

WHY DO GOVERNMENTS PREFER NONTARIFF BARRIERS?

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INTRODUCTION

It has become commonplace to recognize that the use of tariffs to restrict international trade has been gradually replaced in recent years by the use of other tools of commercial policy. These nontariff barriers (NTBs) include such heterogeneous policy tools as import quotas, voluntary export restraints (VERs), exchange controls, domestic content requirements, and many more.¹ It is reasonable to ask why these various alternatives to tariffs have come to be preferred, and it is the purpose of this paper to address this question. Since many of the more common NTBs, like quotas, deal directly with the quantities of goods traded rather than their prices while tariffs influence trade through prices alone, a related question is why nonprice measures of restricting trade have come to replace price measures. This is an important question for us here, since economists generally show a preference for the latter. Indeed, trade theorists are nearly unanimous in preferring tariffs to other forms of trade intervention, and it seems perverse of the world's governments that they have reduced tariffs at our urging, only to replace them with barriers we regard as more onerous.

There can be no single answer to the question of why governments prefer NTBs. It is undoubtedly true that a variety of reasons contribute

*I have benefited greatly from discussions with Robert M. Stern in preparing this paper. Many useful comments were also provided on an earlier draft of the paper by my students in an international economic policy class and by participants in the graduate international trade seminar at Michigan, in the Carnegie-Rochester Conference, and in a conference on trade theory at the University of Western Ontario. I am especially grateful for comments from Karl Brunner and Michael Mussa. The research underlying this paper was supported in part by a grant from the Ford Foundation.

¹See Nogues et al. (1985) for a more complete discussion of the variety of NTBs that have been used in recent years.

to any particular use of trade policy and that different instances of trade intervention have been motivated differently. Thus I will not attempt to make a case for any single explanation or theory of the policy process. Instead I will take an eclectic approach, discussing a variety of answers that can be found in the literature as well as a number of additional suggestions that have come to mind independently.

This will not be a very technical discussion. There are too many ideas to be covered in a small space to permit any one of them the luxury of being expounded by means of an elaborate analytical apparatus. Nor would that really be necessary, for most of the ideas are quite straightforward, while the others have been analyzed rigorously elsewhere.

I will divide the discussion into two parts. I will begin by looking at a list of miscellaneous reasons for the preference for NTBs that I have gleaned from the literature. These include: institutional constraints such as are built into the GATT and the United States constitution; interactions among various forms of trade policy and market structure; ways that one country may react to, or retaliate against, the trade policies of another country; differences among policies in the extent to which they engender rent-seeking behavior; and differences among policies in the ways that they perform in an uncertain world.

These reasons are interesting in themselves, and I am sure that some of them are correct in telling part of the story of why NTBs are coming to dominate trade policy. But I am also sure that they do not tell the whole story. In many cases I think that these reasons are more subtle and/or more elaborate than they need to be, and I will express my reservations as I go along.

In the second main part of the paper I will therefore focus my attention on a much narrower class of explanations for the preference for NTBs: the perception that tariffs simply will not work. It is my belief that much of the preference for NTBs stems from the perception on the part of the affected parties, both in government and in the public, that using a tariff to reduce imports will not in fact do the job. Somehow it is believed, rationally or otherwise, that the flood of imports that seems to be causing domestic injury will continue unabated in spite of any reasonably sized tariff, and that only an explicit quantitative restriction can have the desired effect. I will therefore discuss a variety of reasons behind such a perception and suggest that it may not be as unwarranted as it sounds.

Before proceeding I should say a few words about why I believe

governments restrict trade at all. In spite of their opposition in principle to the use of any policy to restrict trade, trade theorists have been quite creative in generating rationales for doing so. These range from the use of tariffs to improve the terms of trade, through a host of second-best policies for dealing with domestic distortions, to the recently developed ideas for using trade policy to divert monopoly profits toward domestic residents or government. Many of these ideas, while valid in theory, I view as too arcane to be the real reasons for most instances of trade intervention. In addition, to the extent that these reasons are based on maximizing a general notion of social welfare, they need to invoke a "public interest" theory of government that is of questionable relevance.

Instead, I believe that most trade intervention is used for the avowed purpose of protecting the livelihoods of workers and firms in troubled industries where import competition is seen as at least part of the trouble. Trade intervention could in principle be used to raise the wages of groups of workers, the profits of groups of firms, or, through the terms of trade, the welfare of all consumers together. In fact, though, I see most instances of trade intervention as much more defensive in nature. Trade barriers are erected to prevent losses in wages and profits, and, even more so, to prevent bankruptcies and unemployment. One can argue, correctly, that even when these objectives are valid, trade policy is at most a second-best means of achieving them. It does no good merely to dismiss them, however, and proceed as if the real motives for protection lie elsewhere.

Therefore, as will become clear, I have little patience with explanations of the preference for NTBs that are based on policymakers' objectives that I believe are farfetched. We are trying, after all, to explain what policymakers themselves do, and not what we, with our sophisticated economic models and limited exposure to the real world, would do in their place.

I. ASSORTED REASONS FROM THE LITERATURE

In this section I will discuss a variety of reasons why NTBs might be preferred to tariffs, the only really common thread among which is that they do not belong in the section which follows. That is, these reasons are not based on doubts about the ability of tariffs to reduce trade. All of them are based to some degree on contributions that can be found in the

literature, though these contributions have not always been viewed by their authors as providing rationales for NTBs.

