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Welfare and market access effects of piecemeal tariff reform

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Abstract

We study the link between import volume and welfare due to liberalization. We confine our attention to the small country case and to unilateral tariff reductions. Our results indicate that increased import volume associated with tariff reductions is neither necessary nor sufficient for welfare improvement to occur. We show that in general both import value and welfare cannot fall. Moreover, if the excess demand for exported goods does not respond to changes in the prices of imported goods, the value of imports and welfare must move in opposite directions.

Keywords: Piecemeal policy reform; Market access

JEL classification: F02; F13; F16

1. Introduction

Market access is an important issue for trade negotiators. So much so that the objective function that negotiators seem to be following has been seen as a variant of Mercantilism. Krugman (1991) labels this new Mercantilism as ''GATT think'' and sums it up as the view that ''imports are good, exports are bad and an equal increase in imports and exports is good''. Market access negotiations between the

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US and Japan have lasted for several decades and covered sectors as different as automobiles, agriculture, and services. In negotiating China's entry into the World Trade Organization (*WTO*) The Economist (1997) reported:[1]

''American and European negotiators had hoped the Chinese would present long awaited plans for opening their service industries to foreign competition. No such offer was made. Though the Chinese agreed months ago that foreigners should be able to sell their goods directly to Chinese customers, they have not yet guaranteed that importers will be allowed to set up distribution networks to get their wares to market.''

Until recently, academic work focused mostly on the welfare implications of trade reform. For a small country, that is one which takes world prices as given, and so far as unilateral tariff reductions are concerned, two basic results exist. The first shows that uniform proportional cuts (UPC) in tariffs raise welfare. The second shows that reduction of the highest ad-valorem tariff to the next highest one raises welfare if all goods are net substitutes. This is termed the concertina rule.[2]

There has recently been considerable attention paid to how negotiations actually seem to occur. A political economy interpretation of market access concerns has been offered by Hillman and Moser (1996), while an economic interpretation of GATT-think is provided in Bagwell and Staiger (1999). Ethier (1998) looks at the usefulness of the most favored nation clause if countries follow ''GATT think''. Anderson and Neary (1999) develops a mercantilist index of trade policy. There has also been some recent work on implementing market access and the use of import targets to improve access as a consequence of perceived closure of certain markets (see for example Irwin (1994); Greaney (1996); Krishna and Morgan (1998); Krishna et al. (1998); Verdier (1998)). This is in turn can be seen as a part of the larger literature on results oriented policies, (see Cronshaw and Markusen (1995); Ethier and Horn (1996); among others).

However, the link between import volume and welfare due to liberalization has not, to our knowledge, been formally studied to date.[3] Will tariff reductions that

[1]See the article in The Economist titled ''Stand Off'' on August 16th 1997, page 56, column 1.

[2]The intuition behind them is standard. When tariffs are reduced in one market they have a direct positive effect as net consumer and producer surplus gains outweigh adverse revenue effects in that market. However, they also have effects in linked markets by affecting tariff revenue raised in these linked markets. When the goods are substitutes for each other, a tariff reduction in one market reduces demand and hence tariff revenue in the linked market. If the linked market has a low tariff to begin with, this reduction will tend to be smaller than the direct gain in the liberalized market so that such reforms are likely to raise welfare. This is, of course, the well understood intuition behind the concertina rule. Also, reducing tariffs in linked markets will reduce the tariff revenue loss from the linkage effect while resulting in direct gains in that market as well which forms the intuition behind the *UPC* rule.

[3]A search of EconLit came up with no entries on this topic. We look at tariff reductions as tariffs are already bound for the most part as a result of past negotiations and trade negotiators typically work to reduce tariffs.

raise welfare necessarily raise the value of imports? Conversely, will tariff reductions that raise the value of imports necessarily raise welfare? This is the focus of our work. Our results indicate that where a set of unilateral tariff reductions for a small country is concerned, the presence of increased import volume (valued at world prices) associated with tariff reductions is neither necessary nor sufficient for welfare improvement to occur. We focus on the standard case where goods are substitutes so that it is clear that there is no ''special'' assumption driving our results.

In Section 2 we develop the model and in Proposition 1 we provide an example of tariff reform where both welfare and import value rise. We show that if all tariffs are equal and uniform tariff cuts are employed, then both import value and welfare rise. Thus, if tariffs are equal to begin with, the *UPC* rule satisfies both welfare and market access concerns.

