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THE UPGRADING EFFECT OF VOLUNTARY EXPORT RESTRAINTS

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1. Introduction

Since the middle of the 1970s it is generally held that protectionism has increased in general and particularly in the form of so-called voluntary export restraints (VERs) (see e.g. articles in Cline (1983)). A VER is an export restriction imposed by an importing country typically for perceived employment reasons in the importing country. VERs are thus not "voluntary" in the normal sense of the word.

At present VERs affect developing countries' exports of clothing to Western Europe and North America, Japanese passenger car exports to Germany, France, Italy, UK and USA, Japanese and European steel exports to USA, Asian exports of consumer electronics to several developed countries and, finally, a few agricultural commodities are affected like Thai exports to the EC of cassava.

A VER increases the domestic price and production volume in the importing country, it changes the trade pattern by stimulating trade diversion, and it transfers rents from importing to exporting countries. The VER distorts resource allocation and employment (e.g. by possibly creating a monopoly) and introduces the need for an export licence allocation mechanism. On these effects see Corden (1971), chs. 9 and 10, Cable (1981) and (1983), Hamilton (1981), (1983), (1984a) and (1984b), Jenkins (1980), Keesing and Wolf (1980), Morkre (1979), Murray, Schmidt and Walter (1983), Takacs (1978) and Wolf (1983).

This paper examines from a theoretical point of view another aspect of VERs, viz. the "upgrading" effect, i.e. that with a VER goods exported tend to be more sophisticated compared to a situation without a VER. The objective of the paper is to deepen the understanding of the theoretical issues and mechanisms involved rather than providing straight-forward policy advice or empirical evidence. Upgrading is often mentioned in descriptions of e.g. VERs on clothing and passenger cars, but until recently it has proved difficult to establish empirically any upgrading effect. E.g. unit import (or export) values can increase over time for several reasons with a VER: firstly, there is the increase due to the export tax equivalent of a VER, secondly, there is a unit value increase due to inflation in each particular commodity group regardless of any trade restriction and, thirdly, unit value could rise due to upgrading.

Feenstra (1984) examined whether there was a quality change in Japanese cars exported to the U.S. after the 1980 VER was introduced. Feenstra managed to decompose the overall price increase in the (nominal) retail price of Japanese cars into three parts: increased scarcity due to reduced supply, inflation, and quality improvement. Correcting for the inflationary effect, "about two-thirds of the rise in import prices can be attributed to quality improvement". Feenstra's approach is based on a model of Rodriguez (1979) with a single import good and competitive firms choosing the optimal export product quality. A different approach was used by Falvey (1979) who considered two imported goods with different prices which by assumption reflected different qualities or "grades". In the present paper Falvey's approach is carried further. Our conclusions are

given in the summary section at the end. The paper is inspired by Cordens (1976) neglected paper on nonuniformity of tariffs and customs union formation.

2. The Model

We consider a small home country which has one exportable and two importables and the latter two are substitutes for domestic production and consumption. The importables are assumed to be two varieties of a commodity and the government lumps the two varieties together into one commodity import category. For example the import category could be shirts or cars with one high price variety and one low price variety.

Denote the high price and the low price variety M_H and M_L respectively.

Next, the government introduces a VER defined in physical units limiting the aggregate import supply of the two varieties and not distinguishing between them. Because the VER is defined in physical units, the tariff equivalent of the VER will be a rate per unit. Consequently, as the two varieties catch different prices the ad valorem tariff equivalent of the VER will be lower on M_H than on M_L , and the VER causes the domestic price of one of the importable varieties to increase more than that of the other. There is an upgrading effect or, more generally, an import pattern effect.

In order to concentrate on the import pattern effect we assume, (1) that the elasticity of supply of the exportable is zero, and (2) that there is no domestic consumption of the exportable. Hence the quantity and value of exports and imports are immutably fixed.

We start with the free trade situation depicted in figure 1. The quantities of imports of M_H and M_L are shown on the two axes. TT' is the transformation curve assuming a fixed quantity of the exportable is produced.

Total consumption of importables can exceed production by the value of exports. The value of the fixed quantity of exports in terms of imports of M_L is RQ and in terms of M_H is $R'Q'$, given the free trade relative price line RR' . P_f is the free trade production point. Consumption takes place at C_f on the income-consumption ray OZ . The indifference curve through C_f indicates the free trade welfare level attained.

