

Japanese Voluntary Export Restraints: Reconsideration

Ryuhei Wakasugi

1. Introduction

The “ Voluntary Export Restraint(VER)” is a “ grey area” because the GATT articles have not given a clear explanation as to how to deal with it. It takes such various forms as the implementation based on a bilateral agreement and the enforcement by one-sided declaration from the export country. The actual definition, however, is not always obvious. Since the GATT articles do not clearly define “ self-imposed export restraints” , it is not easy to distinctly sort out the restraints that have been actually adopted in a variety of ways in order to decide whether or not it comes under a voluntary export restraint. Control methods for example, are divided into two types: one with higher formalities; the contents of the restraint are determined by a government-level agreement and the enforcement is guaranteed by domestic laws, and the other simply aims at monitoring so as to prevent exports from sharply increasing. It is often unclear how effectively the latter method works out in the actual situation. In addition, despite the fact that talks on export and import volumes and prices between the industries in two countries influence actual exports and imports, the governments of each country might not regard it as a VER.

Kostechi (1988) conducted a survey on the 1986-87 export restraints. The survey points out that in most cases regarding the VERs, the U.S. and EC are importer countries. Actually, VERs have been widely adopted since the latter half of the 1970's and it is the fact that too much weight to ignore has been given to export restraints in international trade. These VERs, however, have not necessarily been discussed enough.

The purpose of this paper is to supplement various research on VERs regarding the following points:

First, the present situation of Japanese VERs is to be clarified. The historical facts and the conditions of Japanese major VERs are to be reviewed.

Second, an analysis on the effectiveness of VER is given. As the result of a VER, export prices and volumes change, but at the same time they are subject to the exchange rate changes. There could be two cases when the exchange rate changes: the effects of VER are stronger than what they seem to be; the restraints are not really effective. This relates to the discussion on loss in economic welfare and revenue transfer brought about by VERs. The basic difference of controls on the exporting country side from quantitative restrictions and tariff controls in the importing country is the following point: revenues brought about by quota allotment or price control, which would belong to an importer country in the form of an excess profit for companies of the importing country and a tariff revenue for the government in the importing country if it

were not for the VER, belong to enterprises of the exporting country. Regarding this point, there has been a lot of analytical studies dealing with economic welfare losses in importing country.⁽¹⁾ In these analyses, there seemed to be a lack of discussion as to how the economic welfare losses caused by export restraints would be affected by changes in the exchange rate.

Third, the focus is placed on trade substitution occurred as an effect of VER. It has already been discussed at many times that most industries in which a restraint was imposed on their exports shifted their product range to higher value added products. Nonetheless, an increase of local production in foreign countries is pointed out as one feature of the Japanese self-imposed export restraints.

2. Facts of Japanese VERs

2-1. Scale of VERs

It is found that the percentage of export controlled items to the total Japanese exports is extremely high under the calculation by limiting the range of product items covered by Japanese voluntary export restraints in the following definition: items which were chosen by Kostechi (1987) as ones subject to institutional export controls in one way or another, and items which are not included in the former category but are subject to agreements on exports volumes and prices based on the Japanese domestic Exports and Import Transaction Law.

As shown in Table 1, the 1985 actual results show that the percentage share of items classified as Japanese export controlled items in the total exports to the U.S. is 35.1%, and 35.6% to EC.

Table 1. The percentage share of the export covered by VERs to the total exports.

	1983		1984		1985	
	a.	b.	a.	b.	a.	b.
U.S.	16128	37.7%	21003	35.0%	22944	35.1%
EC	7997	43.2%	7698	39.7%	7130	35.6%

Note: a. indicates the value of exports under VERs, denominated by million dollars.

b. indicates the percentage share to the total exports.

Source: Customs Clearance Statistics in Japan

2-2. Textile Industry

It is cotton products that a VER was introduced on in the earliest stages of voluntary controls. In 1955, inexpensive blouses and shirts were exported from Japan to the U.S. The U.S.

(1) See Viravan (1987), Feenstra (1984), Crandall (1984), Kalantzopoulos (1984), Wolf et al. (1984), Greenway (1985), Hindley (1985), and Tsao (1984).

Women's Apparel Labor Union protested that Japanese made blouses and shirts were dumped.⁽²⁾ As a solution, the Japanese industry imposed a voluntary control on exports of blouses and shirts to the U.S. In the following year (1956), the coverage of the Japanese VER was extended to all cotton products.

Furthermore, in 1957, responding to the demand from the U.S. , the VER on cotton products became the government-level “ Japan-U.S. Cotton Product Agreement” . Owing to this agreement, the exportation of cotton products from Japan became sluggish, but imports of cotton products into the U.S. increased drastically. This was due to imports from Hong Kong and Taiwan, instead of Japan, increased. The VER between Japan and the U.S. was the first step towards developing the bilateral agreements and multilateral agreements.

To be concrete, the Japan-U.S. Cotton Product Agreement changed into a one-year short-term government-level agreement regarding export volume of cotton products due to the President Kennedy's election pledges. In addition, a five-year, long-term agreement was concluded for 1962 and after within the GATT framework. As the result, the export control on cotton products was to continue for a long time.