Much of this literature has been identified with the issue of the equivalence, or nonequivalence, of tariffs and quotas. The seminal contribution on this subject was Bhagwati (1965), who noted that with perfectly competitive markets everywhere, tariffs and quotas are equivalent, but with imperfect competition that equivalence fails. That is, with perfect competition, exactly the same results that can be achieved with a quota can also be achieved with a tariff of an appropriate size, and vice versa, so long as the revenue from the tariff and the rent from the quota accrue to, and are spent by, the same individuals. With imperfectly competitive markets, on the other hand, the differences that a tariff and a quota imply for the elasticity of demand facing the domestic industry cause this equivalence to break down. In this case, a tariff and a quota that have the same effects on the quantity of imports, for example, will have different effects on the domestic price and/or on the level of production in the domestic market.

This result of Bhagwati's has stimulated others to search for alternative scenarios in which tariffs and quotas will fail to be equivalent. This literature is briefly surveyed in Bhagwati and Srinivasan (1983) and Corden (1984), and some of it will be touched on below, for if tariffs and quotas are really equivalent, then there can be no reason to prefer one or the other. Reasons for nonequivalence therefore carry with them reasons why one or the other policy might be preferred, and therefore, potentially, reasons why governments might show bias in their selection of policies.

A. INSTITUTIONAL CONSTRAINTS

A first reason to consider has little to do with economics but may nonetheless be the proximate cause of the preference for NTBs in many instances: Institutions have been erected that constrain the use of tariffs, and thus lead policymakers to search for other means--nontariff measures by default--of achieving their objectives. The most far-reaching of these institutions is the General Agreement on Tariffs and Trade (GATT), in which signatories commit themselves to rigid rules in the use of tariffs, including that any change in tariffs be done on a most-favored nation (MFN) basis. But other such institutions also exist within the sovereign countries of the trading world, such as the separation of powers within the United States government that relegates to Congress the power to

levy tariffs and leaves the administrative branch to search for other means, again nontariff means, of manipulating trade.

It would be easy to acknowledge institutional arrangements such as these as the sole reason for the preference for NTBs, and thus pass the task of explanation on to the legal or political scholars whose job it is to examine such institutions. That would be unsatisfactory on two accounts. First, to do so would leave unanswered the question of why these institutions were configured as they were, and therefore leaves open the possibility that the institutions are themselves a reflection of the preference for using NTBs. And second, it would accept too uncritically that the institutions prevent the use of tariffs.

On the first of these points, one must ask why it is that the framers of the GATT chose to constrain the use of tariffs more severely than the use of NTBs. Might it not be the case that the member countries were willing to submit to the discipline of the GATT regarding tariffs precisely because tariffs were not the policies that they wished to use in any case? In fact, the articles of the GATT do constrain the use of quotas, though less firmly and with more ambiguous language than is used to bind tariffs. Nonetheless, while countries have generally been willing to submit to the constraints on tariffs, they have been much less willing to do so for quotas. Quantitative restrictions have been used frequently, by many countries and in many industries, ever since the GATT was formed. Since both quotas and non-MFN tariff increases violate the principles of the GATT, one must ask why countries chose to break one rule and not the other. The answer must be a preference for quotas that has nothing to do with the GATT and which therefore still needs to be explained.

The second point is that these international and domestic legal institutions do not constrain the use of tariffs nearly as much as it may seem at first glance. Within both the GATT and United States law, there are several specific provisions for using duties to deal with the disruptive effects of trade and trade policies. The escape clause of United States trade law, for example, permits the use of a duty when it can be established that imports are a substantial cause of injury. Similar provisions permit responses to what are perceived as unfair trade practices of other countries, such as dumping and the use of government subsidies.

It may be argued that these provisions are too cumbersome to be used in a timely fashion, and there is some truth to that. On the other hand, these provisions have been used, and furthermore, in a surprising number of cases, though the institutions would have permitted the use of a tariff to

protect domestic industry, deliberate use has been made instead of an NTB. For example, of the 55 escape-clause cases filed under Section 201 of the U.S. 1974 trade act between 1974 and 1984, 28 were decided in the affirmative by the ITC. All of these could have led to a duty being imposed on imports, but in fact in only ten of the cases was any action taken and in seven of these the action included some form of nontariff measure such as a quota, an orderly marketing arrangement, or a voluntary export restraint.² Thus it appears that the institutions do permit the use of tariffs on some occasions and that governments nonetheless often resort to NTBs out of choice, not out of necessity.

B. IMPERFECT COMPETITION

I have already alluded to Bhagwati's (1965) original case of the nonequivalence of tariffs and quotas, which focused on imperfect competition. His example naturally raises the question of whether, when markets are imperfect, the difference between tariffs and quotas will cause governments to prefer one or the other.

Bhagwati's simplest example will suffice to motivate the discussion. He considered a domestic industry in which there is a single domestic firm, but in which a large number of foreign firms cause the market to be competitive as long as there is free trade. In this situation a tariff, which merely raises the domestic price above the world price by a fixed amount, helps the domestic firm but leaves it facing a fixed, albeit higher, price. Thus it continues to behave as a perfect competitor. A quota, on the other hand, allows the domestic firm to raise price arbitrarily far above the world price, sacrificing in sales only the loss of domestic demand as it moves up the domestic demand curve. Thus the quota provides the firm a protected market in which it can act as a monopolist. This in turn leads to the other asymmetries in behavior that indicate the nonequivalence of the two policies, such as that a quota which restricts imports by the same amount as a tariff will raise the domestic price by more than the tariff.

