7. Realistically, it is much less than 1/2 in the case of helium and natural gas.
8. Throughout, it is implicitly assumed that $T_1 < T_2 < T_3$. The case of $T > T_3$ and $T_2 > T_3$ is special cases of this more general case, and the analysis is similar.
10. In this model, we have simplified the cost and deposit structures in order to render analytically the policies presented in Section III (see [13] for an example of numerical simulations). If extraction costs depend on the rate of extraction, and helium separation costs depend on the separation rate, the helium price path is qualitatively identical to (8), while the marginal gas price path is:
\[ q_{00} = \left( \frac{a^* + C_m}{a - (s_n - b) \gamma^* + \alpha(b + c) + \alpha C_n} \right)^{\gamma^*} + \gamma^* - 1 \]
where $C_m$ and $C_n$ are the marginal costs and where $T_1$ is the time at which helium extraction is at its limiting rate of $a^*$; $T_2$ may be identified with $t*$ in the case, because the producer can induce costs by separating at a slower rate. As a result, helium separation may be initially less than $a^*$, but increasing: eventually, it will reach $a^*$. If the marginal extraction costs of the resource in the ground (helium separation is independent of extraction), the helium price path is also identical to (8), and the natural gas price path becomes:
\[ q_{00} = \left( \frac{a^* + M(C_m)}{a - (s_n - b) \gamma^* + \alpha(b + c) + M(C_n)} \right)^{\gamma^*} + \gamma^* - 1 \]
where $M(C_m)$ is the marginal (and average) extraction cost function, and where $k(t)$ is defined by:
\[ k(t) = (MC_0)^t \]
11. Government policy prescriptions are presented in [2] and [4]. A subsidized storage program was introduced using Clifford's Field in Texas.
12. This is stated in the form of two propositions, which are presented in an appendix available from the author.
13. The proposition is proved in an appendix available from the author.
14. Detailed proofs for the helium storage subsidy and separation subsidy are presented in [7].

REFERENCES

INTRODUCTION
Recently, the theory of commercial policy has moved rapidly in the direction of incorporating into general equilibrium analysis several phenomena which have been characterized as directly-unproductive profit-seeking (DUP) activities (Bhagwati, 1982). These include lobbying to seek policy changes (e.g. tariff seeking) or to profit from existing policies (e.g. rent seeking for premia on quotas)1.

Very little effort has been made in this vast literature to analyze the phenomenon of foreign lobbying (lobbying on behalf of foreign interests to change domestic policies). On the other hand, many of the critical issues involved in this area are discussed in the literature. For instance, Figure 1 shows the relationship between the production level and the world price of the commodity. As the production level increases, the world price decreases, and the profit of the producers increases. The situation is reversed when the production level decreases.

Existing Analysis: A Review
The introduction of domestic revenue (rent) or tariff (quota) seeking into international trade models has taken the following general form. The (domestic) economy is usually assumed to be of small size and world prices are given. There are two factors of production (e.g. labor and capital) and three goods (two tradable and one non-tradable, lobbying services). In the revenue-seeking model, policy is assumed to be in place and then factors are diverted into the production of lobbying services in response to the rents generated by protection. In the tariff/quotas seeking literature, it is assumed that lobbying is required in order to produce any given level of protection. Again, resources are drawn from other productive uses and enter DUP activities. A number of theorems exist regarding the effects of DUP activities on an economy. For instance, Bhagwati and Stiglitz (1980) have shown that if all revenue seeking in a small economy is necessarily welfare-wasting compared with the tariff diverted equilibrium. Consider, for instance, Figure 1. With AB as the production possibility frontier, $P_1 = P_2$, the given foreign price ratio, and $P_3 > P_1$, the tariff inclusive price ratio, free trade yields consumption of $C_1$ and welfare at $U_1$. The imposition of a tariff shifts production to $P_3$ (from $P_1$), consumption to $C_3$ and welfare to $U_3$.

