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Policy Responses to Shifting Comparative Advantage: Designing a System of Emergency Protection*

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Policy Responses to Shifting Comparative Advantage:
Designing a System of Emergency Protection

I. Introduction

Recently, many governments in industrialized countries have increasingly used various instruments of "contingent" or "administered" protection. As indicated by the words contingent and administered, under these procedures import-competing firms can be provided with protection only if they satisfy a number of necessary conditions. The most frequently encountered examples of these procedures are antidumping (AD) and countervailing duty (CVD) measures, and safeguard or emergency protection laws that implement Article XIX of the General Agreement on Tariffs and Trade (GATT).¹ In contrast to other avenues through which firms can attempt to obtain relief from import competition, contingent measures are usually embodied in legislation which spells out the criteria that need to be satisfied, as well as the procedures to be followed. Alternatives to contingent protection include direct lobbying by firms for protection and industry-to-industry arrangements such as voluntary export restraints (VERs).

In practice all these instruments are (imperfect) substitutes for each other, as to a large extent they all address the same issue: protection of domestic firms from competitive pressures caused by shifts in comparative advantage.² While these shifts are an inherent and fundamental element of the

¹ Safeguards or emergency protection as mandated by Article XIX of the GATT is supposed to be temporary and non-discriminatory. The designers of the GATT intended that safeguard actions were to be the primary avenue to deal with market disruption arising from "fair" trade. AD/CVD, in contrast, formally are instruments to address the "unfair" practice of dumping and subsidization, respectively. Dumping is defined as charging an export price for a product that is less than what is charged for the same product in the firm's home market. In this paper we will abstract from the fair - unfair distinction, as it is irrelevant to our argument. In what follows, the terms contingent and administered protection will be used interchangeably.

² More often than not, the source of the problem lies in a comparative disadvantage. An example is mismanagement of domestic import-competing firms or macroeconomic policy.

market process, in the practical trade policy setting the focus tends to be on increases in import penetration, and not so much the reasons underlying them. One of our goals in this paper is to provide some guidance to policymakers wishing to rationalize or create a system to deal with "market disruption caused by imports."³ In particular, many (developing) nations may be contemplating the creation of such a system, especially in the context of unilateral liberalization programmes (Messerlin, 1988). It appears that this sometimes implies that existing legislation in developed market economies is copied. We find this to be deplorable, as most instruments that exist currently are often both ineffective and very costly. While improvements in industrialized nations are usually hindered by the difficulty of revoking a law once it has been enacted, many (developing) countries are still in the position of starting "de novo." They should thus in principle be able to implement a rational system of emergency protection.⁴

In this paper we take the need for a system to protect domestic producers from "disruptive" import competition as given. Why this need exists is a very important and interesting question, but it will not be addressed here.⁵ Instead, we focus on three criteria that a system of emergency protection should satisfy: (1) effectiveness (i.e., work as intended); (2) efficiency (i.e., be least costly for all parties concerned); and

³ Other recent contributions that focus on this issue include Hoekman (1989), Richardson (1988), and Sampson (1987).

⁴ Of course, many developing countries maintain an extensive pattern of protection. We do not consider the problem of converting existing measures of protection to conform with the system of emergency protection. To the extent that permanent protection is desired the latter is unlikely to be relevant, even though it will be in a country's interest to convert quotas and import licenses to tariffs. See Anderson (1988) on the general superiority of tariffs over quotas.

⁵ Of the rationales that have been suggested in the literature, we can mention two. The first is that a system is required to allow liberalization to occur in the first place. The second postulates that governments (electorates) refuse to accept changes in real income (or proxies such as employment) that are "too" large or abrupt (Corden, 1974).

(3) fairness (i.e. distribute the cost of intervention across affected parties in an equitable manner). In terms of designing a system of emergency protection, policymakers need to determine the remedy (the instrument to be used in intervening) and the rules under which intervention will be allowed. Section II of this paper focuses on the choice of remedy, while Sections III and IV focus on the effects of various rules. We illustrate the importance of alternative rules by analyzing various ways in which current measures of administered protection work.⁶ In doing this a number of shortcomings embodied in current procedures will come to light. For example, it is demonstrated that the threat effect of a procedure often may have unintended consequences, and that both threats and the criteria which have to be satisfied for protection to be granted can easily distort production decisions of firms. Concluding remarks are in Section V.

II. Choice of Instrument of Protection

Various possibilities regarding the instrument of intervention are noted in Table 1. They include: (1) selective protection with (implicit) compensation for affected exporters; (2) selective protection without compensation; (3) nondiscriminatory protection without compensation; (4) nondiscriminatory protection with (implicit) compensation; (5) export taxes; and (6) subsidization of import-competing industries; and (7) subsidization of specific factors of production.

[insert Table 1]

To be efficient and equitable, any instrument of emergency protection needs to be effective, minimize distortions, and allow for the compensation of exporters. To be effective, intervention should be nondiscriminatory. Existing measures of contingent

⁶ We have chosen to minimize complexity as far as formal modeling is concerned. Thus, while the theoretical arguments developed in the subsections can be made with greater generality, this would not add additional insights.

protection such as AD and CVD are discriminatory in nature, as are VERs. Thus, they can only be of limited effectiveness. This is because of the scope that exists for trade diversion, and circumvention via third-country exports. Because selective protection is porous it is likely to lead to gradual expansion of coverage. Arguments along the lines that porous protection is better in terms of welfare for the imposing nation are rather facile, as porous protection often will imply a continued pressure for (additional) protection. Experience has shown that in practice measures of discriminatory protection tend to be expanded over time to cover all suppliers.⁷ This is a highly inefficient procedure, as it locks in an arbitrary pattern of production and trade. Moreover, this pattern is one which is greatly distorted due to the piecemeal invocation of successive discriminatory measures. Even to the extent that transshipment or diversion occurs, consumers will still end up paying higher prices than if protection is nondiscriminatory. More importantly, selective actions not only create vested interests at home, but also abroad, as less competitive exporters seek to maintain the status quo. Discriminatory measures facilitate noncompetitive practices such as market sharing and (implicit) price collusion.⁸ The result is that the costs of selective measures will almost always outweigh benefits.