The demand for a voluntary export control spread from cotton products to other clothing too. In 1969, President Nixon required Japan, Korea, Taiwan, and Hong Kong to have VERs on wool and synthetic textile products. In the latter half of the 1960's, Japanese textile products were on the verge of losing their international competitiveness. The Japanese industry contended that the increased U.S. imports were not caused by Japan but other Asian nations. They manifested that if there had been any damage, an import control should have been introduced in accordance with GATT Article 19. The actual negotiation progressed politically and it was concluded by making a political compromise between the Japanese and U.S. leaders, entangling the return of Okinawa to Japan. As a result, a government-level agreement was concluded in 1971 in order to control export volume quotas of 18 textile and clothing items by individual item.

In order to implement the agreement, cooperative associations composed of producers and exporters as its members were set up. The quotas were allotted to each producer and exporter according to an agreement made between members belonging to the cooperation. The implementation of the quantitative restriction was secured by the cartel among the members of the industry association.

This quantitative control, not only limited to the relation between Japan and the U.S. , in the same year of 1971, spread to the relations between the U.S. and Korea, and the U.S. and Hong Kong, lead to the separate conclusion of export quantity agreements.

The long-term agreement on cotton products had already been approved through discussions in GATT, but not limited only to cotton products, there was a movement to expand it to synthetic fiber products and wool products, and to establish a common rule under the GATT system. The Multilateral Fiber Agreement-MFA was concluded in 1974 as a textile export control among many nations. Most advanced nations and major textile exporter countries joined this agreement, each importing country separately made a bilateral agreement with the exporting countries, and

(2) In 1955 the blouses made in Japan was called “one dollar blouse” which was protested for dumping.

a quantitative control was introduced on each item.

The Japan-U.S. Fiber Agreement was subsumed into MFA. MFA became an effective measure for controlling sharp increases in exports of textile products to the U.S. and EC and to cut off the influences on the domestic industry. MFA was extended from 1978 to 1982 as MFAII; from 1982 to 1986, MFAIII; and from 1987, MFAIV. During this period, from 1984 onwards, a self-imposed export restraint on polyester long fiber products was added. Among the international trade of textile products, the percentage of fiber products controlled by MFAIII reaches 80%.⁽³⁾

2-3. Steel

The Japanese steel industry has taken a VER in its earlier stage in order to prevent the U.S. domestic demand for an import restriction from being embodied. The U.S. steel imports exceeded 10% of the domestic consumption in 1965, and along with the import increase, a protectionist movement had surfaced in the U.S. Facing this trend, Japanese blast furnace companies concluded a quantitative restriction cartel on their exports based on the Export-Import Transaction Law, Article 5, and unilaterally declared that the Japan would introduce a voluntary export control for three years starting 1966.

Since then, however, there was a movement to legislate bills to restrict steel import volume. For this movement, the U.S. government authorities and the Japanese steel industry had talks on export quantities, and introduced the first VER from 1969 to 1971 and the second one from 1972 to 1974. As the result, the volume of exports from Japan turned to be more restrictive than before. The U.S. domestic steel demand and supply was tight from 1974 on, and the U.S. steel industry had a boom for a short time, but the import ratio increased again at the beginning of 1977.

To protect the U.S. steel industry, the Solomon committee proposed a trigger price system in 1977. For this system, the trigger price was set by adding a certain profit to the production cost of Japanese companies that were performing the most efficient level production at that time. It allowed the U.S. to impose antidumping duties automatically if actual import prices would mark below the reference level. This system had the same effect as the previous voluntary restraints on export volumes in respect that quota rent was transferred to the exporting country side, but had a different point that the control was carried out by the price. This system was adopted from February 1978 to 1981.

In the course of time, however, an agreement on export volume was to be carried out between the Japan and U.S. governments from October 1984. The contents indicated that the volume of exports should be controlled on the exporting country side in order that regarding all types of steel, the Japanese market share should be within 5.8% for the estimated demand volume in the U.S. domestic market (the total imports to the domestic demand be within 18.5%).

Before this agreement was concluded, negotiations had been held between the governments for a fairly long time. In 1982, eight U.S. major companies and the U.S. steel industry files to the U.S. Trade Representative for an import restriction based on Section 301 of the 1974 Trade Act.

(3) See Kostecki (1987).

And, in January 1984, Bethlehem Steel Corp. and the All U.S. Steel Labor Union filed to the U. S. ITC for the recognition of damage to the domestic industry caused by the drastic import increase based on the 1974 Trade Act Section 201. In June of the same year, ITC judged that regarding five steel items, there was damage to the domestic steel industry caused by a sharp increase in imports and recommended to raise the tariff increase and to set the import quota to the President. The President's decision making was to search for a means to meet two intentions: he did not want to depart from the free trade principle but wanted to control the increase of import ratio. The U.S. Trade Representative started negotiations on the voluntary export restraint with each country including Japan. The voluntary control was apparently a substitute for an import restriction on the importer country side because the U.S. had an intention to impose an import restriction based on the 1974 Trade Act Section 301 if a voluntary export restraint would not have been introduced. Since the 1984 government-level agreement was concluded, the file from the U. S. industry was withdrawn. On the Japanese side, the steel industry formed an export cartel based on the Export-Import Transaction Law in order to carry out the government-level agreement, and conducted a quantitative control.