What does this story imply about the relative desirability of tariffs and quotas from a government's point of view? From the standpoint of social welfare, it is clear that a government should prefer tariffs, since

²See Jackson (1985).

for a given amount of protection, these avoid the additional distortion due to monopoly. But if governments respond not to the social good, but to the pressures that are brought to bear upon them by lobbies and interest groups, then this model would seem to provide a rationale for quotas. The firm described above, for example, would be expected to devote some resources to persuading its government to protect it via a quota rather than a tariff, since it has so much more to gain from the former.

Surprisingly, while the first of these arguments is correct, the second is not. In a recent paper, Cassing and Hillman (1985) show that such a model actually gives rise to a preference for tariffs, not quotas, as long as government revenue is not one of the aims being pursued. The reason is that a politically responsive government must trade off the interests of consumers against those of the protected firm; and while for a given level of imports a quota yields greater profits for the firm, it also causes greater harm to consumers through a higher price. A proper comparison is of two policies that yield not the same level of imports but the same level of price. In that case, as had been implicit in the analysis of McCulloch (1973), it turns out that the tariff generates the larger profit and thus in Cassing and Hillman's model will acquire the greater political support. Therefore this model in its simplest form does not explain the preference for NTBs.

Cassing and Hillman do present a case in which quotas could be preferred. This arises when, in addition to political support, the government is concerned about the revenue that it raises with its trade policy. If a quota is auctioned off and the proceeds are kept by the government, then it turns out that this additional consideration can turn the balance in favor of the quota. Thus we do find a case for using quotas in this model, but it requires that quotas be administered in a way that they seldom are.

The model just described is one of monopoly, and of course there are many other forms of imperfect competition that could be considered. Construction of trade models with various noncompetitive market structures has become a minor growth industry in recent years, and these models provide fertile ground for exploring the effects of various trade policies. I will consider only one such model here, since it bears directly on the issue at hand.

Krishna (1985) has examined the role of quantitative restrictions in a duopoly model in which two firms from different countries compete on price. It turns out that a quota on one firm's exports into the other's

market can raise the profits of both firms. The reason for this outcome is that the trade restriction acts as a "facilitating practice" which, by limiting the aggressiveness of one of the firms, enables both to raise prices above what they otherwise would. As in Brander and Spencer's (1985) similar model of a tariff in a two-country Cournot duopoly, the quota in Krishna's model commits one of the firms to a course of action that is beneficial to both, but would not be credible as a strategy of the firm acting in its own interest alone.

This example once again seems to suggest a case for a quota, since firms in the situation of the model have more to gain from a quota than from a tariff. However, once again the gain depends on raising the domestic price to consumers, and as in the Cassing and Hillman analysis, the correct comparison would be to a tariff that raises domestic prices by the same amount. In this case a tariff has the effect of raising the domestic price of the foreign good by more, and that of the domestic good by less, than does a quota, and we must consider two policies that have the same effects on consumers' welfare. It turns out once again that a tariff which has the same effect on consumers will have a greater positive effect on profits of the domestic firm.³ Thus like the simpler model of Cassing and Hillman, the Krishna model predicts a preference for tariffs.⁴

My conclusion from the work that has been done so far on models of trade with imperfect competition is that they do not seem to yield a compelling explanation for why governments prefer NTBs. It will be interesting to see, as this literature evolves in the future, whether this conclusion will need to be revised.

³For those familiar with Krishna's model, this can be seen as follows. Letting the horizontal axis in her diagram represent the price of the foreign firm inclusive of the tariff, the isoprofit contours and the reaction curve of the domestic firm are unchanged. A tariff, however, shifts the foreign firm's reaction curve to the right (to higher prices), and moves the Nash equilibrium up and to the right along the domestic firm's reaction curve. Thus in Krishna's Diagram 3, a tariff can achieve an equilibrium at the same foreign-firm price as the quota, and at the lower of the two prices charged randomly by the domestic firm, and this yields the same profit to the domestic firm as does the quota. Since this is preferable for consumers to the quota, a larger tariff would be needed to make consumers indifferent, and this would lead to a larger profit.

⁴The outcomes of the two policies have an additional difference in that the quota leads to equilibrium only in a mixed strategy for the domestic firm, which charges a random price the expected value of which I have assumed to be equal to the price due to the tariff. This uncertainty of price may be an additional factor in favor of one policy or the other, but I will leave that issue to further discussion below.

C. RETALIATION

In one of the better-known sequels to Bhagwati's example of nonequivalence, Rodriguez (1974) showed that, even with perfect competition, tariffs and quotas will not be equivalent if governments attempt to use them reactively to influence the terms of trade at each other's expense. Such a process was described for tariffs by Johnson (1954). Rodriguez showed that a similar process is possible using quotas, but the outcome is not the same. Unfortunately for our purpose, the difference between the two cases is that, while the game with tariffs can attain a Nash equilibrium with positive trade, the game with quotas cannot; and the welfare levels of both countries are necessarily lower in the (asymptotically autarkic) quota equilibrium than in any positive-trade tariff equilibrium.⁵ Therefore this particular asymmetry between the two policies does not suggest any reason why governments might prefer quotas.