Minimization of distortions requires, *inter alia*, that the instrument be invoked for a limited period of time (be temporary) and that affected exporters be compensated.⁹ As intervention is intended only to give domestic producers a "breathing" space, it is clear that support should be limited in time. Degressivity will gradually subject import-competing firms to increased foreign competition, and thus avoid potential shocks associated

⁷ See for example Baldwin (1982) and UNCTAD (1984). The prime examples of this are, of course, textiles and steel.

⁸ See Bergsten (1975), Jones (1984), and Murray, Schmidt, and Walter (1978) on quotas and VERs, and Messerlin (1988) and Finger and Olechowski (1987) on AD/CVD.

⁹ Equivalently and preferably, the level of support can be gradually reduced during this period (be degressive).

with an abrupt end of the support. While the limited duration requirement is uncontroversial, this is not the case for compensation of affected exporters.

Indeed, arguments against compensation are frequently made in the literature.¹⁰ They are largely pragmatic, in that they revolve around the fact that usually firms have alternative ways to attempt to obtain protection (direct lobbying, VERs, administered protection). As compensation makes protection more costly (and thus less attractive), so the argument goes, requiring it will increase the incentive to use AD/CVD and/or to negotiate VERs. While this is true, removing a compensation requirement is a nth-best solution that will not necessarily improve on the status quo. There are both efficiency, equity, and pragmatic arguments for compensation. Furthermore, as will be discussed presently, this is quite feasible to implement.

One pragmatic argument for compensation is that it obviates the need for retaliation. From the point of view of developing countries or small open economies an offer of compensation should ensure that no retaliation will result after they invoke emergency protection. Retaliation is usually very costly to all parties concerned. Given that it has been decided that the import-competing industry should be supported, sharing any resulting rents with affected exporters is a rational strategy in the context of the threat of retaliation.¹¹ Another pragmatic argument that compensation raises the costs of intervention to the importing nation and thus should reduce the incentives to pursue it.

¹⁰ See, for example, Jackson (1986), Hufbauer and Rosen (1986), Hufbauer and Schott (1985). Arguments against compensation are not new. Thus, the basic argument can be found in Tumlin (1974).

¹¹ This is a general argument that applies to large as well as to small economies. Of course, getting large trading powers such as the EC or the U.S. to offer compensation to smaller nations in the context of emergency protection is another issue altogether, as the "large" only have to worry about retaliation amongst themselves. There is an important negotiation problem here which we will not address in this paper. See Hoekman (1989).

Turning to narrower arguments based on economic theory, the following efficiency-based argument for compensation can be made, drawing on the property-rights literature. When nations impose protection they are creating a negative externality for affected exporters. Conversely, exporters presumably were imposing negative externalities on domestic import-competing firms by injuring them. As in the literature on externalities and property rights, the question can be asked what the optimal distribution of rights is. According to Coase (1960), the party with the higher marginal transaction costs should get the rights. Alternatively, the party with the lower transaction costs can be assigned liability. Examples of transactions costs include costs of detection, monitoring, communication, and negotiation. All of these costs are likely to be higher for exporters. The implication is that importers need to compensate exporters when imposing the "protection externality" if an efficient outcome is to result.¹²

The best known economic case for compensation is probably due to Bhagwati (1976).¹³ The argument is that there exists both an efficiency and an equity case for compensation because exporters suffer a double reduction in welfare due to the threat of protection and the eventual imposition of protection. This reduction in welfare is caused by the need to shift production factors from tradables to nontradables and to alter the consumption mix in comparison to a world where the threat does not exist and protection is never imposed. The effects of

¹² Efficiency in a Coasian bargaining framework is only ensured in an ideal world without transaction costs or strategic behavior and where players have complete information. In the absence of these conditions, efficiency requires that rights be allocated via competitive bid, not by preassignment (Samuelson, 1985). This, however, is not possible in practice in international relations, so that the second-best solution is to use the liability rule as advocated by Coase. Note, incidentally, that in the GATT context multilateral negotiations and the possibility of renegotiating the balance of rights and concessions can be interpreted as an approximation to the required reauctioning of property rights.

¹³ Which is based on the analysis in Bhagwati and Srinivasan (1976).

imposition of protection on a small economy are well known, of course, and are illustrated in Figure 1. If no possibility of protection exists, and assuming the absence of both distortions and uncertainty, one gets the standard case of the country producing on its transformation curve (P_0) and consuming somewhere along the terms-of-trade line (C_1). If protection is imposed by the importing country, the exporter faces a new terms-of-trade line, and ends up producing at P_1 and consuming at C_2 . Welfare has diminished and production has shifted towards the importable good (Q_2).¹⁴ To the extent that compensation can prevent or reduce the cost of this shift in resources there exists an efficiency rationale for compensation.

Current procedures do not score very high in terms of effectiveness, degressivity, and compensation. As AD/CVD and VETs are discriminatory, their imposition can only be effective during the short run, while nondiscriminatory protection as mandated by Article XIX of GATT should be effective, of course. While compensation under Article XIX (safeguards) procedures is required by GATT rules, it is rarely offered.¹⁵ VETs will imply compensation to the extent that exporters can capture (part of) the quota rents, while AD/CVD usually imply no compensation.¹⁶ VETs/AD/CVD are not subject to specific time limits, nor are they degressive, while for safeguard actions under Article XIX these

¹⁴ Assuming a 2-period world and that welfare in the absence of a quota remains constant, the loss to the exporting country due to the existence of the threat is equal to the discounted expected value of the difference between utility in periods one and two, or $rq(U_1 - U_2) > 0$, where U_1 is the utility in period 2 if the quota is invoked ($U_1 < U_2$), r is the discount factor, and q is the probability of the quota being imposed ($0 < q < 1$). See Bhagwati and Srinivasan (1976).

