanced, we can sustain cooperation on free trade as an equilibrium in a repeated game.

5. Some casual evidence from Denmark

Danish post-war evidence, which we discuss below, reflects that various corporatist forces have played an important role in the deregulation of the Danish economy after World War II. The various deregulation policies may, therefore, be seen as arising from a (perhaps implicit) compromise between the major interest groups and the state rather than from competition between interest groups over government policy as pluralist theories would hold (see Williamson, 1989 for an introduction to corporatist theory).

The deregulation of the manufacturing sector after World War II was rapid in Denmark. By 1958 international trade was completely deregulated (see, e.g., Sachs and Warner, 1995). In Denmark, employers (capital) and employees

(labor) are well-organized (as indicated, e.g., by membership coverage) and very influential. Despite their short-run interest in regulation of trade, the parties at the labor market saw a common long-run interest in the post-war deregulation (see Paldam, 1991). The capital-owners represented in the Central Union of Manufacturers (CUM) strongly opposed any subsidies, direct state intervention and protection. Workers organized in the Central Trade Union (CTU) and represented in Parliament by the leading government party during the period, The Social Democratic Party (SDP), wanted to create a welfare state. In fact, we can argue that the CTU/SDP movement accepted a liberal economic system (including free trade in the manufacturing sector) as a part of a corporatist compromise between the state and the two interest groups. As in many other countries, the agricultural sector in Denmark was not deregulated after the War. Instead, it has been protected from foreign competition, at first, domestically and later within the EU. Denmark has an influential agricultural association (The Agricultural Council of Denmark) with historical links to the Liberal Party that has been heavily involved in the various government financed protection schemes of the period. On the other hand, consumers, who are those to lose from trade restrictions on agricultural goods, are hardly organized at all and have not had much, if any, influence on trade policy.

Our theoretical analysis adds to the corporatist interpretation of the evidence and helps us understand better why the outcome in different sections differs so much. In the manufacturing sectors, the fact that both “labor” and “capital” are well-organized in Denmark creates a balance of lobbying and bargaining power that both explain why the two groups would consider entering a corporatist arrangement in the first place *and* why the outcome of the bargaining was (nearly) free trade. In the agricultural sector, the lack of a balance between producer and consumer interests helps explain why trade protection has been much more persistence in that sector.

6. Concluding remarks

The basic point of our paper is very simple and straight forward: Interest groups or rent-seekers, who realize that competitive lobbying or rent-seeking leads to an excessive waste of real resources on politics, will (implicitly or explicitly) cooperate to reduce the waste. The principal aim of the paper has been to analyze the effects of cooperative lobbying on trade policy, but, of course, we can apply the notion of cooperative lobbying to a variety of other rent-seeking contests in which lobbying effort from competing groups potentially neutralizes each other. The specific findings of the paper are: 1) A *necessary* condition for cooperative lobbying to lead to free trade is that the

distribution of lobbying power is balanced (in the sense of Proposition 1). A *sufficient* condition is that the distribution of bargaining power is balanced (in the sense of Proposition 2). Moreover, the Pareto efficient equilibrium is not a knife edge outcome under cooperative lobbying. 2) If the distribution of lobbying and/or bargaining power is unbalanced, then cooperative lobbying, like competitive lobbying, leads to trade protection. Protection may even be *higher* than under competitive lobbying.

Accordingly, we see that decentralized cooperation between the major agents at the demand side of the political market (like centralized cooperation between governments in different countries), depending on the characteristics of the underlying political process, may create a leeway for more liberal trade policies than the literature on the political economy of trade leads us to expect.

Our model relies on special functional forms for the influence function, production technology and utility. The need for functional forms arises from the fact that our model is composed of three sub-models: An economic model (the HOS model), a political model (the influence function) and a bargaining model (Nash bargaining). Due to this complexity, we need specific functional forms to get an analytic solution of the model, but, of course, the use of functional forms raises the question of robustness. The underlying argument of the paper is, however, quite general. As argued in the introduction, we need three conditions: 1) competitive lobbying arises in a non-cooperative equilibrium, i.e., both groups do in fact enter the rent-seeking contest, 2) the resources used on rent-seeking have positive shadow prices, and 3) to some extent neutralize each other in the political process. Since these conditions are not very demanding, the idea of cooperative lobbying is far more general than the functional forms suggest. However, the robustness of the specific results to changes in the specification of the three sub-models has to wait for future research.

