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REGIONALISM AND MULTILATERALISM: A POLITICAL ECONOMY APPROACH*

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Preferential trading arrangements are analyzed from the viewpoint of the "new political economy" that views trade policy as being determined by lobbying of concentrated interest groups. Two conclusions are reached: first, that trade-diverting preferential arrangements are more likely to be supported politically; and second, that such preferential arrangements could critically change domestic incentives so multilateral liberalization that is initially politically feasible could be rendered infeasible by a preferential arrangement. The larger the trade diversion resulting from the preferential arrangement, the more likely this will be the case.

I. INTRODUCTION

The recent revival of interest in preferential trading arrangements (PTAs), described here simply as "regionalism" even though some of them are not regional, e.g., the U. S.-Israel Free Trade agreement, especially in the shape of Free Trade Areas (FTAs) sanctioned by Article XXIV of the GATT, has led to a parallel revival of academic interest in the desirability of these arrangement in themselves and vis-à-vis multilateral free trade.[1] But the new theoretical developments are characterized by two wholly different approaches. One simply asks (as did Viner [1950]) what would happen to welfare if arbitrarily specified FTAs or Customs Unions (CUs) were to occur, and the other asks what the incentives are for arriving at such arrangements, as distinct from reaching out for multilateral, nonpreferential free trade for instance.

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1. Bhagwati [1993] has characterized the current revival of interest in such preferential trading arrangements, which are largely regional as well, as the Second Regionalism, contrasting it with the First Regionalism that broke out in the latter half of the 1950s and in the 1960s. He has argued that the former is likely to endure while the latter did not. For additional arguments in support of that thesis, also see Bhagwati [1994].

These questions, in turn, can be asked in regard to the "static" issue of one-step arrangements or to what Bhagwati [1993] has called the dynamic "time-path" context. Thus, in the latter case, which is pertinent to current policy discussions, one may ask in the conventional manner what will happen to (world, member-country, or outside-country) welfare as, in an n-country world, we keep arbitrarily expanding FTAs to include steadily more countries until we reach worldwide free trade for all n countries. Or one may ask the more interesting and political-economy-theoretic question: are there incentives for FTAs to keep expanding with more members so as to move toward multilateral free trade eventually, or will there be incentives instead to keep new members out? The latter question, in fact, has been the dominant one in the recent revival of regional FTAs, with the popular contention being that multilateralism was a slow and inefficient way of getting to multilateral free trade, whereas FTAs offered a quicker and surer way of getting there. Recent theoretical developments are of both varieties. The recent papers by Krugman [1992], Srinivasan [1993], and Deardorff and Stern [1994] have analyzed the implications of the arbitrary expansion of FTAs.[2] In contrast, the incentive aspects of forming FTAs in the first place, and then for their expansion to include new members have begun to attract attention as well.

This paper is in the latter tradition. It uses (Section II) a model of imperfect competition with a simplified structure, to examine the conditions under which a bilateral arrangement will be supported by partner countries (Section III) and, importantly, the impact of such bilateral FTA formation on the incentives for multilateral liberalization[3] that would extend the FTA to the outside country (Section IV).

2. Bhagwati [1993] offers a number of arguments on this question distinguishing among different incentives facing outsiders and insiders, and Baldwin [1993], in an approach that complements the one taken in this paper, provides a theoretical analysis of a "domino" effect that investigates the incentive of outsiders to join an FTA.

3. As Staiger [1994] notes, there have been several attempts to evaluate the basis for this concern: one approach, taken by Ludema [1994], asks how regional integration may affect multilateral bargaining outcomes. A second approach, taken by Bagwell and Staiger [1993a, 1993b], analyzes the impact of FTAs and CUs on enforcement issues at the multilateral level. A third approach, adopted by Levy [1994] and this paper, is to consider how internal support for multilateral liberalization would be affected by regional integration opportunities. While a complete answer might attempt to address all of these questions together, useful insights can be obtained by examining each of these questions in isolation, which is what the literature to date has done. Adopting a slightly different approach, Yi [1995] examines how PTA membership rules may be modified to achieve global free trade advocating finally "open membership" rules to achieve this goal.

Modeling the full range and relative magnitudes of the factors that influence trade policy is a difficult task.[4] However, it is obvious that producers play a strong role in determining trade policy outcomes. This paper builds on a rather simple political economy framework in which the role of producers is decisive in determining which reciprocal tariff-reducing arrangements are entered into. Trade policy is driven by the gains or the losses of domestic firms under the different trade arrangements being considered. Within this framework the paper reaches two conclusions. First, preferential arrangements that are more "trade diverting" are more likely to be supported by the partner countries. This is due to the fact that while firms from each country within the bilateral arrangement gain preferential access to the partner's market, where they gain both against the partner country's firms and by diverting trade away from the rest of the world's firms, the protection in the domestic market that they lose is only against partner country firms. If no trade is diverted away from firms from the rest of the world, the preferential arrangement looks a bit like a zero-sum game, with firms from each partner country gaining in their partner's market and losing in their own market against the partner's firms. It is then less likely that firms from *both* the partner countries would gain from this bilateral arrangement which is therefore less likely to be supported. On the other hand, if trade is diverted away (in both of the partner country markets) from the rest of the world's firms, it is more likely that firms from both the partner countries gain and the bilateral arrangement is more likely to be supported. The greater the trade diversion, the more likely it is that both countries would support the bilateral arrangement.

