

RESEARCH SEMINAR IN INTERNATIONAL ECONOMICS

Gerald R. Ford School of Public Policy
The University of Michigan
Ann Arbor, Michigan 48109-1220

Post-Print Paper No. 2

**Safeguards Policy and the
Conservative Social Welfare Function**

Alan V. Deardorff

University of Michigan

1987

RSIE Post-Print Papers are available on the World Wide Web at:
<http://www.fordschool.umich.edu/rsie/workingpapers/ppp.html>

Safeguards Policy and the Conservative Social Welfare Function

Alan V. Deardorff

1 INTRODUCTION

Max Corden has made many contributions to the theory of international trade policy, a number of which are celebrated in this volume.¹ One that has particularly intrigued me, especially as I have become more exposed in recent years to the intricacies of trade policy and the thinking of those who make it, is his notion of a Conservative Social Welfare Function (CSWF). This is a simple idea that Corden introduced some years ago in his *Trade Policy and Economic Welfare* (1974) as a convenient way of explaining what might otherwise be inexplicable uses of trade policy. In this essay I will use a simple model to show how the CSWF can be used to explain why countries might prefer the use of quotas instead of tariffs for dealing with injury due to surges in imports. I will conclude with a policy recommendation, based in part on this analysis, regarding the remedy to be included in the Safeguards Code that may emerge from the upcoming multilateral trade negotiations.

The CSWF embodies Corden's notion (1974, p. 107) that 'any significant absolute reductions in real incomes of any significant section of the community should be avoided.' Taken literally, this statement of the CSWF is probably too strong. It suggests that governments will resist major changes completely and forever, and that they will certainly never engage in deliberate policies to redistribute income. Yet to varying degrees among the countries of the world, it is clear that many types of changes that help some at the expense of others are allowed to proceed unabated, that others are subjected to only temporary resistance, and that deliberate policies are undertaken that – intentionally or otherwise – redistribute income quite substantially. Thus it is hard to see how a CSWF can be the basis for all forms of public policy.

On the other hand, there are various areas of economic life, differing somewhat from country to country, in which governments do seem to have adopted the role of protector, and trade policy is certainly one of them. The reason for this may be better understood by comparing changes in trade with technological progress, which is another source of economic disruption, the policy response to which is typically much more passive.

A new source of cheap imports and a technological innovation are similar in that they both yield benefits that are spread over most of the population, yet cause substantial costs to groups of individual producers whom they displace. Trade policy is routinely

¹ After this paper was completed, I became aware of an essay by Corden (1984) that deals with a number of the same issues that I touch on here. Time has not permitted me to relate my analysis of his, the two of which are very complementary. The policy recommendation that concludes this paper grew out of discussions with John H. Jackson, and our experience together teaching an international law and economics seminar on safeguards. I have benefited greatly from discussions with Jackson, as well as from comments on an earlier draft from Bob Stern, Aquiles Almansi, Bernard Hoekman and Michael Leidy. The research underlying this paper was supported by the Ford Foundation.

used to protect individuals from the effects of the first of these disturbances, and its use is sanctioned in Article XIX of the GATT.² Victims of technological change, on the other hand, at least in the United States, are seldom given more than sympathy, and if they complain too loudly they may find even sympathy hard to come by.³

One difference between the two cases is presumably the ready existence of policies that are capable of dealing with trade, whereas, except where technology is already subject to licensing, there just is not much that a government can do to prevent workers being displaced by changes in technology. Another related difference is that trade itself is regarded as being potentially in the control of government, whereas technology is not. Thus governments are easily blamed when their actions or their failures to act concerning trade policy cause harm to their constituents.

But another difference is important and sheds light on how we should interpret the CSWF. A technological change is irreversible: a new product or technique can never be undiscovered. Thus, to protect those who would be displaced by technology either would require a long-term commitment on the part of government, or would serve merely to postpone the inevitable adjustment.

Trade, in contrast, is inherently volatile, even though we may think of it as based on rock-hard fundamentals of comparative advantage. A surge in imports may be the result of a permanent shift in comparative advantage, and thus be as permanent as a technological change, but this can never be known with certainty. There is always the chance that it is a temporary phenomenon and that temporary protection, if given, will enable the protected industry to avoid adjustment altogether.

Thus, one qualification that is reasonable to impose on the idea of the CSWF is that it be used as the basis for only temporary protection against injury.

How, then, does one model a CSWF that is subject to qualifications that it should apply to some situations but not others, and that its applicability should be explicitly temporary? I have no answers to this question. I cannot say whether the CSWF can provide the basis for a truly general theory of public policy, but it can provide a simple organizing principle for particular policy problems, as long as these qualifications are understood. That is how I will use the CSWF in this paper.

Thus I will look at the specific issue of safeguards: what policies a country might use to deal with injury from an upsurge in imports.⁴ Injury is taken to mean a loss of utility by individuals within the economy, taking into account both the incomes they earn as producers and the prices they face as consumers. I will *assume* that the object of the policy is to prevent or redress that injury, without if possible causing injury to others, and thus will assume the essence of a CSWF. I do not suggest that the analysis should be extended to other areas of policy, even in international trade, without first evaluating whether these assumptions and the CSWF itself are appropriate in other contexts. And it

² Use of trade policy is also sanctioned in other articles of the GATT, of course, for dealing with 'unfair' trade practices.

³ They are, however, eligible for unemployment compensation.

⁴ According to Article XIX of the GATT, safeguards actions are permitted only when, in addition, the increased imports are in turn the result of the obligations incurred by a contracting party under the GATT. In practice this qualification has not been meaningful, since any increase in imports can be viewed as resulting from the GATT obligation not to prevent such an increase by raising tariffs. I will therefore ignore it.

should be understood, even though I will be using a static and hence timeless model, that the policies I am prescribing should be used only on a temporary basis.