This issue of retaliation by itself, however, does suggest such a reason for one particular form of NTB. It is often suggested that the use of voluntary export restraints (VERs), which are quantitative restrictions implemented by the exporting country but at the behest of the importing country, are chosen over both tariffs and import quotas because they are less likely to lead to retaliation. This in turn follows from the fact that the quota rents generated by a VER are presumed to remain in the exporting country, either being collected by its government in return for export licenses, or being earned by the exporting firms themselves.

This seems to be a valid argument for the use of VERs, as long as the reason for the trade restriction in the first place does not require the restricting country to collect the revenues or rents. For example, one could hardly use a VER as a tool to improve the terms of trade, since it is the exporting country whose terms of trade must improve with a VER. However, to the extent that countries seek protection for other reasons, such as the defensive avoidance of market disruption that will be discussed further in the next section, then the fact that a VER may actually benefit the exporting country by improving its terms of trade and thus deter retaliation is surely a plus.

On the other hand, while this is a valid justification for this

⁵As noted in Bhagwati and Srinivasan (1983), the quota game does not actually have an equilibrium, but the dynamic process of each country setting its quota based on the other's quota does lead asymptotically toward autarky.

particular form of NTB, it says nothing about another related issue that concerns this paper: why do governments use nonprice measures for dealing with international trade? For once the exporting country has been induced to restrict exports, one could ask why it does not do so via an export tax, rather than using a quantitative restriction as is more normally done. The benefits to the exporting country and thus the disincentive to retaliate would be the same in either case. Once again it seems that there is an additional preference for quantitative controls rather than price incentives, and this preference does not have anything to do with retaliation. There is still something to be explained.

D. RENT SEEKING

Yet another difference between tariffs and quotas was pointed out forcefully and memorably by Krueger (1974). She observed that since rights to import under a quota are not normally auctioned off, but are simply granted outright to individuals and firms that are somehow viewed as deserving, a quota creates a tremendous incentive for competition among the potential recipients of these rights. Such competition uses real resources in an amount that may approach the value of the rents from the quota themselves, and this loss constitutes an additional cost to society that is imposed by a quota but not by a tariff. Bhagwati and Srinivasan (1980) have extended the argument to tariffs, noting that agents can compete for the benefits that can be financed by the tariff revenues, just as they can compete for quota rents. But I suspect that most of us still view the rent-seeking phenomenon as the more important one, and therefore accept it as an additional cost associated with quotas that deserves to be considered.

What does rent-seeking say about the choice between tariffs and quotas? Clearly from a social point of view, rent-seeking makes quotas distinctly inferior to tariffs, since the additional resource costs involved are potentially much larger than the dead-weight losses that we customarily measure for both tariffs and quotas.

As mentioned before, governments do not always pursue a social optimum. Along with rent-seeking in some countries goes an attractive opportunity for corruption, if government officials can position themselves as the beneficiaries of the rent-seeking behavior. That is, the discretion to allocate import licenses gives government officials a degree of power that can be far more lucrative, for themselves or their friends and relatives, than the levying of tariffs could ever be. In societies where

such corruption is commonplace, it therefore seems natural that one would find a preference for quotas over tariffs.

Thus rent-seeking provides both a "good" reason for using tariffs, and a "bad," but nonetheless valid, reason for using quotas. I hope that I am not being naive to think, however, that this explanation of the preference for quotas is not relevant in the major industrialized countries, where checks against corruption are well-established and effective. Thus there is still something to explain.

E. UNCERTAINTY

Finally, I turn to the consideration of uncertainty in the context of trade, a feature that has been absent from most models of international trade over the years but at the same time has been the subject of a more specialized literature of its own. This literature has been surveyed by Pomery (1984) and includes within it a number of papers that deal explicitly with the choice of optimal trade policy tools. Thus it is here that the most formal and sophisticated analysis of the issue has been undertaken. Two of the more recent examples from this literature, in which quotas may emerge as superior to tariffs, should suffice to give the flavor of the results.

Young and Anderson (1982) added risk aversion to a model in which they had previously (Young and Anderson (1980)) shown tariffs to be optimal. In their general equilibrium model an economy faces a random world price, and seeks to maximize consumer welfare subject to a ceiling on expected imports. Because of risk aversion, the optimal policy attempts to stabilize real income, and thus requires that import prices rise and imports fall when their world price happens to be low. Neither a tariff nor a quota achieves this outcome, but since a quota at least holds both constant, it is closer to the optimum and is preferred to a tariff.

A second recent example is a model of Falvey and Lloyd (1985). Their's is a partial equilibrium model that is distinctive in that they divide population into both a producer group and a consumer group, depending on ownership of factors in the industry being studied. They are then able to derive properties of the optimal policies from the standpoint of each group, defined as functions relating domestic price to the state of the world. Not surprisingly, producer interests are promoted by a policy that is similar to a quota, again, it would seem, because of risk aversion.

Thus it is ultimately risk aversion that leads to a preference for quotas in these models. Whenever uncertainty originates outside a country,

through randomness in the world price or the import supply curve, then a quota can stabilize both the price and the quantity of imports, effectively insulating the country from the uncertainty. This then seems to provide a clear case in which theoretical considerations favor a quota over a tariff, and stands as a good candidate for explaining the behavior we observe.

Even though these arguments are valid in theory, however, I am doubtful that they come very close to capturing what really motivates governments in their choice of trade policy. The models of uncertainty, to the best of my knowledge, have the common property that the trade policy that is chosen must be put in place before the uncertain state of the world is known. Thus a quota protects the economy or the industry from a possible good outcome at the same time that it protects it from a bad one, a form of protection that is typically optimal for risk-averse individuals.

