

Preliminary and Incomplete

**Preferential Trade Agreements and the Multilateral Trade System\***

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## **I. Introduction**

A cornerstone of the Geneva-based multilateral organization, the General Agreement on Tariffs and Trade (GATT), and its more recent incarnation, the World Trade Organization (WTO), is the principle of non-discrimination: member countries may not discriminate against goods entering their borders based upon the country of origin. However, in a nearly singular exception to its own central prescript, the WTO through Article XXIV of the GATT, does permit countries to enter into preferential trade agreements with one another. Specifically, under Article XXIV, countries may enter into preferential trade agreements by fully liberalizing “substantially” all trade between themselves while not raising trade barriers on outsiders. They are thereby sanctioned to form Free Trade Areas (FTAs), whose members simply eliminate barriers to internal trade while maintaining independent external trade policies or Customs Unions (CUs), whose members additionally agree on a common external tariff against imports from non-members.

Such preferential trade agreements are now in vogue. Even as multilateral approaches to trade liberalization – through negotiations organized by the GATT/WTO – have made substantial progress in reducing international barriers to trade, various countries have negotiated separate preferential trade treaties with each other in the form of GATT/WTO-sanctioned PTAs. Among the more prominent PTAs currently in existence are the North American Free Trade Agreement (NAFTA) and the European Economic Community (EEC). Additional derogations to the principle of non-discrimination now include the Enabling Clause, which allows tariff preferences to be granted to developing countries (in accordance with the Generalized System of Preferences) and permits preferential trade agreements among developing countries in goods trade. MERCOSUR (the CU between the Argentine Republic, Brazil, Paraguay, and Uruguay) and the ASEAN (Association of South East Asian Nations) Free Trade Area (AFTA) are both examples of PTAs formed under the Enabling Clause. All in all, hundreds of PTAs are currently in existence, with nearly every member country of the WTO belonging to at least one PTA.

That a country liberalizing its trade preferentially against select partners is doing something distinct from multilateral liberalization (where it eliminates tariffs against

all imports regardless of country of origin) should be easy to see. What this implies for the liberalizing country is a little more difficult to understand. Even a good half century after the economic implications of trade preferences were first articulated by Viner (1950), the differences between preferential and multilateral liberalization (or free trade areas versus free trade) remain a nuance that most policy analysts appear to miss. Equally important is the fact that preferential trade agreements may have non-neutral consequences for the multilateral trade system. While it often argued that preferential trade liberalization will provide a quicker and more efficient way of getting to global free trade than the multilateral process, there is a worry that preferential agreements may engender complex forces, both political and economic, that impede the expansion the multilateral process (see Bhagwati, 1993, and Bhagwati and Panagariya,1996).

Recently, several attempts have been made in the economics literature to understand theoretically the phenomenon of preferential trade and its interaction with the multilateral trade system -- taking into account the domestic determinants (political and economic) of trade policy. There have also been several interesting empirical analyses that have attempted to evaluate these questions quantitatively. This chapter surveys these contributions. We proceed as follows. Section II develops the classic analysis of Viner (1950), demonstrates the generally ambiguous welfare effects of preferential trade liberalization, and discusses several empirical analyses that analyze this issue. Section III discusses theoretical ideas concerning the interaction between preferential trade agreements and the multilateral trade system and discusses empirical analyses of this question. Section IV discusses preferences in the context of the Doha round. Section V concludes.

## **II. Welfare Analysis**

### *II. 1 Trade Creation and Trade Diversion*

Does preferential trade liberalization in favor of particular trading partners have the same welfare consequences as non-discriminatory trade liberalization in favor of all imports? Do a simple proportion of the welfare benefits of non-discriminatory free trade accrue with preferential liberalization?

A thorough answer to these questions would require the reader to take a deep plunge into the abstruse world of the second-best (whose existence and complexities were indeed first discovered and developed by analysts working on the economics of PTAs). But the idea may be introduced in a rudimentary fashion using the following "textbook" representation of Viner's analysis: Consider the case of two countries, A and B, and the rest of the world W. A is our "home" country. A produces a good and trades it for the exports of its trading partners B and W. Both B and W are assumed to export the same good and offer it to A at a fixed (but different) price. Initially, imports from B and W are subject to non-discriminatory trade restrictions: tariffs against B and W are equal. Imagine now that A eliminates its tariffs against B while maintaining its tariffs against W. This is preferential tariff reduction as opposed to free trade, since the latter would require that tariffs against W be removed as well. It is very tempting to think that this reduction of tariffs against B is a step in the direction of free trade and therefore that this ought to deliver to country A a proportionate fraction of the benefits of complete free trade. But Viner (1950) showed that this need not (and generally would not) be the case. Indeed, while a complete move towards free trade would be welfare improving for country A, Viner demonstrated that the tariff preference granted to B through the FTA could in fact worsen A's welfare.

Figures I and II illustrate preferential tariff reform as respectively welfare-enhancing and welfare worsening. The y-axes denote price and the x-axes denote quantities.  $M_A$  denotes the import demand curve of country A.  $E_B$  and  $E_W$  denote the price at which countries B and W are willing to supply A's demand; they represent the export supply curves of B and W respectively. In Figure I, B is assumed to be a more efficient supplier of A's import than is W:  $E_B$  is drawn below  $E_W$ , and its export price  $P_B$  is less than W's export price  $P_W$ . Let "T" denote the non-discriminatory per-unit tariff that is applied against B and W. This renders the tariff-inclusive price to importers in A as  $P_B + T$  and  $P_W + T$  respectively. With this non-discriminatory tariff in place, imports initially equal  $M_0$  and the good is entirely imported from B. Tariff revenues in this initial situation equal the areas (1+2). When tariffs against B are eliminated