When competitive revenue seeking is introduced into the model, equilibrium production shifts to $P_4$ which lies on the generalized Rybczynski line, $P_4P_5$. Consumption then is $C_4$ and welfare at $U_4$, on

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2Earlier versions of this paper were presented at the 1986 Western Economic Association Meetings, the 1988 Meetings of the Public Choice Society, the University of New South Wales, and the Australian National University. The comments of Jasgur Bhagwati, Bjo Ibara, Gerd Brinner, Jim Coving, Elias Dias Apostolos, George Kauf, Leo Hillen, and two anonymous referees are appreciated. Remaining errors are my responsibility.
the budget line defined by the tariff-inclusive price line tangent to AB. Thus, revenue seeking, because it draws labor and capital into activities that produce output that does not enter the social utility function, paradoxically, Bhagwati and Sinha have also shown that some (less than full) revenue seeking, improving (compared to the welfare level under the tariff). The necessary condition for this is that as the necessity condition for welfare improvement is that the Rybczynski line be less negatively sloped than the world price line. In terms of the Heston-Olhin model, this condition obtains only if lobbying services production is more intensive in the source rather than in the import competing sector.

Subsequently, Bhagwati, Brecher, and Hatts (1985) have considered international transfers combined with induced transfer-seeking DUP activity. In that paper, the authors show, among other results, that transfer seeking DUP activity in the recipient country may, if the country is large, lead to a fall (rise) in welfare relative to the free trade level of welfare for the recipient (donor) country although their transfer-seeking model has a direct applicability to an analysis of foreign lobbying, though there remaining payment by foreigners for domestically produced lobbying services has many of the same analytical attributes of a transfer in the case of the foreign country. In particular, a payment is made by the foreign country to the domestic for which there is no quid pro quo in terms of goods valued in the foreign country. However, there is no analogy to a transfer since the provision of lobbying services merely represents an expansion of exports into a second category of goods. In fact, there are several other points of similarity and difference between foreign lobbying and transfers-main DUP activity. The next section will elaborate on these issues.
Let us focus graphically on the effects in both H and F when there is foreign lobbying in H. For simplicity, several additional assumptions are made, which, it turns out, are symmetric to those usually made in analyzing the effects of domestic lobbying. Suppose (1) there is no domestic lobbying in H—only foreign; (2) the world relative price of good 1 (in terms of good 2) is fixed before and after lobbying; (3) free trade prevails before and after (and perhaps even if) F's lobbying efforts; (4) the amount of lobbying undertaken by F is exogenously determined and fixed; and (5) there are no net financial flows between F and H before and after lobbying.

Consider Figure 3. Part (a) shows the effects on F if it were to import lobbying services from H. Under free trade and no lobbying, production occurs at $P_1$, consumption at $C$ and foreign welfare is given by $U^*$. After F undertake lobbying in H, the value of national output which can be used to support consumption expenditure shrinks by the amount of lobbying expenditure, here assumed to be $L'K'$. Thus, while production remains fixed, since relative prices have not changed, welfare in F falls.

In H, the effects of F's actions are somewhat different. As lobbying activity is undertaken, resources are drawn from tradable good manufacturing into lobbying. This causes production of manufactures to move along the generalized Rybczynski path from point $P$ to $P_1$. Consumption remains at $C$. The reason is that the value of F's output (measured in terms of good 1) is a OL of manufactures plus $LK(1 - K'C)$ of lobbying services (exports). Thus the result obtains that even though lobbying services are being produced in H, welfare is unchanged from free trade levels. The essence of this discussion is found in the following proposition.

Proposition 1: At constant world prices, the direction of resources into the production of lobbying activity does not matter how large has no welfare implications for the country where the services are produced, so long as all of the lobbying services are exported.20

In other words, when prices are held constant, it is not the diversion of resources into DUP activities that generates welfare changes per se. Welfare changes are determined by what must sacrifice consumption in order to purchase those services. That result stands in contrast to many of the standard theorems about the welfare effects of domestic lobbying, including those established by Bhagwati, Brecher, and Hatta. In particular, with domestic lobbying (or rent seeking), at constant prices, there is always a reduction in (domestic) consumption possibilities relative to the no-lobbying equilibrium. And, thus, many of the paradoxical results of the domestic lobbying literature depend upon degree to which resources are drawn from other sectors into the provision of lobbying services.

