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Strategic Lobbying and Antidumping

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Abstract

Anti-dumping is often defended as a pressure valve which reduces more illiberal forms of protectionist pressure. In the domino dumping model of Anderson [1992, 1993] this need not be true as exporters dump to obtain market access in the event of a VER. The contribution of this paper is to show that anti-dumping opens a channel for strategic lobbying through which lobbying commitments can have favorable effects on the decisions of exporting firms, and through which antidumping enforcement can encourage lobbying. Thus a 'depoliticizing' institution can perversely be responsible for politicizing trade policy all the more.

I. Introduction

Dynamic interaction between political and economic markets is often described in informal accounts of the political economy of trade policy. For example, credible threats by interest groups (backed by commitment of resources) to seek protection or to file antidumping suits may deter sales of foreign firms. Or, strong anti-dumping codes may reduce interest group pressure and thus help preserve a liberal trade order. The idea is that when decisions occur in sequence, moves by rent-seeking interest groups and by a public interest government involve strategic motives: they are taken in

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part to influence subsequent moves by the other players.

This paper initiates the formal study of strategic lobbying in the model of domino dumping set out by Anderson [1992, 1993].[1] In the earlier papers I showed that antidumping enforcement could paradoxically intensify the *economic* pressure of exporting firms in a subsequent period and thus trigger off protection. Here I show that antidumping laws can paradoxically intensify *political* pressure by rent-seeking lobbies in the importing country. Antidumping has been defended as reducing protectionist pressure, and depoliticizing trade policy, but in the domino dumping arena the reverse can easily be true.

In the domino dumping model, exporting firms dump to obtain implicit options on export licenses in anticipation of a Voluntary Export Restraint (VER). Future export licenses will be in proportion to current sales in the event of a VER, hence current sales secure an implicit option on export licenses in the event of a VER. This leads to current sales below current marginal cost: domino dumping. Anti-dumping law commits the government to an Anti-dumping Duty (ADD) or a VER according to given rules. Increased enforcement may deter or intensify dumping. In the present extension of the model, the rent-seekers in the importing nation undertake two types of political activity: pressing for stricter enforcement of the rules, and lobbying for a VER. These actions by rent-seekers influence subsequent dumping activity by exporters, which then influences still later decisions in the political market made by the government and by the rent-seekers.

Rent-seekers have two instruments available. First, they can invest today for influence in the future by making campaign contributions. Current contributions secure the implicit option to approach politicians on favorable terms in the future. Influence is given a precise and measurable meaning in this paper. Politicians sell options (accept campaign contributions) in a competitive market with many buyers and sellers, hence the rent-seekers are

1. The first paper sets out the model of exporting firms and considers the optimal policy of the exporting country government. The second paper develops the pressure group political economy model and considers the optimal policy of a 'government' acting in the public interest.

price takers.[2] While the model here is extremely stylized, it conforms to casual empiricism about political contribution behavior, which often is described as investing in 'access' to politicians.

The rent-seekers' gain from lobbying investment has two components: option value and strategic value. The option value is always positive, while the strategic value can have either sign. Positive (negative) strategic value of lobbying investment arises as increased damage from dumped imports in the present less (more) than offsets expected future gains created by higher antidumping duties. Investment in influence will be made when the sum of option value and strategic value exceed the price of influence. The main focus of the paper is on the link of anti-dumping enforcement to lobbying investment. A rise in enforcement effort can raise or lower either the option value or the strategic value under conditions developed below. However, for a sufficiently small enforcement probability, the strategic value must be negative. A finite probability of antidumping enforcement is thus necessary for purely strategic investment (*i.e.*, investment when the option value is less than the price of influence) to occur. A simulation example is presented where lobbying investment occurs only when enforcement is strong enough to deter dumping (so that current exports no longer respond to marginal changes in the probability of a VER), reducing (the absolute value of) the strategic value to zero.

The second instrument of the rent-seekers is to lobby for vigorous antidumping enforcement. Here, the rent-seekers may face the competing lobbies of other interests such as downstream firms. The analysis is limited as a first step to an investigation of a single lobby's interest only. Interestingly, it is possible that rent-seekers will not gain, but conditions are given under which it would pay for rent-seekers to push for at least some antidumping enforcement. In other words, in at least some range of parameter values, lobbying investment and pressure for anti-dumping enforcement (viewed as under the control of the rent-seekers) are complementary activities. These considerations may rationalize the observed behavior of rent-

2. There is no attempt here to model the supply side of the influence market. It is highly plausible to assume a rising supply price of influence. This arises for example as more influence is purchased by investing in politicians less naturally favorable to the rent-seekers' cause (no jobs are affected in the politician's district).

seekers who simultaneously push for vigorous antidumping enforcement and engage in lobbying investment leading to a VER.

The economic model is quite simple and the political features are stylized to capture the VER/antidumping environment of current trade policy in developed countries. Nevertheless, many of the features of the model should be more broadly instructive. Any environment in which the government is partially committed to a rule opens up the window for strategic action by rent-seekers. The particular form of the rule and the interaction of the interest group with its rivals in economic and political equilibrium is of course subject to wide variation. A deeper political economy model should follow Grossman and Helpman [1992] in modeling the political equilibrium of rival interest groups. The economic model assumes competitive exporting firms and competitive domestic rivals for simplicity. Relaxation of this assumption to small numbers of firms active in the economic markets will make no difference to the essential features of the model. Allowing for foreign interest groups to be active in the political market is an important venue for future work, since affects both the VER level and its probability.

Section II sets out the basic model, reviewing Anderson [1993]. Section III takes up the desirability of committing some lobbying expenditure for a VER in period 1 when the enforcement effort is fixed. Section IV considers the desirability of lobbying for antidumping enforcement when the level of lobbying investment is fixed. Section V considers the effect of variation in antidumping enforcement upon the 'public interest' and upon rent-seekers when the lobbying investment is chosen optimally. Section VI concludes.

II. The Basic Model

The model has 2 periods, each containing a political market and an economic market. The equilibrium of the political market is reached before that of the economic market in each period. The period 1 political market supplies fixed enforcement effort at zero cost.[3] The political market in period 2 may produce a VER, an ADD or free trade. At the end of the period 1 economic market, the enforcement mechanism determines whether injury by

3. This abstracts from the low cost of filing a suit which exists in practice.

means of dumped imports has occurred.[4] If injury has occurred, the period 2 political market can produce an ADD at zero cost. Alternatively, the supply side of the political market in period 2 offers a VER at a constant cost. The cost of the VER is random in period 1, and lower if injury is found than if injury is not found. By investing in lobbying in period 1, the rent-seekers lower the cost of the VER in the period 2 political market. Once the basic setup is complete, I analyze two forms of strategic lobbying. First, an investment in lobbying in period 1 has a commitment value to rent-seekers in subsequent games against the government and the foreign firms. Second, the rent-seekers' interest in antidumping enforcement is analyzed.