The self-imposed export control with the U.S. made EC and Canada feel concern about an diversification of steel exports from Japan, and these countries called for a voluntary control on exports from Japan.

2- 4. Color TV

The VER on Japanese made color TVs has a close relation with anti-dumping actions in the U.S. The American industry appealed to the U.S. government for the antidumping duty in 1968. And also, in 1970 and 1972, an action calling for countervailing duties for subsidies based on the Japanese export promotion system was taken in the U.S. The background for this movement was the actual condition that export of Japanese color TVs to the U.S. had drastically increased in the latter half of the 1960's. In 1971, the quantity of export exceeded the one million units. In 1971 and 1972, however, the price competitiveness of Japanese products was lowered because the exchange rate of yen was appreciated to the dollar. The export volume stayed almost flat and the market share remained 12.5% during the following period until 1974. Until this point, the issue did not develop into a voluntary export control system.

From 1975 on, Japanese-made color TVs exported to the U.S. sharply increased. In the U.S. , the demand for a second TV set occurred, and along with this, the demand pattern changed into energy saving and smaller type televisions. Japanese manufactures responded to this demand change more quickly than American ones, and as the result, Japanese manufacturs expanded their market share. In 1976, Japanese color TVs jumped 143.5% compared with the previous year to 2.96 million units, and the share percentage reached 30% of the U.S. domestic market. At this time, the Committee to Preserve American Color TV (COMPACT), a color TV manufactureres' organization appealed to ITC based on Section 201 of the 1974 Trade Act to put in motion the escape clause: import quota allotment measure.

Color televisions made in Japan, which had a sharp increase in export in 1976, were being supplied with the following improvements: integrated circuits were used, the number of used parts

was reduced by 40% compared with the existing type, the production cost was lowered by shortening the production process, energy saving efforts were successful in reducing consumption power of a 20-inch model from 300 W of the existing type down to 80 W, and small-sized models -- 20-inch or smaller responding to an increase in the small type demand were supplied. For these reasons, the U.S. industry required a restraint on the volume of exports because they contended that they would not be protected sufficiently by raising prices of Japanese products alone. In this case, the demand for a VER from the color TV industry was furthered by the realization of the self-imposed control on exports of steels to the U.S. in 1969. In 1977, ITC passed a judgement that the U.S. industry was damaged by imports from Japan and recommended tariff increases as a remedial measure.

President Carter, instead of imposing an import restriction on the U.S. side, asked Japan to take a voluntary control on export volume, and started government-level negotiations. Although the Japanese industry would not agree with the contention that the U.S. industry's damage was caused by Japanese imports, it had an intention that the U.S. market -- its large market -- should be maintained, and thus decided to take a one-side export control measure. As the result, in May 1977, the Orderly Marketing Arrangement (OMA) was concluded between Japan and the U.S. The gist of the arrangement was that for three years starting July 1977, the Japan side would control the export volume of color TVs to 1.75 million units (finished products: 1.56 million units, unfinished: 0.19 million units). And for this measure, the U.S. would not take any restrictive steps on color TVs exported from Japan to the U.S.

It was the volume of unfinished products, not the controlled figures of finished products that became an issue regarding this control. It is because direct investments which Japanese manufactures planned to make were to be restricted depending on what form of unfinished products would be subject to the control. The Japanese industry claimed that the quantitative control should be imposed only on products of a higher finished level. The arrangement was eventually made by including the contention.

When OMA was concluded between Japan and U.S., instead of products imported from Japan, the U.S. market was flooded with products imported from developing regions such as Korea and Taiwan. As the result, the U.S. concluded OMA with these countries also. Furthermore, with the self-imposed export control on Japanese products, the EC color television industry was threatened by possible increases in exports from Japan, and it immediately asked an import restriction on Japanese made products. As the result, the Japanese government also took a monitoring measure on exports of color TVs to EC.

From 1977 on, the number of TV units exported from Japan to the U.S. kept marking far below the voluntary export limits, and the agreement on color TV was eventually abolished when the previously scheduled three-year period ended.

2-5. Passenger Car

As is the same case with the automobile industry, Japanese manufactures showed a quicker response to demand changes in the market than American ones.

Since the second oil crises in 1979, the car demand in the U.S. drastically changed from

large-sized cars to small-sized ones; the business performance of the U.S. car turned for the worse. After the first oil crises, the U.S. car industry started to take various measures under the 1975 Energy Saving Act⁽⁴⁾: in order to reduce average fuel consumption; miniaturization of large-sized cars, improvement in engine combustion efficiency, and in order to reduce car weight; R&D and plant and equipment investment. However, American manufactures did not show a quick response for they were making profits from large-sized car sales. On the contrary, Japanese car makers had been supplying small-sized cars from the beginning, and the demand for Japanese cars rapidly increased. The imports into the U.S. jumped from 1.36 million units in 1976 to 2.22 million units in 1979, and to 2.36 million units in 1980. The increase reaches one million units for four years.