In Proposition 2 we provide an example where the value of imports rises but welfare falls. We show that a reduction of the lowest ad-valorem tariff increases the value of imports. It also reduces welfare if the excess demand for exportable goods is completely unresponsive to the price of the importable good with the lowest tariff. Thus focusing on reforms which improve market access may hurt welfare.

In Proposition 3 we provide a third example where welfare rises but import value falls. We show that a reduction of the highest ad-valorem tariff decreases the value of imports if the excess demand for exportable goods is completely unresponsive to the price of the importable good with the highest tariff. It also increases welfare by the concertina rule. Thus, focusing on reforms which raise welfare may hurt market access.

Our main result is Proposition 4. We show that in general both trade volume and welfare cannot *fall* when tariffs are reduced. This follows from our result that the sum of the change in welfare and import value due to a tariff reduction must be non negative. Hence, if one falls the other must rise. Moreover, if the excess demand for exportable goods is completely unresponsive to the price of importable goods, then both trade volume and welfare cannot *rise* when tariffs are reduced. If one rises, the other must fall. This follows from the sum of the change in welfare and import value due to a tariff reduction being zero in this case. In this special case, the two objectives of market access and welfare are inconsistent! The intuition for our result is straightforward. As trade is balanced, the value of imports equals that of exports at world prices. Thus, if the value of imports rises due to liberalization, the value of exports must rise as well. If the excess demand for exported goods does not vary with a reduction in the domestic price of imported goods, the only way to get the value of exports to rise is to reduce demand for exportables by reducing welfare!

The paper is organized as follows. In Section 2, we develop the general equilibrium version and study the market access effects of tariff reductions as well as the relationship between welfare effects and market access effects. Section 3 contains some concluding remarks.

2. Welfare and imports

We first develop the apparatus to prove our results.[4] Suppose there are N goods in total.[5] Let $P^w = (p^{w1}, p^{w2}, \ldots, p^{wN})$ and $P = (p^1, p^2, \ldots, p^N)$ denote the world and domestic price vectors, respectively. The specific tariffs are denoted by the vector $T = (T^1, T^2, \ldots, T^N)$. The equivalent ad-valorem tariffs are given by the vector $t = (t^1, t^2, \ldots, t^N)$. We treat all vectors as column vectors and denote transposes by a "′". Let I_t denote the diagonal matrix with the elements of t along the diagonal. Hence:

$$P = P^w + T = P^w + I_t P^w. \tag{1}$$

2.1. The model

Assuming that tariff revenue is redistributed among consumers in a lump-sum fashion, the budget constraint for the country can be written as:

$$E(P, U) = R(P, V) + T'M, \tag{2}$$

where $E(.)$ is the standard expenditure function, $R(.)$ is the revenue function, U is the utility level, V is the fixed factor endowments vector. As usual $E(.)$ and $R(.)$ have all the standard properties. $E_p(.)$ and $R_p(.)$ are column vectors which represent the first partial derivatives of the expenditure and revenue functions with respect to domestic prices. Thus, $E_p(P, U) = C(P, U)$ is the demand vector, and $R_p(P, V) = X(P, V)$ is the supply vector. $M(.) = E_p(.) - R_p(.)$ is the net trade vector.

Let $I = (1, 2, \ldots, h)$ denote the set of imported goods and $J = (h + 1, \ldots, N)$ denote the set of exported goods. All goods are assumed to be traded for simplicity. The tariffs on exported goods are assumed to be zero. We will index a component or set of components in a vector by the use of a superscript. As trade is balanced, the value of imports at world prices equals that of exports so that looking at either is equivalent to looking at trade volume. The aggregate value of imports is:

$$A = (P^{wI})'M^I. \tag{3}$$

The welfare and market access effects due to tariff reform can now be studied by examining $\mathrm{d}W/\mathrm{d}T$ and $\mathrm{d}A/\mathrm{d}T$ respectively.[6]

[4] In the working paper version of this paper, Ju and Krishna (1996), we provide a partial equilibrium example which illustrates the intuition behind our results.

[5] These could be final or intermediate goods. Intermediate goods enter the output vector as negative elements and pure intermediate goods enter the demand vector as zeros.

[6] Note however, that by separating the goods into imported goods and exported goods we are assuming that our policies will not cause a good to switch from one category to the other. For small changes and a discrete number of goods this is not a restrictive assumption as long as all imports and exports are strictly non negative and excess demand functions are continuous.

