

Can a Periodic VER Raise Importing Country Welfare?

Omer Gokcekus*

North Carolina Central University

Edward Tower*

Duke University and University of Auckland

Abstract

Several authors have argued that if exporting firms anticipate a voluntary export restriction in a future period, and they expect VERs to be allocated in proportion to past exports, then they have an incentive to dump in the earlier period. In this paper we ask: How does a regime characterized by periodic VERs affect aggregate welfare, consumer welfare and import-competing producer welfare in the importing country? We discover paradoxically, that the answers are all uncertain. However, such a regime always shrinks world-wide efficiency, and normally, for the importer it shrinks aggregate welfare and consumer welfare and raises producer welfare. (JEL Classification: F13)

I. Introduction

There is a growing literature on how anticipated voluntary export restrictions may induce dumping. Anderson [1992; 1993], Dean [1996], Winters [1994], and Yano [1989] all note that competition for licenses under an anticipated VER may induce firms to dump in earlier periods. Jans, Wall and Har-
iharan [1995, p. 199], have built on this literature to show that “there may exist an incentive for a welfare-maximizing government that normally prefers free trade to maintain a protectionist reputation by imposing a voluntary export restraint,” for such a reputation induces dumping, and dumping enhances the importing country’s welfare. We explore this intriguing new argument for protection. We show in the context of a variant of their model that a welfare-maximizing government (their assumption) which is also distributionally indifferent (our assumption) will never wish to maintain a protectionist reputation by imposing a VER. Moreover, in the same model, except assuming the exporting industry is large (i.e., its long-run supply curve is upward sloping), imposing a VER will immiserize the importing country unless the demand or supply is nonlinear. In the nonlinear case we find, paradoxically, that consumer welfare and aggregate welfare may rise, while import-competing producer welfare may fall. Our results are catalogued in the conclusion.

II. Why Might Government Impose a Periodic VER?

Why might Americans impose a periodic VER? One story is provided by Tosini and Tower [1987]. They find senators are more protectionist toward the ends of their terms. If this applies to Presidents as well we could imagine a four year protection cycle.

substantial interest in supplying the product concerned. In cases in which this method is not reasonably practicable, the Member concerned shall allot to Members having a substantial interest in supplying the product shares based upon the proportions, supplied by such members during a previous representative period, of the total quantity or value of imports of the product. ... (p. 317-8).

Article 7, "Duration and Review of Safeguard Measures" states

1. A Member shall apply safeguard measures only for such period of time ... [which] shall not exceed four years, unless [certain conditions are met]. (p. 318).

...

3. The total period of application of a safeguard measure including the period of application of any provisional measure, the period of initial application and any extension thereof, shall not exceed eight years.

...

5. No safeguard measure shall be applied again to the import of a product which has been subject to such a measure, taken after the date of entry into force of the WTO Agreement, for a period of time equal to that during which such measure had been previously applied, provided that the period of non-application is at least two years.

6. Notwithstanding the provisions of paragraph 5, a safeguard measure with a duration of 180 days or less may be applied again to the import of a product if:

(a) at least one year has elapsed since the date of introduction of a safeguard measure on the import of that product; and

(b) such a safeguard measure has not been applied on the same prod

of Anderson et al. in tact. However, Dave Richardson notes that use of Safeguard Measures occurs very infrequently in the U.S. so our analysis is useful only if the Uruguay Round Agreement is flouted or else Safeguard Measures come to be used more frequently.

III. The Setup

We explore the following model. All firms are competitive. Foreign exporting firms are assumed to anticipate that the home country (henceforth “America”) will impose a VER periodically. For concreteness, we assume America imposes VERs on widgets in even periods and trades freely in odd periods. Foreign firms anticipate correctly that if imposed, the VERs in each period will be allocated to each firm in proportion to the firm’s exports in the immediately preceding (odd) period and that no foreign firms will be exempt from the VER. Henceforth we refer to these foreign firms as “Japanese.” Thus, Japanese firms in each odd period dump widgets in order to claim rents in the subsequent even period. The demand and supply curves for widgets are identical in every period.