**Endogenous Commercial Policy: Terms of Trade Effects**

Suppose now that we relax the assumption that F is small in the product markets for goods 1 and 2. Then, it may well be the case that the free trade-excludable foreign lobbying equilibrium will produce a different relative price between the two manufactured goods. In particular, we have seen that when F lobbies in H, this affects consumption in F and production in H. If production and consumption changes are not equal, there will be pressure on prices to adjust.

Consider the market for good 1. Both production and consumption can either rise or fall after F lobbies in H. Consumption will fall as long as it is not an inferior good (i.e., as long as F's income expansion path (IEP) is upward sloping). The change in production depends upon the slope of the generalized Rybczynski path ($GRP_2$), which, in turn, depends upon the factor intensity of production of lobbying services relative to the factor intensities in the production of the other goods. Suppose that both the IEP and the $GRP_2$ are upward sloping. Then (at constant prices) both production and consumption of good 1 will fall with foreign lobbying. The relative price of good 1 will rise or fall as the slope of the IEP, if greater or less than the slope of the $GRP_2$.

Figure 4 illustrates the case in which, at constant prices, the purchase of lobbying services produces an excess demand for good 1 in world markets and, hence, the relative price of 1 rises. Consider part (a) of the diagram. This depicts the situation in country F. The free trade (pre-lobbying) relative price is given by the slope of the line passing through the production point, $P_1$, and the consumption point, $C$. Now, let there be an exogenously determined purchase of lobbying services produced in H of $L K^*$ measured in units of good 1. From the previous analysis, it is clear that at constant prices consumption would move to point $C'$, while production would remain at $P_1$. In this case, however, it has been assumed (based on knowledge of the Rybczynski path in H) that the relative price of 1 must rise. The price change is illustrated in the diagram by the dashed lines. Because of the higher relative price of good 1, F's importable, F experiences a secondary welfare loss, as consumption moves to $C''$ (with welfare falling from $U^*$ to $U^{**}$). In addition to the welfare loss, in this situation F's production mix is also altered as its production point moves from $P_1$ to $P_2$, because of the higher relative price of 1.

Part (b) of the diagram (illustrates the situation for H. There, at constant prices, when F purchases lobbying services in the amount $LK$ (equal to $L K^*$), production moves to some point such as $P_2$. (Note that the slope of line connecting $P_1$ to $P_2$ is lower than F's income expansion path between points $C'$ and $C'$. As noted above, this is the necessary situation for the relative price of 1 to rise subsequent to the purchase of the lobbying services.) The higher relative price of 1 is illustrated by the dashed lines in the
Proposition 2: Lobbying by F in H may raise, lower, or leave unchanged H's welfare relative to free trade levels in the relative price of H's exportable goods, falls, or remains unchanged.

A necessary condition for H's welfare to rise is that at initial prices the reduction of production of H's exportable is greater than the reduction in consumption of this good in H. If there is anything in the model that would allow one to place any more structure on what is likely to happen to prices? In general, the answer is no. In most cases, it depends upon preferences in H and technology in H. If, for instance, good 1 is normal in consumption (in F) and if the capital intensity of production of good 3 lies between that of goods 1 and 2, anything can happen.

More interesting results obtain if (coupled with normality in consumption) the factor intensity of lobbying production were to lie outside of the range of factor intensities in the production of goods 1 and 2. In particular, suppose that lobbying is the most capital intensive industry in the economy followed by good 2 and then by good 1. In this case, as resources are drawn (at initial world prices) into the production of lobbying services, the output of good 1 (2) will rise (fall) relative to free trade levels. In this case, higher production of 1 in H coupled with lower consumption of 1 in F should produce a lower relative price of good 1. Alternatively, if the capital intensity of lobbying production is lower than that of good 1, then (assuming normality) lobbying by F in H will lead to a higher relative price of 1—increase the production of 2 rises in H while consumption of 2 in F falls.