2.2. Welfare

Totally differentiating the budget constraint Eq. (2), gives us:

$$\begin{aligned} E_p(.)'\,\mathrm{d}P + E_u(.)\,\mathrm{d}U &= R_p(.)'\,\mathrm{d}P + M(.)'\,\mathrm{d}T \\ &\quad + T'\left[E_{pp}(.)\,\mathrm{d}P + E_{pu}(.)\,\mathrm{d}U - R_{pp}\,\mathrm{d}P\right], \end{aligned} \tag{4}$$

so that:

$$\left[E_u(.) - T'E_{pu}(.)\right]\mathrm{d}U = -M(.)'\,\mathrm{d}P^w + T'M_p(.)\,\mathrm{d}P, \tag{5}$$

where $M_p(.) = E_{pp}(.) - R_{pp}(.)$ is the first derivative matrix of $M(.)$. $E_u(.)$ is homogeneous of degree one in prices. This, together with the assumption that all goods are normal yields the result:

$$E_u(.) - T'E_{pu}(.) = P^{w'}E_{pu}(.) \geq 0.$$

This result, along with the small country assumption allows us to rewrite Eq. (5) as:

$$\begin{aligned} P^{w'}E_{pu}(.)\,\mathrm{d}U &= T'M_p(.)\,\mathrm{d}P \\ &= T'M_p(.)\,\mathrm{d}T. \end{aligned} \tag{6}$$

Let the matrix $M_p(.) = E_{pp}(.) - R_{pp}(.)$ have as its ijth element m_j^i, which is the derivative of the ith excess demand with respect to the jth price. Of course, $M_p(.)$ is symmetric. Let $M_p(.)$ be partitioned as follows.

$$\begin{aligned} M_p(.) &= \begin{bmatrix} m_1^1 & m_2^1 & \ldots m_h^1 & m_{h+1}^1 \ldots m_n^1 \\ m_1^2 & m_2^2 & \ldots m_h^2 & m_{h+1}^2 \ldots m_n^2 \\ \vdots & \vdots & \vdots\ \vdots & \vdots \quad \vdots\ \vdots \\ m_1^h & m_2^h & \ldots m_h^h & m_{h+1}^h \ldots m_n^h \\ m_1^{h+1} & m_2^{h+1} & \ldots m_h^{h+1} & m_{h+1}^{h+1} \ldots m_n^{h+1} \\ \vdots & \vdots & \ldots \vdots & \vdots \quad \vdots\ \vdots \\ m_1^N & m_2^N & \ldots m_h^N & m_{h+1}^N \ldots m_N^N \end{bmatrix} \\ &= \begin{bmatrix} M_p^{II} & M_p^{IJ} \\ M_p^{JI} & M_p^{JJ} \end{bmatrix} \\ &= \begin{bmatrix} M_p^I \\ M_p^J \end{bmatrix}, \end{aligned}$$

where M_p^{II} consists of the first h rows and columns of $M_p(.)$ and M_p^I consists of the first h rows and all N columns of $M_p(.)$. The corresponding vector T^I and matrix $(\mathrm{d}T/T)^{II}$ are analogously defined. $(\mathrm{d}T/T)^{II}$ represents a $h \times h$ diagonal matrix with

the ith component in the diagonal equal to $\mathrm{d}t^i/t^i$ while T^I denotes the $h \times 1$ vector of specific tariffs on imported goods.

Now when there are no taxes on exports as assumed here Eq. (6) can be rewritten as:

$$P^{w'} E_{pu}(.)\,\mathrm{d}U = (T^I)'\left[M_p^{II}(.)\right]\left(\frac{\mathrm{d}T}{T}\right)^{II} T^I, \tag{7}$$

where $\left[M_p^{II}(.)\right]$ defined above is negative definite since $M_p(.)$ is negative definite. Recall that by Eq. (1), $p^{wi} + T^i = p^{wi}(1 + t^i)$, so that

$$\mathrm{d}T^i = p^{wi}\,\mathrm{d}t^i, \tag{8}$$

and

$$\frac{\mathrm{d}T^i}{T^i} = \frac{\mathrm{d}t^i}{t^i}. \tag{9}$$

Thus, if $\mathrm{d}t^i/t^i = \alpha < 0$ for all i, so that uniform proportional cuts in tariff occur, then welfare must rise as

$$(T^I)'\left[M_p^{II}(.)\right]\left(\frac{\mathrm{d}T}{T}\right)^{II} T^I \geq 0.$$

This is the *UPC* result.