While imports of Japanese cars increased, the business results of the U.S. car industry became worse, Chrysler was able to avoid its bankruptcy asking the government for a 1.5 million dollar loan guarantee. Due to the depression in the car industry, about 300,000 in car assembly makers alone, about one million people, including workers engaged in car related enterprises were laid off. For this reason, a politically formed consensus was that a sudden increase in imports of Japanese cars was likely to be the cause of the U.S. auto industry slump and of unemployed workers. Many import restriction bills were proposed at the U.S. Congress.

The Reagan Administration which had stood for the free trade policy, asked the Japanese government to introduce a self-imposed control on passenger car exports of adopting American itself an import restriction. Responding to this request, the Japanese government took a VER. It was, however, substantially the same the U.S. government adopted an import restrictive measure since the number of cars to be controlled was decided upon negotiations between the Japanese and the U.S. governments. As to the control to restrict car exports from Japan to 1.68 million units per year from April 1981 onwards, it is said that the control was aimed at preventing the Japanese car market share from exceeding 20%. The figures were decided by using a reference based on the estimated demand for passenger cars in the U.S. market. The voluntary restrained number of units was gradually expanded: 1.68 million units until March 1984, 1.85 million units from April 1984, and 2.3 million units in April 1985. As the background, following factors are pointed out: the U.S. demand for cars had quickly recovered since 1983 and expanded into a more than 11 million-unit in the market. Owing to oil price fall, the sales of large-size and intermediate-size cars, in which the American manufacturers had a relative advantage, increased so that the U.S. auto makers could reckon on up large profits. The recovery was so great that Chrysler could reimburse its loans with the government guarantee in only three years. The necessity of the VER became less urgent as a temporary relief measure to allow the U.S. car industry to recover. In fact, the U.S. government expressed its intention not to ask Japan to keep the previous VER from 1985 on.

Japan, however, continues to the VER for the following reasons: there was concern about

(4) The 1975 Energy Saving Act enforced the U.S. car makers to raise the average fuel efficiency of all the U.S. passenger cars from 18 MPG to 27.5 MPG during the period from 1978 to 1985. In 1975 the average fuel efficiency of the U.S. passenger cars was below 14 MPG.

reoccurrence of the import restriction issue caused by possibility of inviting a rapid increase in car exports if the self-imposed control was lifted. The car exportation accounts for a large portion in the trade imbalance between Japan and the U.S. , so that there are fears of deterioration in the Japan-U.S. trade imbalance by increased auto exports.

As the result of self-imposed control on car exports to the U.S. , EC was afraid that Japan would shift its car export to EC market and the car exports from Japan would increase rapidly, and EC also asked the Japanese government to assure the moderate export.

2-6. Common Characteristics

From the past historical facts of Japanese VERs, it is possible to point out several characteristics below.

First, it is the expansion of items on which VERs were imposed. If a VER on a certain part of items is once started, there is a high possibility of spreading to other items. In the case of textile goods, the voluntary restraint began with part of cotton products, and 80% of textile goods trade is lately subjected to the restraint. And it is sometimes introduced easily because the compensation is not required unlikely a import restriction.

Second, a VER has a property to spread to other regions. After Japan adopted voluntary restraints with the U.S. on exports of products, steels, color TVs, the U.S. ended up with asking other regions for similar voluntary controls, for example, Korea, Hong Kong, and Taiwan. And also, a VER with the U.S. invites Japanese voluntary controls with other countries. To prevent the diversification, other importer country, for example, EC and Canada asked Japan to introduce a VER.

Third, the period of a VER has been extended. The voluntary export control on color TVs was ended after the three-year term--the previously specified period was ended, but this was an exception. As long as a VER functions effectively in limiting the export quantity, there is no example of controls that was once introduced and abolished. It is possible to deduce this as an empirical fact from textile, steel, and passenger car cases.

2-7. Allocation of Export Quota

In textile, steel, color TV, and passenger car industries, their export quantities were restrained voluntarily. Japanese industries or government committed to a promise that the total volume of their export did not exceed a certain level. In order to realize this commitment, the export quota must be allocated to each exporter.

There are two ways in the allocation of export quota: One is to organize a cartel among producers or exporters. They conclude the agreement of the limited quantity which indicates the maximum volume for exportation, and put it under surveillance. The export cartel has been concluded within the industry associations. Japanese government can order outsiders of the cartel to observe the agreement. This procedure is based on the Export-Import Transaction Law. Another is the government order to limit the export quantity of each exporter. Japanese government prohibited each exporter to export more than the limited volume.

The allocation of export quota itself restricts the competition among Japanese exporters.

The Antitrust Law in Japan is not applied to the agreement among the firms based on the Export-Import Transaction Law. The Antitrust Law in the U.S. , however, is not ruled out. For this reason, VER on passenger cars was implemented by the government order.

Export quota is a strategically important variable for exporter since it determines the volume of sales in the importing country. Exporters require the quantity as much as possible. They gave a pressure to Japanese government to increase the limit as much as possible in the negotiation with the U.S. government and also to the U.S. government. They requested Japanese government to increase the export volume of their own as much as possible within the given limit thereon.