The safeguards policies that I will consider and that are implied by the CSWF, then, are intended only for the temporary maintenance of the status quo. They are not intended, as economists more often recommend, to facilitate ‘adjustment’ in the sense of an orderly transition to a new equilibrium. This may seem to be a drawback of the analysis, especially considering the current emphasis in Washington on the need for industries to provide ‘adjustment plans’ in order to obtain escape clause relief.

In fact, however, the notion of adjustment in policy circles seldom corresponds to the economists’ conception of adjustment from one equilibrium to another. Adjustment assistance programs have primarily involved extended unemployment benefits that have tended to discourage such movement.⁵ And the adjustment programs that industries propose are typically designed to show how the industry will survive if only it is given temporary protection, rather than to ease the industry out of business. Thus I see the emphasis of the CSWF on the status quo as reasonably representative of the concerns of policy-makers, despite their occasional protestations to the contrary.

The structure of the paper is as follows. In section 2 I describe the simple model to be used, and examine the small-country, certainty case of that model in which the usual ranking of policies can be readily seen. Then in section 3 I add uncertainty about world prices to the model, and show that conventional first- and second-best policies now fail to satisfy the constraint imposed by the CSWF. Instead, an import quota serves the purpose better. The result is related to that of Eaton and Grossman (1985), who showed that tariffs may be beneficial in an uncertain world where absence of insurance markets prevents individuals from protecting themselves from changes in the terms of trade. It is also similar to the conclusions of Young and Anderson (1982) and of Falvey and Lloyd (1985), who show, with uncertainty and risk aversion, that quotas may be preferred to tariffs under certain conditions.

In sections 4 and 5 I bring the rest of the world into the model, first with a single exporting country and then with two countries. This allows me to extend the notion of the CSWF beyond domestic residents to foreigners, and to evaluate the effects of various policies on them as well. This extension of the CSWF to foreigners may go beyond what was envisioned by Corden, but it provides a simple way to build in the need for compensation in safeguards actions, and it may be motivated by the desire to avoid retaliation or other international political repercussions. It turns out that, among the safeguards policies I consider, the only one that performs well under a CSWF both at home and abroad is an externally allocated quota – one for which foreigners are allowed to garner the quota rents.

This leads me in my concluding section to elaborate on a recommendation that a safeguards code should incorporate such a quota as the approved remedy. To make this work as efficiently as possible, I suggest some details regarding how such a remedy might be implemented.⁶

⁵ See Aho and Bayard (1984).

⁶ See Wolff (1983) for a good discussion of safeguards in the GATT.

2 A SMALL COUNTRY WITH CERTAINTY

In dealing with the safeguards remedy for import disruption, the central economic linkage is between the welfare of individuals and the prices of the goods that they help to produce in the short run. Therefore I will base my analysis throughout on an extreme specific factors model in which all factors are specific to the industries in which they initially produce. In such a model, so long as individuals own factors that are employed in only one industry – which I assume – the identities of separate factors within an industry are unimportant, and one can identify individuals with the goods they help to produce. Indeed, with constant returns to scale and perfect markets – which I also assume – production itself plays no essential role, since the specific factors will always produce the maximum of which they are capable and be remunerated in proportion to that output. Thus, the model is equivalent to one in which individuals are simply endowed with goods and then trade and consume them directly.

The reason for using this extreme specific factors model, as opposed to more conventional models in which one or both factors are mobile between industries, is primarily one of simplicity:⁷ I wish to focus on the distributional effects of trade and trade policy with a minimum of complications. However, there is some precedent for using such a model, to be found as early as Cairnes's (1874) theory of non-competing groups, where factors of production are industry-specific even in the long run. Magee (1980) has found support for this assumption, at least in the short run, in the lobbying behavior of representatives of factors of production. These lobbyists tend to align along industry lines (import-competing vs. export) rather than along factor lines (capital vs. labor), suggesting that they perceive their fortunes to be tied to their industry of employment, just as they would be in an extreme specific factors model.

Such a model is illustrated in figure 3.1(a). The economy produces a fixed bundle of goods, X^0 and Y^0 , at the endowment point E , and trades part of it at a given world price of X , namely p^0 , in order to consume at I . I assume that individuals employed in the X industry and the Y industry, whom I will henceforth call X -factors and Y -factors, have identical and homothetic preferences, leading to a community indifference curve, u^0 , tangent to the world price line at I .

The distribution of utility between the two factors can be read out of a variation of the familiar Edgeworth Box, the dimensions of which are the economy's endowments of the goods. By drawing a price line, PX^0 from the lower right-hand corner of the box and parallel to the world price, p^0 , one can find tangencies with indifference curves, u_x^0 and u_y^0 , for the owners of the two factors. The former is drawn relative to the origin, O , while the latter is drawn relative to the endowment point, E . Under the stated assumptions, both tangencies occur at ratios of X to Y equal to that at I , and may be identified by the dotted rays from O and E of that slope.

These indifference curves allow us to infer utility levels of the factor owners if there is only one individual in each group or, more usefully, if the numbers in each group

⁷ See Jones (1971), Mayer (1974) and Mussa (1974) on the conventional specific factors model with one mobile factor, and Stolper and Samuelson (1941) and Jones (1956-7) on the all-factors-mobile Heckscher-Ohlin model.

are constant and the utility functions are linearly homogeneous. Assuming the latter, these utility levels are plotted in utility space in figure 3.1(b) at point I .⁸

Given the price p^0 , the only way to reach other utility combinations would be by a policy of income redistribution. By taxing one group and transferring the proceeds to the other, it is possible to shift the budget line of the two groups to the right or left within the box in figure 3.1(a). This in turn generates utilities for the two groups in figure 3.1(b) along a downward-sloping 45° line through I , with intercepts u^0 . However, under a CSWF this redistribution would not take place, since any movement from point I hurts one of the groups. Instead, what the CSWF does is to impose a constraint, shown as the right angle CIC' , on the utilities that are permissible. I will use this constraint to illustrate the need for some kind of policy response to a change in conditions of trade.