¹⁵ See Sampson (1987). Article XIX does not mention compensation, but allows (after failed consultations and agreement of GATT members) affected parties to withdraw equivalent "concessions" (that is, to retaliate). In practice, compensation has evolved as a way to avoid retaliation. See Jackson (1986) for more on this topic.

¹⁶ The only potential exception being if an undertaking by the exporter is accepted to reduce exports or raise prices in lieu of the imposition of a duty.

requirements may or may not be met in practice (Sampson, 1987).

The problem is then to choose a remedy that applies nondiscriminately and allows exporters to be compensated. Possibilities include subsidization of either import-competing industries or factors of production, export taxes, and border measures such as tariffs and quotas. Those who propose subsidies as a remedy argue that in contrast to border measures they allow the source of the underlying adjustment problem to be targeted.¹⁷

Border protection may foster adjustment, but not in an efficient manner, given that it distorts consumer choices to no good effect. In the same vein, proposals have been made to use both subsidies and tariffs or auctioned quotas, using the income generated by the latter to finance adjustment programs (the subsidy).¹⁸

While subsidies in theory are more efficient than border protection, this argument should not be taken too far, as governments need to be able to analyze the current situation and target the subsidy correctly. This is usually extremely difficult. Furthermore, there exist multilateral constraints on the feasibility of subsidizing domestic industries, so that their use requires multilateral agreement. Subsidization is costly in the sense that it requires direct expenditures. Although this can be beneficial in terms of increasing the visibility of protection, it may also make intervention too costly. This perception motivates proposals to levy a tariff or auction quotas and use the revenue to subsidize the industry. But, this type of politically convenient "self-financing" will create great incentives for revenue-seeking and is likely to increase pressures for protection. It is also not equitable, as no justification is offered for taxing both foreign producers and domestic consumers of the product involved. The lack of

¹⁷ A number of proposals have been made in the ongoing Uruguay Round of multilateral trade negotiations to use subsidies as the remedy in emergency protection (Hoekman, 1989).

¹⁸ The Institute for International Economics has been a prominent example. See Bergsten et al. (1987), Hufbauer and Rosen (1986), and Hufbauer et al. (1986).

compensation of affected exporters is a general problem with trade-financed subsidization.

The attractiveness of subsidization depends also on the goal underlying the intervention. To the extent that there are distortions that inhibit adjustment to structural changes, a targeted tax-cum-subsidy approach will be much more efficient than intervention in trade. But, if the intention is to reduce imports per se, a border measure will be the optimal instrument.¹⁹ We believe that emergency protection should focus only on reducing imports, because the existence of "adjustment distortions" has nothing to do with increased import penetration. In a market economy changes in technology and tastes inherently require adjustment of domestic producers. Policies to deal with adjustment problems, if any, should be available to all domestic producers (factors of production), not just those that happen to be subject to import competition. Thus, a general policy is called for, not a trade policy.

An alternative instrument that in principle allows both compensation and nondiscrimination is the imposition of export taxes by the governments of the exporting firms. In this connection, Anderson (1988) speaks of voluntary export taxes (VETs). We are dubious about the practicality of such an instrument in the context of emergency protection. There are likely to be severe negotiation, monitoring, and enforcement problems involved with this option. The fact that the measure is not under the direct control of the government of the importing nation severely limits the feasibility of VETs.

In practice, we believe temporary (i.e. degressive) nondiscriminatory border protection is likely to be the preferable instrument to impose, especially if the objective is to cut back imports. Thus, the choice is between tariffs and quotas. While tariffs are more efficient than quotas, the problem with a tariff is that it will be difficult to compensate

¹⁹ See Johnson (1965) or Bhagwati and Srinivasan (1969).

affected exporters.²⁰ This is not the case for quotas. If all affected exporters are allocated a quota and these quotas are tradable the result will be equivalent to a MFN tariff. This is because tradability implies that more efficient producers will buy up quotas from less efficient producers so that in equilibrium there will be a single quota premium. Tradability ensures that all exporters are compensated, but that the pattern of trade and production will still follow comparative advantage.²¹ Thus, while tariffs would be preferable, compensation problems make the use of quotas more attractive in cases of temporary emergency protection.

Degressivity can be achieved via a gradual expansion of the global quota, in such a fashion that its growth exceeds the growth in world demand. The result will be a gradual reduction in the quota premium. Note that under this system inefficient suppliers will continue to be compensated. An alternative to a global quota is to use a tariff quota. Here degressivity can be achieved via a gradual reduction of the out-of-quota tariff rate. The difference between this and tradable country quotas is that as the out-of-quota tariff becomes low enough, the most efficient producers will just pay the tariff and not bid for the quotas of the less efficient producers. As long as the tariff is not too high (falls fast enough) a tariff quota may imply lower costs for the importing nation (less rents for the least efficient producers). While the importing country will eventually end up generating some tariff revenue, initially all affected exporters

²⁰ Thus, reducing tariffs on other sectors is likely to lead to strong opposition domestically, while redistribution of tariff revenue to foreigners is rather unlikely to be possible politically. Even if it were possible, it would most likely accrue to the foreign government, not to the affected firms.

²¹ To our knowledge, the idea to use a global tradable quota as a remedy in a safeguards context was first proposed by Deardorff (1987). Tradability ensures that the worst distortion induced by quotas (short-circuiting of the efficiency properties of arbitrage through the price mechanism) will be minimized. We recognize that quotas are inherently more distortionary than tariffs (Anderson, 1988), but feel that their compensation properties, in conjunction with the fact that they are tradable and temporary, outweighs any efficiency costs.

will have been compensated. Under either procedure the most efficient producers will continue to export as long as quotas are tradable. We prefer the global quota system, in large part because it is simpler.²²

III. Access Subject to Preconditions

That firms affected by import-competition should have access to the system of emergency protection appears to be an obvious requirement. That there need to be preconditions that the firm must satisfy is also intuitive: there is a need to limit the incentives for rent-seeking behavior. However, if preconditions are too difficult to satisfy, in practice firms may not have access to the system, and thus will have an incentive to lobby directly for protection and/or to collude with their overseas competitors. For example, a strong case can be made that presently emergency (safeguard) protection that conforms to GATT rules (Article XIX) is rarely invoked because in many nations access to this instrument is difficult, uncertain, or nonexistent.²³ Usually, it is more attractive for firms to use alternative instruments such as AD/CVD, negotiate VERs, or lobby policymakers directly for protection.