We use partial equilibrium tools: fixed demand and supply curves for widgets, constant prices for all other goods, and welfare changes calculated as consumer and producer surpluses. One set of assumptions which supports our positive analysis follows. Widgets are produced with capital and labor. All other goods are produced with labor alone, and constant return to scale prevails everywhere. Both factors are fixed in supply, and labor is perfectly mobile between sectors. Monetary policy pegs the wage rate in both countries. All income is consumed. The marginal propensity to consume widgets is zero. A flexible exchange rate with no international capital mobility keeps both countries competitive.

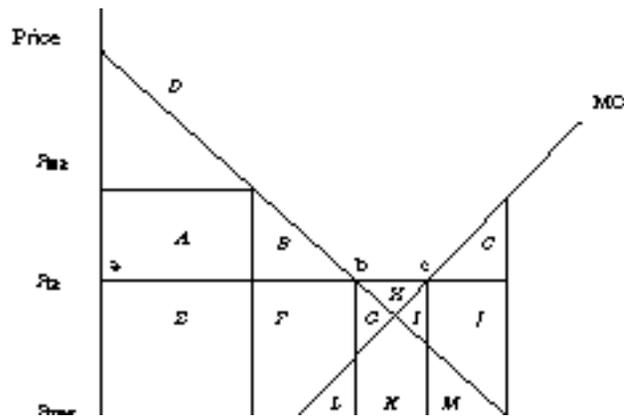
cific factor) respectively.¹

IV. The Small Japanese Industry Case

Free entry and exit with fixed factor prices characterize the Japanese industry. Thus the industry is "small." Free entry and exit drives expected profits of the Japanese firms to zero. Thus the losses they suffer by dumping in each odd period are just balanced by the profits they expect to make under the anticipated VER in the following period. Import licenses are not transferable between supplying firms. This keeps the number of firms in both periods of a particular stage constant.

Now, let's suppose American policy makers care only about the sum of American producer and consumer surplus. Then American welfare may be calculated with reference to the areas under the American excess demand for widgets. (Figure 1's D.) Since the markets in all periods are identical we

Figure 1
The Small Japanese Industry



need only one set of demand and supply curves.

Figure 1 illustrates the situation. The long run Japanese supply curve is perfectly elastic at a price P_{LR} , which is where each Japanese firm's marginal cost curve intersects the minimum point of its average cost curve. MC is the marginal cost curve of the representative Japanese firm, with the horizontal dimension multiplied by the number of exporting firms. The number of firms is determined by the condition that expected profit over an odd and subsequent even period equals zero. Thus MC shows Japanese marginal cost as a function of Japanese sales to the American market. The VER-Dumping cycle may induce entry into or exit from the industry. For concreteness, we assume it induces entry, so the intersection of MC with D lies to the right of the intersection of P_{LR} with D. We leave it to the reader to demonstrate that all of our conclusions follow if the cycle causes exit instead. Whether entry or exit occurs is explored in Appendix B. Since all firms are identical the number of firms has risen due to the cycle by the proportion bc/ab , which is the proportion by which MC has shifted to the right due to the cycle.

If America imposes a VER of Q_{VER} , American welfare falls from the competitive level by $A+B$, during that period. In each odd period the Japanese dump, selling Q_{DUMP} at a price P_{DUMP} . American welfare in each odd period rises above the competitive level by $E + F + G + K + L + M$, while Japanese profits fall below the competitive level by $C + E + F + G + H + I + J + K + L + M$. But the Japanese plan to recoup profits in the next even period, which they anticipate will be characterized by a VER. Profit in each even period is $A - F - G - H - N$.

Free entry and exit drives expected Japanese profit, π , over each two period stage to zero:

$$0 \pi = [A - F - G - H - N] - [C + E + F + G + H + I + J + K + L + M] \quad (1)$$

The strategy shrinks American welfare by the areas of the first and second triangles in brackets plus two times the third.

If firms are permitted to transfer (rent out) their quotas, free entry and exit will cause all firms to produce where marginal cost intersects the average cost curve at P_{LR} . The analysis is the same, except that MC is flat at P_{LR} . In this case,

$$0 = \pi = A - [E + F + G + H + I + J + K + L + M], \quad (4)$$

and again the change in American welfare is given by (2).