Suppose then that the world price of the imported good, X, falls to p' . As shown in figure 3.1(a), the budget line of the country as a whole becomes flatter, rotating through E , while the budget line of the two groups rotates in similar fashion but through X^0 . A result is that a higher community indifference curve, u' , is reached at F . Within the country, however, the two groups of consumer-producers are affected differentially, the utility of the Y-factor rising to u'_y and that of the X-factor falling to u'_x . Thus, with free trade this improvement in the terms of trade moves utilities in figure 3.1(b) to point F , which lies outside the constraint set imposed by the CSWF and requires some sort of policy response.

The optimal policy response, as usual in trade theory, is a policy of income redistribution, which now allows us to reach points on the utility possibility frontier $u'u'$ in figure 3.1(b). In particular, taxing the Y-factor and subsidizing the X-factor can move utilities down and to the right along this locus, to attain any of the points on the segment $f_y f_x$ above the constraint CIC' .⁹

If income redistribution is not a feasible policy for some reason, then some form of trade restriction can achieve a result consistent with the CSWF, though as usual such a policy is only second best. A tariff, for example, sufficient to move aggregate consumption to point T in figure 3.1(a), will restore a domestic price of p^0 and thus return factor incomes to their initial levels. In addition, by redistributing the tariff revenues to one or both of the groups of consumers, their utilities can be raised above initial levels. Thus, such a tariff distributed to the Y-factor will attain point t_y in figure 3.1(b), while if it is distributed to the X-factor it will attain point t_x .

An internally allocated quota, if set equal to the level of imports at point T in figure 3.1(a), will also restore the initial domestic price and will be exactly equivalent to the tariff just described. Depending on whether the rights to import under the quota are allocated to owners of Y, owners of X or both, the economy will again attain the utility possibilities at point t_y , point t_x , or the line segment connecting them.

Finally, an externally allocated quota, set equal to the initial level of imports at I , will leave the economy at point I in both panels of the figure. Such an externally allocated quota is essentially the same as a voluntary export restraint, since the quota

⁸ Utilities in figure 3.1(b) are the aggregate utilities of all individuals in the respective groups. Per capita utilities would be obtained by dividing by the numbers of members in the groups.

⁹ Under the special assumptions of this model, these taxes and transfers could be paid in proportion to output, which is fixed. In general, of course, only lump-sum taxes and transfers can accomplish this redistribution without distorting behavior.

rents accrue to someone other than domestic residents. It is clearly an inferior policy in this version of the model, being dominated both by the first-best policy of income redistribution and by the equivalent second-best policies of a tariff and an internally allocated quota. The reason is that the latter policies make possible a limited amount of income redistribution themselves, accomplished by varying the allocation of the tariff revenues or quota rents. An externally allocated quota, on the other hand, merely locks in the initial situation and allows all of the rents from the policy to accrue to foreigners.

The policy is none the less worth looking at, because it will prove to be a more attractive policy in later sections of the paper. An externally allocated quota is, in a sense, the minimum policy capable of satisfying the constraint of the CSWF.

Before leaving this section, it will be useful to examine an internally allocated quota equal to initial imports. Such a quota does not put the equilibrium at point I , because of expenditure out of the extra income from the quota rents. Instead, consumption would be at point Q , which is on the p' price line directly above point I . The domestic price of X would then be given by the slope of the community indifference curve through Q , and thus, by homotheticity, would be above p^0 . It follows that, even with the quota allocated to owners of good Y , owners of X must gain from this rise in domestic price. The effect on owners of Y , however, is ambiguous, since they gain quota rents but lose from the drop in the domestic price of Y . Assuming that the former effect dominates, the quota is shown as yielding the utilities at point Q in figure 3.1(b).¹⁰

3 A SMALL COUNTRY WITH UNCERTAINTY

Now suppose that the price of imports is uncertain; that, while it is known that the price will drop, it is not known by how much. Suppose in addition that policy must be put into place prior to the resolution of this uncertainty. These assumptions are similar to those that have been made in the literature on trade policy with uncertainty, such as Eaton and Grossman (1985), where the world price is a random variable and – in one scenario – tariffs are state-independent. My assumption differs from this only by allowing policy-makers to wait until the direction of the price change is known, but not its size. The difference reflects my perception that, as argued in Deardorff (1986), safeguards actions typically do wait until at least the threat of injury can be established. On the other hand, it is also crucial that some uncertainty persists at the time the policy is decided upon, since one can never know what further changes will occur subsequently.

With this uncertainty about the world price, the analysis of section 1 needs to be modified. Now, as the reader can verify by working through diagrams like figure 3.1, any given policy may lead to a variety of outcomes in utility space, depending on the world price that obtains.

Figure 3.2 shows the various loci of utilities that may arise, each locus drawn for a given policy but for all of the variety of prices that may occur. These loci are similar to the utility possibility curves that have been the staple of welfare analysis in trade theory since Samuelson (1962), but they differ in an important respect. Samuelson's utility possibility curves show the various combinations of utilities attainable in a given state of

¹⁰ Point Q could be either to the right or the left of point I , depending on the curvature of the indifference curves.

the world, depending on various policies of income redistribution that are presumed to be in the control of the policy-maker. Thus the policy-maker can choose among the points on such a curve. Each curve in figure 3.2, on the other hand, shows the outcomes that may arise for a given policy depending on the state of the world – in this case, the world price – which is not under the control of policy. Thus the policy-maker by choosing a policy chooses one of these curves, but leaves to chance where along the curve the economy will end up.

Figure 3.2 shows as the curve FI the utility possibilities corresponding to free trade. Its extension, IF' , shows the utilities that would obtain if price were to rise rather than fall. FIF' is therefore the locus of all points like F in figure 3.1(b), traced out as the price in figure 3.1(a) is varied below p^0 (segment FI) and above p^0 (segment IF'). Note that, for some price line steeper than p^0 , there will be a tangency with the community indifference curve through E in figure 3.1(a) (not shown), and the country will not trade. This gives rise to the autarky utility possibilities at point A in figure 3.2, which is a benchmark that will be useful in a moment.