It has been shown that changes in relative prices determine the direction of welfare effects in H and alter the post lobbying welfare in F. The question remains, can F enrich itself relative to the free trade through lobbying in H? Provided that F lobbies successfully, the answer is yes. One of two conditions must hold. The first of these conditions is that F's exportable good 2 be inferior in consumption (for F) in the vicinity of free trade equilibrium. Then, at constant prices, as F lobbies the demand for good 2 begins to rise in world markets. The second condition is that as the output of 3 rises in H so too does the output of 1. That is, H's Rybczynski path has a negative slope. In this situation, the world production of 3 must surely fall. Given the initial assumptions about factor intensities, this sort of output effect would occur when the production of lobbying is more intensive in the home country's scarce factor than the production of any other good in the economy.

While it is necessary that at least one of these two conditions holds for F to benefit from foreign lobbying, the presence of either one of these conditions is not sufficient to guarantee the result. Even if both conditions hold, the result still may not obtain. The combination of rising (falling) demand for good 2 (1) and falling (rising) production of good 2 (1) at initial world prices generates a terms of trade change that is obviously favorable for F. If the terms of trade change is sufficiently large, then in principle, it could offset the initial inward shift in the consumption possibility frontier. Hence, F's welfare rises relative to the pre-lobbying free trade equilibrium. This result is summarized below.

Proposition 3: Necessary conditions for F's welfare to rise (relative to free trade) subsequent to the purchase of lobbying services in H are (1) F's exportable be inferior in consumption for F or (2) that the production of lobbying be more intensive in H's scarce factor of production than H's import competing good.

Thus, there is an interesting paradox. Precisely the same condition that is necessary for domestic revenue seeking to be welfare improving for H with domestic lobbying in H, a negatively sloped Rybczynski path, is a condition which could lead to a higher level of welfare for F with foreign lobbying in H.

**SOME BRIEF EMPIRICAL EVIDENCE**

To motivate reader interest, Congressional concern over the potential influence of foreign lobbying on U.S. policy outcomes was noted in the introduction to this paper. Are Congress's fears justified? There are two issues to consider. One has to do with the implementation of policy and whether or not U.S. interests have been damaged because of manipulations by interests in the employ of foreign governments or principals. There is no substantive evidence that foreign lobbyists have had any impact.
on policy. Even if they have, it is not altogether clear that this has been harmful to the United States. Suppose, for instance, that foreign lobbyists have managed to convince U.S. policy makers that a change in U.S. commercial policy would be met with retaliation. Then, it is quite possible that the U.S. is better off (relative to the welfare level under the retaliation outcome) because the lobbying has taken place and the proposed policy change rejected.

The second consideration, which has been the focus of this paper, is whether or not the diversion of domestic resources into rent seeking activities has had real income effects. From a theoretical point of view, it becomes important to know relative factor intensities of production in various sectors of the economy. Lobbying is likely to be human capital intensive. If, as is also likely, U.S. merchandise exports are skill-labor-intensive relative to U.S. imports, it is doubtful that the transfer of more resources into lobbying activities because of increases in foreign lobbying could ever, in and of itself, be harmful to the United States. In fact, from this standpoint, it would seem clear that a greater source of concern for Congress should be the diversion of resources into rent seeking activities that is financed domestically.

Another issue has to do with the amount of resources diverted into rent seeking activities. What is the evidence on the size of these expenditures? The Foreign Agents Registration Act of 1938 requires that persons engaging in political activities for or on behalf of foreign governments, foreign political parties, or other foreign principals identify themselves and their activities to the Justice Department on an annual basis. Each year since 1950, the Department of Justice has released a report on these activities. Included in this report are the American registrant, the identity and nationality of the foreign principal, the nature of the activities, the amount of money received, and the political propaganda distributed, if any.

Despite the availability of this data, very little has been done with it. Even the report itself provides no summary information or comparisons with previous years. Elsewhere, a descriptive analysis of the data from the 1984 report has been presented. This paper closes by presenting some of the highlights of that analysis.