It is then straightforward to analyze the impact of such bilateral arrangements upon the incentives faced by member countries for multilateral liberalization. Trade-diverting preferential arrangements generate rents for producers within the agreement that are tied to preferences granted by the agreement, and these rents are lost if these preferences are eliminated. If govern-

4. Grossman and Helpman [1994a] develop a theory of the political economy of trade policy that takes specific account of the influence exerted by organized groups. Grossman and Helpman [1994b] analyze the politics of the formation of preferential arrangements using this framework. Another contribution that takes into account political economy factors in a preferential arrangements context is the recent paper by Findlay and Panagariya [1994], who conclude that entering into a PTA would increase member country incentives to raise tariffs against the rest of the world.

ments care sufficiently about producers and if the increased access to external markets that would come with multilateral liberalization does not generate sufficient rents to make up for the elimination of preferences, then preferential agreements may be preferred over multilateral free trade.[5] Multilateral liberalization that would have been politically feasible in the absence of the preferential arrangement is rendered infeasible. This is the paper's second conclusion.[6]

II. The Model

The model presented here is a simple extension of the Brander-Krugman [1983] model. In Vinerian fashion and without loss of generality, the world is split into country X, country Y (where X and Y are the potential partners in a bilateral arrangement) and the rest of the world, denoted by Z. There is a single good that is produced by firms from each of the countries. The market structure is one of imperfect competition, with oligopolistic firms producing goods that are perfect substitutes for each other. The markets in the different countries are assumed to be segmented. The equilibrium concept is that of Cournot-Nash. We follow Dixit [1984] in assuming that firms do not incur any transportation costs in supplying the good abroad, but that such costs are prohibitive for any third party arbitrageurs. As in Brander and Krugman, it is also assumed that a competitively produced numeraire good also exists and that it is freely traded. This numeraire good is transferred across countries to settle the balance of trade.

To facilitate the analysis, the notation is set up as follows: Let $i = X, Y, Z$ and $j = X, Y, Z$ to country indices. Then, let

q_j^i = the quantity supplied by a single firm from country i in country j's markets
P_j = the equilibrium price of the good in country j's markets
π_j^i = the profits made by any firm from country i in country j's markets
t_j^i = the specific tariff imposed by country j on imports from i

5. I am grateful to an anonymous referee for suggesting this statement to describe a central result of the paper.

6. In a different approach to the same question, Levy [1994], using a median-voter model in a differentiated products-monopolistic competition setting and quite different economic reasoning arrives at similar conclusions: that bilateral arrangements can undermine political support for multilateral trade liberalization.

n_i = number of firms in i
$n = n_x + n_y + n_z$ is the total number of firms.

There are assumed to be no fixed costs of production and marginal costs are assumed to be constant at c in terms of the numeraire good. Aggregate utility in country j is assumed to take the form,

$$U_j(K, Q_j) = K + (A_jQ_j - Q_j^2/2),$$

where K denotes the consumption of the competitively produced numeraire good and where $Q_j = \Sigma_i n_i q_j^i$ denotes the total sales of the oligopolistically produced good in country j's markets by firms from X, Y, and Z.

The price of this good in country j is therefore a linear function of the total output,

$$P_j = A_j - Q_j. \tag{1}$$

Uniform nondiscriminatory tariffs are initially assumed to be applied by all countries on imports from other countries. Therefore, to start with,

$$t_j^i = \begin{cases} t & \text{if } i \neq j \\ 0 & \text{if } i = j. \end{cases}$$

In the usual manner, these tariffs simply add on to marginal costs of firms, whose effective marginal costs of exports then become $c + t$. Each firm regards each country as a separate market and therefore chooses its optimal quantity for each country separately. Under the Cournot assumption, firms are assumed to be maximizing profits taking other firms' outputs as given with all firms choosing their quantities simultaneously. Firms from country i, choosing the quantity to supply in country j, therefore solve the following problem:

$$\max_{q_j^i} \pi_j^i = q_j^i[A_j - Q_j - (c + t_j^i)].$$

This yields

$$q_j^i = \left[\Theta_j + \left(\frac{\Sigma_k n_k t_j^k}{n+1}\right) - t_j^i\right], \tag{2}$$

where $\Theta_j = (A_j - c)/(n + 1)$ and $k = X, Y, Z$, as the Nash equilibrium output level.

From (2) we can derive the following comparative statics

results that help establish the basic intuition of the model. First,

$$\frac{dq_x^y}{dt_x^y} = \left(\frac{n_y}{n+1}\right) - 1 < 0. \tag{3}$$

This implies that as tariffs are reduced by X on the partner country Y, the quantity supplied by the firms from Y in X's markets increases. Second, we have

$$\frac{dq_x^z}{dt_x^y} = \left(\frac{n_y}{n+1}\right) > 0. \tag{4}$$

That is, the opposite is true for Z's firms: as tariffs are reduced by X on imports from Y, the quantity supplied by firms from Z in X's market decreases. Finally,

$$\frac{dq_x^x}{dt_x^y} = \left(\frac{n_y}{n+1}\right) > 0. \tag{5}$$

Thus, just as for Z's firms, a reduction in tariffs by X against Y will decrease the quantity supplied by X's firms in their own domestic markets.

From (1) and (2) it can also easily be seen that

$$\pi_j^i = [q_j^i]^2. \tag{6}$$

It follows that with a change in tariffs, firm profits would change in the same direction as changes in equilibrium quantities sold by them (as given by equations (3), (4), and (5)).

The political economy framework is one where producers play a decisive role in shaping trade policy.[7] We have in mind an agenda-setting government that considers both bilateral and

7. This may easily be understood to result from the public good nature of political activity which is more easily provided by a concentrated group of producers rather than by large diffuse groups of consumers. The theoretical and empirical literature on the effectiveness of such interest groups in bending policy in a direction that is to their benefit is, of course, quite well developed by now. For the classic theoretical arguments, see Olson [1965], Stigler [1971], Peltzman [1976], and Becker [1983]. O'Halloran [1994] provides a comprehensive survey. An alternative framework in which producer profits would be decisive is if any proposed trade policy changes had to meet the approval of both consumers and producers and where tariff revenues were consumed directly by the government. Ignoring tariff revenue, consumers would always support any tariff reductions, since consumer surplus always increases with any reduction in tariff levels. Producers may or may not support tariff reductions, and so they become critical.

multilateral reciprocal tariff reductions. Firms lobby[8] either for or against these proposed trade regime changes depending upon whether or not they would see an increase in their profits following a given change in regime. For instance, a proposed bilateral arrangement between countries X and Y will be supported by firms from X if they see a *net* increase in their profits following this bilateral arrangement. With a reciprocal reduction in tariffs, firms from either country would see a reduction in profits in their home market and an increase in profits made abroad (from (3) and (5)). In our segmented markets and constant costs framework, firm profits in any single market are independent of profits in other markets. Therefore, we can separately compute the losses in the import-competing side and the gains on the exporting side. Overall, since in this framework the same firms constitute both the exporting sector and the import-competing sector, firms from each country would either all gain or all lose following any trade policy change. If the gains are greater than the losses, it is assumed that the proposed trade policy change is implemented. Alternatively, if exporting firms and import-competing firms were to be modeled separately, this assumption regarding the determination of trade policy would be equivalent to assuming that the winners would be willing to lobby the government to the full extent of their expected gains, while the losers would be willing to lobby the government to the full extent of their losses. Thus, if the winners gain more than the losers lose, the proposed change will be implemented. Our analysis of the conditions under which the three countries would reduce tariffs against each other (preferentially or otherwise) is therefore carried out by looking exclusively at the impact of various trade arrangements on relevant producer profits.[9]

The remainder of this paper is structured as follows. We first examine the conditions under which a bilateral arrangement will be entered into by X and Y. We then examine the impact on the incentives for multilateral liberalization vis-à-vis the rest of the

8. Similar to the well-known Findlay and Wellisz [1982] model of trade policy determination, the actual lobbying process is not explicitly modeled here and is left as somewhat of a black box.