The curve TT' shows the possibilities that correspond to a tariff of a given size, the revenue from which is distributed in a given way. For example, it might be a 10 per cent *ad valorem* tariff with proceeds given to producers of good Y.¹¹ If so, then TT' would be the locus of points like t_y in figure 3.1(b), traced out as the price of X varies below p^0 . Note that the point t_y lay on the vertical line IC only because the size of the tariff that was selected to restore the initial domestic price, p^0 . With other world prices a given tariff will be either too large or too small to accomplish this, and the point t_y will lie to the right or the left of IC , respectively.

If the tariff were large enough to eliminate trade entirely at the initial price, then the locus TT' would include autarky at point A , but as drawn it stops short of A at T' . It is drawn as downward-sloping since, once the level of the tariff is given, a change in the world price redistributes welfare between the groups, just as with free trade. It is shown as extending both north-west and south-east of point I on the assumption that the range of possible prices is sufficiently large.¹²

Finally, TT' lies wholly above the free-trade locus, FAF' , for the same reason that t_y, t_x in figure 3.1(b) lay north-east of I : any world price with free trade can be improved upon with a tariff of size t by a world price that is lower by that amount, since the latter will yield the same earned incomes for both groups plus some redistributed tariff revenue. Incidentally, the tariff locus $TT' A$ is one of a family of infinitely many such curves, each for a different size of tariff, that fan north-west from point A .

Considering next a quota, the curve IQ shows the utility possibilities for a quota that is set equal to the initial level of imports and is allocated internally to the Y-factor owners. It is the locus of points like Q in figure 3.1(b), again traced out as the world price in figure 3.1(a) varies. It includes the initial point I since, unlike a tariff, this quota would have no effect at all if price were not to drop. If price does drop, however, then the quota becomes equivalent to a positive tariff, sufficient to keep imports at their initial level. As

¹¹ The locus for a specific tariff would be qualitatively similar to the locus for an *ad valorem* tariff, but somewhat steeper, since the *ad valorem* tariff to which it corresponds rises as price drops.

¹² For example, as long as the price of X may drop below p^0 by more than the tariff, TT' will include points to the left of IC . And as long as the tariff itself is close enough to that which would eliminate trade at p^0 , a sufficiently small drop in price will generate points below IC' .

already seen in figure 3.1, the domestic price of X rises as the world price of X falls, and this benefits owners of X and has an ambiguous effect on owners of Y. Assuming as before that the adverse price effect is dominated for the owners of Y by their receipt of the quota rents, I have drawn IQ as upward-sloping, with both factor groups benefiting as the world price of X falls.

Finally, an externally allocated quota equal to initial imports again holds utilities at point I , since there are then no rents to be spent internally.

The message is clear: with certain prices, a tariff may turn out to be too small to prevent harm to the import-competing group, or so large that it causes harm to the rest of the population. A quota, on the other hand, may be able to prevent harm to both groups, and can certainly do so if it is externally allocated. Thus, under a CSWF there would likely be a preference for a quota.

Though not shown in figure 3.2, a policy of redistributing income internally, if it were available, would not be chosen if it had to be implemented before prices were fully known. Such a policy would lead to a downward-sloping utility possibility curve, similar to the one for free trade, and would be likely to pass both north-west and south-east of I . The problem again is that one does not know how much income to redistribute until the price change is known, and there is a strong risk of leaving somebody worse off.

It should be noted that strict application of the CSWF to this uncertain situation could imply much more ‘conservative’ behavior than appeared in the model with certainty.¹³ Depending on the constraints facing the economy, the CSWF would reject even a very large possible gain for some individuals in return for avoiding what may be a very small probability of loss, perhaps for the same individuals. Again, whether the CSWF is a plausible basis for policy analysis depends on the situation being examined, and I would not wish to apply it to all problems. My own view is that the alternatives depicted in figure 3.2 are not this extreme.¹⁴

4 TWO COUNTRIES WITH CERTAINTY

The next step in the analysis is to consider explicitly the foreign country from which the increased imports are coming. This is done using the offer curves of figure 3.3. As an importer of X, the domestic country A’s free-trade offer curve is OA . Since the world market is now explicit, I can no longer make world prices exogenous as I did in sections 2 and 3. Instead, I will introduce a potential upsurge in country A’s imports by having the other country’s offer curve shift exogenously, owing to an increased capacity to produce good X. The source of this increased capacity is not important for its effect on country A. Thus, the foreign country B’s initial offer curve is OB , but its increased capacity shifts this outward to OB' .

Country B’s offer curves are taken to be exogenous, and therefore independent of the policy choice in country A. Thus I ignore both the possibility of *ex post* retaliation, as in Johnson (1954), and the *ex ante* efforts to reduce market disruption, as in Bhagwati

¹³ I am indebted to Michael Leidy for pointing this out.

¹⁴ An alternative interpretation of the CSWF that would avoid this difficulty would rule out only losses in *expected* utility. The policy implications of this assumption are quite different, and do not conform well with what I perceive to be the motivation behind safeguards policies.

and Srinivasan (1976). In fact, both countries have market power in this version of the model, and might be tempted to use an optimal tariff. I rule out such behavior on the grounds that it would violate the global application of the CSWF which I am about to pursue, since an optimal tariff necessarily hurts the rest of the world. However, one may prefer to view this global extension of the CSWF as reflecting not humanitarian concerns, but rather the desire to avoid retaliation that might be provoked by inflicting harm abroad.

Having already studied the welfare of country A, I will focus here on the welfare of country B as it depends upon the policy used by country A. I will consider only the aggregate welfare of the foreign country, not the welfare of individual groups within it. The latter is a distributional issue that should be handled by the government of country B, and not by the policy implemented by country A. Thus, the welfare of country B will be represented by trade indifference curves such as that shown as being reached by B's expanded offer curve in free trade, v^F .¹⁵

Without uncertainty, the effects on B's welfare of alternative policies are quite simple. By using either a tariff or an internally allocated quota, A can shift the equilibrium to T , lowering B's welfare to $v^Q=v^T$. By instead using an externally allocated quota, A can return the equilibrium to its initial position at I , and raise B's welfare to v^E .