As I see trade policies being used in the world, though, they are not put in place in advance of the changes in world markets from which protection is sought. On the contrary, protection is typically a reaction to such changes and would not have been sought at all if events had taken a turn for the better instead of a turn for the worse. This is not to say that no uncertainties remain after trade barriers are erected. But if future random events all move in the direction of improvement, I would expect to see pressures build to remove the barriers.

In other words, I see most protection not as an anticipation of trouble but as a reaction to troubles that have already begun. Models of trade with uncertainty, while theoretically very elegant, miss the point of what I think most trade policymakers are trying to accomplish.

II. THE PERCEPTION THAT TARIFFS WILL NOT WORK

As must by now be clear, I am unsatisfied with the reasons for preferring NTBs that I find stated or implied in the literature. No doubt each of the reasons discussed above has some validity, but for the most part I believe that they are off the mark. In my view NTBs are most often preferred by policymakers because they and their constituents believe that tariffs simply will not work--that somehow a tariff, because it does not explicitly constrain imports, will be circumvented by foreign exporters and be ineffective. Before I launch into a series of reasons why this might be the case, I must first explain what I believe to be the objective that is most often being pursued by trade policy. For it is only in the context of

that objective that we can understand the fear that it will not be met.

Trade theorists have been quite creative in conceiving various motives for trade intervention, often seeming to belie their avowed preference for free trade. We have met many of the motives in the discussion above, including the raising of revenues, the maximization of consumer and/or producer welfare, improvement of the terms of trade, acquisition of monopoly profits, and the offsetting of domestic distortions. None of these objectives, in my view, is what protectionism in modern industrialized economies is about.

Instead, I see most restrictive trade actions as being defensive, attempting to undo harm, or prevent further harm, that is perceived as being done to domestic workers and firms. Certainly this is the explicit motivation for trade actions under various national escape clauses, and it also seems to be the motive behind many of the administered trade policies that occur outside the formal framework of the GATT.

One could perhaps explain this desire to prevent harm in terms of the political process, though it is hard to see why agents would be more effective in lobbying for protection from a decline in income than they would be in lobbying for an increase: their stakes in the policy choice are the same either way. Therefore I suspect that the use of trade policy for such defensive purposes is better explained by what Corden (1974) has called a "conservative social welfare function," that is, a social-welfare function that attributes greater importance to individual losses in utility than to equal gains, thus embodying a bias in favor of the status quo.

However one models it, it seems clear to me that much of public policy is geared more to preventing harm than to fostering improvement. And trade policy is a prime example of that attempt, despite what one might say about the superiority of other policy tools for achieving the same end. I will therefore assume from here on that the objective of protectionism is the prevention or undoing of harm to firms and workers, rather than any more aggressive objective of raising welfare, profits, or wages from scratch. The choice between tariffs and NTBs will then be based on which policy is best able to achieve this objective.

I turn therefore to a list of reasons why tariffs may be distrusted, in terms of their capacity to prevent domestic workers and firms from suffering income losses, bankruptcies, and unemployment.

A. GENERAL SUSPICION OF PRICE-ORIENTED POLICIES

My first reason has nothing to do with rationality, but rather with a simple distrust of the price mechanism and a failure to understand it. We see in other areas of economic life a suspicion of price-oriented policies that may arise just from a failure to understand how effective price incentives can be. Economists' arguments, for example, in favor of taxing pollution are ridiculed as implying that pollution is acceptable so long as the (rich) polluters pay for the right to do it. The possibility that they will be discouraged from polluting by the tax, or will continue the activity only if the gains to them and society are larger than the tax, is easily lost on the public. In the same way, a tariff to protect employment in a domestic industry may be objected to. It seems to say that for foreigners to throw people out of work is all right, as long as they can afford to pay the price.

Furthermore, I suspect that there is a bit of xenophobic paranoia that strengthens this suspicion. Foreign firms are seen as "out to get us," and it is therefore assumed that they will not let a little thing like a tariff interfere with undermining our livelihoods. A quota, on the other hand, appears to leave nothing to chance.⁶ It foils the invasion of our markets not just by making it harder, but by making it impossible.

B. SUBSIDIES

I turn now to the first of several reasons for distrusting tariffs that may be more soundly based. The first arises in industries where it is believed that foreign governments are subsidizing exports. If that is true, and if it is being done in order to increase exports themselves, then it is plausible that a tariff will just be met with a higher subsidy. If that were the case, and if the subsidy increase would match the tariff increase, then the fear that the tariff would not reduce imports at all would be well-founded.

The question that then arises is whether this sort of behavior is likely on the part of the subsidizing government. Unfortunately, trade theory is not well-equipped to answer this, since we do not have a good idea of why export subsidies are used in the first place. Standard competitive trade theory implies that an export subsidy can only be welfare

⁶Of course even a quota is likely to have unintended side effects that undermine its effectiveness. See Baldwin (1982).

worsening for the subsidizing country, while recent contributions to noncompetitive trade theory cannot be said to have given us a general explanation that we can rely on as an alternative.⁷

Still, one can argue, without necessarily knowing the objective being sought by export subsidies or the means by which they are expected to attain it, that it must still be true that optimal use of the subsidy requires the usual weighing of costs and benefits. If the marginal benefit being sought declines with the level of exports, then it can indeed be shown under fairly weak assumptions that the optimal subsidy will increase in response to a tariff, but by less than its full amount.⁸

Thus, to the extent that exports are in fact subsidized, it is reasonable to expect that the trade-reducing effects of a tariff will be partly, though not wholly, undermined by an increase in the subsidy. If the tariff were being levied for the purpose of raising revenue, then this would not be a problem: the increased subsidy would actually raise the revenue that could be collected. But under my assumption that trade policy is being used defensively to reduce trade, a tariff's effectiveness in this situation is reduced.