Adding these equations yields

$$W = - [B] - [H + I + J] < 0. \quad (5)$$

Thus, America's welfare shrinks by the sum of the two triangles in brackets. Resale of the quota rights does not alter the conclusion that American welfare falls.

The same conclusions hold if P_{LR} lies below the intersection of D and MC and/or if MC cuts into area R so L is the upper left hand corner of area R . We leave these proofs as exercises for the reader.

We conclude, our variant of the Jans-Wall-Hariharan model does not provide an argument for a distributionally-indifferent welfare-maximizing country to impose a periodic VER. The resulting terms-of-trade benefit from the protectionist reputation does not offset the welfare loss from the VER needed to establish the protectionist reputation. Thus, **The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports reduces aggregate welfare of the importing country if the foreign supplying industries are small whether or not import licenses are transferable. (Ia1)**, where our conclusions are numbered for easy reference to the concluding section of the

continue to equal zero, the VER-Dumping cycle must leave Japanese welfare unchanged. Since this cycle imposes a deadweight loss on the world in both periods, the cycle must shrink world welfare. Consequently, the cycle must depress American welfare. Moreover, this welfare drop is simply the loss in economic efficiency.

When quotas are transferable, the efficiency change is the middle of equation (5), and it equals the sum of the two deadweight loss triangles in Figure 1 showing the integral of marginal utility minus marginal cost associated with deviations from equilibrium over the cycle.

When quotas are not transferable, the efficiency change is the middle of equation (3). To see that this quantity is loss in economic efficiency refer to Figure 1. Note that the change in American utility (U) associated with the import cycle is the area under the demand curve gained when the price is low minus the area lost when the price is high (with the marginal utility of income normalized to equal unity):

$$U = [G + K + M + R + T] - [B + F + L + N + O]. \quad (6)$$

New entry generated by the cycle implies MC passes through c rather than b , where b describes the stationary price equilibrium. With constant returns to scale, the cost over these two periods of producing at c minus that of producing at b must equal the change in revenue. This is two times the area under P_{LR} between b and c :

$$\text{Cost}_{\text{ENTRY}} = 2 [G + H + I + K + R]. \quad (7)$$

The additional cost of deviating from steady state production at c is the area under MC when production expands minus that when it contracts:

$$\text{Cost}_{\text{FLUCTUATION}} = [C + J + M + T] - [I + K + L + O + R]. \quad (8)$$

The efficiency change over the two periods is given by subtracting (8)

Again suppose the Japanese industry is small, and let's adhere to Section 4's model. Suppose in Figure 1, $|P_{DUMP} - P_{LR}| = |P_{VER} - P_{LR}|$. Then $A = E$. We then rewrite (1) as $\pi = -[F + G + H + N] - [C + F + G + H + I + J + K + L + M] < 0$. Consequently, for foreign profits to equal zero $|P_{DUMP} - P_{LR}| < |P_{VER} - P_{LR}|$. P_{DUMP} must fall short of P_{LR} by less than P_{VER} lies above P_{LR} for the Japanese dumpers' profits to equal zero over the cycle. The American supply curve is upward sloping. Thus the dump/VER cycle must raise American producer surplus. Since aggregate American welfare declines, the American consumer is impoverished.

If the American industry is a large one, the area between the supply curve and price is still producer surplus but here the producers include the upstream suppliers. If the American industry is a small one, barriers to entry and exit are needed if the American excess demand is not to be perfectly flat.

Rather surprisingly, we find that the disorderly market which characterizes the dump/VER cycle always benefits import-competing producers and their upstream suppliers, and hurts American consumers. Consequently a home government which is a captive of home producers will opt for the VER-Dumping cycle over a constant price of P_{LR} . But a consumer-oriented government won't. We conclude: **The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports raises welfare of the import competing suppliers and reduces welfare of the consumers in the importing country if the foreign supplying industries are small whether or not import licenses are transferable. (Ib1; Ic1).**

The intuition behind this result is really easy in the special case where the short run foreign excess supply is flat and coincides with P_{LR} . For zero profit for exporters, area $[P_{VER} - P_{LR}]Q_{VER}$ equals $[P_{LR} - P_{DUMP}]Q_{DUMP}$. Since