The table below summarizes the sequencing and the decisions taken.

Table 1
The Sequence of Decisions

	Period 1		Period 2	
	Political market	Economic market	Political market	Economic market
Type	supple price or quantity fixed, characterize rent-seeker's interests	competitive exporters and buyers	rent-seekers buy policies at exogenous cost	competitive exporters and buyers s/t distortion
Activities	level of antidumping enforcement, level of lobbying investment	current export level	ADD, VER or free trade	future export level

- The economic market in period 2 will either have 'free trade', repeating period 1, an antidumping duty (ADD) based on the period 1 dumping margin, or a VER.
- The rent-seekers buy protection in the period 2 political market if the gain

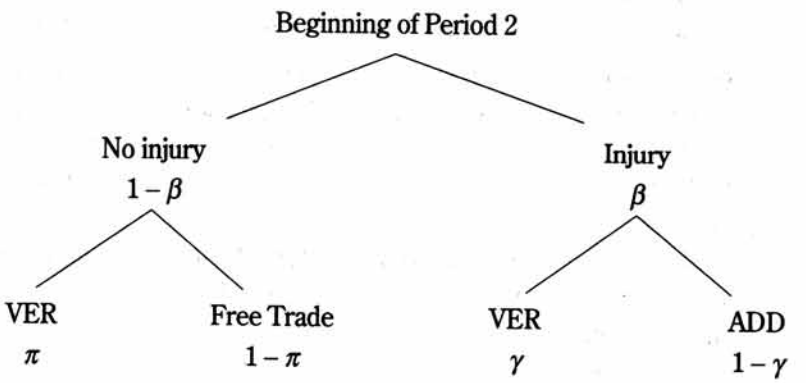
4. In US trade law, an ADD requires that there be *injury by means of dumped imports*. The Commerce Department almost always finds that foreign firms have dumped, while the International Trade Commission often finds no injury.

exceeds the cost. If injury is found, an ADD is available at no cost. A VER 'remedy' is also available at a fixed cost, random in period 1. If injury is not found, a VER is obtainable at a fixed cost higher than if injury is found. Rent-seekers' optimal decisions result in probabilities of a VER, an ADD and of free trade.

- The period 1 competitive economic market will clear based on anticipated outcomes of the period 2 political and economic market.
- The rent-seekers optimally choose lobbying expenditure in the period 1 political market. Their interest in antidumping enforcement effort is analyzed.

The actions of rent-seekers in period 2 and their resulting effect on probabilities of policies are laid out in the decision tree below, reproduced from Anderson [1993]

Figure 1
Rent-seekers' Actions and Period 1 Probabilities



The formalization of the above outline of the model follows Anderson [1993] very closely, and is reproduced here for the reader's convenience. See Anderson [1993] for more details.

The market for the tradable good is competitive, with many foreign and domestic firms selling a perfectly substitutable good at increasing marginal cost (different for foreign and domestic firms). P is the domestic price, a function of domestic production Y plus imports Q. The competitive equilibrium level of Y, $Y^*(Q)$, is selected by domestic competitive firms such that

$P(Q + Y^*) = C_Y(Y^*)$. Here, and in the remainder of the paper, a subscript denotes differentiation.

The domestic industry has a specific factor (human capital) which receives the difference between the value of production, PY, and the cost of production exclusive of payments above opportunity cost to the sector-specific factor, $C(Y)$. The owners of the specific factor have overcome the free rider problem to form a lobby which maximizes rent with respect to political actions. The total rent to the specific factor in the domestic industry is:

$$R(Q) = P(Q + Y^*(Q)Y^*(Q) - C(Y^*Q)). \tag{2.1}$$

The marginal effect of a rise in Q upon the rent received is negative:

$$R_Q = P_Q + Y^* < 0, \tag{2.2}$$

$P(Q)$ denotes the reduced form dependence of demand price on Q, hence P_Q is equal to $(1 + Y_Q^*)dP/d\,(Q + Y)$.

The rent-seekers will choose to obtain a VER in period 2 in the absence of an injury finding if the lobbying cost of obtaining it, k, is less than the gain, $R(\bar{Q}) - R(Q^1)$, where the superscript 1 denotes the period 1 export and the bar denotes the VER level of exports. With no intervention, the level of exports in period 2 is assumed to remain at its period 1 level.[5] The cost of obtaining the VER in period 2 is a random variable in period 1. Specifically, k is drawn from a uniform distribution with support $[0, K]$. Then the probability of a *political* VER is equal to:[6]

$$\pi(Q^1) = \pi_0 + \frac{R(\bar{Q}) - R(Q^1)}{K} \tag{2.3}$$

5. For simplicity the two period model is assumed to revert to a repetition of the first period if free trade prevails. The qualitative structure of a true multi-period model closely parallels the model of the text. Strictly speaking, a two period model should end with a non-forward-looking free trade solution for exports in period 2, but this obliterates an important link between initial political actions and a sequence of future trade volumes.

6. For Q^1 greater than a critical value such that the right hand side of (2.3) exceeds one, π is not defined by (2.3) and is instead equal to one. The interesting case for analysis is where Q^1 is less than the critical value, because for larger values of imports the VER is certain and can be assumed to already be imposed.

Here, π_0 represents a probability of a VER which is invariant to Q^1, which plays a role subsequently. Differentiating (2.3) and using (2.2):

$$\pi_Q = -R_Q/K = -Y^1 P_Q/K > 0. \tag{2.4}$$

An injury finding presents the rent-seekers with a different opportunity. At no cost they will receive an ADD. Alternatively they can lobby the legislature and the executive for a VER.[7] The VER will be more favorable to rent-seekers than the antidumping duty (ADD)[8], and they will purchase it if the gain is greater than the cost, 1. In period 1, the lobbying cost is unknown, and distributed uniformly on the interval [0, L]. This lobbying occurs at a lower cost than in the absence of dumping based on public sympathy for the 'dumpees'.[9] Formally, the lower cost shows up as $L < K$. Let Q^t be the equilibrium of imports under the antidumping duty. The rent-seeks will lobby for an *antidumping* VER if $R(\bar{Q}) - R(Q^t) \geq L$.[10] The probability of an *antidumping* VER, given an affirmative injury finding, is then:

$$\gamma = \gamma_0 + \frac{R(\bar{Q}) - R(Q^t)}{L} \tag{2.5}$$

(The interpretation of γ_0 will emerge below.)