9. While this assumption has the benefit of yielding tractable closed-form solutions, the results of this paper can be generated under more general specifications of the political economy process inter alia. Appendix A.7 works out a numerical example in which consumer interests play a role in the political process as well and in which the initial tariffs are endogenously determined.

world, Z, by comparing the incentives for such a liberalization both before and after the bilateral arrangement is in place.

III. Bilateral Tariff Reductions

Article XXIV of the GATT Articles of Agreement permits Customs Unions and Free Trade Areas. However, these preferential arrangements are sanctioned only as long as "duties and other regulations of commerce" on "substantially all trade" are eliminated. Here, the GATT rules are interpreted as requiring that goods be freely traded between the parties to the agreement. Accordingly, a bilateral arrangement between X and Y implies that t_y^x and t_x^y have to be set equal to zero.

Let ${}_Bq_j^i$ denote the equilibrium quantities that would be sold once the bilateral arrangement is in place, and let ${}_B\pi_j^i$ denote the corresponding profits. Since producer profits are decisive, for a bilateral arrangement to be supported in country X and country Y, we need[10]

$$\sum_j ({}_B\pi_j^x) > \sum_j \pi_j^x \quad \text{and} \quad \sum_j ({}_B\pi_j^y) > \sum_j \pi_j^y;$$

i.e., we need

$$\sum_j ({}_Bq_j^x)^2 > \sum_j (q_j^x)^2 \quad \text{and} \quad \sum_j ({}_Bq_j^y)^2 > \sum_j (q_j^y)^2. \tag{7}$$

Simplifying the above expressions gives us Proposition 1.

Proposition 1. A bilateral arrangement will only be supported by X and Y if

$$[q_x^x + {}_Bq_x^x]n_y < [q_y^x + {}_Bq_y^x](1 + n_z + n_y) \tag{8}$$

and

$$[q_y^y + {}_Bq_y^y]n_x < [q_x^y + {}_Bq_x^y](1 + n_z + n_x). \tag{9}$$

These conditions can be derived directly using (2), (7), and our assumptions regarding the symmetry of initial tariffs (see Appendix A.2). They can be interpreted, roughly, as requiring the sales in the partner country to be sufficiently large relative to home country sales for the agreement to be supported by the home country. The intuition here is clear: with a bilateral arrangement

10. Clearly, profits made in Z's markets by firms from either X or Y do not change following the bilateral arrangement.

you gain better access to the partner's market; the larger the partners market, the greater the gains. What you lose, however, is market share in your own market. The gains have to be greater than the losses for the arrangement to be supported. This gives us conditions that require the size of the partner's market to be sufficiently large relative to the size of the domestic market for the arrangement to be supported.

Condition (8) has to hold for X to support the arrangement. Note that in addition to the terms denoting the sales in Y's market, the term $(1 + n_z + n_y)$ enters on the right-hand side of this condition and the term n_y enters on the left-hand side of this equation. These can be interpreted as follows. The gains in Y's market come from two sources.

1. The reduction in the tariffs imposed by Y against X, which reduces their effective marginal costs in Y from $c + t$ to c. This is the direct effect. This accounts for the "1" in the $1 + n_y + n_z$ term.

2. The reduction in marginal costs of X's firms relative to firms from Y and Z shifts the equilibrium quantities in X's favor. Firms from X gain a competitive advantage over the n_y firms from Y and the n_z firms from Z. This is the "strategic" effect. This accounts for the $n_y + n_z$ in the $1 + n_y + n_z$ term. The larger the number of firms $(n_y + n_z)$ over which firms from X gain a strategic advantage, the greater the strategic effect.

In their own domestic market there is no direct effect on X's firms, since their effective marginal costs remain the same. There is a strategic loss relative to firms from Y (whose marginal costs in X similarly fall from $c + t$ to c), and this accounts for the n_y term on the left-hand side of the equation. Condition (9) which may be interpreted, mutatis mutandis, in exactly the same manner as (8), needs to hold for Y to support the bilateral arrangement.

One question that naturally arises is whether conditions (8) and (9) could hold simultaneously. In other words, could X's market be sufficiently large relative to Y, and could Y's market be sufficiently large relative to X's market at the same time? To answer this question, we first specify (8) and (9) in terms of the primitives: the parameters of the demand and cost functions. Using (2), these conditions can be rewritten as

$$\alpha_x < \frac{1}{2n_y}\alpha_y(2 + 2n_y + 2n_z) - 2tn_yn_z + t(n_z)^2 - t(n_y)^2 - t(1 + n_y)^2 \tag{10}$$

and

$$\alpha_y < \frac{1}{2n_x}\alpha_x(2 + 2n_x + 2n_z) - 2tn_xn_z + t(n_z)^2 - t(n_x)^2 - t(1 + n_x)^2, \tag{11}$$

where $\alpha_j = A_j - c$.[11] Equations (10) and (11) give us our second proposition.

PROPOSITION 2. If conditions (10) and (11) are both satisfied by $(\alpha_x,\alpha_y,\alpha_z,n_x,n_y,n_z)$, they are necessarily satisfied by $(\alpha_x,\alpha_y,\alpha_z, n_x,n_y,n_z') \forall n_z' > n_z$.