Table 1 presents some summary statistics on the general nature of foreign rent seeking expenditures in the United States for the year 1984. It breaks down expenditures by category and by type of foreign principal. The development of this table required considerable judgment. There is only a very limited information in the report on the type of activities actually carried out. Thus, these expenditure categories are artificial constructs. They include: information (i.e., distribution of information of a general nature on the life styles or the political system of the foreign principal); overseas advertisement (e.g., advertising); investment promotion (i.e., advertising aimed at attracting U.S. capital to the foreign country); policy advice (reports by the registrant to the foreign principal on U.S. government policies); representation (i.e., legal representation before judicial and quasi-judicial proceedings); policy promotion (i.e. direct lobbying to affect U.S. government policy); and others. Clearly, these categories are quite vague and the actual activities of U.S. registrants often have overlapped. In 1984, foreign rent seekers from 124 countries entered into 901 different contracts with U.S. firms

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<th>Foreign Rent Seeking Expenditures in the U.S. by Group and Expenditure Category (in $000's)</th>
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<td><strong>Lobbyists</strong></td>
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FOREIGN LOBBYING

spending a total of $405 million for various services. Only about 15% of total foreign expenditures (roughly $58 million) was directly or indirectly related to U.S. government policy (columns 4-6). It is interesting to note that although foreign trade associations spent $70 million less than governments overall, they spent absolutely more on these three categories. Similarly, foreign firms, who spent only about one third as much as governments in total, spent only about $2 million less on U.S. policy related activities. The fact that foreign government allocates relatively less to expenditures on these services reflects, at least in part, the existence of national embassies wherein much of these same services are performed by embassy staff. Unfortunately, there appears to be no information as to the amount of activity undertaken by embassies, although, at times it appears to be considerable. Thus, these figures underestimate the total amount of lobbying activity on behalf of foreigners.

Over 50% of total expenditures went to promoting exports. These expenditures, of course, represent standard commercial practice rather than the kinds of activities one would associate with lobbying. Yet, the distinction may not be all that great. Export promotion can be thought of as an attempt to shift the U.S. offer curve outward in the direction of the export promoting country. One purpose of foreign lobbying could be to convince U.S. policy makers not to shift the U.S. offer curve inward to a via the foreign lobbying country. Thus, either type of activity can be thought of as an attempt to influence the terms of trade in favor of the foreign country in a manner analyzed in the previous section.

The expenditures by foreigners on rent seeking activities are small relative to a number of comparison flows. For instance, they represent slightly less than 1% of the U.S. service exports (excluding receipts of income on foreign investments) for that year. They are much smaller than the amount of potential tariff revenue seeking. U.S. exports revenue in 1984 was $13.3 billion. While the number of all forms of foreign rent seeking expenditures.

The fact that the resources devoted to rent seeking are small relative to potential rents is not an uncommon finding. John Jackson (1984) has calculated that the private and public cost of U.S. import regulation system—including the entire funding of the International Trade Commission and the Office of the U.S. Trade Representative and the identifiable attorney and consultant fees—totalled only about $230 million in 1983, less than 1/10th of 1% of the total value of U.S. imports that year.

CONCLUSIONS

This paper has sought to show theoretically and empirically the effects of foreign lobbying (or rent seeking in general) on the domestic economy. It has been established that unlike domestic lobbying, foreign lobbying need not be DUP, at least in the country where the lobbying services are produced. Foreign financed rent seeking does not lead to an inward shift in the consumption possibilities frontier in the country in which the rent seeking activities occur. Under plausible conditions, foreign lobbying may even raise domestic welfare.

A number of interesting extensions remain unexplored. For instance, one could relax the assumption that domestic agents do not lobby. Then, in a model of endogenous protection, the resulting equilibrium would be a function of the lobbying efforts of both countries. Clearly, many of the welfare propositions derived above would change.

An interesting issue has to do with the face that foreign lobbyists may be natural allies of one or more domestic groups. In particular, in a specific factors model, foreign lobbyists would want to ally with the specific factor in the home export industry. In a world where governments spend rather than distribute tariff revenues, domestic consumers would have interests similar to those of foreign lobbyists. The existence of foreign friends would seem to have important implications for the resulting protectionist policies. It would also explain, in part, the apparent lack of participation by domestic consumer groups in the policy process since these latter groups might be free riding.