In practice all existing contingent instruments require preconditions to be satisfied before protection is granted. The most frequent criterion is a need for firms to demonstrate the occurrence of injury caused by import competition. If such a constraint did not exist the incentives for rent-seeking behavior would be enormous. An additional requirement that may be imposed in legislation implementing Article XIX is that support be in the national interest. While such requirements do not usually exist for AD and CVD,²⁴ dumping and subsidization need to be

²² For a detailed discussion of the tariff-quota possibility, see Sampson and Takacs (1988).

²³ See, for example, Hufbauer et al. (1986).

²⁴ The exception being EC antidumping legislation. However, this does not appear to be much of a constraint in practice. See Messerlin (1988).

demonstrated, respectively, of course.

The problem with criteria is that they may easily create incentives for import-competing firms to try and satisfy them, or for exporting firms to ensure that they are not met. In general, potential problems arise if the expected returns of protection exceed the opportunity costs of feigning that criteria are met. In terms of establishing criteria for an instrument of emergency protection, the goal should be to minimize the scope for such behavior. Thus, the problem is not only that rules are required to restrict rent-seeking via "direct" lobbying, but that careful attention be given to the design of these rules in order to minimize the possible manipulation by firms.

Feigning that criteria (rules) have been met is in itself an intervention- (rent-) seeking activity, and it can be likened to "indirect" as opposed to "direct" lobbying. The latter has been analyzed extensively in the literature on rent-seeking and directly unproductive profit seeking (DUP). A distinguishing characteristic of these activities are that they imply the use of real resources. As shall be explained below, this is not necessarily the case when firms attempt to satisfy the criteria of contingent measures of protection, i.e. engage in indirect lobbying.

Indirect lobbying belongs to the class of policy-imposed distortions,²⁵ and the potential scope for such activity increases as there exist more criteria. It is likely to occur especially when satisfaction of well-defined criteria are a precondition for protection. While one might argue that as the ambiguity in the precise definition of the criteria increases, so do the incentives to appear injured, this is not necessarily the case. More likely is a shift in intervention-seeking activity towards direct lobbying activities, as the outcome of invoking administered protection may then be too uncertain. The same argument applies the more discretion the political authority

²⁵ Bhagwati (1971) distinguishes autonomous from policy-imposed distortions. The former include reasons for market failure such as externalities, while the latter comprise man-made distortions such as tariffs, quotas, and so forth.

has.²⁶ The relative importance of indirect lobbying will be a function of the strength and nature of the incentives embodied in the criteria and the extent to which these incentives can be internalized by a firm. In general, producers can be expected to adjust choice variables so as to conform as closely as possible to criteria, while interfering as little as possible with current and future profitability. The precise nature of the firm's response will depend on the wording and implementation (interpretation) of the criteria.²⁷

If there is scope for indirect lobbying, the prospect of protection distorts firm behavior and thus leads to inefficiencies. This can be demonstrated using the standard small country 2-industry, 2-factor Heckscher-Ohlin-Samuelson model. Assume the prospect of protection exists, so that there is an opportunity cost for an industry associated with not appearing to meet the required preconditions. Let this loss be captured by a loss function, the argument(s) of which will depend on the criteria that need to be satisfied. The problem facing a representative producer of good 1 is then to maximize²⁸

$$(1) p_1 F(K, N) - L(\cdot) - wN - rK,$$

where $p_1 F(\cdot)$ is the value of production, (p_1 being the world price

²⁶ Under the U.S. escape clause (Section 201 of the 1974 Trade Act) the President remains free to reject a recommendation for protection if he does not deem it in the national interest. This has often occurred in practice. The effect of this uncertainty is to increase the (perceived) need for direct lobbying and increase the incentives to use alternative instruments such as AD and VERs. While U.S. trade legislation provides for a Congressional veto of the President's decision if he diverges from the ITC's recommendation, this veto power has never been used.

²⁷ Illustrations of possible indirect lobbying activities can be found in Leidy and Hoekman (1989), on which this and the following paragraphs are based.

²⁸ We assume throughout that only (the import-competing) industry 1 can petition for protection, so that the other (industry 2) is free of indirect lobbying. We also assume away all other possible distortions.

of good 1 and $F(\cdot)$ being the production function), $L(\cdot)$ is the loss function, and wN and rK represent the costs of labor and capital inputs, respectively. Suppose that criteria focus on the level of employment, so that $L=L(N)$. The first order conditions for this industry will be: $p_1F_1(\cdot)=r$ and $p_1F_2(\cdot)=w + L'$, (where subscripts on F and the prime on L denote the relevant first partial derivatives). The result is that production occurs below the boundary of the production possibility frontier (PPF), as resources are allocated off the efficiency locus. As illustrated in Figure 1, the PPF shrinks because an injury criterion based on units of labor employed is akin to imposing a per unit tax on labor in the import-competing industry equal to L' . Furthermore, because the domestic rate of transformation (DRT) is unequal to the foreign rate of transformation (FRT), production takes place at an inefficient point on the inferior PPF, i.e, P_1 instead of P_2 .