This is easily verified by examining the right-hand side of conditions (10) and (11). Note that from (2), with initial trade being nonzero,

$$\alpha_x - tn_x = (n + 1)q_x^y + t > 0$$

and

$$\alpha_y - tn_y = (n + 1)q_y^x + t > 0,$$

implying that the right-hand sides of conditions (10) and (11) are increasing in n_z. With a larger number of firms from Z, both conditions are more likely to hold. The intuition for this result is as follows. With larger n_z, the number of firms over which firms from X (in Y) and from Y (in X) gain a strategic advantage, is larger. The strategic effect (causing a larger diversion of sales away from the rest of the world's firms to partner country firms), is therefore larger for both firms from X selling in Y and for firms from Y selling in X.[12] This gives us a strong result: the larger the trade diversion[13] that would result from the preferential arrangement, the more likely it is that the arrangement will be supported by the partner countries.[14]

To interpret conditions (8) and (9) better, it is useful to think of the case with $n_z = 0$. In this case we (trivially) have no trade

11. It can easily be verified that equations (10) and (11) hold together for a range of parameter values (a numerical example is presented in Appendix A.3).

12. The signs of the direct and strategic effects discussed here can be shown to hold for more general demand functions than the linear form considered here. See Dixit [1986] for a general discussion.

13. That a larger number of firms in Z indeed translate into greater volume of trade diverted is shown in Appendix A.5.

14. Since this paper was written, independent work by Grossman and Helpman [1994b] arrives at a conclusion that is similar in spirit: that a preferential arrangement would be politically viable if it resulted in "enhanced protection" for partner country firms.

diversion. In X, firms from Y take market share away only from the domestic firms. Similarly in Y, X's firms take market share away only from Y's firms. There is increased competition in both markets implying that the strategic effect on net is negative in the absence of trade diversion. However, due to the direct effect (reduction in effective marginal costs), it may still be possible, for both X and Y to gain with the bilateral arrangement. To the extent that direct effects are large enough, they dominate the losses due to the increased competition, and (10) and (11) are both satisfied. On the other hand, if strategic losses on net dominate the direct effects, firms from both countries see reduced profits, and the bilateral arrangement is not entered into.

From the above discussion, and comparing the left- and right-hand sides of (8) and (9) when $n_z = 0$, it would also appear that, absent any trade diversion gains for partner country firms, it would be the case that countries of roughly the same size would enter into bilateral arrangements. However, as discussed above, to the extent that direct effects (gains) are dominated by strategic losses, (8) and (9) may, of course, not be satisfied even if the two countries are completely symmetric. Most importantly, and this serves to highlight the role of trade diversion in this model, the diversion of trade away from the rest of the world relaxes both these conditions (as illustrated in Figure I), thus permitting higher profits for firms from both countries even with asymmetry in partner country sizes and the number of firms.[15]

Figure I illustrates this point. XX represents (10), and YY represents (11) for any given number of firms from Z, n_z. $X'X'$ and $Y'Y'$ are the loci if the number of firms from Z is $n_z' > n_z$. With n_z firms, the bilateral arrangement will be supported by X at all

15. A literal interpretation of these results would imply that observed PTAs between substantially asymmetric countries must have involved large trade diversion. However, an important caveat that would limit the applicability of this interpretation in understanding actually implemented preferential arrangements such as NAFTA relates to the fact that the underlying model of trade employed here is one of intraindustry trade. When comparative advantage and specialization dominate, as may be the case between the United States and Mexico, for instance, the strategic losses for import-competing home firms in the home market are likely to be smaller in comparison with gains in the partner's market that accrue to exporting firms. Indeed in the extreme case, if the partner countries are completely specialized, bilateral tariff reductions will involve no strategic losses in the home market for home country firms and only the usual gains in the partners market due to direct effects and any trade diversion. While a greater degree of trade diversion, as argued above, will still provide greater incentives to enter into a bilateral agreement, trade diversion may not be as necessary for gains, in aggregate, to accrue to firms in both countries, as in the case where the underlying pattern of trade is that of intraindustry trade.

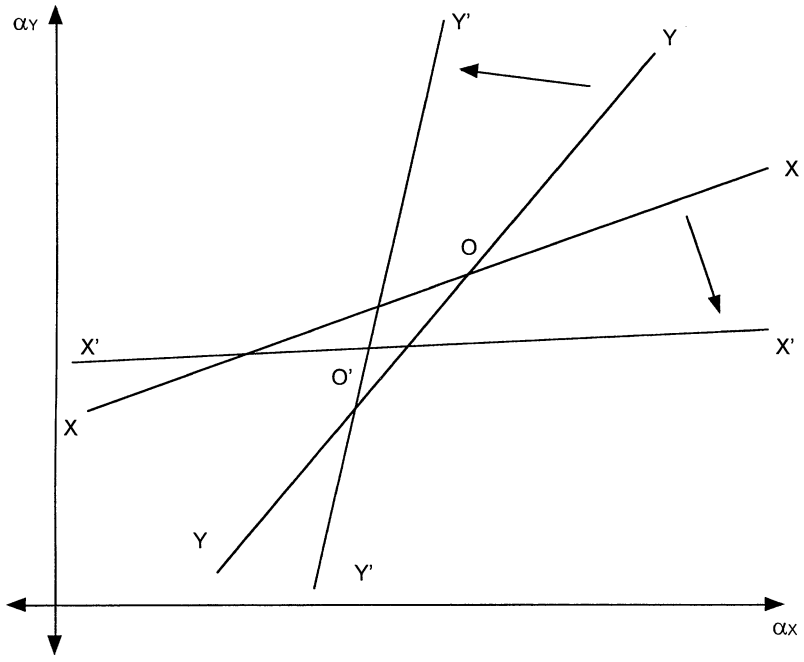

FIGURE I
Trade Diversion and Preferential Liberalization

points above XX. The arrangement will be supported by Y at all points below YY. The area XOY is where both countries would support the bilateral arrangement. With n_z' firms, $X'O'Y'$ is the area within which both X and Y would support the bilateral arrangement. Note that XOY is contained entirely within $X'O'Y'$. It can easily be verified that the loci shift in the manner indicated in Figure I. The proof is contained in Appendix A.4.