Next, consider the unconditional probabilities of the three outcomes, {VER, ADD, free trade}. The probability of a VER obtained *via* the political process is equal to $(1-\beta)\pi$ while the antidumping process will yield a VER with probability $\beta\gamma$. The unconditional probability of a VER is:

$$\pi' = (1-\beta)\pi + \beta\gamma \tag{2.6}$$

7. For imperfectly competitive product markets, the dominant form is 'private VERs' negotiated between firms with government blessing in the form of antitrust exemptions. Part of the enforcement is that the antidumping petitions are suspended. See Prusa [1992] and Staiger and Wolak [1992]. the distinction between 'government' VERs and 'private' VERs seems inessential for present purposes.
8. This follows from the domino dumping behavior of the exporting firms detailed at the end of this section.
9. The cost may also be lower because the exporting firms have a strong incentive to help lobby for a VER as opposed to the alternative anti-dumping duty.
10. The VER level is assumed to be the same under the anti-dumping and political processes. This is an inessential simplification.

The unconditional probability of an ADD is

$$\beta' = \beta(1-\gamma) \tag{2.7}$$

Finally, the unconditional probability of free trade is:

$$1-\pi'-\beta' = (1-\pi)(1-\beta).$$

(2.6) – (2.8) are obtained by accumulating the probabilities on the decision tree. Each of the probabilities π' and β' is a function of Q^1, and Q^t. The latter however is also a function of Q^1.

Q^t is determined by profit maximizing exporters operating under a duty, the level of which depends on first period exports. With an antidumping duty, the level of the duty is assumed to be equal to

$$t = M(Q^1) - P(Q^1)$$

$M(.)$ is the foreign firms' marginal cost.[11] The market equilibrium level of export sales in the event of a duty is:

$$Q^t = \phi(Q^1) = \{Q^t \mid P(Q^t) = M(Q^t) + M(Q^1) - P(Q^1)\}. \tag{2.9}$$

$$\phi_Q = \frac{dQ^t}{dQ^1} = -\frac{P_Q(Q^1) - M_Q(Q^1)}{P_Q(Q^t) - M_Q(Q^t)}$$

ϕ_Q is less than zero: the greater is Q^1, the greater will be the antidumping duty, and hence the lower the tariff-ridden export Q^t. In the linear case $\phi_Q = -1$.

Substituting (2.9) into (2.5), γ is written as a function of Q^1:

$$\gamma(Q^1) = \gamma_0 + \frac{R(\overline{Q}) - R(\phi(Q^1))}{L} \tag{2.10}$$

Using (2.2) the response of γ to Q^1 is

11. 'Fair market value' in US trade law is equal to either average cost or price in the foreign market. Using marginal cost serves to tie the duty more closely to the behavior of the exporting firm, as in Anderson [1992]. The simplification is relatively harmless.

$$\gamma_Q = -R_Q\phi_Q/L = -P_Q Y^t \phi_Q/L < 0. \tag{2.11}$$

Risk neutral exporting firms set Q^1 in equilibrium in order to maximize expected profits. The positive probability of a VER induces domino dumping in order to obtain options on export licenses in the event of a VER. The equilibrium condition for competitive firms is:

$$-\left(P(Q^1) - M(Q^1)\right) = \lambda\pi'\left(P(\bar{Q}) - M(\bar{Q})\right) - \beta' M_Q(Q^1)\phi(Q^1). \tag{2.12}$$

Here, λ is the expected restriction ratio $\bar{Q}/Q^1$. The left hand side is the dumping margin (which also sets the ADD level, t). The competitive firms take P, λ, π' and β' as given. In contrast, the antidumping duty t is firm-specific in US trade law, so the firms internalize the marginal effect of current sales upon the expected future duty paid. This shows up in the second term on the right hand side of (2.12). The first term on the hand side of (2.12) is easily seen to be the option value of current sales. The term in brackets, $P(\bar{Q}) - M(\bar{Q})$, is the unit license rent, π' is the probability of obtaining a license, and λ is the rate of transformation of current sales into future claims to licenses in the event of a VER. With some chance of an antidumping duty, the second term incorporates the expected second period duty-raising effect of increased exports in the first period.

The equilibrium of the model is the solution values of π', β', λ and Q^1 such that:

$$-\left(P(Q^1) - M(Q^1)\right) = \lambda\pi'\left(P(\bar{Q}) - M(\bar{Q})\right) - \beta' M_Q(Q^1)\phi(Q^1) \tag{2.12}$$

$$\pi = (1-\beta)\,\frac{R(\bar{Q}) - R(Q^1)}{K} + \beta\,\frac{R(\bar{Q}) - R(\phi(Q^1))}{L} + \pi_0' \tag{2.13}$$

$$\beta' = \beta\left(1 - \frac{R(\bar{Q}) - R(\phi(Q^1))}{L}\right) - \beta\gamma_0 \tag{2.14}$$

$$\lambda = \frac{\bar{Q}}{Q^1}. \tag{2.15}$$

Here, π_0' is equal to $\beta\pi_0 + (1-\beta)\gamma_0$. In solving for equilibrium, (2.13)–(2.15) are substituted into (2.12). Dumping need not occur under all parameter values, but will occur with a finite probability of antidumping enforcement and can occur even with certain antidumping enforcement, due to the chance of

receiving an antidumping VER.

Finally, consider the determination of lobbying investment in the political market in period 1. The decision of rent-seekers to pay for a VER can be made either in period 1, prior to the determination of period 1 trade, or in period 2, after Q^1 is known. A lobbying investment is interpreted here as a payment in period 1 which reduces the full political cost of obtaining a VER in period 2.