3. The Relative Price Effect

Now a trade barrier is introduced. Had it been an equal ad valorem tariff on M_H and M_L nothing would have changed. However, as pointed out above, when a volume-defined VER is introduced the ad valorem tariff equivalent is lower on M_H than on M_L and this results in a fall in the relative price of M_H and a flatter relative price line (not shown) shifting the production point from P_f to P_p .¹ The consumption ray connected with the new relative price is OZ' . The new consumption point is C_p . The total value of imports in terms of exports is unchanged as indicated by $\Delta P_f A^* B^*$ and $\Delta P_p AB$ being of the same size. The production and consumption distortion costs from the domestic relative price change are represented by a movement of the frontier $A^* B^*$ inwards to AB and a movement from C_p' being on a higher indifference curve than the one through C_p . Consumption of the high price variety M_H increases by the distance $C_f b$ and imports of M_H increase from aC_f to a^*C_p .

4. The Income Effect

We now introduce the income effect. We assume that there is no substitution effect on the side of either production or consumption,

1) A value-defined VER here has the same implication as an ad valorem tariff (Falvey (1979)), but value definitions are hardly ever used in practice, one reason being that the restricting body would have to decide whether stated prices on invoices are correct or not. There are other reasons as well, see Hamilton (1984).

i.e. the production point remains at P_p and the income-consumption ray is at OZ' . But the ratio of M_H and M_L can still change owing to differing income elasticities of demand.

A VER implies that part or all of the rent from protection accrues to the exporting country and home country income available to be spent on imports is less than it would have been had a tariff been used instead as the trade barrier. In figure 2 this is shown by the new frontier $A'B'$ being inside AB . If all imports consisted of variety M_L the rent foregone would have reduced the quantity of imports in the proportion $A'A/P_p A$ and had all imports consisted of M_H the reduction would have been in the proportion $B'B/P_p B$. The larger the transfer, the further inside AB will be $A'B'$. Consumption will shift inwards from C_p to C_u . The import volume of high price variety M_H will decrease by the horizontal distance between C_p and C_u .

5. The Import Pattern Effect

Suppose a given amount of VER-rent is transferred to the exporting country. If this transfer is combined with a change in relative prices of M_L and M_H the new consumption point is C_u on OZ' (figure 3). Had there been the same transfer and no relative price change the consumption point would have been C'_u on OZ . As C_u is on a lower indifference curve than is C'_u (which is on a lower curve than C_f , of course) welfare is reduced not only because of the transfer but also because of the relative price change. The greater the nonuniformity of the VER ad valorem tariff equivalent rates, the larger the welfare loss.

The relative price change stimulates an increase in imports of M_H and the income effect works in the opposite direction. The final outcome can be either that consumption of the high cost variety falls C_u is to the left of C_f , or that consumption of the high cost variety increases, C_u is to the right of C_f .

6. A possible correction

A government which rejects a recommendation for free trade could in principle in this situation introduce a traditional ad valorem tariff on M_H restoring the original relative price so that consumption takes place along OZ. This would increase welfare again (C'_u being on a higher indifference curve than C_u) and the ad valorem tariff "correction" could also outweigh the loss imposed by the transfer of the VER-rent. This would be so if the indifference curve through C'_u were above that through C_p . Also, the greater the nonuniformity and the smaller the VER-transfer, the more likely that the welfare gain due to restored relative price will outweigh the welfare loss caused by the VER-transfer. Note, however, that the ad valorem tariff correction must not be excessive moving the new consumption point beyond C'_u to a point like C''_u . The restoration of the original relative price through an ad valorem tariff reduces imports of the high cost variety.¹

1) In practice it is quite possible to introduce such an ad valorem tariff as VER-categories typically are more broadly defined than commodity groups of tariff classifications. However, there is something peculiar with a government which first introduces a volume defined VER and then counteracts the VER's negative impact with an ad valorem tariff. However, everything seems to be possible in a world where VERs are used at all rather than tariffs or free trade. Jones (1984) suggests a number of reasons why VERs are such a popular trade barrier today.

7. Summary

Given that a volume defined VER is introduced on two differently priced varieties of a good, (1) the transfer of the VER rent to the exporting country will cause imports of both varieties to fall, (2) the relative price change in favour of the high cost variety counteracts this import fall and could in fact outweigh it. (3) An ad valorem tariff restoring the original relative price of the two varieties would increase welfare and that welfare increase could in fact outweigh the welfare loss due to the VER-transfer to the exporting country.

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FIGURE 1