The welfare effects of the bilateral arrangement can be analyzed using the standard surplus measures. From Appendix A.1, we know that overall world welfare increases with the bilateral arrangement. Importantly, however, due to trade diversion, welfare unambiguously decreases in the rest of the world (consumer surplus and tariff revenues stay the same while producer profits decrease—from (4) and (6)). Thus, the partner countries gain in sum. Producer profits increase (by (7)), and consumer surplus increases as well (since a larger quantity is sold in each market with any tariff reductions; see Appendix A.1) for

both partner countries. However, tariff revenues fall (since tariffs on imports from the partner reduce to zero and imports from the rest of the world are reduced). Since the partner countries gain in sum, in the symmetric case, clearly, producer and consumer gains dominate these tariff revenue losses. With some asymmetry, however, tariff revenue losses may outweigh consumer and producer gains for one of the partner countries whose welfare will consequently fall.[16]

IV. Multilateral Tariff Liberalization

For the rest of this analysis, we assume that (10) and (11) are satisfied, that a bilateral arrangement is in place between X and Y, and examine the incentives that X and Y face for multilateral tariff liberalization vis-à-vis Z. As stated above, by multilateral liberalization we mean an elimination of tariffs by all countries on imports from other countries.[17] Prior to the bilateral arrangement, this implies an equal reduction in tariffs by X, Y, and Z. After the bilateral arrangement between X and Y, multilateral liberalization implies that X and Y eliminate their tariffs against a reciprocating Z and that the tariffs imposed by X on imports from Y and vice versa continue to be zero.

16. This result that politically supported, trade-diverting PTAs may result in welfare improvement for member countries, in contrast to the popular intuition regarding trade-diverting PTAs being welfare decreasing, is similar, though not entirely identical, of course, to the perfectly competitive cases as analyzed by Lipsey [1957, 1960], Bhagwati [1971], and Michaely [1976]. These authors variously showed, in elaboration and partial contradiction of the classic analysis by Viner [1950], that Vinerian intuition regarding trade diverting being welfare decreasing resulted from the exclusion (as in Viner's original analysis) of producer and consumer gains from the calculus. Thus, they showed that more general analysis of PTAs that permitted producer and consumer gains could easily result in welfare improvement even with trade diversion, just as in the present analysis. Additionally, in an important contribution that is closer in its workings to the present analysis due to its consideration of PTAs which involve *reciprocal* tariff reductions (in contrast to the analysis of Viner and most subsequent researchers who analyzed PTAs with *unilateral* preferential reductions instead), Wonnacott and Wonnacott [1981] have argued that, with reciprocity, the scope for terms of trade losses itself is reduced and we have an even greater possibility of welfare improvement even when the PTA is trade diverting. The possibility of welfare reduction, particularly when countries are asymmetric, remains, again just as in the present analysis.

17. For analytical convenience, this paper only considers this dichotomous choice—a feature that we share with Levy [1994] and Fischer and Serra [1996] among others. For an elegant analysis of optimal multilateral tariff choices made by governments in a dynamic context and in the presence of bilateral arrangements (CUs and FTAs), see Bagwell and Staiger [1993a, 1993b].

Let

$$\prod_x = \sum_j \pi_j^x,$$

$$_B\prod_x = \sum_j ({}_B\pi_j^x)$$

and

$$_M\prod_x = \sum_j ({}_M\pi_j^x)$$

denote the total profits of a firm from X prior to the bilateral arrangement, after the bilateral arrangement and after total multilateral liberalization, respectively.

As a simplification, we now assume that the partner countries are identical; i.e., that $A_x = A_y$ and $n_x = n_y$. This allows us to examine the effects of the bilateral arrangement on any one partner country (instead of having to carry out the analysis for both the partner countries separately). Without any further loss of generality, we now only look at these effects on firms from X.

Consider first the increase in profits with multilateral liberalization before the bilateral arrangement:

$$(12) \qquad _M\prod_x - \prod_x = ({}_M\pi_x^x - \pi_x^x) + ({}_M\pi_y^x - \pi_y^x) + ({}_M\pi_z^x - \pi_z^x),$$

where

$({}_M\pi_x^x - \pi_x^x)$ = gain in the domestic market < 0,
$({}_M\pi_y^x - \pi_y^x)$ = gain in Y's market > 0, and
$({}_M\pi_z^x - \pi_z^x)$ = gain in Z's market > 0.

Next we consider the increase in profits with multilateral liberalization after a bilateral arrangement is in place between X and Y:

$$(13) \qquad _M\prod_x - {}_B\prod_x = ({}_M\pi_x^x - {}_B\pi_x^x) + ({}_M\pi_y^x - {}_B\pi_y^x) + ({}_M\pi_z^x - {}_B\pi_z^x),$$

where

$({}_M\pi_x^x - {}_B\pi_x^x)$ = gain in the domestic market < 0,
$({}_M\pi_y^x - {}_B\pi_y^x)$ = gain in Y's market < 0, and
$({}_M\pi_z^x - {}_B\pi_z^x)$ = gain in Z's market > 0.

We are finally interested in comparing $({}_M\Pi_x - \Pi_x)$ with $({}_M\Pi_x - {}_B\Pi_x)$. Clearly, the change in profits in Z, the third term in (12) and (13)), is the same, before and after the bilateral arrangement. The second term, the change in profits in Y, is positive in

(12) and negative in (13). The first term is negative in both cases, but it is less negative in (13), due to the fact that with the bilateral arrangement, some market share is already lost by X's firms to Y's firms and with the multilateral reduction in tariffs, X's firms have less to lose in their own domestic markets than they would have with direct multilateral liberalization. It may therefore appear that the sign of the difference between the right-hand sides of (12) and (13) may have to be determined parametrically, depending upon the relative magnitude of these two opposing factors. However, introducing (7) into (12) and (13) immediately resolves this and allows us to state that "politically supported" preferential arrangements necessarily reduce domestic incentives to seek multilateral tariff liberalization; i.e., $({}_M\Pi_x - \Pi_x) - ({}_M\Pi_x - {}_B\Pi_x)$ is always >0. This can be seen by noting, first, that

$$\left({}_M\prod_x - \prod_x\right) - \left({}_M\prod_x - {}_B\prod_x\right) = -\left(\prod_x - {}_B\prod_x\right),$$

and, second, that from (7), for the bilateral arrangement to be supported in the first place,

$${}_B\prod_x > \prod_x,$$

which readily gives us

$$\left({}_M\prod_x - \prod_x\right) - \left({}_M\prod_x - {}_B\prod_x\right) > 0.$$

The point here is simply that the fact that the bilateral arrangement was supported by X and Y in the first place gives us information about the impact of the bilateral arrangement on multilateral liberalization incentives and helps us determine unambiguously that preferential arrangements reduce the incentives for multilateral liberalization.[18]

While it is now clear that these incentives will be reduced, we need to ask whether these incentives would ever be reversed; i.e., could multilateral liberalization that was initially feasible be rendered infeasible by the bilateral arrangement? This consideration gives us Proposition 3.