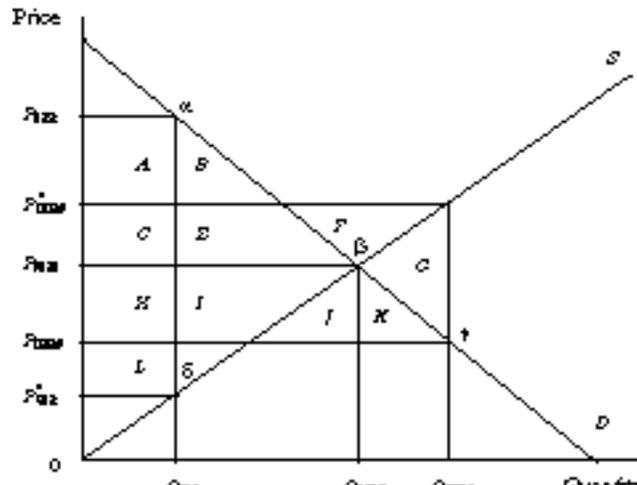
VII. The Large Japanese Industry and Linear Market²

In Appendix A, we consider a large Japanese industry and demonstrate: The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports reduces aggregate welfare of the importing country if the foreign supplies and domestic excess demand curves are allocated to middlemen-exporters or they are allocated to fabricators but are linear, assuming import licenses are transferable. (1a2).

Similar analysis and the same conclusions as in section VI apply if the foreign industry is large, import licenses go to middlemen-exporters or are transferable, and the foreign supply and domestic excess demand curves are linear. Figure 2 describes this model. D is domestic excess demand and F is foreign supply. If $|P_{DUMP} - P_{FREE}| = |P_{VER} - P_{FREE}|$, $\beta(P_{FREE}, Q_{FREE})$

Figure 2

The Large Japanese Industry and Linear Market



bisects the demand curve between $\alpha(P_{VER}, Q_{VER})$ and $\gamma(P_{DUMP}, Q_{DUMP})$. If that is the case, profits are clearly negative regardless of whether the supply curve passes above, below or through $\delta(P_{DUMP}, Q_{VER})$. This means that for zero profit:

$$|P_{DUMP} - P_{FREE}| < |P_{VER} - P_{FREE}|.$$

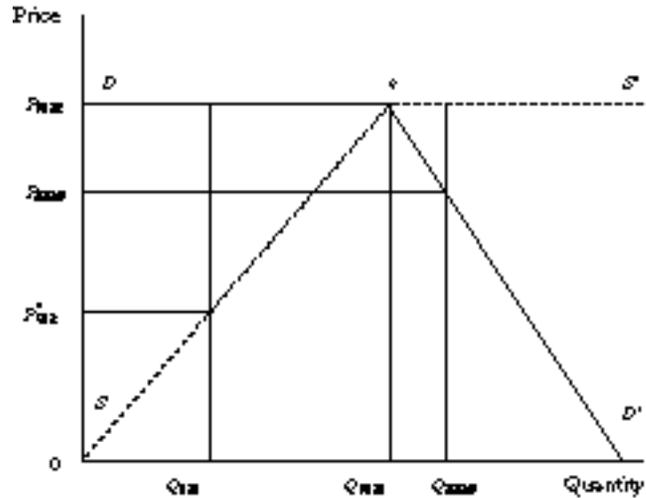
Consequently, the cycle benefits American producers. Since (from Appendix A) the cycle immiserizes America in the aggregate, it must immiserize American consumers: The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports raises welfare of the import competing suppliers and reduces welfare of the consumers in the importing country if the foreign supplies and domestic excess demand curves are linear, assuming import licenses are transferable. (*Ib2; Ic2*).

VIII. The Large Japanese Industry with Nonlinear Demands and Supplies

Now we consider the same problem as in Section VII. The Japanese industry is large, but we do not constrain supply and demand curves to be linear. Under this assumption might it make sense for America to use a VER in even periods? To answer this question we examine a special case.