Definition: *Influence is the prepaid political cost of obtaining a future policy.*

Formally, to lower the period 2 VER lobbying cost by x requires an investment in period 1 lobbying equal to to vx, where v is the (supply) price of influence and x is the quantity of influence purchased. I assume that v is less than one and is parametric to the rent-seekers.[12] (The setup is simplified here so that the lobbying cost reduction in period 2 is the same whether or not the exporters have been caught dumping.) An interpretation of influence which comes closer to its political science understanding is that for each politician, v is the price of an advance purchase ticket to influence his vote. Depending on political conditions, it may actually secure his vote, or it may require further payment to secure his vote. The original political cost variables k and l are defined on the basis of no advance payments. The full lobbying cost k of a political VER is uniformly distributed on $[0, K_{max}]$ and the full lobbing cost l of an antidumping VER is uniformly distributed $[0, L_{max}]$. Here, K_{max} and L_{max} are exogenous political parameters.[13]

Now consider the how the probabilities of a political and of an anti-dumping VER are affected by lobbying investment. If the lobbying cost reduction obtained by earlier investment is equal to x, then for total lobbying cost k or l less than or equal to x, the VER is already paid for and no additional expenditure is needed. Then the constant terms of the probability functions are:

$$\pi_0 = \frac{x}{K_{max}}$$

12. A monopsonistic model of influence purchase is probably more realistic but adds nothing essential while complicating the analysis.
13. Setup costs are suppressed for simplicity, since they add nothing to the qualitative analysis. Realistically, however, an important of lobbying investment is in setup cost, without which the probability of obtaining a VER is equal to zero.

$$\gamma_0 = \frac{x}{L_{max}}$$

The period 2 *additional* lobbying costs $k_1(l_1)$ are equal to $k - x\ (l - x)$, distributed uniformly with upper limit K for a political VER and L for an antidumping VER. Based on this structure, the VER probabilities are become:

$$\pi(Q^1, x) = \frac{x}{K_{max}} + \frac{R(\overline{Q}) - R(Q^1)}{K_{max} - x} = \pi_0 + \pi_1 \tag{2.16}$$

$$\gamma(Q^1, x) = \frac{x}{L_{max}} + \frac{R(\overline{Q}) - R(\phi(Q^1))}{L_{max} - x} = \gamma_0 + \gamma_1 \tag{2.17}$$

This structure is merely a first attempt at a complex problem. The supply price v is a reduced form of a larger political economy structure. Moreover, in a more fully specified model, K and L would be explained by deeper variables, which might include lobbying investments along with the rent-seeking efforts of others, potential entry, elements of political structure (which ultimately are endogenous) and the like.

III. Strategic Lobbying Investment

Rent-seekers see through the model of Sections I and II and act to influence its outcome favorably through two instruments. The first is through investment in influence: lobbying pressure for VERs, studied in this section. The second instrument is lobbying to increase antidumping enforcement effort, taken up in the next section. Rent-seekers are assumed to be risk neutral.[14]

Investment in influence has two effects. First, at constant period one trade volume, influence reduces the lobbying cost which must be incurred in period two to obtain a VER. A dollar invested in lobbying in period one produces more than one dollar of cost reduction in period two. This gain may or may not be worth the cost of spending in advance on lobbying which for high realizations of the cost of political participation will not end in the purchase of a VER. The expected marginal payoff to a dollar of influence is its option

14. This simplification is less harmless than assumption of risk neutrality for exporting firms. Perfect capital markets justify risk neutrality, but it is hard to apply this idea to sector-specific rents.

value. Second, a commitment of lobbying expenditure for a VER in period one raises the probability of a VER and thus raises the trade volume in period one. The effect of the resulting change in trade volume on expected rent is the strategic value of lobbying investment.

The sign of the strategic value turns out to be ambiguous. Technically, the effect of a rise in period one trade volume (induced by the rise in the probability of a VER) on expected net rent is ambiguous. With weak antidumping enforcement, the loss in rent in period one from higher exports dominates. With finite antidumping enforcement and further conditions given below, net rent is raised by a rise in current exports.

A. Expected Net Rent

Expected gross rent in period 2 is equal to $\pi' R(\bar{Q}) + \beta' R(Q^t) + (1-\pi'-\beta')R(Q^1)$. The net rent gain is obtained by deducting the expected cost of obtaining VERs exclusive of vx. The expected cost of a political VER given the decision to obtain one is equal to $[R(\bar{Q}) - R(Q^1)]/2$, due to the uniform density function for lobbying costs. The conditional expected cost of an antidumping VER is similarly equal to $[R(\bar{Q}) - R(Q^t)]/2$. The unconditional expected lobbying costs from both sources is equal to $(1-\beta)\pi[R(\bar{Q})-R(Q^1)]/2+\beta\gamma[R(\bar{Q})-R(Q^t)]/2$. In addition, rent in period 1 is altered by the effect of enforcement on exports in period 1. The expected present value of net rent over the 2 periods is equal to:[15]

$$NR = \pi'(Q^1, x)\frac{R(\bar{Q}) - R(Q^1)}{2} + \beta\Big(1 - \gamma(Q^1, x)/2\Big)\Big(R(\phi(Q^1)) - R(Q^1)\Big) \quad (3.1)$$
$$+ 2R(Q^1).$$

B. Effect of Lobbying on Net Rent

The effect of lobbying in the first period on expected net rent over two period is composed of two parts. First, at constant trade volume there is an effect of lobbying investment on the probabilities of a VER and an ADD. This gives the option value. Second, there is an effect of the change in probabilities on the trade volume in period one, which in turn shifts expected net

15. NR is equal to expected gross rent in period 2, less expected unconditional lobbying cost, plus $R(Q^1)$. Then add and subtract $[R(Q) - R(Q^1)]\gamma\beta/2$, and collect like terms.

rent. These two effects may be associated with the *investment motive* for lobbying and the *strategic motive* for lobbying.

Investment motive: At constant trade volume, the effect of x upon net rent is given by differentiating (3.1):

$$\begin{aligned}\frac{\partial NR}{\partial x}\Big|_{Q} &= (1-\beta)\left(\frac{\pi_1}{K}+\frac{1}{K_{max}}\right)\frac{R(\overline{Q})-R(Q^1)}{2}\\ &\quad+\beta\left(\frac{\gamma_1}{L}+\frac{1}{L_{max}}\right)\frac{R(\overline{Q})-R(Q^1)}{2}-\beta\left(\frac{\gamma_1}{L}+\frac{1}{L_{max}}\right)\frac{R(Q^t)-R(Q^1)}{2}\\ &=(1-\beta)\frac{\pi_1(K/K_{max}+\pi_1)}{2}+\beta\frac{\gamma_1(L/L_{max}+\gamma_1)}{2}\\ &=(1-\beta)\pi_2+\beta\gamma_2. \qquad (3.2)\end{aligned}$$

(To obtain the second equality the definitions of π_1 and γ_1 are used). Evidently the right hand side of (3.2) is less than or equal to one. The left hand side of (3.2) is by definition the *option value of influence*. It is the amount rent-seekers are willing to pay today for one unit of influence (one dollar's worth of period 2 political cost reduction), given the level of period one trade. The second and third equalities of (3.2) say that the option value is equal to a compound probability made up of the probability of a VER *via* both political and antidumping routes, and the probability that lobbying cost exceeds the level of influence (K/K_{max} and L/L_{max}).