18. Note that, given our political economy setup, the statement regarding politically supported preferential arrangements necessarily reducing the incentives to seek multilateral tariff liberalization, is quite general and holds independently of the other specific assumptions of this model like market segmentation or constant marginal costs.

PROPOSITION 3. Politically supported bilateral arrangements could critically reduce internal incentives for multilateral liberalization. That is, multilateral liberalization that was otherwise feasible could lose support due to a bilateral arrangement. This is more likely the larger the trade diversion associated with the bilateral arrangement.

For this, we need to see whether the following conditions could hold together:

$$(14) \qquad {}_M\prod_x - \prod_x > 0 \quad \text{and} \quad {}_M\prod_x - {}_B\prod_x < 0.$$

With substantial algebraic manipulation,[19] (14) can be rewritten as

$$h(n_z) < \alpha_z < g(n_z)$$

where

$$h(n_z) = \left(\frac{t}{2(1+n_z)}\right)[(n_y+n_z)^2 + (1+n_y)^2 + (1+n_z)^2] + \frac{\alpha_x(n_z-1)}{1+n_z}$$

and

$$g(n_z) = \left(\frac{t}{2(1+n_z)}\right)[(2(n_z)^2 + (1+n_z)^2] + \frac{2\alpha_x n_z}{1+n_z},$$

as the condition under which the bilateral arrangement can render infeasible multilateral liberalization.

It is easily verified that

$$(15) \qquad h(n_z) < g(n_z)$$

and that

$$(16) \qquad [d(g(n_z) - h(n_z))]/dn_z > 0.$$

If α_z lies between $h(n_z)$ and $g(n_z)$, the bilateral arrangement would impede multilateral liberalization.[20]

Figure II illustrates this point by appropriately partitioning the (α_z, n_z) space. *HH* is the locus of points that satisfies $h(n_z) = \alpha_z$, and *GG* is the locus of points that satisfies $g(n_z) = \alpha_z$. *HH* and *GG* therefore correspond to points at which multilateral liberalization

19. Details are in Appendix A.6.

20. While the focus of this paper is on internal incentives for multilateral liberalization, it could be that a bilateral arrangement between *X* and *Y* makes an initially uninterested *Z* seek multilateral trade liberalization if the bilateral arrangement diverts a large amount of trade away from it; i.e., if $\Pi_z > {}_M\Pi_z > {}_B\Pi_z$.

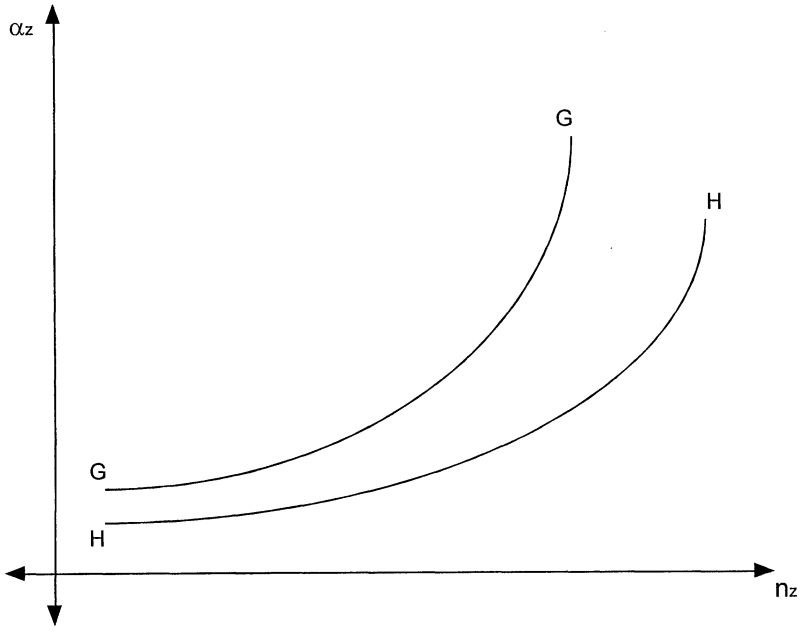

FIGURE II
Bilateral Arrangements and Reduced Incentives for Multilateral Liberalization

is just feasible, initially and after the bilateral arrangement is in place, respectively. Initially, multilateral liberalization is feasible above *HH* and infeasible below. After the bilateral arrangement is in place, multilateral liberalization is feasible above *GG* and infeasible below. Therefore, between *GG* and *HH*, the bilateral arrangement would render infeasible multilateral liberalization. The intuition is as follows. For a given value of n_z, a larger α_z (a direct measure of the size of *Z*'s market) implies larger gains for both *X* and *Y*, following a reciprocal reduction in tariffs against *Z*. After the bilateral arrangement is in place, for multilateral liberalization to be feasible, an even larger α_z is required. With multilateral liberalization, *Z*'s firms gain equal access to the markets in *X* and *Y*. This eliminates the gains that *X* and *Y* had enjoyed due to the preferential access to each other's markets. A larger α_z is therefore required to offset this. This is why the *GG* locus is above the *HH* locus. As inspired by (16), note also that with larger n_z, there is a wider range of values of α_z for which the bilateral arrangement would render multilateral liberalization

infeasible. This follows directly from the fact that with larger n_z, the bilateral arrangement results in larger trade diversion gains for X and Y (Proposition 2) which would now be eliminated, requiring even higher values of α_z for multilateral liberalization to still be supported by X and Y. Therefore, the larger the trade diversion resulting from the preferential arrangement, the more likely it is that multilateral liberalization loses support.[21]

IV. Summary and Conclusions

This paper examines the impact of Free Trade Areas (FTAs) on the internal incentives for multilateral liberalization and challenges the contention that Free Trade Areas are superior to GATT style (multilateral) trade liberalization as a way of getting to multilateral free trade for all. Using a model of imperfect competition in segmented markets, preferential trading arrangements are analyzed from the viewpoint of the "new political economy" which views trade policy as being determined by lobbying by concentrated interest groups (producers in this case). Within this framework this paper reaches two conclusions: first, that preferential arrangements that divert trade away from the rest of the world are more likely to be supported politically; and second, that such preferential arrangements will reduce the incentives for multilateral liberalization. It is also shown that in some cases this reduction in incentives could be critical: multilateral liberalization that is initially feasible could be rendered

21. It is easy to show that if we started with four countries, X, Y, R, and Z, and considered bilateral arrangements in sequence (between X and Y first and then between X and Y and R), the GG curve would be pushed even higher following the second bilateral arrangement, resulting in a larger range of values of α_z and n_z for which total multilateral liberalization would become infeasible.