Notes

1. See, e.g., Krueger (1974), Brock and Magee (1978), Bhagwati (1980, 1982b), Bhagwati and Srinivasan (1980), Findlay and Wellisz (1982, 1983), Hilman (1982, 1992), Bhagwati, Brecher, and Srinivasan (1984), Mayer (1984), Wellisz and Wilson (1986), Young and Magee (1986), Hillman and Ursprung (1988), Magee, Brook, and Young (1989), Husted (1991), Fernandez and Rodrik (1991), Richardson (1993, 1994), Grossman and Helpman (1994), Leidy (1994), and Cadot, de Melo, and Olarreaga (1996). The literature is surveyed by Hillman (1989) and Rodrik (1995).
2. Empirical evidence suggests that factors employed in a given industry agree on trade policy (see, e.g., Magee, 1980; and Hillman, 1989). Hence, from an empirical point of view, the specific factors (SF) model may serve better than the HOS model as the modeling device for endogenous trade policy. However, the crucial part of our analysis is that lobbies are induced to cooperate by the fact that competitive lobbying does harm to everybody. Since this is driven by the influence function, it would also hold in the SF model, and the choice

- of economic model is not important for our results. The HOS model has been chosen for simplicity and to underscore the long-run nature of the analysis.
3. By Lerner's Symmetry Theorem, an export subsidy is identical (in a competitive environment) to an import subsidy of the same size, and a tariff is identical to an export tax of the same size. In the text, we use the terminology that the capital lobby with interests in exports lobbies for a subsidy to exports, whereas the labor lobby with interests in imports lobbies for a tariff.
 4. Of course, other approaches to endogenous policymaking exist. For a survey of different lobbying models of politics, see Potters and van Winden (1996). The main drawback associated with the influence function approach used here is that the supply side is a black box. Therefore, the influence of the lobbies is assumed, it is not explained by the model. On the other hand, the simplicity of the approach helps us focusing on the demand side of the political market which is the main concern of the paper.
 5. Alternatively, instead of a two-stage lobbying process, Feenstra and Bhagwati (1982) introduce a 2-layer government. One part of the government, e.g., the legislation, is subject to lobbying, while another part of government, e.g., the presidency, uses the resulting revenue to increase social welfare by bribing the lobbies to accept less protection.
 6. The second-order conditions are satisfied.
 7. Notice that our specification of the influence function, although it is based on the ratio between the lobbying effort of the two groups, does allow for what Hirshleifer (1989) terms one-sided submission (only one group lobbies) and peace (no one lobbies) as well as for war (both groups lobbies). A necessary condition for our results to hold is that a lobbying "war" arises and, accordingly, the focus of the remainder of the paper is on that case.
 8. Since the situation before any lobbying takes place is distortion-free, labor and capital have always positive shadow prices (cf. the discussion in the introduction), and, so, a reallocation of resources from production to rent-seeking is a loss.
 9. The requirement is that $mH_L - nH_K > 1/c$, which is fulfilled if $K_N > 0$ and $L_N > 0$.
 10. One may wonder if the Taylor approximation is the driving force behind this result. However, this is not the case. The slope of the frontier from the left at (H_K, H_L) is, in fact, θ , whereas that from the right is γ . Hence, if we restrict the parameters space to give a concave frontier (such that the Nash bargaining problem is well-defined), it would still have the relevant kink at (H_K, H_L) .
 11. The case in which the capital lobby has a lot of lobbying power is similar.

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Appendix 1 (Proposition 1)

Consider the labor lobby. It loses in the NE compared with first best if $v_L^N < H_L$, i.e.,

$$\frac{1}{1+cm}(H_L+1)p_N^m < H_L. \quad (\text{A1})$$

Rearranging this gives

$$p_N < \left[\frac{H_L(1+cm)}{H_L+1} \right]^{1/m} \equiv a. \quad (\text{A2})$$

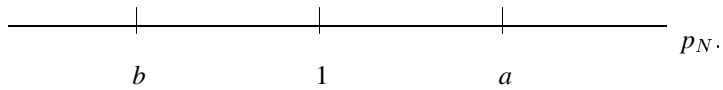
Now, consider the capital lobby. It loses in the NE compared with first best if $v_K^N < H_K$, i.e.,

$$\frac{1}{1-cn}(H_K+1)p_N^n < H_K.$$

Rearranging this gives

$$p_N > \left[\frac{H_K(1-cn)}{H_K+1} \right]^{1/n} \equiv b. \quad (\text{A3})$$

Since $b^n > 1$ and $a^m > 1$ (since $-cnH_K > 1$ and $cmH_L > 1$ by assumption), we have that $b < 1$ and $a > 1$ (since $n < 0$ and $m > 0$). This is shown in Figure A1:



If H_L/H_K goes to infinite, then p_N also goes to infinite, while $\lim a = (1+cm)^{1/m}$ for H_L going to infinite. That is, when $t > 0$ ($p_N > 1$) and H_L/H_K is sufficiently big, the labor lobby gains and the capital lobby loses from lobbying.

If H_L/H_K goes to zero, then p_N also goes to zero, while $\lim b = (1-cn)^{1/n}$ for H_K going to zero. That is, when $t < 0$ ($p_N < 1$) and H_L/H_K is sufficiently small, the capital lobby gains and the labor lobby loses from lobbying. Finally, if H_L/H_K is of intermediate size, then both lobbies lose from lobbying.