The Japanese supply curve is given by the dashed curve SeS' in Figure 3. Japanese exporters simply buy from fabricators and export to the American market at a zero cost, and the middlemen-exporters get the export licenses. American excess demand is DeD' . Both curves are kinked at e , with their top parts flat. In even periods the Americans impose a VER at Q_{VER} . In anticipation of this VER, the Japanese dump in odd periods. Zero expected prof-

Figure 3
The Large Japanese Industry



We conclude: A distributionally-indifferent welfare-maximizing government facing a large industry may raise welfare by imposing a periodic VER so as to induce dumping in alternate periods. The analysis is the same if the import licenses are allocated to fabricators but are transferable. In that case each firm will continually produce at minimum average cost. We have proven conclusion *Ia'* below. *Ib'* and *Ic'* follow immediately. Thus, The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports may increase aggregate welfare of the importing country (*Ia'*), may reduce welfare of import competing suppliers (*Ib'*), and may increase welfare of consumers in the importing country (*Ic'*) if import licenses are allocated to middlemen-exporters or if they are allocated to fabricators but are transferable, and the foreign supply curve and domestic excess demand curve are nonlinear.

Figure 2 illustrates the situation. The Japanese industry is large. The permanent auctioned quota of Q_{VER} causes American welfare to rise over the two period cycle by

$$W_{\text{auction}} = 2[H + L - B - E]. \quad (10)$$

Under the Dump/VER cycle with the same VER American welfare rises over the two period cycle by

$$W_{\text{cycle}} = -A - B - C - E + H + I + J + K. \quad (11)$$

The importers' profit is

$$\pi = A + C + H + L - C - E - F - G - H - I - J - K = 0. \quad (12)$$

From (10) subtract (11) and (12) to yield

$$W_{\text{auction}} - W_{\text{cycle}} = [H + L - B - E] + C + E + F + G. \quad (13)$$

Equation (14) is positive if (11) is. If (11) is close to zero, (14) will be positive.

For a large country with an auctioned import quota:

- a. If that quota is welfare enhancing it is better than a Dump/VER cycle with the VER set at the same level.
- b. If that quota is sufficiently close to prohibitive, (11) is negative and $C+E+F+G$ approaches zero. Thus, (14) is negative. In this case, a Dump/VER cycle is better than an auctioned quota set at the same level as the VER. The intuition is "some trade is better than no trade."
- c. Since the optimum quota is welfare enhancing, from statement a, the optimum quota is superior to any Dump/VER cycle.³

We conclude: The optimum quota is a better tool for maximizing aggregate

X. Conclusion

I. The establishment and maintenance of a protectionist reputation through periodic quotas which are given to the foreign suppliers in proportion to previous exports

- a. reduces aggregate welfare of the importing country
- b. raises welfare of the import competing suppliers
- c. reduces welfare of the consumers in the importing country
 - 1. if the foreign supplying industries are small whether or not import licenses are transferable, or
 - 2. if the foreign supplies and domestic excess demand curves are linear, assuming import licenses are allocated to middlemen-exporters or they are allocated to fabricators but are transferable.

- a'. may increase aggregate welfare of the importing country,
- b'. may reduce welfare of import competing suppliers,
- c'. may increase welfare of consumers in the importing country

if import licenses are allocated to middlemen-exporters or if they are allocated to fabricators but are transferable, and the foreign supply curve and domestic excess demand curve are nonlinear.⁴

II. The optimum quota is a better tool for maximizing aggregate import-competing country welfare than any Dump/VER cycle and both are less efficient policies than an explicit transfer financed with lump sum subsidies and taxes.⁵

III. When the foreign industry is small, the import licenses are allocated to fabricators, there are barriers to foreign entry and exit, and demand and

supply curves are linear,

- a. then a Dump/VER cycle with a slightly restrictive quota will shrink both foreign supplying firm profits and importing country aggregate welfare,
- b. but with a kink at the free trade equilibrium, then a Dump/VER cycle with a slightly restrictive quota will cause American welfare to rise or fall with an effect on Japanese firms' profit which is opposite in size and equal in magnitude.
- c. In the long run Japanese firms will enter or exit depending on whether these profits are positive or negative.⁶