While the choice of criteria for protection can lead to a shrinking of the PPF, this is not necessarily the case. Thus, procedures can be designed that maintain production on the PPF. In the context of our example, this would be the case if $L=L(p_1F(K,N))$. In this case the focus of investigators is on turnover (gross sales). However, the indirect lobbying distortion remains, in that $DRT > FRT$.²⁹ Thus, production now occurs at P_1 and welfare (measured in terms of social indifference curves) improves in comparison to the previous case ($C_2 > C_1$).³⁰ But, the indirect lobbying distortion reduces welfare in comparison to the case where there is no possibility of attaining protection (C_0). The inference is that if indirect lobbying is possible the domestic marginal rate of transformation in production will not equal the marginal rate of transformation through trade. Thus, even if the criteria were such that production would continue on the efficiency locus, there will be

²⁹ That is, $p_1/[p_2(1-L')] > p_1/p_2 = \pi$, where p_2 is the world price of good 2 and π is the world terms of trade (p_1/p_2).

³⁰ The terms-of-trade line (π) is tangent to the inferior PPF at P_2 only by chance. Presenting things this way avoids cluttering the figure more than necessary.

a distortion that reduces welfare.

Three conclusions emerge concerning the design of an efficient system of emergency protection. First, there need to be "hard" requirements (rules), in the sense that they must be met. This is required to minimize the scope for rent-seeking in general, and for directly unproductive lobbying (DUP) activities in particular. Rules should not be subject to discretion on the part of investigating agencies or the political authorities. Thus, a technical "low level track" procedure³¹ is required that is not susceptible to direct lobbying. Second, industry-to-industry arrangements such as VERS should be prohibited, as these provide an alternative way of reducing import competition without having to satisfy any preconditions. Third, criteria and indicators must be such that the scope for indirect lobbying is minimized. Current contingent protection legislation often embodies incentives for indirect lobbying. For example, indicators of injury used by U.S. investigating agencies include trends in market share, employment, profits, capacity, capacity utilization, import penetration, and price underselling (i.e., exporters supply price being less than that of the import-competing industry).³² Capacity, utilization, employment, and profits often will not be closely linked to trends in imports, while business cycle influences are likely to be of greater importance in explaining the evolution of these variables. More important, while all of these indicators may to some extent be correlated with "injury," many can be manipulated by firms.

What criteria should be imposed as part of a system of emergency protection? We believe that import penetration is the only relevant criterion in that it is the least susceptible to strategic behavior and is directly tied to the presumed source of difficulty. Additionally, a national interest criterion should

³¹ This terminology has been used by Finger, Hall, and Nelson (1982).

³² Not all of these indicators need to be satisfied. Under U.S. law investigating authorities have a substantial degree of discretion, as the law does not specify which, or how many, of the indicators need to be satisfied.

be incorporated, where this is defined in such a way that it requires a cost-benefit analysis by an independent agency of the economy-wide effects of imposing protection.³³ The results of this analysis should be published.³⁴ While cases may arise where the national interest is deemed to diverge from the results of an economic cost-benefit analysis, it is important that the criteria used in reaching the decision be publicized.³⁵ In doing the required cost/benefit analysis, it is important that the market structure of the industry be taken into account. The majority of the firms making up the import-competing industry should be experiencing difficulty. For example, if an industry is competitive and only a subset of the firms involved are in difficulty there should be no intervention. If there are only a few firms in the industry, intervention may simply strengthen monopolistic tendencies. Contingent protection always has this danger and it should be recognized. Thus, a competition aspect should be incorporated into the cost-benefit analysis. In those cases where protection is likely to lead to a noncompetitive situation it should be rejected.

A number of authors have proposed that an additional criterion should be that the industry demonstrate a willingness to adjust to the changing circumstances.³⁶ One way to do this is to require that an adjustment plan be drawn up and submitted prior to protection being awarded. The rationale behind these types of proposals is that if no adjustment takes place the pressures for protection will persist. Although the problem is

³³ This has been suggested by numerous people and organizations. See, for example, Laird and Sampson (1987) and the references cited therein.

³⁴ As suggested by Finger (1982).

³⁵ There are numerous ways in which national interest can be defined, as is illustrated in the literature on noneconomic objectives for example. For a discussion in the context of designing a system of protection, see Laird and Sampson (1987).

³⁶ See, for example, Aho and Aronson (1985), Hufbauer and Rosen (1986), Jackson (1986). These ideas are also reflected in the 1988 Omnibus Trade and Competitiveness Act.

usually one of adjustment, proposals along these lines will not necessarily improve matters. To be credible (enforceable), such an approach requires the existence of a strong legalistic structure of the type found in the U.S. These do not exist in either Western Europe or in developing countries." As noted above, we believe that emergency protection should focus on import penetration, not adjustment per sé. To the extent that there are adjustment problems, policies dealing with them should be generally available and should not be trade policies. Finally, we can note that political failure is as, if not more, pervasive than market failure, so that great care must be taken when advocating government involvement in the specifics of industry adjustment."

Whatever criteria are chosen, it is important that the associated incentive effects on exporters as well as import-competing industries are analyzed carefully. The possibility of "perverse" incentive effects on exporters can be illustrated by a brief analysis of AD legislation. In particular, while AD threats embody incentives for exporters to reduce exports, such behavior may not necessarily benefit import-competing firms in the nation threatening AD. To illustrate matters, we can use the following simple framework. Assume a situation where there is a firm that produces for both a home and a foreign market. For simplicity we let this firm be risk neutral. Its problem is to maximize expected profits, using output allocated to the home and foreign markets as instruments (x_1 and x_2 , respectively):

$$(2) \quad \text{Max} \quad R_1(x_1) + R_2(x_2) - C(x_1+x_2),$$

where R_i represents revenue in market i and C represents costs. The first-order conditions for this problem are, of course, that marginal revenue in both markets is equated to marginal costs

²⁷ We owe this point to Patrick Messerlin.

²⁸ See Buchanan (1988) on political failure, and Lawrence (1988) for a discussion of government measures to promote adjustment in Japan, Canada, and the United States.