Table 2. Export Quota of Passenger Car

	(1000 units)				
	1979-80 (Actual)	1981 (Quota)	1983 (Actual)	1984 (Quota)	1988 (Quota)
Toyota	525.0 (31.34)	518.0 (30.83)	516.7 (30.76)	551.8 (29.83)	612.2 (26.62)
Nissan	459.0 (27.40)	453.0 (26.96)	456.0 (27.14)	487.1 (26.33)	541.0 (23.52)
Honda	359.0 (21.43)	353.0 (21.01)	348.6 20.75)	372.4 (20.13)	424.1 (18.44)
Mazda	155.0 (9.25)	159.0 (9.46)	159.3 (9.48)	173.5 (9.38)	226.8 (9.86)
Mitsubishi	110.0 (6.57)	114.0 (6.79)	112.6 (6.70)	122.4 (6.62)	192.6 (8.37)
Fuji	64.0 (3.82)	66.0 (3.93)	70.0 (4.17)	75.8 (4.10)	107.7 (4.68)
Isuzu	3.0 (0.18)	17.0 (1.01)	16.8 (1.00)	50.0 (2.70)	119.1 (5.18)
Suzuki	***	***	***	17.0 (0.92)	59.6 (2.59)
Total	1675.0	1680.0	1680.0	1850.0	2300.0

Note: Figures in parentheses indicate the percentage share.

Source: The figures of 1979-80 and 1981 are from Nihon Keizai Shinbun, June 24, 1981, the figures of 1983 and 1984 from January 18, 1984, the figures of 1988 from April 13, 1988.

There was a big difference in eagerness to secure their own quota between the advance party of Japanese automakers in the U.S. market; Toyota, Nissan and Honda, and the late party, Mazda, Mitsubishi, Suzuki, and Fuji. The late party strongly wanted to increase their quota. Total quantity of passenger cars which every firm wanted to export exceeded the level of VER.

Japanese government determined the export quota of each firm, based upon the future export plan submitted to the government and the quantity exported past. The procedure to determine the quota has not been made public. However, as Table 2 shows, the allocated quota seemed to be favorable to the late party.⁽⁵⁾ During the period from 1979 to 1980, Toyota marked 31.34%, Nissan 27.40%, Honda 21.43%, Mazda 9.25%, Mitsubishi 6.57%, Fuji 3.82%, Isuzu 0.18% of total export, 1.67 million units. In 1981, 30.83% of the total export quota was allocated to Toyota, 26.96% to Nissan, 21.01% to Honda, 9.64% to Mazda, 6.79% to Mitsubishi, 3.93% to Fuji, and 1.01% to Isuzu. The quotas allocated to Mazda, Mitsubishi, Fuji and Isuzu were larger than the quantity exported actually in the previous years, and they increased more when the quota increased in 1984.

3. Effectiveness of VER

3-1. Exchange Rate Fluctuations and VER Effects

As long as a VER is adopted as policy means in place of an import restriction, the point of discussion is whether or not the control has effectively realized an aimed import price increase and import volume limitation in the importing country. When a comparison is made on the differences before and after the enforcement, the past VERs, without an exception, ended with volume decrease in Japanese exports and rises in the importer country. From this result, it has been regarded that their trade restrictive effects were significant. However, the actual changes in the export volumes and prices were subject not only to VER but also to the exchange rate. Particularly when the range of the exchange rate fluctuations is wide, its influences are significant.

The exchange rate, supposed that a marginal cost and an average cost would not change in terms of the exporter country currency, alters the marginal cost and the average cost in the exporting country indicated in the importing country's currency. Even if there is no VER, the price and volume in the importing country change according to fluctuations in the exchange rate. Of course, all changes in the exchange rate are not always passed through to actually realized prices indicated by the currency of the importer country. It depends on the differences in price elasticity of demand in the importing country.

However, if the exchange rate had changed when a VER was imposed, as the effects of VER, it is necessary to take combinedly into account not only what seemed to be but also influences caused by the exchange rate. For example, during the period from 1977 to 1978 when a VER was taken on color TVs, the dollar exchange rate was depreciated to the yen. On the contrary, the exchange rate during the period from 1981 to 1982 when the VER was imposed on passenger cars had a sharp rise in the value of the dollar (a depreciation of the yen). Since those exchange rate changes raised or lowered the price of imported product, they should have amplified or offset the effects of VER.

3-2. Market Competition

(5) These figures are from Nihon Keizai Shinbun.

What influences this mixed effect of VER and the exchange rate changes brought about on prices and volumes in the actual market depend on the condition of market competition in importing countries; namely, whether or not there are competitors in the importing countries, and whether or not there are significant imports from countries, except for the country called for the VER.

In textile, steel, color TV industries on which a VER was introduced in the past, the U.S. market was competitive at the time when VERs were carried out. It is because, in addition to the facts that there were domestic rivals in the U.S. , there was increased importation from other countries than Japan. This indicates that when Japanese companies were controlled by the VER, they could not established a monopolistic position in the U.S. domestic market, and the price elasticity of demand that the Japanese firms faced with was considered fairly high.