Now note that if only one tariff, say that on good 1 changes then:

$$\begin{aligned} T'M_p(.)\,\mathrm{d}T &= p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{N} t^i p^{wi} m_1^i \\ &= p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{N} t^i p^{wi} m_i^1 \\ &= p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{N} \frac{t^i}{1+t^i}\, p^i m_i^1, \end{aligned} \tag{10}$$

where $m_i^1 \equiv m_1^i$ is the derivative of the imports of the first good with respect to the price of ith good assuming that both the expenditure and revenue functions are twice continuously differentiable. Because $m_i^1 = E_{i1}(.) - R_{i1}(.)$ is homogeneous of degree zero subject to prices, then $\Sigma_{i=1}^{N}\ p^i m_i^1 = 0$, which implies:

$$p^1 m_1^1 = -\sum_{i=2}^{N} p^i m_i^1. \tag{11}$$

Substituting Eq. (11) into Eq. (10) and recalling that $T = tP^w$ gives:

$$
\begin{aligned}
p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{N} \frac{t^i}{1+t^i}\, p^i m_i^1 &= p^{w1}\,\mathrm{d}t^1 \left[\frac{t^1}{1+t^1}\, p^1 m_1^1 + \sum_{i=2}^{N} \frac{t^i}{1+t^i}\, p^i m_i^1 \right] \\
&= p^{w1}\,\mathrm{d}t^1 \sum_{i=2}^{N} \left(\frac{t^i}{1+t^i} - \frac{t^1}{1+t^1} \right) p^i m_i^1 \\
&= p^{w1}\,\mathrm{d}t^1 \sum_{i=2}^{h} \left(\frac{t^i - t^1}{(1+t^i)(1+t^1)} \right) p^i m_i^1 \\
&\quad + p^{w1}\,\mathrm{d}t^1 \sum_{i=h+1}^{N} \left(\frac{-t^1}{(1+t^i)(1+t^1)} \right) p^i m_i^1. \qquad (12)
\end{aligned}
$$

Assume that all imported goods are substitutes for good 1, that is, $m_i^1 \geq 0$ for $h \geq i \geq 2$. As there are no export taxes, $t^i = 0$ for $i > h$. If good 1 has the highest tariff, then reducing the tariff on it must raise welfare, which is the well known concertina result.[7] It is also easy to see that if good 1 has the lowest tariff, then reducing the tariff on it must reduce welfare if $m_i^1 \equiv m_1^i = 0$ for $i > h$, that is, if the excess demand for exports is unaffected by changes in the price of import with the lowest tariff.

2.3. Import value

Now we turn to the effect of reform on the aggregate value of imports. Totally differentiating Eq. (3) gives:

$$
\begin{aligned}
\mathrm{d}A &= M^I(.)'\,\mathrm{d}P^{wI} + (P^{wI})' M_p^I(.)\,\mathrm{d}P + (P^{wI})' M_u^I\,\mathrm{d}U \\
&= (P^{wI})' M_p^I(.)\,\mathrm{d}T + (P^{wI})' E_{pu}^I\,\mathrm{d}U,
\end{aligned} \qquad (13)
$$

in the small country case. From Eq. (6), we have:

$$
\mathrm{d}U = \frac{T' M_p(.)\,\mathrm{d}T}{P^{w'} E_{pu}(.)}. \qquad (14)
$$

Since the tariffs on the exportable goods are zero, $T' M_p(.)\,\mathrm{d}T = (T^I)' M_p^I(.)\,\mathrm{d}T$. Let

$$
\beta = \frac{(p^{wI})' E_{pu}^I}{(P^w)' E_{pu}},
$$

and note that $0 < \beta < 1$ for normal goods. Substituting Eq. (14) into Eq. (13) gives:

[7] See Meade (1955); Bertrand and Vanek (1971); Lloyd (1974); Hatta (1977); for some of the classic results in the area.