$(R_1' = R_2' = C'(\cdot))$, where primes denote first derivatives. Under AD legislation an exporter can be confronted with AD if it can be shown that: (1) prices charged abroad are less than those charged at home for the same (equivalent) product; and (2) the domestic industry is being injured." The exporter's problem is then to maximize the following:

$$(3) \quad R_1(x_1) + q(x_1, x_2)\Gamma_2(x_1) + (1-q(\cdot))R_2(x_2) - C(x_1+x_2),$$

where Γ is the revenue function facing the firm in the constrained case where it is faced with an AD action, and q is the probability of an action. Note that Γ_2 is a function of x_1 , because in the constrained case the (ex post) level of sales abroad will be a function of the price charged in the foreign market, which in turn will be a function of x_1 .⁴⁰ The parameter q is a function of x_1 and x_2 , where $\delta q/\delta x_1 < 0$, and $\delta q/\delta x_2 > 0$.⁴¹ In principle q is also a function of the injury requirement, as q increases as the level of injury increases. However, injury is likely to be highly correlated with total imports into the country, which are usually exogenous to a firm. First order conditions are:

$$(4) \quad R_1'(x_1) + q'(\cdot)[\Gamma_2 - R_2] + q(\cdot)\Gamma_2' = C'(\cdot)$$

$$(5) \quad q'(\cdot)[\Gamma_2 - R_2] + (1-q)R_2' = C'(\cdot)$$

³⁹ Our treatment here is intended to capture only the broad effects of AD, so that we ignore the finer details. We assume for convenience that the firm has market power and sells part of its output in its home market, although this is not necessary for dumping to occur as defined in AD legislation.

⁴⁰ This is probably the simplest way to model the effects of an AD threat. More realistically, constrained revenue if an action occurs is a function of both x_1 and x_2 , as these will determine the difference in prices across markets, i.e., the dumping margin. While this complicates the analysis, the results remain the same. See Leidy and Hoekman (1988).

⁴¹ As x_1 increases, its price will tend to decrease, so that q will decline as the dumping margin will decline. The converse holds for increases in x_2 .

Notice that the marginal revenue associated with an increase in domestically allocated output differs from that in the previous situation. The extra terms reflect the possibility that the firm may increase expected revenue by selling each constrained unit abroad at a somewhat lower price than otherwise, and thus at a price somewhat closer to the unconstrained optimum. That is, the possibility arises that by adjusting domestic output the firm can trade-off revenue at home against expected revenue abroad under an AD action. In particular, if $q[\cdot]' > q'[\cdot]$, firms have an incentive to exceed the unconstrained optimum at home for any level of total production. By following this procedure, damages associated with an ex post AD action are reduced, as is the likelihood of being found to be dumping. While this is only a possibility in the context of the discrete probability model used here, it is not unlikely to occur. Thus, Leidy and Hoekman (1988), using a continuous model where dumping in part is a function of the realization of a random variable (the exchange rate) with known subjective probability distribution, found that this was always the case for price-based AD laws.⁴²

Expected marginal revenue abroad under AD threat declines for any level of x_2 . This occurs because the marginal value of x_2 is zero once the AD constraint becomes binding (i.e., ex ante changes in x_2 no longer can influence revenue). This implies that for any level of x_2 , the expected marginal revenue generated abroad is less than in the unconstrained case. Thus, firms will shift away from the foreign market on the margin, and the threat of AD acts to reduce import competition. However, the threat is

⁴² AD actions may also be based on "constructed value" if firms are alleged to be selling below costs of production or there are no sufficient home market sales. In this case the home market effect is not available to firms because long run average total costs are the criterion. These cannot be altered in the short run, in contrast to the dumping margin if a price-based investigation is followed. Cost-based actions are usually taken only if home market sales are very small or negligible or exports originate in a nonmarket economy. Presumably firms will know with a high degree of certainty which type of action they will face.

only partially effective, as firms may increase home market sales also. The point to be made is that such a lack of neutrality is not desirable in a system dealing with market disruption because it induces the kinds of distortions just analyzed. The implication is again that great care should be taken when deciding on the criteria to impose in a system of emergency protection. Given our advocacy of tradable quotas as the remedy in safeguards cases, the next section focuses on possible incentive effects that arise if such a procedure is implemented.

IV. Effects of Quota Threats on Exporters

As noted above, the existence of the prospect of protection may cause potentially affected exporting firms to (re)act ex ante. Usually this will not be desirable. The effect of threats implied by quotas can be illustrated using an equivalent framework as above. If there exists a possibility of being confronted with contingent protection, the firm's problem is altered as follows:

$$(6) \quad R_1(x_1) + q(x_2)\Gamma_2(\alpha_2(x_2)) + [1-q(x_2)]R_2(x_2) - C(\cdot)$$

where $\Gamma_1(\cdot)$ is again the revenue the firm obtains in the constrained case where it is faced with protection, α_2 is the constrained quantity exported, and q is the probability of such action occurring. If protection is imposed, α_2 is a function of the prior quantity shipped (x_2). This is the case presently under both VER negotiation procedures and emergency protection rules that conform to Article XIX of the GATT. One of the distinguishing characteristics of alternative measures of contingent protection is the way in which q is determined. For the present, we assume that q is a function of x_2 , which would be the case if the instrument used was a VER or a quota. Thus, $0 < q < 1$ and $q'(\cdot) > 0$. The first order conditions associated with this problem are as follows:

$$(7) \quad R_1'(\cdot) = C'(\cdot)$$

$$(8) \quad q(\cdot)\Gamma_2'\alpha_2' + q'(\cdot)[\Gamma_2(\cdot) - R_2(\cdot)] + (1-q)R_2' = C'(\cdot)$$

If α_2 is exogenous (i.e., $\alpha_2' = 0$) in the sense that the firm cannot influence its level, $q(\cdot)\Gamma_2' = 0$, because $\Gamma_2' = 0$. If this is the case, it is easy to see that the firm will be induced to cut back deliveries to the foreign market. Given that $\Gamma_2 < R_2$, equation (6) implies that realizations of x_2 on average will be less than in the unconstrained case. If the constraint is binding, marginal revenue of x_2 is zero, and optimality therefore requires a reduction in x_2 .