Since option value is less than one, investment will not occur unless there is some cost advantage ($v < 1$), or some positive strategic value.

Strategic Motive: The strategic motive for lobbying investment arises through the effect of x on Q^1, and its subsequent effects on the elements of *NR*. Here, I assume that influence x is observable by the exporters.[16] Where

16. This is a harmless simplification. x need only be partly observable for the qualitative results to hold. Lobbying investment includes the setup costs involved in overcoming the free rider problem, hiring lobbyists, renting office space and the like. Outsiders can infer from these observable activities that possibly unobservable campaign contributions are being made. (US law requires reporting of contributions, but most observers think contributions are under-reported.) This gives partial information on vx. The function $v(x)x$ which yields x is also subject to uncertainty, hence both sources of uncertainty yield a noisy estimate of x for exporting firms.

positive, the strategic motive will increase lobbying investment. Where negative, it will decrease such investment.

The effect of a rise in lobbying investment, which lowers K and L and thus raises the probability of a VER at constant volume, will raise the level of period one exports. Exports rise because the option value of current exports is increased by a rise in the probability of a VER. Formally:

$$\frac{\partial Q^1}{\partial x} = -\frac{\lambda\left(P(\overline{Q}) - M(\overline{Q})\right)\left(\frac{\pi_1(1-\beta)}{K} + \frac{\beta\gamma_1}{L}\right) + \frac{\beta\gamma_1}{L} M_Q Q_t}{(-)} > 0. \quad (3.3)$$

In (3.3) the denominator is equal to

$$P_Q - M_Q + \lambda(\pi'_Q - \pi'/Q)\left(P(\overline{Q}) - M(\overline{Q})\right) - \beta'(M_{QQ}Q^t + M_Q\phi_Q)$$
$$+\beta\gamma_Q M_Q Q^t.$$

It is negative under weak conditions; see Anderson [1993]. Rent-seekers see through to (3.3) and incorporate it in their political choice problem in period 1. Investment vx in influence (cost reduction) x will be selected in part to favorably influence Q^1.

The effect of a rise in Q^1 on expected net rent over two period is the final piece of the puzzle. Formally, by differentiating (3.1) with respect to Q^1:

$$\frac{\partial NR}{\partial Q^1} = \left((1-\beta)\pi_Q + \beta\gamma_Q\right)\frac{R(\overline{Q}) - R(Q^1)}{2} - \beta\gamma_Q\frac{R(Q^t) - R(Q^1)}{2} \quad (3.4)$$
$$+\left(2 - \frac{\pi'}{2}\right)R_Q + \beta(1-\gamma/2)\left(R^t_Q\phi_Q - R_Q\right).$$

The first line on the right is the 'probability effect' of the change in Q^1. The first term is the normally positive effect of a higher probability of a VER. The second term is the positive effect of a higher probability of an ADD, using $-\beta\gamma_Q > 0$. Thus expected net rent is increasing in Q^1 and hence x *via* the probability effect. The third term on the right hand side of (3.4) is the 'volume effect'. It is negative. The fourth term is the ADD effect, representing the impact of a rise in Q^1 on the rent gain of the ADD over free trade.

The ADD effect is positive.[17] Using (2.3), (2.4), (2.10) and (2.11), equation (3.4) becomes:

$$\frac{\partial NR}{\partial Q^1} = \Big(1+(1-\beta)(1-\pi)\Big)R_Q + \beta(1-\gamma)R_Q^t\phi_Q. \qquad (3.4')$$

The sign of (3.4′) is ambiguous, so special cases must be analyzed. One case offers a positive strategic value and the other a negative strategic value.

Lemma: *(a) With no antidumping enforcement, net rent falls when current exports rise. (b) With finite antidumping enforcement, linearity and sufficiently small rates of increase of domestic and foreign marginal cost, net rent rises when current exports rise.*

Proof of (a): At $\beta = 0$, the second term of (3.4′) is equal to zero, while the first term is always negative.

Proof of (b): With linearity, $\phi_Q = -1$ and (3.4′) may be rewritten as

$$-P_Q Y^t\left(\beta(1-\gamma)-\Big(1+(1-\beta)(1-\pi)\Big)\frac{Y^1}{Y^t}\right) \qquad (3.4'')$$

$Y^t \geq Y^1$, and $P_Q < 0$. (3.4″) may have either sign. For sufficiently small Y^1/Y^t, (3.4″) is positive. Low Y^1/Y^t is achieved by lowering C_{YY} and M_Q parametrically. ||

Lemma (a) is significant, since it implies that the strategic value of lobbying is negative, hence lobbying investment tends to be reduced, *ceteris paribus*, if the government could commit to no antidumping enforcement relative to a small enforcement. That is, even if the investment motive implies a positive investment in lobbying in the first period, a reduction in anti-dumping enforcement to zero will tend to reduce the optimal amount of lobbying.

With finite enforcement effort, results are more ambiguous, but Lemma (b) shows that a positive strategic value (positive lobbying motive) is possi-

17. The term ADD effect is slightly misplaced. $\beta(1-\gamma)$ is the probability of an ADD, so the 4th term is equal to the expected marginal ADD gain less $\beta\gamma/2$ times the marginal ADD gain effect. The third and fourth terms of (2.4) can be rewritten as $[2-\pi(1-\beta)/2]R_Q-(\beta\gamma/2)\,R_Q^t\phi_Q+\beta(1-\gamma)[R_Q^t\phi_Q-R_Q]$. The third term is the expected marginal gain from an ADD. The second term is the marginal effect of a rise in Q on the expected net rent gain from an anti-dumping VER, which is negative.

ble in the presence of large crowding out effects. Note from the proof of Lemma (b) that a positive strategic lobbying effect must have an interior maximum, since expression (3.4″) must turn negative as γ rises toward one.

The strategic motive could make a lobbying investment optimal even in the absence of an investment motive for lobbying (v equal to one). Pulling together the results of the Lemma and equation (3.3), the question can be addressed. This presence of '*pure*' strategic lobbying appears to be a rather esoteric possibility, and in two special cases it can be ruled out.

Proposition 1: *(a) With no antidumping enforcement, pure strategic lobbying will not occur. (b) With full antidumping enforcement and linearity, pure strategic lobbying will not occur.*

Proof: (a) By Lemma (a), net rents fall with a rise in exports induced by a rise in x. By using (3.2) with $v = 1$, the constant volume effect on full net rent is less than the cost. Thus both the investment effect and the strategic effect are negative.