It has been shown empirically that at least for the United States, the volume of foreign rent seeking is small (although the number of countries involved is large), especially when compared to the other trade service flows. Further, most of these expenditures are aimed at export promotion rather than
U.S. commercial policy—and thus, in a strict sense, do not constitute lobbying activity. Finally, the amounts spent seem to generate large returns.

NOTES
1. Throughout this paper, the terms rent seeking and lobbying will be used interchangeably, although it is well understood that rent seeking involves a much broader set of activities, including those aimed at achieving quite specific and narrow ends.
2. References are Das (1986) who includes foreign lobbying in a tariff formation model and Hillman and Upgrg (1980) who model the roles of domestic and foreign lobbying in the choice between tariffs and quotas.
5. These activities are already restricted as is foreign lobbying in general. See for more detail, Phillip Sherrod "Bill Will Be Sought Limiting Lobbying by Ex-U.S. Officials," The New York Times, April 10, 1986.
6. The structure of a three-good-two-factor model first explored by Komis (1987) important extensions have been provided by Meets (1985). It was introduced into the analysis of revenue seeking by Bhagwati and Stiglitz (1988). In the latter context this model has both advantages and disadvantages. On the positive side, the model captures well the welfare effects of the rent seeking through its reliance on the economy in question. On the negative side, it is not a model of endogenous policy, so that the policy outcome of lobbying effort must be assumed.
7. Full revenue seeking is defined as the case where the value of lobbying services produced exactly equals the value of revenue sought.
8. See Arum (1982) and Bhagwati and Stiglitz (1982) on contrasts between lobbying for rent and for revenue (i.e. whether lobbying is triggered by price or quantity constraints).
9. We assume for simplicity that no lobbying services are produced in F. This does not seem too unreasonable. Consider, for instance, "Lobbying in Japan So Dwindles U.S. Firms That Few Even Try" by F. Browning, The Wall Street Journal, April 1, 1986.
10. An example of the first case would be a situation where faced with a given level of protection in H, F lobbies to obtain the rents generated by H's actions, whereas in a V.E. Section 301 of current U.S. trade law provides a useful example of the second case. Under Section 301, the U.S. government is authorized to threaten and, if necessary, to impose retaliatory trade measures against alleged unreasonably trade practices of foreign trading partners. Foreign lobbying is often done considerable effort to persuade the U.S. government not to initiate a Section 301 investigation. If a Section 301 investigation begins, foreign lobbyists then try to convince U.S. government officials that the practices in question are not unreasonable and that retaliation is not justified.
11. An example of such a situation is again provided by certain elements of U.S. trade law. U.S. GSP and Caribbean Basin Initiative trade concessions are contingent on evidence of foreign cooperation in the enforcement of U.S. drug laws. The granting of U.S. MFN status to non-GATT (e.g. Eastern Bloc) countries is contingent upon evidence that those countries pursue more rigorous policies. Evaluation of whether or not these contingencies have been met clearly relies on subjective elements. One solo player by foreign lobbyists in such instances is to present evidence to U.S. policy makers that in fact these measures have been undertaken in accordance with U.S. law.
12. This is equivalent to assuming that H is large in world markets and F is small.
13. This amount may be determined through knowledge of H's commercial policy formation function.
14. Proofs of Proposition 1 and the remaining propositions in the paper are contained in a mathematical appendix, available from the author on request.
17. The author readily acknowledges the speculative nature of the relationship between the data in the Arms Control General's report and the resource transfers discussed in the previous section. My aim is in the discussion that follows to elude some suggestive evidence on the order of magnitude of recent foreign lobbying activity in the United States as well as certain other forms for foreign rent seeking.
18. In such cases, the payment (unless otherwise indicated in the report) was divided by the number of separate activities that could be identified from the registrants' statements.
20. The paper by Das makes some attempt along these lines.

REFERENCES