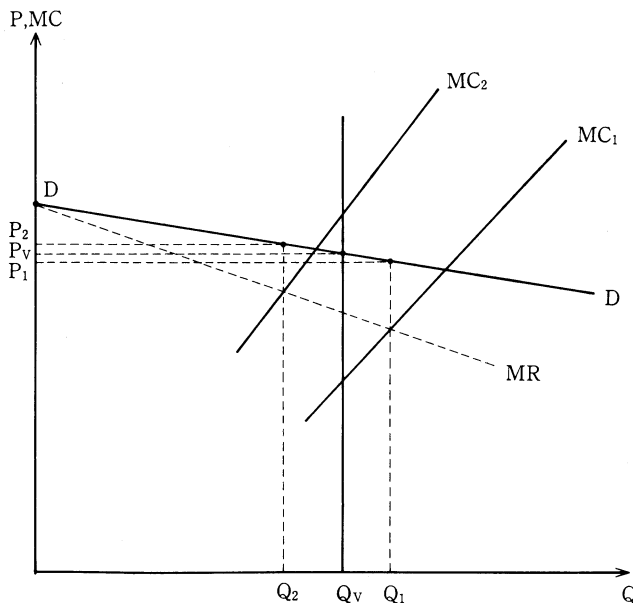
In the case of passenger cars, on the contrary, there were no strong rivals except for Japanese car makers. Furthermore, small-sized cars with a high energy efficiency were not supplied by American car makers. Therefore, Japanese car manufactures could have a monopolistic position in the U.S. market. As mentioned previously, the differences in the condition of market competition give different effects on volumes and prices.

3-3. Empirical Evidence I

The VER on color TVs gives a new perspective to the point of the previous discussion on VERs. When Japan introduced the VER, since there were many American manufacturers in the U.S. color TV market, and also, imports from developing countries other than Japan was on the increase, the market was competitive.

Demand curve, marginal cost curve, and imported volume, which Japanese companies faced with, are shown in Figure 1.

Figure 1



In Figure 1, DD indicates the demand curve, and MC_1 , the marginal cost curve before the exchange rate changed. Japanese manufacturers as a whole supplied their products Q_1 under the price P_1 . The volume was reduced to Q_v by the introduction of VER, and as the result, the price rose to P_v . However, the 1978 situation with the sharp rise in the value of the yen must be taken into account. The appreciation of the yen at the exchange rate raises the dollar-dominated marginal cost of Japanese makers. In Figure 1, the marginal cost of Japanese manufacturers shifts upward. MC_2 shows the raised marginal cost curve by the appreciation of the yen. As the result, the price actually realized becomes P_2 , and the volume, Q_2 . Q_2 is in turn lower than the export volume Q_v that was decided by the voluntary export restraint. There is a high possibility of the exchange rate change to have offset the effects of VER.

This is observed and tested by the empirical data. The actually realized volume and price were shown in Table 3. The volume of exports from Japan was limited to 1.76 million units by the VER. Nonetheless, the actually imported volume in 1978 was 1.34 million units, it was below the VER level of 1.76 million units, and fell down to 0.52 million units in 1979. At the same time, the price on the dollar basis increased. As a result, the price was higher than one realized under the voluntary export restraint, the volume was lower than the export controlled level. In other words, this shows that VER did not function effectively.

Table 3. Export of Color TV

	1976	1977	1978	Percent Change	
				1977/1976	1978/1977
Japanese export (to U.S.)					
Quantity(1000 units)	2959	2135	1343	-27.8%	-37.1%
Price(¥:1000yen)	53	51	47	-3.8	-7.8
Price(\$)	179	190	225	6.1	18.4
Exchange rate(¥/\$)	296.6	268.5	210.4	10.4	27.6

(Note) Figures are calculated upon the basis of Customs Clearance Statistics in Japan.

At a glance, the VER seems to have brought about the export volume reduction and the price rise in the importer country. However, it was the changes in the exchange rate that caused the actual effect. As the result, the VER on color TV was abolished in 1980.⁽⁶⁾

3-4. Empirical Evidence II

During the period from 1981 to 1982 when the VER was imposed on passenger cars was a term when the exchange rate of the dollar to yen turned to be appreciated. Japanese auto makers

(6) After the introduction of VER on color TV, the local production of Japanese firms in the U.S. increased. This fact is another explanation of why the Japanese export drastically reduced. This is analyzed in section 4.

monopolized the U.S. small-sized car demand. The line DD is regarded as the demand curve. In Figure 2, the supply quantity Q_1 and price P_1 are determined at the point of intersection between the marginal cost curve MC_1 and the marginal revenue curve MR before the VER and the fall in the value of the yen (an appreciation of the dollar). Owing to the VER enforcement, the export volume reduced to Q_v (1.68 million units) and the price increased up to P_v . The VER functioned effectively. However, the real effect must have been larger than it was. In other words, at this time, the exchange rate changed into the depreciation of the yen (a dollar appreciation), the marginal cost of Japanese manufacturers shifted downward to MC_2 . Had it not been for the VER, the export volume would have increased to Q_2 , and the price would have fallen to P_2 ; namely, it can be concluded that the real effect of the VER should have been more powerful than what it appeared to be. The real effect was disguised by the exchange rate change.