Which of these policies should be chosen, based on the idea of the CSWF, is far from clear. First, country A may simply not care about the welfare of country B, and thus would choose the tariff or internally allocated quota. Second, even if there is in A a desire to avoid harming country B, it is not obvious what the base should be for representing the status quo. If that base is the new free trade equilibrium, then an externally allocated quota is the only one of the policies being considered that will avoid losses of welfare both at home and abroad.

But if the base for comparison is the old equilibrium at I , then further analysis is needed to determine what B's level of welfare was initially. The trade indifference curves shown in figure 3.3 are valid only in the new situation, and will presumably have shifted with whatever change it was that shifted the OB offer curve itself.

To be specific, let the structure of the economy in country B be analogous to that in country A, with fixed supplies of both goods, and suppose that the increased supply of X on the world market arises from an increased availability of X in B. As is well known, that increase could possibly be immiserizing for B even with free trade, and if so would surely be immiserizing if country A were to prevent imports from expanding via a tariff or quota. On the other hand, such growth need not necessarily be immiserizing even with such a response. Thus we cannot be sure *a priori* whether a tariff or conventional quota will deprive the foreign country of any gains from the expanded supply.

On the other hand, the externally allocated quota is guaranteed to leave country B better off than it was originally. The reason is that with this policy country A both imports and exports the same quantities as before, leaving country B free to consume its increased supply and to benefit from doing so. Thus, the externally allocated quota must satisfy the requirement of the CSWF, even if it may not be the only policy to do so.

¹⁵ It is here that the source of the increased capacity to produce in B, and B's policy for dealing with it, may be important, since these could influence the interpretation of, and perhaps even the existence of, such trade indifference curves. I assume that whatever policies are employed in B are such as to leave it with trade indifference curves with the usual properties, and that these do represent social welfare.

Therefore, if an importing country wishes to be sure of protecting its domestic residents from injury arising from an increased supply of imports from abroad, without preventing the foreign supplying nation from benefiting from its increased supply, an externally allocated quota is the only policy considered here that will be sure to work.

5 THREE COUNTRIES WITH UNCERTAINTY

In many cases when countries face increased imports, the source of the increase is limited to only a subset of the foreign countries that export the product – often to only one. While it may be questionable whether governments concern themselves with the welfare of countries whose exports to them have increased, it is quite common for them to wish to avoid policies which will damage other trading partners whom they view as innocent bystanders.

Thus, as a final case for analysis, suppose that there are now two foreign countries, B and C, both of them exporters of good X, but only one of them increasing its supply. And suppose too that the increase in supply from country B is known in direction but not in size, just as was assumed about prices in section 3. Then what are the implications of the various policy options available?

The increase in supply of X, regardless of its size, will lower its world price. But since the size of the increase in supply is uncertain, so will be the extent of the decline in price. Therefore the welfare of domestic residents in this situation has already been mapped out in section 3. What is interesting is to look at the welfare of residents of the two foreign countries.

Figure 3.4 shows utility possibilities for residents of countries B and C. Once again, point I is the initial position and the right angle CIC' shows the constraint on outcomes imposed by a CSWF, should we wish to acknowledge such a function defined on foreign welfare as constraining policy.

With free trade, the uncertain increase in supply of exports from country B is shown as implying a utility possibility locus of IF . The increase in exports certainly lowers their world price and hurts the other exporter, country C, which has no increase in supply to sell at the lower price. The effect on country B is in principle ambiguous, as discussed in section 4, since its growth could be immiserizing. However, in figure 3.4 this is assumed not to be the case, and the IF locus is drawn as downward-sloping.

Now if country A were to put a tariff on imports of X prior to knowing the size of the import surge, there is a possibility that import supply would not change at all and the tariff would simply lower welfare in both of the foreign countries. Thus the utility possibility curve for a given tariff starts at a point like T south-west of I . Then, given the tariff, growth of supply in B lowers welfare in C still further, but may raise welfare in B itself, so that the rest of the locus, TT' is downward-sloping in the same manner as IF .

Unlike a tariff, a quota will not bind at all if there is no shift in supply of X, so that the utility possibility locus for a quota begins at I . But as the supply of X grows, the quota becomes more and more binding, equivalent, if it is internally allocated, to a larger and larger tariff. Immiserizing growth in B, though still not inevitable, becomes more likely, and I have drawn the IQ locus as sloping down and to the left of I . In any case, the

particular slopes of these three loci, IF , TT' and IQ , are not crucial to the argument below, which requires only that they extend below the constraint CIC' .

Now consider an externally allocated quota. One possibility for such a policy would be a quota on imports from country B only, leaving imports from C unrestricted. In this world of homogeneous products, however, such a partial quota would accomplish little, since the increased supply of X from B would merely be diverted to C, which would export a larger portion of its own product to A. Thus I will assume that the quota is levied against all exporters, whether or not they appear to be the source of the disturbance.

Suppose then that both countries B and C are allocated quotas allowing them to export to A the quantities that they exported in the initial equilibrium. How their welfare will be affected depends in part on how the governments of these two countries themselves respond to the restriction. But one thing is certain: neither country needs to lose from the policy.

Country C has, in the form of this quota, a licence to trade with A exactly the same quantity of X as it did before. Since A will be consuming the same bundle of goods entirely, C should be able to import the same amount of Y from A as well. Thus, by merely holding on to the status quo, country C can hold its level of welfare constant. If this happens, then country B, as argued in section 4, is left to consume the same amount of Y and a larger amount of X than it did initially, and so it must be better off. Thus one set of utility possibilities corresponding to this externally allocated quota is that shown as the horizontal line, IE , in figure 3.4.

In fact, country C can do better than this if it is able to take advantage of increased availability of X from B. Assuming it can solve its own problems of income distribution, then country C can raise its welfare by importing X from B and either re-exporting it to A under the quota, or consuming it and continuing to export its own product to A. Thus with optimal policy in C, its residents can enjoy a benefit from the increased supply of X and thus attain points along an alternative upward-sloping utility possibility locus, IE' .