Using 1979 data from Dixit's [1987] well-known calibration study of the U. S. automobile market, Appendix A.8 presents some rough calculations that are suggestive of the magnitudes of the effects at work here. To summarize: in a symmetric three-country world in which demand in each of the countries is represented by parameters taken from Dixit estimates of demand for the United States, and where total the number of firms, twelve, is the Cournot equivalent number of firms such that, given our assumptions regarding demand and cost functions (also taken from Dixit [1987]), the price level implied by this exercise matches the actual price data reported by Dixit for the United States, and starting from an initial MFN tariff level of 2.9 percent (U. S. auto tariffs in 1979), firm profits are calculated to be 1.43 billion dollars, 1.56 billion dollars, and 1.45 billion dollars at the initial level, with a bilateral arrangement and with multilateral free trade, respectively. Clearly, bilateral profits are greater than both the initial level of profits and the final multilateral level. (Indeed, the bilateral level of profits is equal to what the profit level would be if the home firm raised its nondiscriminatory initial tariffs *unilaterally* from 2.9 percent to 4.2 percent, thus giving a sense

infeasible by preferential arrangements.[22] The larger the trade diversion resulting from the preferential arrangement, the more likely this will be the case.

In considering producer interests exclusively, this paper makes a rather extreme assumption that has the benefit that it yields an analytically convenient and tractable way to express the idea that the trade diversion resulting from bilateral arrangements could critically impede multilateral liberalization efforts. While this incentive effect on countries, driven here by producer interests, is a rather general point that we expect will survive other settings,[23] it should also be mentioned that one may expect these effects to be overwhelmed if government preferences are substantially different from those assumed in this paper.

While it is tempting to conclude that countries should be restricted to pursuing GATT style multilateral liberalization in order to avoid these difficulties, it must be recognized that the question of preferential trade arrangements is a difficult one. This paper does not take into account several complex features of the real world. Specifically, no account has been taken of asymmetries in government preferences across countries, capital mobility in response to trade policy changes, path dependencies that may be caused due to the presence of adjustment or sunk costs or other factors. The inclusion of these factors in the analysis is important and constitutes topics for future research.

APPENDIX

Appendix A.1: Welfare Analysis

Given the quasi-linear form of the aggregate utility function, welfare analysis can be conducted using the standard surplus

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of the effective increased "protection" received by the home firm due to the bilateral arrangement.) Also, multilateral profits are greater than the initial profit level. Thus while multilateral free trade is initially feasible, it could be rendered infeasible by a bilateral arrangement. Also, due to trade diversion, there is a 10.5 percent reduction in profits of firms from the rest of the world. Appendix A.8 also shows that this increase in profits with a bilateral arrangement is lower if less trade is diverted from the third country.

22. As an important caveat, it should be pointed out that the scope of the three-country analysis presented here is limited in that it does not include such possibilities as, for instance, the formation of pairs of trading blocs where, then, multilateral free trade implies a symmetric elimination of preferential access in both bilateral arrangements, thereby maintaining its attractiveness to countries in both bilateral arrangements. Thus, it is "unbalanced preferentialism" rather than preferential arrangements per se that creates problems for multilateralism here.

23. See Appendix A.7.

measures:

$$\text{World welfare} = W$$
$$= \sum_j (A_j Q_j - Q_j^2/2) - c \sum_j Q_j$$
$$= \sum_j ((A_j - c)Q_j - Q_j^2/2).$$

Therefore,

$$\frac{dW}{dQ_j} = ((A_j - c) - Q_j) > 0, \quad \text{using} \quad (A_j - c) > Q_j.$$

From (3), (4), and (5) it is easy to see that Q_j is decreasing in tariffs; therefore welfare increases with an increase in each Q_j. We therefore have welfare being maximized at global free trade.

Appendix A.2: Derivation of (8) and (9)

Consider the incentives for country X. Expanding the terms in (7) gives us

$$({}_Bq_x^x)^2 + ({}_Bq_y^x)^2 > (q_x^x)^2 + (q_y^x)^2.$$

This reduces to

$$({}_Bq_x^x + q_x^x)(q_x^x - {}_Bq_x^x) < ({}_Bq_y^x + q_x^x)({}_Bq_y^x - q_y^x).$$

From (2) we have

$$q_x^x - {}_Bq_x^x = \frac{n_y}{n+1} t \quad \text{and} \quad {}_Bq_y^x - q_y^x = \frac{1 + n_y + n_z}{n+1} t.$$

Substituting these into the previous expression, we get condition (8) condition. Condition (9) can be entirely analogously derived.

Appendix A.3: Numerical Example

Example: Let $n_x = n_y = n_z = 1$. Expressions (10) and (11) can be rewritten as

$$2\alpha_x < 6\alpha_y - 6t$$

and

$$2\alpha_y < 6\alpha_x - 6t.$$

Let $\alpha_x = \alpha_y/2$. The conditions translate into $\alpha_y > 6t/5$ and $\alpha_y > 6t$, both of which clearly hold if $\alpha_y > 6t$.

Appendix A.4: Loci in Figure I

To verify that the loci YY and XX shift in the manner indicated in Figure I, note that (10), with equality, could be rewritten as

$$\alpha_y > \alpha_x f(n_z) + s(n_z),$$

where $f'(n_z) < 0$. This proves that the slope of XX shifts in the manner indicated. Also, (10) implies that with a larger n_z, the right-hand side increases. Therefore, ceteris paribus for (10) to hold with equality, α_x has to increase. Therefore, XX shifts lower as shown.