More realistically, $\alpha_2' > 0$. The effect of the threat of protection becomes ambiguous, and in principle it is possible that the threat induces the firm to send more output to the foreign market. This is because the constrained level of exports under protection is positively related to the prior level of exports, so that the firm has an incentive to exceed the pre-threat level of optimal exports so as to be in a better position if the threat materializes.

Such a possibility is easily demonstrated using the simple analytical framework presented above. Taking a step towards further realism, assume that there is not one firm, but a large number of them ($i = 1, \dots, n$) all of which export the good (or a close substitute) to the foreign market. Let $q = q(x_1, \dots, x_n)$ denote the probability that emergency protection will be imposed, and let x_i be the quantity shipped to the foreign market by the i^{th} exporting firm. Thus, q is now a function of total exports to the foreign market. If the protectionist action materializes, each firm is limited in the amount it can export in comparison to the no-intervention case. Let this amount be $\alpha_1(x_i)$, where $\alpha_1'(\cdot) > 0$. That is, each firm's constrained exports are again an increasing function of the prior quantity shipped to the foreign market. The problem facing each firm is then to maximize the following objective function:

$$(9) \quad R_1(y) + q(x_1, \dots, x_n)\Gamma_1(\alpha_1(\cdot)) + (1-q(\cdot))R_1(x_1) - C(\cdot)$$

where y is the amount the firm sells at home. First order conditions become:

$$(10) \quad R_1'(y) = C'(\cdot)$$

$$(11) \quad q\Gamma_1'(\alpha_1)\alpha_1'(\cdot) + \delta q/\delta x_1(\Gamma_1(\cdot) - R_1(\cdot)) + (1-q)R_1'(x_1) = C'(\cdot)$$

Again, the equilibrium conditions for the home market remain the same, although it must be remembered that costs are likely to change due to changes in total output. But, the effect on output allocated to the foreign market is now qualitatively different from that discussed in previous cases. If the number of firms is large, individual market shares will be small. As the probability of a contingent action is now a function of total exports to the foreign markets, independent variations in quantity shipped abroad may be perceived to have a negligible effect on the probability of an action. Thus, as the number of firms increases, $\delta q(\cdot)/\delta x_1 \rightarrow 0$. In this case, the probability of an action is endogenous to the industry, but exogenous to the individual firm. Equation (11) then becomes

$$(12) \quad q(\cdot)\Gamma_1'(\cdot)\alpha_1'(\cdot) + (1-q(\cdot))R_1'(x_1) = C'(\cdot)$$

To establish a benchmark, suppose $\alpha_1' = 1$. The first order condition for the foreign market then becomes

$$(13) \quad q(\cdot)\Gamma_1'(\alpha_1) - (1-q(\cdot))R_1'(x_1) = C'(\cdot).$$

This expression, in conjunction with the objective function (9) shows that at any level of output there is a tendency for the firm to ship more to the foreign market under the threat than in its absence. In fact, the absolute quantity shipped abroad after the threat is established exceeds that in the case where it is absent if $\alpha_1' = 1$. In general, there will exist a threshold value for α_1' that is less than one which will induce the firm to ship more abroad under a threat situation.

The firm thus faces a tradeoff: by overshooting the pre-threat optimum level of exports it enhances its position ex ante. This is because if the threat is realized its action will have increased the quantity it can sell. However, its position will

deteriorate should the threat not materialize. This problem of "perverse" threat effects is a function of the link between the constrained and unconstrained level of sales." As indicated above, such linkages are common, and most proposals we are aware of in the area of emergency protection continue to incorporate them. In the rest of the paper we will refer to this issue as the coupling problem. The implication is that any efficient system of emergency protection must be "decoupled."⁴³

In the preceding subsection we advocated the use of tradable quotas in the context of emergency protection. Thus there is a need to deal with the coupling problem identified above. One possibility would be to exempt those suppliers whose exports grew at less than $x\%$ per year. However, this discriminates against those that are most efficient (have comparative advantage) and sets up an incentive for trade diversion. A better procedure is to base the level of the global quota on the level of imports during a base year prior to market disruption, and increase this base level by the rate of growth (or some proportion of it) of world trade in that product. Country shares in the global quota can then be allocated on the basis of country shares in world trade in that product.

V. Concluding Remarks

As is well-known, trade policy is usually inefficient in that it tends to create more distortions than it solves. Indeed,

⁴³ That there might be an incentive to increase exports when facing the threat of a VER has been noted in the literature (Bergsten, 1975; Jones, 1984; Stockhausen, 1988). This is intuitive because a VER must be negotiated. It is not imposed, so that exporters have an incentive to "up the ante." Our point is a more general one.

⁴⁴ The same type of result may emerge if foreign firms have market power. In this case they might (implicitly) target industry market structure in the importing nation. It is well known that import protection may have the effect of cartelizing (or even monopolizing) the market. Thus, if ex post rents are high enough, it is possible that imposition of protection is sought by the exporters. In that case it could be in their interest to expand exports, thus inducing the protection, which then allows them to capture the associated rents.

Deardorff and Stern (1987) have likened trade policy to doing acupuncture with a two-pronged fork; even if one of the prongs finds the right spot, the other prong can only do harm. This applies to protection in response to market disruption as well, of course. Protection is also a very costly form of intervention, both in a static sense (as demonstrated by numerous studies of "costs per job saved," for example), and in a dynamic sense (due to the distortions that reduce economic growth). In practical terms, however, given a socio-political need to address "market disturbance," temporary contingent protection may be the best response in situations where import penetration has increased substantially. The issue then is to design and implement procedures that are effective, equitable, and minimize distortions.

There is close to a consensus among economists that ideally measures to deal with market disruption should be along the lines of GATT's Article XIX: nondiscriminatory, transparent, and temporary. But, as we have shown, this is not enough. In addition, the scope for strategic behavior on the part of both import-competing firms and exporters needs to be minimized. In general, existing procedures can be expected to lead to an undesirable reallocation of real (productive) resources ex ante, as well as ex post. The incentives for rent-seeking behavior - which includes both familiar direct lobbying and what we have called "indirect" lobbying (via strategic changes in the firm's production decision) - are insufficiently recognized by policymakers. The same pertains to the effect on exporters of the threat embodied in the existence of measures of contingent protection.