Either way, it is clear that application of the principle of a CSWF to foreigners as well as to domestic residents leads to a preference for an externally allocated quota over the other policy options considered here. The externally allocated quota was seen in figure 3.2 to leave all domestic residents at unchanged levels of utility, and it is the only policy in figure 3.4 that does no harm abroad. Now an externally allocated quota is functionally equivalent to a voluntary export restriction (VER), and this conclusion may be surprising since VERs are normally viewed as inflicting considerable costs on domestic consumers. That is in fact the case, but only in an opportunity-cost sense. Without any policy at all, those who do not compete with imports would gain considerably from their lower price, as do the owners of Y at point F in figure 3.1(b). An externally allocated quota, or VER, deprives them of that gain and so could be said to impose a loss. But since it restores prices to what they would have been without the increased imports, it does not harm them absolutely.¹⁶

¹⁶ This conclusion holds, of course, only if the VER is a response to an increase in the availability of imports from abroad, and thus a proper safeguards action. If a VER were used instead to protect producers from a shock that originates domestically, then it could certainly harm others in the country absolutely.

Now it may sound incongruous for a country's policy-makers to treat foreign residents as though they were constituents. In fact, though, there is a good deal of evidence that countries often do behave in this way, especially in the realm of trade policy. Governments routinely go out of their way to design trade policies that avoid harming innocent bystanders. Indeed, the preference of the European Community for selectivity in safeguards mechanisms may, perhaps too charitably, be viewed in this way. Or more realistically, one may view attempts to protect other countries from harm as a more indirect result of a desire to avoid retaliation or maintain political goodwill.

6 CONCLUSION AND POLICY RECOMMENDATION

This analysis suggests a conclusion that may have broader appeal than is evident from the simple model considered here. Based on the analysis, I would recommend that any new Safeguards Code to be negotiated under the GATT should incorporate what I have called here an externally allocated quota as the preferred remedy.¹⁷ On the basis of my formal analysis, this recommendation is only as valid as the particular assumptions of my model, including the use of the CSWF as the basis for policy. However, the use of externally allocated quotas for safeguard purposes does have other attractive features, as well as certain qualifications, which are outside the model but should be considered.

My specific recommendation is that, once it has been decided that a domestic industry deserves some form of trade protection owing to its being injured by 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 licences in the amount of the quota and then allocating them to all exporting countries in the amounts of their base-year exports. The advantage of this policy within the context of this paper is that it is capable of preserving the levels of welfare of both consumers and producers in the importing country, and also of foreigners – even those in countries whose exports have not increased but who would be hurt by certain other policies such as a tariff.

An additional advantage of this policy beyond the context of the model here is that it automatically provides compensation to the country whose exports are restricted by the safeguards action. Compensation has always been a requirement of the GATT safeguard clause, but has been difficult to achieve in practice since it was attempted through offsetting trade concessions. The value of these were always questionable, and they did not, in any case, serve to compensate the private individuals who stood to lose from the action in the first place.

Having recommended that these quotas be allocated to the exporting countries, one could go further and say that they should be allocated to the foreign exporting firms themselves. This has some appeal, since it would assure that the compensation just mentioned would reach those in the private sector who would otherwise be harmed by the policy. But I do not recommend that it be a formal requirement of the proposal, since issues of income distribution within a country should best be left to the discretion of that country's own government. Furthermore, a viable safeguards code should be able to deal

¹⁷ For other proposals to improve the safeguards and escape clause mechanisms, see Bhagwati (1977), Wolff (1983), and Hufbauer and Rosen (1986).

with cases involving non-market economies, where a requirement to allocate to firms might make no sense. I would therefore only suggest that the code contain a presumption in favor of governments who receive these allocations allocating them in turn to their own exporting firms.

Another feature of this proposal that I would insist on would be that, while these rights to import under a safeguards quota would be allocated to specific countries, they would be globally marketable and would not require that the imports actually come from the countries to which they were allocated. So it would be only the allocation of the quotas, and thus the quota rents, that would be country-specific: the quotas themselves would be global and 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 would 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 a most-favored-nation (MFN) tariff. This might make it acceptable to those countries, like the United States and many LDCs, who have insisted on an MFN provision in any negotiated safeguards code. At the same time, the ability to allocate quotas to specific foreign countries may satisfy at least part of the desire for selectivity on the part of the European Community.

Finally, 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 lead to, both in their enforcement and in their evasion.

This proposal is not without its dangers, and any code would have to anticipate and address them.

One such danger, argued forcefully by Michael Mussa (1974), is that this system creates property rights within the exporting nations that will make the quotas almost impossible to remove.¹⁸ These property rights are in addition to the forces for continuing protection that will arise within the importing country regardless of what protective policy is used. This objection is certainly valid if the quotas are created on a year-to-year basis and without any orderly provision in advance for their removal. But I see no reason why such a provision could not be made. In the safeguards area temporary protection has always been the rule, and while that may be easier to assure with a tariff, the size of which can be reduced over time, it is not impossible with a quota. For example, the quotas when initially allocated could be defined as growing by some percentage each year thereafter. Thus the recipients would know in advance what their shares would be in the future, and would know also that the value of these rights would decline to zero over time. It would be necessary only to set the growth rate above the growth rate of demand for the product in order to assure that the level of protection provided by the quota would decline. By pre-specifying the rate at which total imports will grow under the quota, domestic import-competing interests should be deterred from further lobbying as well.

¹⁸ Mussa raised this objection during discussion of a version of this recommendation in Deardorff (1986) at the Spring 1986 Carnegie-Rochester Conference on Public Policy.

A second danger implicit in this proposal, as it is in all uses of quantitative restriction on trade, is that it will foster imperfect competition.¹⁹ I view this as less of a danger here than in most other *ad hoc* systems of quantitative restrictions that we have today. By allocating the quotas to a large number of countries, they are initially spread out over the globe, and seem less likely to become concentrated in the hands of a few than if they were allocated domestically. Also, by allowing the quotas to be globally marketable, entry restrictions should be kept to a minimum.