Appendix A.5: Trade Diversion

To see that a larger number of firms from Z, n_z, implies greater trade diversion, note that from (2), X's initial volume of imports from Z equals $(n_z/(n+1))(\alpha_x - (1+n_x)t)$. The volume of imports with a bilateral arrangement $= (n_z/(n+1))(\alpha_x - (1+n_x+n_y)t)$. Thus, volume of trade diverted $= (n_y n_z/(n+1))t$, which is increasing in n_z.

Appendix A.6: Derivation of $h(n_z)$ and $g(n_z)$

Consider first the expression, ${}_M\Pi_x - \Pi_x > 0$. Using (6) and (12) and proceeding in steps analogous to the ones in Appendix A.2 above, this can be expressed as

$$({}_Mq_x^x + q_x^x)({}_Mq_x^x - q_x^x) + ({}_Mq_y^x + q_y^x)({}_Mq_y^x - q_y^x) + ({}_Mq_z^x + q_z^x)({}_Mq_z^x - q_z^x) > 0.$$

Using (2), the fact that $\alpha_x = \alpha_y$, and noting that all tariffs reduce to zero with the multilateral arrangement, the above expressions can be reduced to $h(n_z) < \alpha_z$, where

$$h(n_z) = \left|\frac{t}{2(1+n_z)}\right| [(n_y + n_z)^2 + (1+n_y)^2 + (1+n_z)^2] + \frac{\alpha_x(n_z - 1)}{1+n_z}.$$

The expression for $g(n_z)$ can be analogously derived using (2), (6), and (13). Finally, using (7), (10), (11), and expressions derived for $h(n_z)$ and $g(n_z)$, and some simple algebra yields (15) and (16), respectively.

Appendix A.7: Numerical Example

Let $A_x = A_y = 10$ and $A_z = 10$. Let $c = 5$ and $n_x = n_y = n_z = 1$. Instead of using the assumption made in the paper that producer profits exclusively determine government decisions, let us assume that governments maximize a weighted welfare function of the form,

$$W = 0.45(CS + TR) + 0.55(PS),$$

where CS, TR, and PS denote consumer surplus, tariff revenues, and producer surplus, respectively. Initial (nondiscriminatory) tariffs can be derived by assuming that governments maximize the welfare function while taking the other countries' tariffs as given. Numerically simulating the model for the parameter values mentioned above, we get initial tariff $t_x = t_y = 1.8$ and $t_z = 1.8$. Also, initial (weighted) welfare levels are $W_x = W_y = 5.07$ for X and Y, respectively. With bilateral tariff reductions between X and Y, the welfare levels are ${}_BW_x = {}_BW_y = 6.13$. With global free trade, ${}_MW_x = {}_MW_y = {}_MW_z = 5.74$. While all three countries would have reduced tariffs multilaterally (since ${}_MW_x > W_x$, ${}_MW_y > W_y$, and ${}_MW_z > W_z$), once the bilateral arrangement is in place, X and Y would clearly not want to reduce tariffs multilaterally against Z (since ${}_MW_x < {}_BW_x$ and ${}_MW_y < {}_BW_y$).

Appendix A.8: Estimates Using Data from the U. S. Automobile Market

The data used for this analysis were obtained from Dixit [1987]. While Dixit's analysis of trade policy interventions in the U. S. automobile market were carried out under the assumption that U. S. cars and Japanese cars are imperfect substitutes for each other, the model presented in this paper assumes that the goods produced by firms in any country are perfect substitutes for each other in every market. The present calculations make suitable modifications to Dixit's numbers to adjust for this. The overall point made below regarding the possibility of bilateral arrangements raising profit levels above that of multilateral free trade and the rough magnitude of this effect are unaffected by variations in these numbers.

In particular, for 1979, the following are assumed:

a. Total sales in the U. S. auto market = 10 million cars;

b. Initial U. S. tariffs are 2.9 percent, the MFN tariffs for the United States reported in Dixit [1987];

c. The cost of automobile production = $5000;

d. The inverse demand function is assumed to be given by

$$P = 12{,}000 - 6 * 10^{-4} Q, \tag{17}$$

where Q denotes the total quantity sold in the U. S. market;

e. The market price for cars = \$5600.

Assumptions (a), (b), (c), (d), and (e) imply a Cournot equivalent total firm number of twelve. With demand given by (17), sales in each country, analogous to (2), are given by

$$q_j^i = \frac{1}{6 * 10^{-4}} \left[\Theta_j + \left(\frac{\Sigma_k n_k t_j^k}{n+1} \right) - t_j^i \right], \tag{18}$$

where $\Theta_j = 12{,}000 - 5000 = 7000 \; \forall j$.

Profits are given by

$$\pi_j^i = 6 * 10^{-4} [q_j^i]^2. \tag{19}$$

For the purposes of this analytical exercise, it is assumed that the home country X, the partner country Y, and the rest of the world Z are of equal size; i.e., that the demand curve in each is identical to (17) and that these markets are each supplied by four firms from each country.

Using (18) and (19) and under the assumptions regarding supply and demand in the world market made above, we can easily compute profits for each firm in each of the partner countries, initially, with a bilateral arrangement between two countries and with multilateral free trade. These gives us

A.8.1. Initial total (from sales in all markets) home firm profits equal 1.43 billion dollars;

A.8.2. With multilateral free trade, they stand at 1.45 billion dollars (1.4 percent increase over the initial level); and

A.8.3. With a bilateral arrangement they rise to 1.53 billion dollars (a 7 percent increase over the initial level and 5.5 percent over the multilateral level);

A.8.4. Due to trade diversion, rest of the world profits fall from 1.43 billion dollars to 1.28 billion dollars (a reduction of 10.5 percent).

From A.8.1 and A.8.3, a bilateral arrangement would be supported by home firms. From A.8.1, A.8.2, and A.8.3, the bilateral arrangement, once in place, would render initially feasible (from A.8.1 and A.8.2) multilateral free trade unfeasible. Under assumptions (a), (b), (c), and (d), but assuming a smaller number of firms in the third country (three firms instead of four),

the corresponding figures are 1.65 billion dollars initially, 1.74 billion dollars with a bilateral arrangement, and 1.70 billion dollars with multilateral free trade. Home firms profits with a bilateral arrangement are 5.3 percent above the initial level (thus lower in terms of absolute difference and in proportion than when the number of firms in the third country was four). This illustrates the point regarding greater trade diversion made in Proposition 2.

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