$$\begin{aligned} \mathrm{d}A &= (P^{wI} + \beta T^I)' M_p^I(.)\,\mathrm{d}T \\ &= (\bar{P}^I)' M_p^{II}(.)\,\mathrm{d}T^I \\ &= (\bar{P}^I)' M_p^{II}(.)\left(\frac{\mathrm{d}T}{\bar{P}}\right)^I \bar{P}^I, \end{aligned} \tag{15}$$

where $\bar{P} = P^w + \beta T = P^w(1+\beta t)$, $(\mathrm{d}T/\bar{P})^I$is a $h \times h$ diagonal matrix with its ith element along the diagonal equal to $\mathrm{d}T^i/\bar{p}^i$. If $\mathrm{d}T^i/\bar{p}^i = r \leq 0$ for all $i = 1,2, \cdots h$, then the right hand of above equality is positive. Note further that if all ad-valorem tariffs are identical and uniform proportional cuts are considered so that $\mathrm{d}t^i = \mathrm{d}t$, then using Eqs. (8),(9)

$$\frac{\mathrm{d}T^i}{\bar{p}^i} = \frac{p^{wi}\,\mathrm{d}t^i}{p^{wi}(1+\beta t^i)} = \frac{\mathrm{d}t}{(1+\beta t)},$$

for all i. But then

$$\begin{aligned} \mathrm{d}A &= (\bar{P}^I)' M_p^{II}(.)\left(\frac{\mathrm{d}T}{\bar{P}}\right)^I \bar{P}^I \\ &= \frac{\mathrm{d}t}{(1+\beta t)}\,(\bar{P}^I)' M_p^{II}(.)\bar{P}^I > 0, \end{aligned} \tag{16}$$

for reductions in t. Thus we have the following proposition which both provides a result analogous to the *UPC* result for welfare changes as well as a scenario where welfare and import value rise in response to a tariff cut.

Proposition 1. *For a small country, if the tariff reduction is such that* $\mathrm{d}T^i/\bar{p}^i = r \leq 0$ *for all imported goods, then the value of imports must increase. If all tariffs are set at the same ad-valorem rate and a uniform tariff cut is considered from this common level, then both the value of imports and the value of welfare must rise.*

What if only one tariff changes? We turn to this next to get a result analogous to the concertina result for welfare. From the above equation we see that:

$$\begin{aligned} \mathrm{d}A &= p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{h} \bar{p}^i m_i^1 = p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{h} \frac{\bar{p}^i}{p^i}\, p^i m_i^1 \\ &= p^{w1}\,\mathrm{d}t^1 \sum_{i=1}^{h} \frac{1+\beta t^i}{1+t^i}\, p^i m_i^1 \\ &= p^{w1}\,\mathrm{d}t^1 \left[-\frac{1+\beta t^1}{1+t^1} \sum_{i=2}^{N} p^i m_i^1 + \sum_{i=2}^{h} \frac{1+\beta t^i}{1+t^i}\, p^i m_i^1 \right] \\ &= p^{w1}\,\mathrm{d}t^1 \left[\sum_{i=2}^{h} \left(\frac{1+\beta t^i}{1+t^i} - \frac{1+\beta t^1}{1+t^1} \right) p^i m_i^1 - \sum_{j=h+1}^{N} \frac{1+\beta t^1}{1+t^1}\, p^j m_j^1 \right] \end{aligned}$$

$$= p^{w1}\,\mathrm{d}t^1\left[\sum_{i=2}^{h}\left(\frac{(1-\beta)(t^1-t^i)}{(1+t^i)(1+t^1)}\right)p^i m_i^1 - \sum_{j=h+1}^{N}\frac{1+\beta t^1}{1+t^1}\,p^j m_j^1\right]. \tag{17}$$

If $t^1 \leq t^i$, $\mathrm{d}t^1 < 0$, all goods are substitutes for the good with the lowest tariff so that $m_i^1 > 0$, and $\mathrm{d}t^i = 0$ for all $i > 1$, then $\mathrm{d}A > 0$. Also, note that if $m_j^1 \equiv m_1^j = 0$ for $j > h$, then a reduction in the highest tariff must reduce import value.[8] These facts provide results analogous to the concertina and anti concertina result for welfare changes. They also provide examples where welfare and import value move in opposite directions. Hence we have shown the following results.

Proposition 2. *For a small country, if all goods are substitutes for the good with the lowest tariff and there are no export taxes, then a reduction in the lowest ad-valorem tariff increases the value of imports. It also reduces welfare if the excess demand for exported goods does not respond to the change in the price of the imported good with the lowest tariff.*

Proposition 3. *For a small country, if all goods are substitutes for the good with the highest tariff and there are no export taxes, then a reduction in the highest ad-valorem tariff increases welfare by the concertina result. It also decreases the value of imports if the excess demand for exported goods does not respond to the change in the price of the imported good with the highest tariff.*

They suggest that there may be a general relationship between imports and welfare to which we turn next.