Finally, I would note that it is no accident that this proposal comes very close to formalizing what is already the practice of many industrialized countries. It is my view that their negotiation of VERs and similar arrangements are often intended, in part, to secure much the same benefits that I have ascribed to this policy here. That they have done so without the sanction of the GATT has undermined the credibility of that institution. Yet the analysis in this paper has shown that some of the reasons for the use of such policies are legitimate. To ignore these reasons in reformulating the GATT would be foolhardy, since whatever new agreement would be reached would then almost certainly be ignored. A policy such as I have proposed here might well be not only agreed to, but also used, by the countries that have flaunted the GATT so readily in the past.

REFERENCES

- Aho, C. Michael and Bayard, Thomas O. (1984). 'Costs and benefits of trade adjustment assistance.' In Robert Baldwin and Anne Krueger (eds), *The Structure and Evolution of Recent US Trade Policy*. Cambridge, Mass.: National Bureau of Economic Research.
- Bhagwati, Jagdish N. (1965). 'On the equivalence of tariffs and quotas,' In R. E. Baldwin et al. (eds), *Trade, Growth, and the Balance of Payments: Essays in Honor of Gottfried Haberler*. Amsterdam: North-Holland.
- Bhagwati, Jagdish N. (1977). 'Market disruption, export market disruption, compensation, and GATT reform.' In J. N. Bhagwati (ed.), *The New International Economic Order: The North-South Debate*. Cambridge, Mass.: MIT Press.
- Bhagwati, Jagdish N. and Srinivasan, T. N. (1976). 'Optimal trade policy and compensation under endogenous uncertainty: the phenomenon of market disruption.' *Journal of International Economics*, 6, 317-36.
- Cairnes, J. E. (1874). *Some Leading Principles of Political Economy*. London: Macmillan.
- Corden, W. M. (1974). *Trade Policy and Economic Welfare*. Oxford: Clarendon Press.
- Corden, W. M. (1984). 'Market disturbances and protection: efficiency versus the conservative social welfare function.' Discussion Paper no. 92, Centre for Economic Policy Research, Australian National University (March).
- Deardorff, Alan V. (1986). 'Why do governments prefer nontariff barriers?' To be published.
- Eaton, Jonathan and Grossman, Gene M. (1985). 'Tariffs as insurance: optimal commercial policy when domestic markets are incomplete.' *Canadian Journal of Economics*, 18, 258-72.

¹⁹ See Bhagwati (1965).

- Falvey, R. E. and Lloyd, P. J. (1985). 'Uncertainty and the choice of protective instrument.' Working paper no. 125, Australian National University (June).
- Hufbauer, Gary Clyde and Rosen, Howard F. (1986). *Trade Policy for Troubled Industries*. Washington: Institute for International Economics.
- Johnson, Harry G. (1954). 'Optimum tariffs and retaliation.' *Review of Economic Studies*, 21, 142-53.
- Jones, Ronald W. (1956-7). 'Factor proportions and the Heckscher-Ohlin model,' *Review of Economic Studies*, 24, 1-10.
- Jones, Ronald W. (1971). 'A three-factor model in theory, trade, and history.' In J. N. Bhagwati, R. W. Jones, R. A. Mundell and J. Vanek (eds), *Trade, Balance of Payments, and Growth: Essays in Honor of Charles P. Kindleberger*, Amsterdam: North-Holland.
- Magee, Stephen P. (1980). 'Three simple tests of the Stolper-Samuelson Theorem.' in Peter Oppenheimer (ed.), *Issues in International Economics*. Boston: Oriel Press.
- Mayer, Wolfgang (1974). 'Short-run and long-run equilibrium for a small open economy.' *Journal of Political Economy*, 82, 955-67.
- Mussa, Michael (1974). 'Tariffs and the distribution of income: the importance of factor specificity, substitutability, and intensity in the short and long run.' *Journal of Political Economy*, 82, 1191-1204.
- Samuelson, Paul A. (1962). 'The gains from international trade once again.' *Economic Journal*, 72, 820-9.
- Stolper, Wolfgang and Samuelson, Paul A. (1941). 'Protection and real wages.' *Review of Economic Studies*, 9, 58-73.
- Wolff, Alan W. (1983). 'Need for new GATT rules to govern safeguard actions.' In William R. Cline (ed.) *Trade Policy in the 1980s*. Cambridge, Mass.: MIT Press.
- Young, Leslie and Anderson, James E. (1982). 'Risk aversion and optimal trade restrictions.' *Review of Economic Studies*, 49, 291-305.

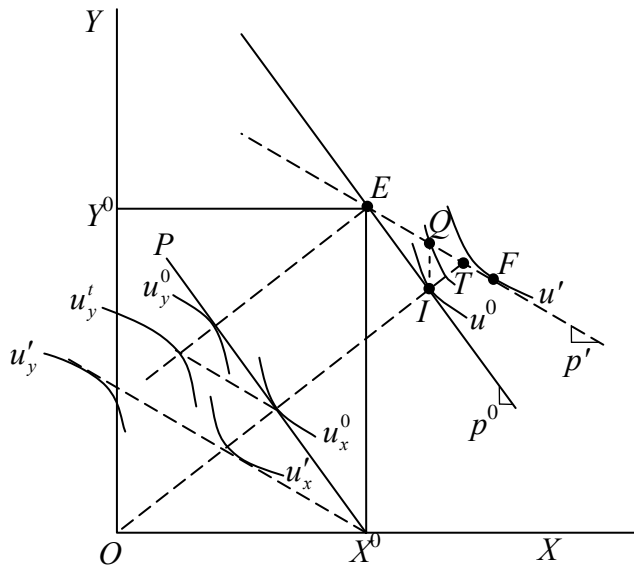


Figure 3.1(a)