Figure 2

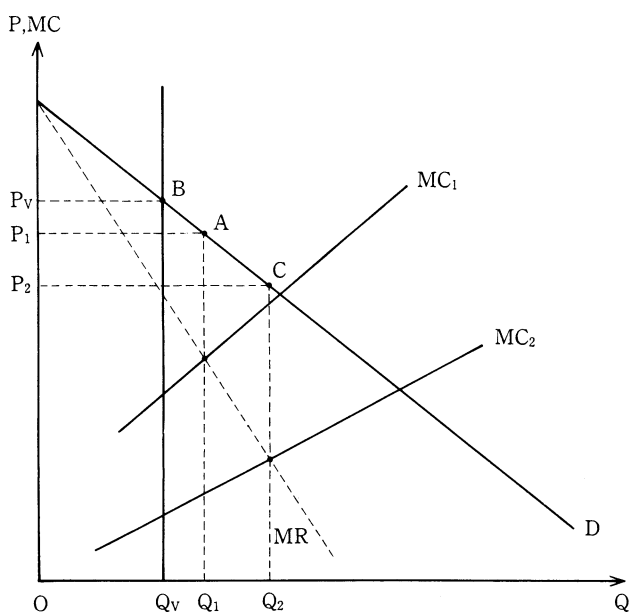


Table 4. Export of Passenger Car (not more than 2000 cc)

	1980	1981	1982	Percent Change 1981/1980	1982/1981
Japanese export (to U.S.)					
Quantity(1000 units)	1632	1492	1390	-8.6	-6.8
Price(¥: 1000yen)	906	988	1150	9.1	16.4
Price(\$)	3996	4478	4617	12.1	3.1
Exchange rate(¥/\$)	226.7	220.5	249.1	2.8	-11.5

(Note) See table 3.

This will be verified by introducing the empirical data. As shown in Table 4, the export volume almost goes closely along with the restrained level. In terms of shipment price the unit price rose from 4000\$ to 4500\$ due to the VER from 1980 to 1981. There was no drastic changes in price and quantity observed during the period from 1981 to 1982. Unless the VER was implemented, the price in the U.S. market should have decreased and the quantity increased. However, the price denominated by the U.S. dollar, in spite of the appreciation of the dollar, rose because of the VER. The actual economic welfare loss indicated by $PvBCP_2$ was higher than superficial welfare loss indicated by $PvBAP_1$.

Until now, many studies have been made on economic welfare loss in the importing country by VER, as well as economic welfare transferred to the exporter country. It has been pointed out that a certain portion of an increase in import price reflects improvements in the quality of services supplied through imported goods. The studies on economic welfare losses including consideration of quality improvement are noteworthy.⁽⁷⁾ These studies, however, do not pay attention to changes in the exchange rate when VERs were actually introduced. When the discussion by Feenstra (1984) are reconsidered by adding a downward shift in marginal cost curve caused by the depreciation of the yen at the exchange rate, it will be shown that much more economic welfare had been lost in the importer country.

4. VER and Overseas Investment

A characteristic phenomenon taking place after the introduction of Japanese VER is a substitution of export to increasing local production in the importing countries. As Table 5 shows, the output of color TVs produced by Japanese manufacturers in the U.S. was 2.27 million units in 1979, and expanded to 3.57 million units in 1980. And the direct investment of electric machines including color TVs in the U.S. started to increase at the time of introducing the VER. As is the same with cars, after the VER was imposed, instead of finished product exports, unfinished cars at a higher stage of completion for knock-down production increased, because it became impossible to raise the export volume of finished products. It is shown in Table 6 furthermore, since 1984 when it turned out clear that the VER would be prolonged, many Japanese car enterprises made a commitment to build factories for local production.

We introduce the concept of the managerial resources which are composed of technological knowledge, business know-how, capital, labor force, and others that Japanese companies had accumulated. It is assumed that the total volume of the managerial resources is given, and they are allocated into either domestic production including exports or overseas local production. In principle, these resources are allocated to equalized the marginal rate of return of the domestic production and that of local production. In Figure 3, AB indicates the marginal value product of domestic production, and CD the marginal value product of local production in the foreign country under the given managerial resources $OfOd$. Before the VER was adopted, the managerial resources were allocated at point E. In other words, $OdOe$ was used for the domestic production,

(7) See Feenstra (1984).

Table 5. Overseas Investment and Local Production of Color TV

	Overseas Investment (million \$)	Local Production (1000 units)
1975	43	575
76	75	770
77	87	1160
78	116	1770
79	88	2270
80	167	3570
81	330	4540
82	150	* * *
83	368	* * *
84	242	* * *
85	403	* * *

Source: The figures of Overseas Investment are from "Statistics of Japanese Foreign Direct Investment," Ministry of Finance. The figures of local production are from Porter (1983).