2.4. The link between import value and welfare

We now turn to the general relationship between the welfare and market access effects. Note that given our small country assumption, Eqs. (6),(15) can be written as

$$P^{w'}E_{pu}(.)\,\mathrm{d}U = (T^I)'M_p^I(.)\,\mathrm{d}P, \tag{18}$$

and

$$\mathrm{d}A = (P^{wI})'M_p^I(.)\,\mathrm{d}P + \beta(T^I)'M_p^I(.)\,\mathrm{d}P. \tag{19}$$

Let

[8] For many countries, importable goods and exportable goods belong to different industries. The cross price effects between them could be very small.

$$
\begin{aligned}
Z &= (T^I)' M_p^I(.)\,\mathrm{d}P + (P^{wI})' M_p^I(.)\,\mathrm{d}P \\
&= (P^I)' M_p^I(.)\,\mathrm{d}P \\
&= (P^I)' M_p^{II}(.)\,\mathrm{d}P^I \\
&= \sum_{j=1}^{h} \sum_{i=1}^{h} p^j m_i^j\,\mathrm{d}p^i \\
&= \sum_{i=1}^{h} \mathrm{d}p^i \sum_{j=1}^{h} p^j m_j^i \\
&= \sum_{i=1}^{h} \mathrm{d}T^i \sum_{j=h+1}^{N} \left(-p^j m_j^i\right),
\end{aligned}
\tag{20}
$$

where we have used the fact that m^i is homogeneous of degree zero, and the small country assumption to get the last of the above equalities. If all goods are substitutes for each other, then $m_j^i \geq 0$ for $i \neq j$ so that $Z \geq 0$ for any reform that reduces tariffs.

Substituting Eq. (20) into the Eq. (19), we have:

$$
\begin{aligned}
\mathrm{d}A &= Z - (1-\beta)(T^I)' M_p^I(.)\,\mathrm{d}P \\
&= Z - \left[(1-\beta) P^{w'} E_{pu}(.)\right] \mathrm{d}U \\
&= Z - \left[P^{w'} E_{pu}(.) - P^{wI} E_{pu}^I(.)\right] \mathrm{d}U.
\end{aligned}
\tag{21}
$$

Note that when all goods are normal, $k = P^{w'} E_{pu}(.) - P^{wI} E_{pu}^I(.) > 0$. Thus:

$$
\mathrm{d}A + k\,\mathrm{d}U = Z > 0. \tag{22}
$$

From Eq. (22) it follows that if $\mathrm{d}U \leq 0$, then $\mathrm{d}A \geq 0$. If $\mathrm{d}A \leq 0$, then $\mathrm{d}U$ will be positive. If the exportable goods are perfect inelastic with respect to the prices of importable goods, then $Z = 0$ so that $\mathrm{d}V$ and $\mathrm{d}U$ must have opposite signs. This gives:

Proposition 4. *When all goods are normal, and are substitutes for each other in excess demand, and world prices are given, both welfare and the value of imports cannot fall in response to a reduction in tariffs. If welfare decreases due to such tariff reform, then the value of imports must increase; if the value of imports decreases due to such tariff reform, then welfare must increase. If the excess demand for exported goods does not respond to changes in the prices of imported goods, then the value of imports falls if and only if welfare rises due to such reform.*

Why do we get this result? Recall that as trade is balanced, the value of imports equals that of exports at world prices. Thus, if the value of imports rises due to liberalization, the value of exports must rise as well. If the excess demand for exported goods does not vary with a reduction in the domestic price of imported

goods, the only way to get the value of exports to rise is to reduce demand for exportables by reducing welfare.

3. Conclusion

In a second best world tariff liberalization only partially removes existing distortions so that welfare and import value need not move in the same direction when liberalization occurs. A small country may resist reforms that raise imports due to considerations of national welfare. We show that when tariffs are cut but the excess demand for exported goods does not respond to changes in the prices of imported goods, then welfare improving liberalization must be accompanied by a decrease in imports and import increasing liberalization must be accompanied by welfare reductions! Under these conditions, pressure to increase imports via trade liberalization is likely to be resisted by the country! Our work also provides another rationale for focusing on proportional cuts and uniform tariffs.[9] Negotiators are thought to focus on the effect on trade value. However, liberalization that raises trade value may end up reducing welfare. Nevertheless, we show that if ad-valorem tariffs are uniform, proportionate cuts must both raise welfare and import value.

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[9] See Panagariya and Rodrik (1991) who make a case for uniform tariffs on political economy grounds.

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