The idea that a welfare maximizing government may find it useful to attract dumping by creating a protectionist reputation seems crazy. Yet, we find it is a possibility. VERs are the consequences of political pressure, and not attempts to maximize aggregate economic welfare. The same could be said of most tariffs. Still it is useful to assess the welfare cost of tariffs and to evaluate the optimal tariff in order to raise the quality of the public policy debate, and because aggregate welfare is one argument in political pressure. Similarly, we believe that it is important to assess the welfare effects of periodic VERs, even though aggregate welfare may not be the primary target of their imposition. One important regularity emerges: even with this (the Yano) effect, just as in its absence, periodic VERs are likely to benefit import competing producers with consumers and the economy as a whole suffering a loss. Moreover, as with other impediments to trade, the VER is never first best.

Appendix A

The Large Japanese Industry and Linear Market

even periods, which we label VER. The situation is illustrated in Figure 2. P_i , P_i^* , and Q_i are respectively consumer price, producer price, and quantity in period i . The equilibrium price, P_{FREE} , is normalized to unity. The equilibrium quantity is Q_{FREE} . q_i is the deviation of quantity in period i from the equilibrium level:

$$q_i = Q_i - Q_{\text{FREE}}. \quad (\text{A1})$$

The slopes of the demand and supply curves are $\delta > 0$ and $\sigma > 0$, respectively, so

$$P_i - 1 = -\delta q_i; \quad (\text{A2})$$

$$P_i^* - 1 = \sigma q_i. \quad (\text{A3})$$

Free entry and exit forces the Japanese middlemen-exporters' profits over the two periods DUMP and VER to zero:

$$0 = \pi = \sum (P_i - P_i^*) (Q_{\text{FREE}} + q_i). \quad (\text{A4})$$

(A2), (A3) and (A4) combine to yield

$$0 = \pi = -\sum (Q_{\text{FREE}} + q_i) q_i (\delta + \sigma). \quad (\text{A5})$$

The change in American welfare over the two periods is

$$W = \sum - (P_i - 1) Q_{\text{FREE}} - (q_i/2) (P_i - 1). \quad (\text{A6})$$

Combining (A2) and (A6):

$$W = \delta \sum [Q_{\text{FREE}} + (q_i/2)] q_i. \quad (\text{A7})$$

Multiply both sides of (A7) by $2/\delta$, and add (A5) divided by $(\delta + \sigma)$ to yield

$$2W/\delta = Q_{\text{FREE}} [q_{\text{DUMP}} + q_{\text{VER}}]. \quad (\text{A8})$$

As in Section VII, the analysis is the same if import licenses are allocated to fabricators, but are transferable. In that case each firm will continually produce at minimum average cost.

If the supplying market is large, demand and supply curves are linear, and the export licenses are allocated to middlemen or import licenses are transferable, the welfare of the importing country must fall.

Appendix B

The Small Japanese Industry with Barriers to Entry and Exit and a Slightly Restrictive VER

There are many variants of the problem explored in this paper: "What are the effects of a Dump/VER cycle?" All of these can be explored for VERs that are only slightly restrictive, using the principle of undetermined coefficients. This principle is applied to a related issue in international economics, the economics of reversed international transfers, by Feldman and Tower [1986].

In this appendix we choose to analyze the effects of a Dump/VER cycle when the foreign industry is small and there are barriers to entry and exit.

a. Linear Demand and Supply Curves

The demand and supply curves are linear.

We use equations (A1), (A2), and (A3). We assume that export licenses are not transferable and are held by the Japanese producers. We write a variant of (A4) for the change in Japanese supplier profits over the two periods.

$$= \sum p_i Q_i - \frac{1}{2} p_i^* q_i \quad (B1)$$

$$v = Q_{\text{VER}}/Q_{\text{DUMP}}. \quad (\text{B4})$$

Maximizing expected profits requires equating the incremental loss from dumping one more unit to the incremental gain from getting to sell one more unit under the VER:

$$0 = d\pi/dQ_{\text{DUMP}} = [P_{\text{DUMP}} - P_{\text{DUMP}}^*] + v [P_{\text{VER}} - P_{\text{VER}}^*]. \quad (\text{B5})$$

This model constitutes 13 equations (because $i = \text{DUMP, VER}$) in 14 variables ($q_{\text{DUMP}}, q_{\text{VER}}, Q_{\text{DUMP}}, Q_{\text{VER}}, p_{\text{DUMP}}, p_{\text{VER}}, P_{\text{DUMP}}, P_{\text{VER}}, p_{\text{DUMP}}^*, p_{\text{VER}}^*, P_{\text{DUMP}}^*, P_{\text{VER}}^*, \pi, v$) one of which is exogenous (q_{VER}).