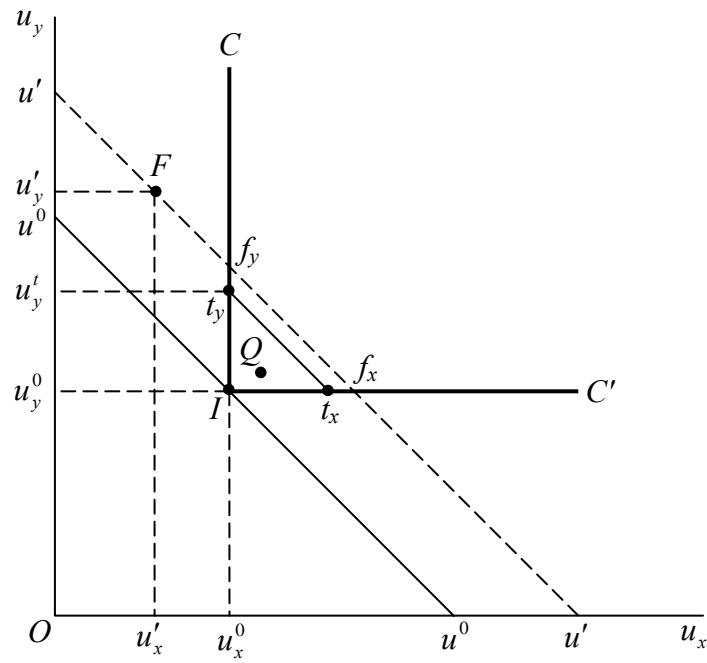


Figure 3.1(b)

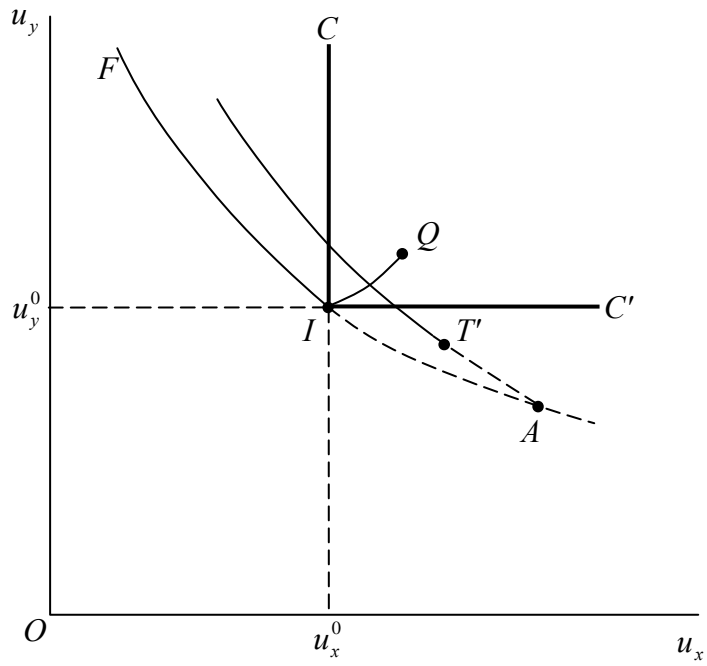


Figure 3.2

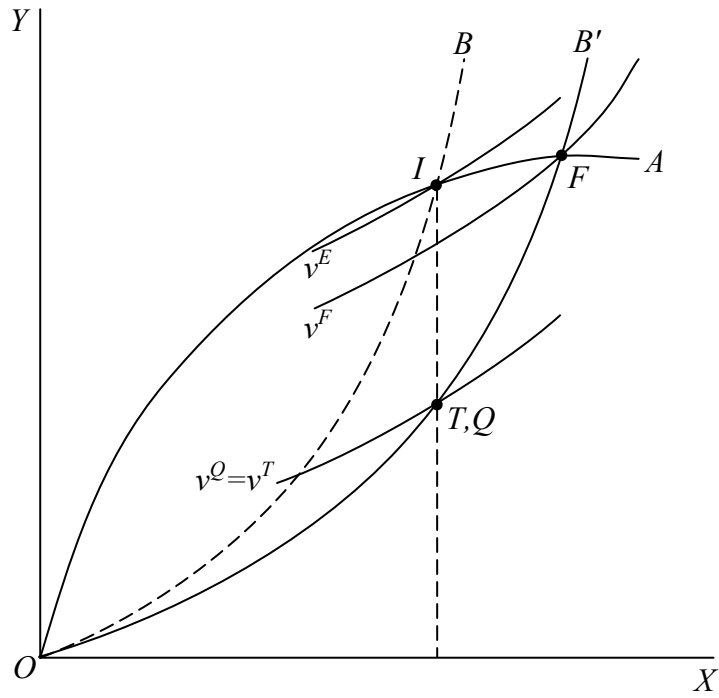


Figure 3.3

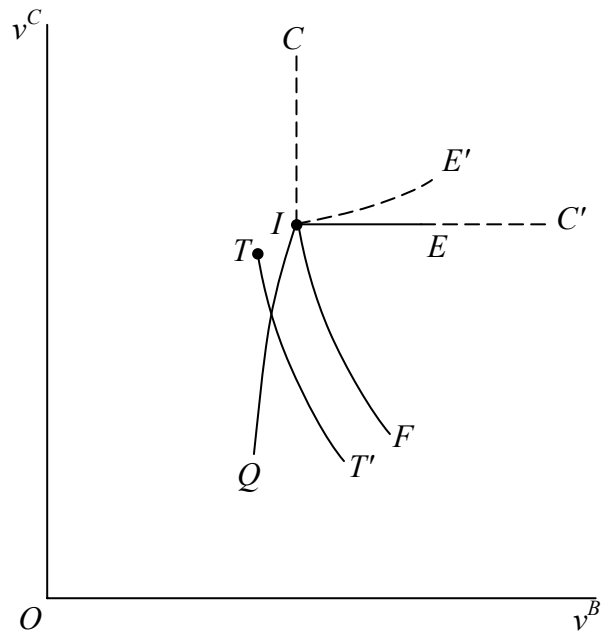


Figure 3.4