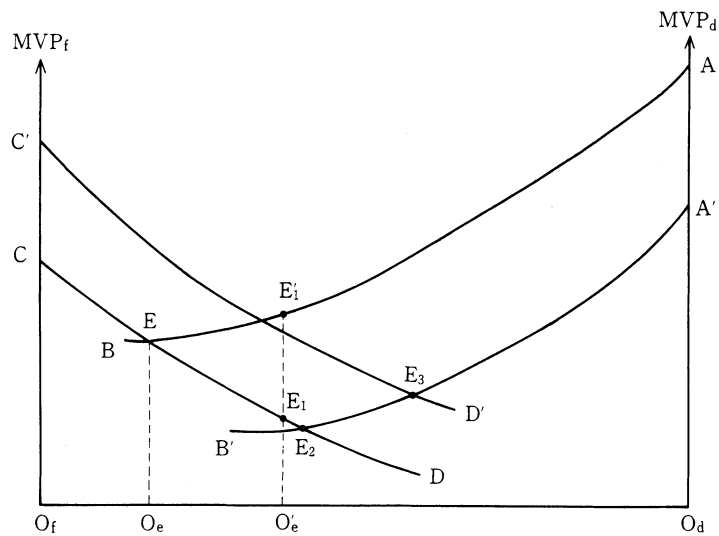
Table 6. Overseas Investment and Local Production of Passenger Car

	Overseas Investment (million \$)	Commitment of Local Production (1000 units)	Actual Production (1000 units)
1975	7		
76	12		
77	4		
78	3	150	
79	28		
80	18	240	
81	274		
82	250		
83	204		
84	157	330	
85	241	480	
86		250	509
87			930e
88			1430e
89			1490e

Note: e indicates the estimated figure.

OfOe was used for the local production in the foreign country. Due to the VER, the volume of domestic production was limited. When managerial resources matching the restricted volume reduces, the managerial resources to be distributed to the domestic production falls to OdOe'. The company can transfer the idle resources OeOe' to other production areas. It transfers them to overseas even if the company makes a lower profit of overseas production than the profit ratio of the domestic production. Presuming all idle resources were transferred to the overseas production, the equilibrium would be made at E₁, and OdOe' alone would be distributed to the domestic production, and OfOe' alone to the overseas production. The profit of the enterprise decreases by EE₁E₁, compared with that before the time of enforcement of the VER, but it increased by EOeOe'E₁' compared with the case where the VER is introduced but overseas production is not carried out.

Figure 3



Furthermore, a VER raises the marginal value product of local production in the foreign country because the restraint increase the domestic price in the importer country. CD shifts upward to C'D', and it enhances incentives to enlarge overseas production. And the appreciation of the exporting country's currency brings about incentive to transfer the managerial resources to overseas markets because it lowers the marginal value product in the domestic production. The increase of overseas production is recognized to be rational when the VER is introduced.

This is verified by the actual data of Japanese foreign direct investment. After the VER was enforced, the overseas investments of color TV and car industries were increasingly directed to local production in the U.S. and Europe, the outputs significantly expanded. Table 5 shows the increase of overseas investment and local production of Japanese color TV industries in the U. S. during the period from 1977 to 1981. Table 6 shows the increase of overseas investment of Japanese passenger car industries in the U.S. and the estimated figure of their local production after 1981.

5. Concluding Remarks

This paper reviews four major Japanese VERs. Between the U.S. and Japan more than 30% of total exports from Japan to the U.S. are subject to the VERs. If VERs have not been enforced, the U.S. would have introduced import restrictions. Japanese VERs were substitutes of the import restrictions of the U.S. The historical facts of Japanese VERs indicate the following: when Japanese VER got ineffective in the U.S. market due to the increase of import from other countries, the U.S. requested them to enforce VERs with the U.S. The commodities and regions which were covered by VER spread. The duration of VERs has been extended as long as they were effective to restrain the exports. The reason why VERs have been enforced so widely and easily, as substitutes of import restrictions, is explained by the following: (1) Exporting country preferred VERs to import restrictions since it could gain the revenue of quantitative restriction which might have belonged to the importing country if the import restriction, instead of VER, was enforced and its export volume would have been larger than the volume restricted by the importing country. (2) Importing country preferred VERs to import restrictions. If it introduced the import restriction, it was required to provide the exporting country with the compensation of import restriction.

As long as the economic welfare loss, the quantitative restriction under VER is equivalent to the import quota. Therefore, the import restriction within a limited duration is superior to the VER in promoting the industrial adjustment and realizing the optimal resource allocation.

The effectiveness of VER sometimes has been affected by the fluctuations of exchange rate. In case of the VER on color TV, Japanese VER was hardly effective since the appreciated yen raised the export price above the level which would have been brought by the VER. On a contrary, in case of the VER on passenger car, it was tremendously effective. If the VER had not been enforced, the yen depreciation would have lowered the export price, and the export quantity units of Japanese passenger cars would have increased. In estimating economic welfare loss, the effect of exchange rate changes on the export price must be taken into account. Further empirical studies must be accumulated on the past estimates of welfare loss.⁽⁸⁾

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