(b) At $\beta = 1$, by (3.2) and the proof of Lemma (b), a one dollar rise in x will change net rent inclusive of the investment cost by

$$\text{(i)} \qquad \gamma^2/2 - 1 + \left((1-\gamma)R_Q^t\phi_Q + R_Q\right)\frac{\partial Q^1}{\partial x}.$$

$R_Q = P_Q Y^1$ and $R_Q^t = P_Q Y^t$ and with linearity $\phi_Q = -1$. Equation (i) can be written as

$$\gamma^2/2 - 1 + \left(1 - \gamma - \frac{Y^1}{Y^t}\right)\left(-P_Q Y^t \frac{\partial Q^1}{\partial x}\right)$$

Using (3.3) it can be shown that with linearity

$$0 < -P_Q Y^t \frac{\partial Q}{\partial x} < 1.$$ [18]

18. This follows because at $\beta = 1$, $\pi' = \gamma$ and using (2.11) for γ_Q and $\theta_Q = -1$, the denominator of (3.3) reduces to

$$P_Q = \gamma M_Q - \lambda(\gamma/Q)\left(P(\bar{Q}) - M(\bar{Q})\right) + \lambda\left(P(\bar{Q}) - M(\bar{Q})\right)\frac{P_Q Y^t}{L} + M_Q Q^t \frac{P_Q Y^t}{L}.$$

The product of the last two terms together and γ is equal to minus the numerator of (3.3) times $-P_Q Y^t$. The first three terms of the denominator expression above are all negative, hence $-P_Q Y^t \frac{\partial Q}{\partial x} < 1$.

Even if $-P_Q Y^t \partial Q^1/\partial x = 1$ and $Y_1/Y^t = 0$, driving for the largest possible value of the expression (i), it reduces to $\gamma^2/2 - 1 + (1-\gamma) = \gamma(\gamma/2 - 1) < 0$. ||

Finally, consider the optimal lobbying investment. Even with v small, the optimal investment may be zero as the investment motive is outweighed by a negative strategic motive. With a positive strategic value, however, a small enough value of v guarantees some lobbying investment will be optimal. Moreover at some point the productivity of further investment must fall to zero as the VER becomes certain. Thus the optimal value is bounded. Based on preceding structure, the uniqueness of a local optimum cannot be guaranteed but it is harmless to assume it.

Defining full net rent *FNR* as *NR-vx*, the optimal interior lobbying investment is characterized by x such that

$$\frac{\partial FNR}{\partial x} = (1-\beta)\frac{\pi_1(K/K_{max} + \pi_1)}{2} + \beta\frac{\gamma_1(L/L_{max} + \gamma_1)}{2} + \frac{\partial NR}{\partial Q^1}\frac{\partial Q^1}{\partial x} - v = 0 \tag{3.5}$$

The assumed second order condition is $\partial^2 FNR/\partial x^2 < 0$. Substituting (3.3) and (3.4′) into (3.5) yields an equation which implicitly characterizes the optimal influence x^*.

IV. Anti-dumping Enforcement and Rents

Anti-dumping enforcement affects the level of exports and offers another avenue for strategic lobbying *via* its effect on discouraging present exports. It seems obvious that rent-seekers prefer more enforcement: *i.e.*, expected rent rises with enforcement effort from $\beta = 0$ to $\beta = 1$. Instead, it is possible for rent to fall with enforcement, due to the other effects of the increase in enforcement. One example of each direction of change is provided. To facilitate the analysis, influence x is exogenously fixed and may as well be assumed to be equal to zero.

Repeating the steps of the preceding section, the expected value of net rent over the 2 periods is equal to:

$$NR = \pi'(Q^1)\frac{R(\bar{Q}) - R(Q^1)}{2} + \beta\Big(1 - \gamma(Q^1)/2\Big)\Big(R(\phi(Q^1)) - R(\bar{Q})\Big) + 2R(Q^1). \tag{4.1}$$

The effect of a rise in the enforcement probability on the expected net rent is obtained by differentiating (4.1) with respect to β and using the comparative static derivatives of Section II. Evaluating at β equal to zero:

$$\frac{\partial NR}{\partial \beta}\Big|_{\beta=0} = \frac{1}{2}[R(\bar{Q}) - R(Q^1)]\pi_Q \frac{\partial Q^1}{\partial \beta} + \frac{\gamma - \pi}{2}[R(\bar{Q}) - R(Q^1)] \tag{4.2}$$
$$+(1-\gamma/2)[R(Q^t) - R(Q^1)] + (2-\pi/2)R_Q \frac{\partial Q^1}{\partial \beta}.$$

Note that $[R(\bar{Q}) - R(Q^1)]\pi_Q = -\pi R_Q$, from (2.2) and (2.4). Substituting into (4.2),

$$\frac{\partial NR}{\partial \beta}\Big|_{\beta=0} = (2-\pi)R_Q \frac{\partial Q^1}{\partial \beta} + \frac{\gamma - \pi}{2}[R(\bar{Q}) - R(Q^1)] \tag{4.2$'$}$$
$$+(1-\gamma/2)[R(Q^t) - R(Q^1)].$$

The first term of (4.2′) is the strategic effect of the antidumping enforcement, and depends on the sign of $\partial Q^1/\partial\beta$. From Anderson [1992], $\partial Q^1/\partial\beta$ has the sign of

$$\lambda(\gamma - \pi)(\bar{P} - M(\bar{Q})) - (1-\lambda)M_Q(Q^1)Q^t. \tag{4.3}$$

The 'normal' case is $\partial Q^1/\partial\beta < 0$. The last two terms of (4.2′) represent the net effect of shifting probability mass at constant trade volume among the alternatives of free trade, a VER and an ADD. The third term is always positive while the second term has the sign of $\gamma - \pi$.

Two special cases can be developed, to illustrate that either sign is possible. Let $A(Y)$ be the average cost of domestic production of Y.

Proposition 2: *(a) If $\gamma = \pi$, a small amount of enforcement increases expected net rent. (b) If $\gamma > 0$, $\pi = 0$ and M_Q is small, a small amount of enforcement reduces expected net rent provided* $\frac{\bar{Q}}{\bar{Y}} \geq \frac{1}{4}\frac{Q^1}{Y^1}$ and $A(\bar{Y}) \geq 4\lambda\bar{M}$.

Proof: (a) Under the condition, exports respond normally, the middle term is zero and the last term is positive.