A quota, on the other hand, has no such problem. A quota pushes to infinity the marginal cost of raising exports beyond it, and certainly therefore will not lead to an increase in the subsidy. On the contrary, a quota may make the subsidy redundant and cause it to be reduced. If so, this would actually be a source of loss for the importing country, but

⁷Brander and Spencer's (1985) argument for an export subsidy is ingenious, but it relies on such a list of special assumptions, as shown by Eaton and Grossman (1986) and Dixit (1984), that it is hardly general.

⁸Let a subsidy, s , be paid and a tariff, t , be collected on each unit of the quantity of exports, Q , and let the inverse supply and demand functions be $p^s(Q)$ and $p^d(Q)$, respectively, the latter being linear. Then equilibrium requires

$$s = t + p^s(Q) - p^d(Q). \quad (1)$$

Let the cost of subsidizing exports be the cost of the subsidy itself less producer surplus,

$$C = sQ - [p^s(Q)Q - \int_0^Q p^s(q) dq] \quad (2)$$

and let the benefit be an unspecified function $B(Q)$ with $B' > 0$ and $B'' < 0$. Marginal benefit and marginal cost can then be equated to derive the optimal Q . It is then straightforward to derive that

$$dQ/dt < 0, \quad 0 < ds/dt < 1. \quad (3)$$

under my assumption about the objective of policy it would not be considered.

C. DUMPING

Another possible argument for the ineffectiveness of tariffs may be thought of as a private-sector analog to subsidies. Suppose that imports are being dumped on the domestic market by foreign firms. There are at least two definitions of dumping--selling at below domestic price and at below cost--and there exist a number of interesting theoretical explanations for the practice in both of these forms.⁹ It would be interesting but too time-consuming to explore the effects of anti-dumping duties versus anti-dumping quotas in each of these models.

A simpler approach is possible, however, that also encompasses the explanation for dumping that seems to be in the mind of the public, even though it tends to be dismissed by economists: predatory dumping. Here the concern is that dumping below cost is done with the objective of driving domestic firms out of the market, in hopes of later raising the price and earning monopoly rents. With this or any other reason for dumping, one can analyze it as analogous to government subsidies. The cost to the firm of selling below cost is the same as the cost to a government of inducing it to do so. Whatever the benefits that the firm may expect to derive from dumping, now or in the future, the argument made above about subsidies should apply. That is, a tariff will be partly, but not wholly, absorbed by the dumping firm, which will raise the price it charges in the domestic market by less than the tariff.

Once again, the relative ineffectiveness of a tariff in this situation does not carry over to a quota, which should be effective in discouraging dumping for just about any reason.

D. LOW SHORT-RUN SUPPLY ELASTICITIES

Subsidies and dumping lead to a distrust of tariffs because of a distrust of foreign governments and firms. That is not essential, however. Another valid reason for being suspicious of tariffs for restricting trade arises without any distorting behavior anywhere, from the very familiar property of supply curves that they are typically less

⁹See Davies and McGuiness (1982), Ethier (1982), and Brander and Krugman (1983).

elastic in the short run than in the long run. Fixed costs, costs of adjustment, and the like make it difficult to change output in the short run, even when the long-run supply response may be perfectly elastic.

If this property were to hold for the supply to a country of an import, and if it were to hold in the extreme form of a zero short-run elasticity, then the suspicion of a tariff would be well-founded. Any-size tariff would simply be absorbed by the exporting firms, and imports would not drop at all.

In this extreme form, however, the result does not seem likely. Exports to a country are not the same thing as production, and are not likely to be so inelastic. For even if a firm cannot change its output in the short run, it can presumably change to whom it sells. Furthermore, a zero elasticity is not plausible, even in production, for a great many products. Thus the idea that a tariff will be completely ineffective for this reason is not likely.

On the other hand, a low elasticity in the short run is not unlikely, especially in the many products for which some investment must be made in catering to particular national markets, such as design of a product with individual national characteristics, marketing, and establishment of a distribution system. Any of these is enough to assure that a tariff will be less effective in restricting imports in the short run than in the long run.

A quota, in contrast, does not have this property by definition. If we accept that trade policy is being used for the defensive purpose of preventing harm, the quota will be preferable to a tariff in that it will start to work much more quickly.

It may be objected that these differences exist only because I am comparing a quota and a tariff that are both constant over time. Indeed, with sufficient information, if import supply has any positive elasticity at all, then a large enough initial tariff can be calculated that will replicate the effects of a quota by then declining over time. This is true, but surely if that is desirable, then a quota which has this effect automatically is easier to use and is not subject to the same errors of implementation.

E. GROWTH OF COMPETITION OVER TIME

Another natural reason for distrusting tariffs is, in a sense, the mirror image of the one just discussed. Suppose that the threat to domestic industry comes from a foreign industry that is expanding steadily

over time. Then the import supply curve will be drifting outward, and a constant tariff that is effective in the short run will nonetheless permit imports to expand in the long run. To prevent this, the tariff rate would have to increase with time, a result that can be achieved more directly with a quota.