Equation (B1) combined with (A1), (A2), (A3), (B2), and (B3) yields

$$\pi = -\delta \sum q_i (Q_{\text{FREE}} + q_i) - (\sigma/2) \sum q_i^2. \quad (\text{B6})$$

Equations (B2), (B3), (B4), (B5), (A1), (A2), and (A3) combine to yield

$$0 = \sum q_i (Q_{\text{FREE}} + q_i). \quad (\text{B7})$$

Let us assume that the even-period VER is only slightly restrictive. Then we can express q_{DUMP} as a Taylor series:

$$q_{\text{DUMP}} = a q_{\text{VER}} + b q_{\text{VER}}^2 + c q_{\text{VER}}^3 + \dots \quad (\text{B8})$$

Substituting (B8) into (B7) to eliminate q_{DUMP} , then successively setting to zero the coefficients of q_{VER} to the first and second powers, solving sequentially for a and b yields

$$q_{\text{DUMP}} = -q_{\text{VER}} - (2/Q_{\text{FREE}}) q_{\text{VER}}^2 + \dots \quad (\text{B9})$$

Substituting (B9) into (B6) yields

$$\pi = -\sigma q_{\text{VER}}^2 + \dots \quad (\text{B10})$$

The right hand side is negative. This means that a slightly restrictive quota

We conclude When the foreign industry is small, the import licenses are allocated to fabricators, there are barriers to foreign entry and exit, and demand and supply curves are linear, then a Dump/VER cycle with a slightly restrictive quota will shrink both foreign supplying firm profits and importing country aggregate welfare. (IIIa).

b. Kinked Demand and Supply Curves

An alternative approach to the problem is to consider only a first order approximation. We assume the demand and supply curves are straight lines with kinks at the free trade equilibrium. δ_{DUMP} and σ_{DUMP} are the slopes of the curves between free trade and the dump equilibrium. δ_{VER} and σ_{VER} are the slopes of the curves between free trade and the VER equilibrium.

Retaining only first order terms of the appropriately modified version of (B6) yields

$$\pi/Q_{FREE} = -\delta_{DUMP} q_{DUMP} - \delta_{VER} q_{VER}. \quad (B12)$$

Equations (B2), (B3), (B4), (B5), (A1), modified (A2) and modified (A3) yield

$$0 = q_{DUMP}[\delta_{DUMP} + \sigma_{DUMP}] + q_{VER}[\delta_{VER} + \sigma_{VER}]. \quad (B7')$$

Substituting (B7') into (B12) yields

$$\pi = \{q_{VER}[\sigma_{VER}/\delta_{VER} - \sigma_{DUMP}/\delta_{DUMP}]\delta_{DUMP} \delta_{VER} Q_{FREE}\} / \{\delta_{DUMP} + \sigma_{DUMP}\}. \quad (B13)$$

Since q_{VER} is negative, profits are positive if and only if $\sigma_{DUMP}/\delta_{DUMP} > \sigma_{VER}/\delta_{VER}$. A bit of reflection easily makes this intuitive.

Substituting (B7') into modified (A7) shorn of second order terms yields

We conclude: When the foreign industry is small, the import licenses are allocated to fabricators, there are barriers to foreign entry and exit, and the foreign supply curve and domestic demand curve are linear but with a kink at the free trade equilibrium, then a Dump/VER cycle with a slightly restrictive quota will cause American welfare to rise or fall with an effect on Japanese firms' profit which is opposite in size and equal in magnitude. *(IIIb)*. In the long run Japanese firms will enter or exit depending on whether these profits are positive or negative. *(IIIc)*.

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