(b) At $\pi = \beta = 0$, $\pi' = 0$ and there is initially no dumping. Therefore $Q^t = Q^1$, and the third term of (4.2′) vanishes. The right hand side of (4.2′) reduces to

(i) $2R_Q \frac{\partial Q^1}{\partial \beta} + \frac{\gamma}{2}[R(\bar{Q}) - R(Q^1)]$.

Under the conditions given and with M_Q vanishingly small,

(ii) $\frac{\partial Q^1}{\partial \beta} = \frac{\lambda\gamma(\bar{P} - \bar{M})}{-P_Q}$

Substituting $P_Q Y^1$ for R_Q in (ii) and substituting the result into (i), (4.2′) may be written as

$$\frac{Y^1}{2}\left(-4\lambda(\bar{P} - \bar{M}) + \frac{\bar{Y}}{Y^1}(\bar{P} - \bar{A}) - (P^1 - A^1)\right)$$

Using λ equal to $\bar{Q}/Q^1$ the conditions of Proposition 1(*b*) are over-sufficient for the bracketed expression to be negative. ||

Note that exports respond perversely to enforcement under the assumptions of Proposition 2(b), using expression (4.3). The implication of Proposition 2(b) is that rent-seekers lose from initiating the possibility of an antidumping VER when: (1) the VER is not too stringent (the ratio of import to domestic market shares under the VER exceeds 1/4 its value before the VER), and (2) the domestic industry's costs are high relative to the costs of the exporters. The VER stringency condition is not restrictive, being met by VERs in practice for the US at least. In contrast, the relative cost condition is quite restrictive. Both conditions are intuitive.

V. Anti-dumping and Lobbying

Popular concern over the influence of lobbyists suggests that reform which reduces it has some political appeal. In the context of domino dumping, a reform which might reduce lobbying expenditure is to reduce the level of antidumping enforcement. This occurs when the two instruments are complements for rent- seekers. When does such complementarily exist? This section provides an initial investigation, both theoretically and in a simulation model.

The simulation model also provides an analysis of the effect of antidumping enforcement on rent-seekers' interest and on social welfare when the

level of lobbying investment is optimally chosen. It is plausible that rent-seekers' interest and the 'public interest' are opposed in antidumping enforcement. (The traditional 'public interest' model of government is at least partially relevant when voter behavior depends in part on their reaction to the influence of lobbyists and on perceptions of general prosperity. See Grossman and Helpman [1992] for more discussion.) Section IV shows, however, that the conditions for rent-seekers to prefer antidumping enforcement are rather delicate. Similarly, Anderson [1993] shows that conditions for a 'public interest' government to prefer no antidumping are rather delicate. This section takes up the same two issues when the level of lobbying investment is endogenous in an exploratory simulation. Intriguingly, in one case the two interests are not opposed.

A. Theoretical Analysis

Using the method of comparative statics, the effect of a change in enforcement β on the optimal level of lobbying cost reduction x at an interior solution may be signed by differentiating equation (3.5) $\partial x/\partial\beta$ will have the sign of

$$\frac{\partial(\partial FNR / \partial x)}{\partial\beta} = (\gamma_2 - \pi_2) + \frac{\partial Q^1}{\partial x}\frac{\partial(\partial NR / \partial Q^1)}{\partial\beta} + \frac{\partial NR}{\partial Q^1}\frac{\partial(\partial Q^1 / \partial x)}{\partial\beta} \quad (5.1)$$

Here, π_2 denotes $\pi_1(K/K_{max}+\pi_1)2$ and γ_2 denotes $\gamma_1(L/L_{max}+\gamma_1)/2$, defined in (3.2). The term $(\gamma_2-\pi_2)$ is the effect of a rise in β on the option value of investment, at constant foreign sales. It is positive for $\gamma_2>\pi_2$, which requires $\gamma_1 > \pi_1$. As noted in Anderson [1992], this condition is empirically plausible for the United States. The sum of the second and third terms give effect of a rise in β on the strategic value of lobbing investment. The second term can be shown to be positive. the sign of the third term is ambiguous in both elements of the product. (The Lemma gives conditions which sign $\partial NR/\partial Q^1$.) The case where $\partial x/\partial\beta$ is positive, lobbying investment and enforcement are complements, might perhaps be the 'normal' case. But, while intuitive, it need not be true that lobbying investment rises with anti-dumping enforcement.

The response of welfare to a rise in the probability of an injury finding β

at constant lobbying effort is given in Anderson [1993]. As usual with second best problems, a rise in β can either raise or lower welfare. In the present model there is the added complication of the effect of a rise in lobbying effort on welfare (counting the lobbying expenditure as social loss, using real resources). It seems intuitive that a reduction in lobbying would be socially useful, but again there are second best complications. The analytic expression for the full effect of a rise in β on welfare in this model is not very illuminating. Thus I turn to simulation.

B. Simulation Analysis

Simulation gives some insight into the response of lobbying to β, as well as the resulting welfare analysis. The results given below are based on the following parameter values in a constant elasticity simulation model. The demand elasticity is 1.1. The foreign marginal cost elasticity is equal to 1.2. Three parameters are varied to explore characteristics of the model. The home marginal cost elasticity is equal to 0.8 or 0.5, while the demand location parameter varies by a factor of 10. The VER is altered when these parameters change to maintain a relevant range of the equilibrium. The VER is aimed at cutting equilibrium first period trade to half its level in one case and to 80% of its level in another case.

The lobbying cost parameters (K_{max} and L_{max}) are such that γ is greater than π in the relevant range of exports. This makes the option value term in expression (5.1) positive, so that lobbying investment tends to rise with β at an interior solution. Finally, lobbying investment is very efficient, such that ten cents spent today saves a dollar tomorrow (v is equal to 0.1). This value ensures that the investment motive (the right hand side of equation (3.2)) is positive for all range of equilibrium values of trade in the model.

The first set of simulations shown in Table 2 present a case where lobbying investment occurs only when the negative strategic motive is nullified by the disappearance of dumping. Here the demand location parameter is at its high level, and the domestic marginal cost elasticity is equal to 0.5. Foreign sales take up about 1/4 of the market. The VER contracts the level of sales to 80% of base sales (associated with no enforcement effort). The column headings of the table denote the following variables: 'domestic sales'

Table 2

Lobbying Investment and Enforcement: Negative Strategic Motive

β	welfare	full net rent	investment	domestic sales	π	γ	add
0.000	298842.994	7920.763	0.000	85.442	0.214	0.308	0.038
0.100	298713.810	7976.711	0.000	85.876	0.184	0.369	0.000
0.100	298691.469	7978.318	6.321	85.876	0.260	0.548	0.000
0.200	298667.467	7983.176	11.017	85.876	0.317	0.693	0.000

refers to first period domestic industry industry sales, 'investment' means the first period investment in lobbying *vx*, and 'add' refers to the *ad valorem* rate of antidumping duty, equal to the dumping margin $(M-P)/M$ in the first period.