This is not an unlikely possibility. As the countries of the world develop at different rates, they move through different phases of comparative advantage. This leads to long-term swings in their abilities to compete internationally in particular goods, and these swings show up as growing capacities to produce and export these goods.

The classic example is the textile industry. As a relatively labor-intensive industry, textiles in developed countries have met steadily increasing competition from various developing countries as the latter have begun the process of industrialization and as their relative populations have continued to expand. This threat has been dealt with by means of a system of quantitative restrictions, rather than tariffs, in part, I am sure, because of the knowledge that textile production in the developing world would continue to grow if not restricted in this way.

Incidentally, tariffs and quotas have another interesting difference if it is decided in this situation to allow imports to grow, but less rapidly than they potentially could. To achieve this result with a tariff, the tariff would have to increase over time, seeming to become more restrictive. To achieve this same result with a quota, on the other hand, the quota would be allowed to grow, seeming to become more liberal. Thus a quota can be made to appear less onerous than a tariff, even when both have exactly the same real effects.

F. DECREASING COSTS

In the two cases just considered, while a constant tariff and a constant quota had quite different effects, it remained true that each policy could be replicated by a nonconstant version of the other. Furthermore an observant public might be expected to notice the price effects of a quota and therefore to infer the true level of protection it was providing. Thus it was really only a matter of convenience that led us to prefer a quota. In the final case I wish to consider, however, a quota really can accomplish something that a tariff cannot, and there is the added advantage, politically, that the observed price effect of the quota considerably underestimates the protection it provides.

Suppose, then, that the import supply curve is downward sloping over

the relevant range. This might be the case if there were economies of scale in the industry, especially ones external to firms but internal to the exporting countries, and if the importing country were the major market for the good. Or it might be the case, once again, if there were fixed costs associated with entering a country's market, such as setting up a distribution system.

Suppose further that the domestic industry has constant marginal cost, at a level higher than the cost of imports would be if imports served the entire domestic market. To put us in a situation where trade policy might be used for defensive purposes, let this situation be a new one, perhaps because domestic costs have recently risen compared to those abroad, so that there initially exists a domestic industry to protect.

The situation is shown in Figure 1. The domestic supply curve is the horizontal line, SS' , and the domestic demand curve is DD' . Thus import demand is given by the kinked excess demand curve, SKD' . The import supply curve is drawn as the downward sloping curve, S_M^0 , and should be interpreted, for a competitive market, as a locus of points from a family of upward-sloping industry supply curves each associated with the level of the externality that arises for a given Q . It should not be read as giving the level of supply for each given price--which is not defined--but rather as giving the marginal cost associated with each quantity.

Under these assumptions, the failure to protect the domestic industry will lead to its demise. If decreasing costs are internal to the importing firms, then even though costs for low levels of imports may be above those of domestic firms as shown in the figure, the foreign firms know that by expanding sufficiently they can bring those costs down, and they will do so. If decreasing costs are external to the importing firms, then there may be an equilibrium with no trade, but there will also be one at E^F in which the domestic market is served entirely by imports.

Now a tariff in this situation is an all-or-nothing policy. Set higher than some threshold value, it will prevent trade entirely. Set lower than that value, it will reduce imports somewhat but not permit any domestic supply to survive. In the figure, a tariff shifts the import supply curve upward, to something like S_M^T . A tariff just large enough to cause this curve to pass through the kink at K is the threshold value above which there will be no trade. A tariff below this, such as the one shown, yields two positive trade equilibria, but the only stable one under

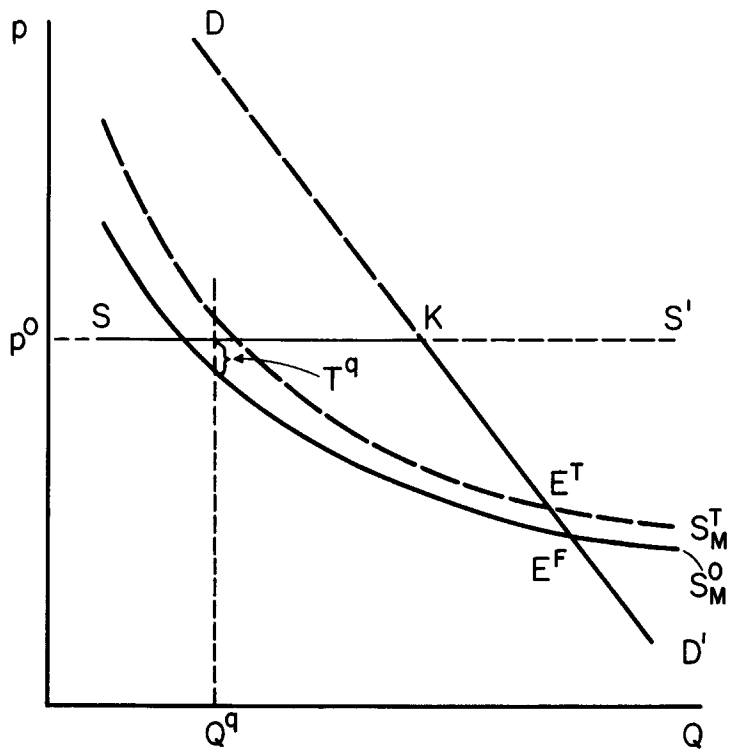


FIGURE 1

plausible assumptions is at E^T .¹⁰ At that point there is no domestic production.