In this paper we have been interested more in designing a system to deal with market disruption de novo than in improving the status quo. A system of nondiscriminatory emergency protection along the lines sketched out above (that is, embodying compensation of exporters through the use of global tradable quotas, and subject to criteria that minimize the scope for direct and indirect lobbying) should be feasible to implement for nations "starting fresh." While inferior to a tariff-based

system in terms of efficiency, we believe this is not too important as long as protection is temporary and is found to be in the national interest, and is outweighed by the implicit compensation of affected exporting firms.

Many of the necessary conditions for efficient intervention are embodied in Article XIX of the GATT, and from an economic perspective there is nothing wrong with the principles that underlie this Article. As noted above, the practical problem in many industrialized countries is the existence of more accessible but inferior alternative instruments such as AD actions and VERs. One could argue that given the fact that there currently are multiple ways in which protection can be obtained in many countries, it may serve little purpose to discuss the design of a more efficient and equitable system of emergency protection. This is too negative a view, however, as it should be possible for industrialized nations to improve on the status quo. Nevertheless, realism forces one to doubt that fundamental changes will occur in these countries that will make recourse to these discriminatory instruments of protection less attractive to import-competing firms. While one could advocate the repeal of AD laws, this is very unlikely to occur.⁴⁵ Feasible improvements would be to ban VERs (that is, make them illegal) on antitrust grounds, for example, set minimum levels of dumping and subsidization, and impose costs on firms that use AD/CVD to harass their competition.⁴⁶

⁴⁵ Caine (1981) has advocated the repeal of AD laws.

⁴⁶ See, for example, Bhagwati (1988) and UNCTAD (1984).

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Table 1

	Compensation	No Compensation
Selective	VERs	tariffs (AD, CVDs); auctioned quotas
Non-discrimination	global quotas, export taxes	subsidies; MFN tariff; global auctioned quota

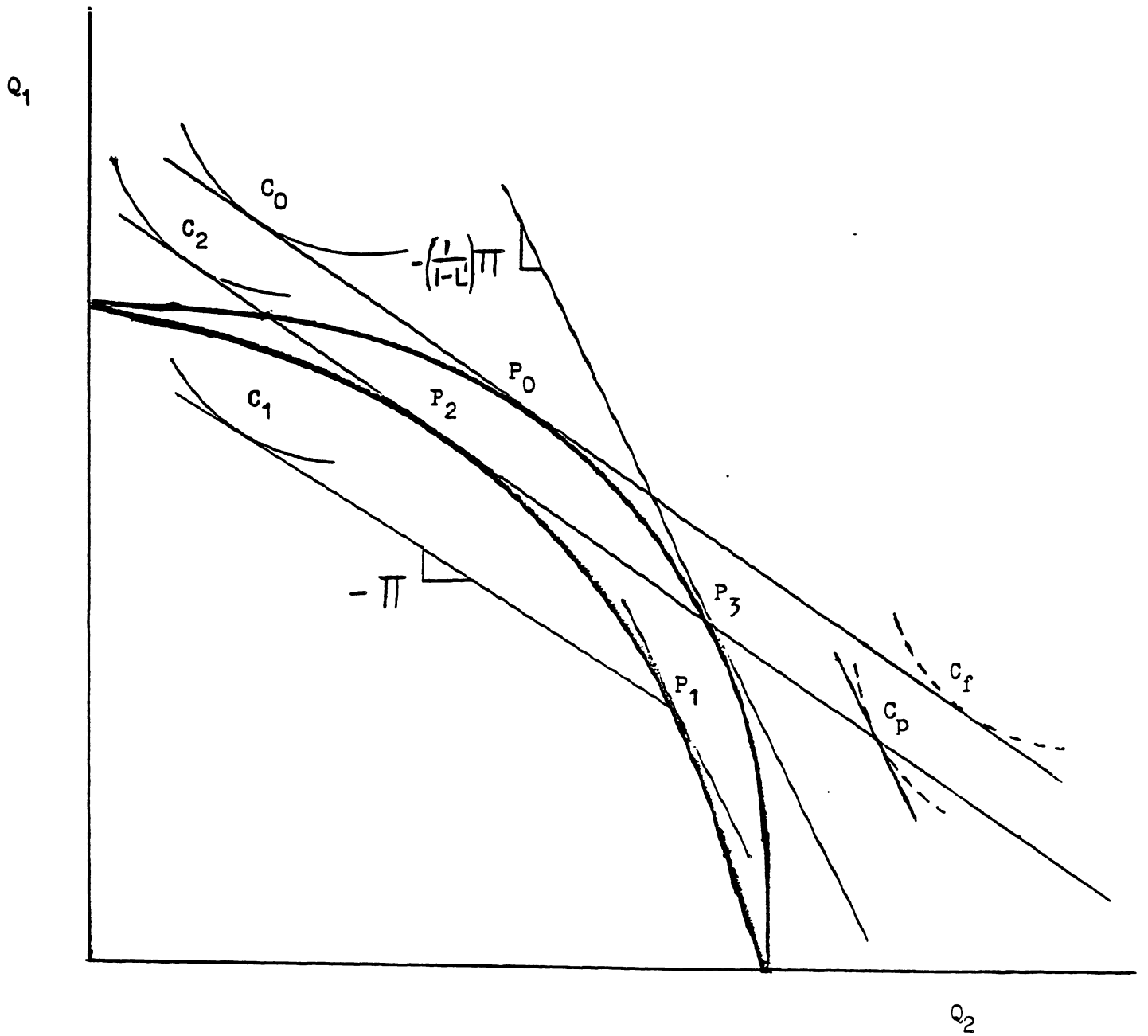


Figure 1

Indirect Lobbying Distortions Under Alternative Criteria