As noted, for the parameters chosen, it always pays to invest in lobbying due to the pure investment motive. Formally, the right hand side of equation (3.2) is positive, indicating a rise in investment will increase full net rent. However, the strategic motive can act against the investment motive, as it does in Table 2 in the first row of numbers. Dumping disappears when the 'add percent' is equal to zero in the next three rows. At this point, foreign sales are insensitive to enforcement effort, and the strategic motive disappears. Investment in lobbying pays off when enforcement probabilities are 10% or more. The second row of numbers constrains lobbying investment to zero, in order to show the gain to optimal investment of 6.321 in the third row. The fourth row as compared to the third shows that investment rises with β at an interior solution. (The first term of expression (5.1) is positive.) Finally, welfare falls with increases in β, and as investment is made by rent-seekers. Net rent rises and welfare falls continuously with β, but the efficiency loss is modest, amounting to less than 1.2 of one percent of initial welfare.

It need not always be true that enforcement effort (β equal to one) will eliminate dumping. In this case a positive lobbying investment may not be made when the strategic motives negative, as it is in the simulations above. Results of this kind were obtained for the high demand model paired with a domestic marginal cost elasticity equal to 0.8.

A positive strategic motive occurs for rather special parameter values. When it occurs, it has an in interesting structure. Table 3 demonstrates

such a case. Here the demand function is at the low demand state and the domestic marginal cost elasticity is equal to 0.8. Exporters have about 70% of the market in the no enforcement base case. The VER cuts the foreign sales about in half relative to the no enforcement base level of sales. The first line of the table benchmarks the model at no enforcement, where the unique global optimum investment is equal to zero. The next two lines show two local optima in lobbying expenditure when β is equal to 0.10 (A grid search with various starting values for investment showed that these are the only two optima.) The second line retains lobbying at zero, and the third employs enough lobbying expenditure that the VER probabilities are driven to one. (The boundary solution occurs because the price of investment v is constant. Once the gain from raising the probability of a VER outweighs the negative effect of greater current dumping, it pays to make the VER certain. Interior solutions can be obtained by imposing an increasing marginal cost.) The result demonstrates that shifting to some enforcement effort can indeed trigger strategic lobbying.

There are three interesting implications of these results, First, the presence of multiple optima suggests that political economic equilibrium may leap from a low level of political involvement to a high level in response to a small change in some parameter. This seems plausible based on casual empiricism. Second, the lobbying investment lowers net rent. In this case the rent-seeker' global optimum policy is still to avoid lobbying investment. However, for lower price of influence, net rent is greater with lobbying investment. (If the price of influence v falls from 0.1 to 0.01, the investment vx falls to 4.392, and the net rent rises to 772.47, larger than the 768.819 earned without investment). Finally, welfare *rises* with lobbying investment.

The last result extends the Anderson [1993] analysis of the second best

Table 3
Enforcement and Lobbying

β	welfare	full net rent	investment	domestic sales	π	γ	add
0.000	53337.710	742.748	0.000	8.206	0.267	0.435	0.097
0.100	53236.043	768.819	0.000	8.365	0.254	0.463	0.047
0.100	53388.793	732.944	43.918	7.569	1.000	1.000	0.274

structure of government enforcement policy (β) when the level of lobbying investment is fixed. Enforcement there could, somewhat perversely, be welfare increasing. The results here imply that parametric increases in the probability of a VER can be welfare increasing even when there is an endogenous response of lobbying investment. The reason is that at β equal to 0.1, the increase in lobbying investment creates a large increase in the first period subsidy to trade (from 4.7% to 27.4%). The resulting gain in first period surplus is sufficient to offset the expected period 2 loss due to the increased probability of a VER.

At least one cautionary note about the model of lobbying cost should be entered here. The welfare measure assumes that shift in period two lobbying cost is accomplished by a social as well as private expenditure of 43.9. Some portion of the assumed saved private costs of the political activity in period two is likely to remain as social cost not saved by the private lobbying investment. Moreover, the investment model implies a high marginal productivity (10:1) of early campaign contributions.[19] More progress can perhaps be made by opening the black box of lobbying costs to relate the future gain in lower cost of obtaining policy to the present level of contribution. It will be important to open up the supply side of this structure as well to detail how the price v rises with the level of influence sought.

VI. Conclusion

This paper has explored a model of the strategic lobbying incentives of rent-seeks. When activities occur in sequence, actors who are not 'small' have a strategic component to their decision making. In political economy this sets, up interesting interactions between political and economic markets. Anti-dumping policy is a particularly rich and important example of this strategic interplay.

It is obvious that governments can play strategically at anti-dumping

19. There is a simple scaling of parameter values for the inverse demand and cost functions which can reduce the marginal product required to produce the same levels of domestic and foreign sales. I have not done so because it may ascribe too much realism to the structure, and because in any case, a fairly high marginal product of investment is required to ensure the positive investment motive I wanted to explore.

enforcement policy, but it is also important to realize that rent-seekers will play strategically at lobbying. Anti-dumping legislation is sometimes defended as a pressure valve which reduces more illiberal forms of protectionist pressure. In the domino dumping model this is often not true as rent-seekers can follow up affirmative decisions on dumping with pressure for VERs. The contribution of this paper is to show that anti-dumping legislation opens a channel for strategic lobbying through which lobbying commitments can have favorable effects on the decisions of foreign firms, and through which antidumping enforcement can encourage lobbying. Thus a 'de-politicizing' institution can perversely be responsible for politicizing trade policy all the more.

It seems intuitive that both antidumping enforcement and lobbying investment are privately but not socially beneficial. The theoretical analysis of each instead reveals a rather convoluted second best structure in which 'intuitive' and 'counter-intuitive' results can be produced for the interest of the firm and the 'public interest'

A presumption about the effect of anti-dumping policy and lobbing investment in practice must be based on convincing simulation. This awaits future work based on the structure of actual markets. The preliminary simulation results reported here show first that with a negative strategic motive, investment in lobbying can be triggered by strong enforcement which eliminates dumping. Second simulation shows that enforcement of anti-dumping legislation can induce a strategic commitment to lobbying which hurts the rent-seekers (globally) while it raises expected social surplus.

Given these results and the preceding structure, there is still a lot to learn about the properties of antidumping and strategic lobbying investment through more exploration with simulation based on models constrained to fit actual markets.

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