A quota, on the other hand, can be set to permit some imports and to permit a substantial portion of domestic supply to continue. This is shown for the quota, Q^Q . At the same time, the quota can keep the price of imports just equal to that of domestic goods, giving the appearance of a low tariff-equivalent rate of protection. In the figure, the tariff equivalent of the quota is the distance T^Q . This is an outcome that cannot be replicated by a tariff except in an unstable equilibrium.

This story is somewhat stylized, but it gives substance to the notion that competition can undercut a tariff, at least if it is of moderate size, and that such a tariff will therefore do no good. I have tried to frame it in competitive terms to keep it simple, but a similar story could be told, perhaps more believably, in some form of noncompetitive market. The basic point is simply that a quota can keep market penetration low enough to prevent full exploitation of decreasing costs, and that a tariff cannot do this without shutting off trade entirely. This makes the quota attractive as a defensive policy that need not greatly restrict trade.

III. CONCLUSION

I have looked here at two sets of reasons why governments may prefer to use quotas and other quantitative restrictions on trade. The first set came primarily from the literature on the nonequivalence of tariffs and quotas, either as direct explanations that have appeared in that literature, or as implications that can be derived from that literature. On the whole, while there are undoubtedly elements of truth in many of these, I did not find them convincing and complete as explanations of what happens in the world.

I then looked at a second set of explanations, all of them related to the perception on the part of governments and their constituents that tariffs are not as effective as quotas in restricting trade, or, therefore, in preventing harm to domestic firms and workers. I found five distinct

¹⁰I am assuming a Marshallian dynamic adjustment process. A Walrasian adjustment process cannot be used in this situation, since the quantity supplied for a given price is not well-defined.

situations in which this perception would be valid.

To me this means, first, that the preference for NTBs should be taken seriously as a reflection of a variety of valid concerns rather than dismissed as the result of fuzzy-headed thinking on the part of governments.

Second, it means that our models of trade policy should be designed to make sense of the behavior that we observe in the world, including that of government policymakers. When governments consistently perform in ways that are inexplicable within our models, that may well mean that our models should be changed. As the ideas presented in the second half of the paper should suggest, it need not be at all difficult to do this.

In another paper, Deardorff (1986), I have pursued these ideas more rigorously, attempting to formalize what Corden's conservative social-welfare function implies as the appropriate policy for dealing with market disruption. I recommend in that paper a policy for use in such situations that I think would be desirable to build formally into any safeguards code that might be negotiated. Since that policy recommendation has obvious relevance to the discussion here, I will conclude by describing it.

My proposal is that safeguards actions should be implemented by means of explicitly temporary, globally marketable, externally allocated quotas. Specifically, once it has been decided that a domestic industry deserves some form of trade protection due to injury from imports, the GATT should prescribe that the importing country institute an import quota, set at a level no less than some base-year level of imports prior to the injury. This quota should be implemented by issuing import licenses in the amount of the quota and then allocating them to all exporting countries in the amounts of their base-year exports.

An advantage of this policy, as I show in Deardorff (1986), is that it is capable of preserving the levels of welfare, both of consumers and producers in the importing country, and of foreigners--even those in countries whose exports have not increased but who would be hurt by certain other policies such as a tariff. Thus it directly acknowledges the reasons I have discussed in this paper for the preference of governments for NTBs and should not be subject to the current drawback of GATT rules--that governments are tempted to ignore or circumvent such rules.

An additional advantage of this policy is that it automatically provides compensation to the country or countries whose exports are restricted by the safeguards action. Compensation has always been a requirement of the GATT safeguard clause, but compensation has been

difficult to achieve in practice since it was attempted through offsetting trade concessions. These were always of questionable value, and they did not, in any case, serve to compensate the private individuals who stood to lose from the action in the first place.

A crucial feature of this proposal is that while these rights to import under a safeguards quota would be allocated to specific countries, they would be globally marketable and so would not require that the imports actually come from the countries to which they were allocated. Thus it would only be the allocation of the quotas, and the quota rents, that would be country specific. The quotas themselves would be global globally marketable.

This feature would have the economic advantage of assuring that imports from all sources would be subject to a single-quota premium, and thus encourage imports from the least-cost source. In a changing world economy it would not freeze production patterns across exporting countries and would permit entry by new low-cost suppliers. It would also mean that the quota, in terms of its effect on prices, would be equivalent to an MFN tariff. As a practical advantage, the requirement that these quotas be global would eliminate the need for customs officers to monitor countries of origin. This would reduce the inefficiency, waste, and sometimes corruption that country-of-origin requirements engender, both in their enforcement and in their evasion.

Finally, I have said that these quotas should be explicitly temporary. This is in response to an objection, raised forcefully in discussion by Michael Mussa, that by allocating rents to foreigners one loses one of the main political constituencies that could otherwise be counted on to press for the termination of the protection. To discourage this from happening I would require that these quotas be specified in advance as increasing in quantity by some preset percentage per year. This would assure that both the protection provided to domestic interests and the rents provided abroad would erode over time in a predictable fashion until the quotas became redundant.

There is undoubtedly much more that needs to be considered before a policy like this can be accepted as desirable. I put it forth now to stimulate discussion. My hope is, however, that in discussing this issue we will not lose sight of the reasons I have mentioned in this paper for governments to prefer NTBs.

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