preferentially, imports rise to  $M_{PT}$ . Imports continue to come entirely from B (since the import price from B now,  $P_B$ , is lower than the tariff-inclusive price of imports from W,  $P_W + T$ ). The tariff preferences granted to B simply increase the volume of imports. This increase in the volume of trade with the country whose exports were initially being purchased by A anyway (i.e., with the more efficient producer) when tariffs against it are preferentially reduced is referred to as "trade creation." Trade creation here can be shown to be welfare improving. The increase in benefit to consumers (consumer surplus) in A following the reduction in consumption prices from  $P_B + T$  to  $P_B$  equals the areas (1 + 2 + 3 + 4). No tariff revenue is now earned and so the loss of tariff revenue equals areas (1+2). The overall gain to A from this preferential tariff reduction equals areas (1+2+3+4) - (1+2) = areas (3+4), a positive number. The trade-creating tariff preference is thus welfare improving.

In demonstrating that the tariff preference we have considered is welfare improving for the home country, A, we have assumed that the partner which receives this tariff preference, B, is the more efficient supplier of the good. Figure II reverses this assumption, making W, the rest of the world, the more efficient supplier of the good.  $E_W$  is thus drawn below  $E_B$ . Initial imports are  $M_0$ . The tariff revenue collected is equal to the areas (1+2). When tariffs are eliminated against B, the less efficient partner, the tariff-inclusive price of imports from W is higher than the tariff-exclusive price from B (this need not necessarily be the case, it is simply so as drawn). This implies that all trade is now "diverted" away from W to B. What is the welfare consequence of this trade diversion? The increase in consumer surplus is equal to the areas (1+3) since consumers now pay a price equal to  $P_B$  for this good. The loss in tariff revenue is (1+2). The overall gain to A equals the area (3-2), which may or may not be positive. Thus a trade diverting tariff preference may lead to a welfare reduction.<sup>1</sup>

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<sup>1</sup> The preceding examples illustrate a central issue emphasized in the academic literature on the welfare consequences of preferential trade. Preferential trade liberalization towards the country from whom the good was imported in the initial non-discriminatory situation creates more trade and increases welfare; preferential liberalization that diverts trade instead may reduce welfare. Subsequent analysis also developed examples of both welfare improving trade-diversion and welfare-decreasing trade creation in general equilibrium contexts broader than those considered by Viner. However, the intuitive appeal of the concepts of trade creation and trade diversion has ensured their continued use in the economic

A variety of recent contributions in the economics literature have examined the trade creating and trade diverting effects of preferential agreements. We consider first the interesting study of Yeats (1998) which investigated trade diversion within PTAs by performing an evaluation of trade patterns within MERCOSUR.

To study the impact of MERCOSUR on trade patterns, Yeats (1998) characterized goods using two measures:

The first measure is a “regional orientation” index (for good  $i$ ) which is the ratio of the share of that good in exports to the region to its share in exports to third countries. Specifically,

$$RO_i = \frac{[(\text{Within MERCOSUR exports of good } i)/(\text{Within MERCOSUR exports})]}{[(\text{MERCOSUR exports of good } i)/(\text{Total MERCOSUR exports})]}$$

The second measure is the “revealed comparative advantage” (of good  $i$ ) which is the ratio of the share of good in MERCOSUR’s exports to third countries to its share in world exports (exclusive of intra-MERCOSUR trade). Specifically,

$$RCA_i = \frac{[(\text{MERCOSUR exports of good } i)/(\text{Total MERCOSUR exports})]}{[(\text{World exports of good } i)/(\text{Total World exports})]}$$

Yeats then compares the change in goods’ regional orientation index between 1988 and 1994 (before and after MERCOSUR) with their revealed comparative advantage ranking. The results of his study are striking (see Table I). As he notes, the goods with the largest increase in regional orientation are goods with very low revealed comparative advantage rankings. Specifically, for the 30 groups of goods with the largest increases in regional orientation, only two had revealed comparative advantage indices above unity. That is, the largest increases in intra-MERCOSUR trade have been in goods in which MERCOSUR countries lack comparative advantage

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analysis of preferential trade agreements, especially in policy analysis (see Panagariya (2000) for a comprehensive survey).

suggesting strong trade diversionary effects.

A more recent paper, Romalis (2007), investigates the effects of NAFTA and the previously formed Canada-US Free Trade Agreement (CUSFTA) on trade flows. Romalis finds that NAFTA and CUSFTA had a substantial impact on international trade volumes, but a modest effect on prices and welfare. While he finds that while NAFTA and CUSFTA increased North American output in many highly protected sectors, imports from nonmember countries were driven out, suggesting trade diversionary effects.

Other papers analyzing the trade effects of CUSFTA include Clausing (2001) and Trefler (2004). Using cross sectional variation in the extent of trade liberalization, both papers attempt to estimate the relative magnitudes of trade creation and trade diversion caused by CUSFTA. Both analyses find that trade creation dominated trade diversion, while Trefler (2004) reports a positive welfare outcome for Canada overall.

A number of studies have used “gravity” specifications to examine the impact of preferential trade agreements on trade.<sup>2</sup> Two prominent recent examples include Magee (2008) and Baier and Bergstrand (2007). Using panel data from over a hundred countries going nearly two decades (1980-1998), Magee (2008) estimates trade creation and trade diversion effects of preferential trade agreements and finds this trade and welfare impact to be small, although trade creation dominates trade diversion. Using a similar sample of countries, but going back further in time (1960-2000), Baier and Bergstrand (2007) estimate trade creation effects by considering explicitly the endogeneity of preferential trade agreements (but excluding by assumption any trade diversion effects) using the following specification:

$$\ln T_{ijt} = \beta_0 + \beta_1 (\ln \text{RGDP}_{it}) + \beta_2 (\ln \text{RGDP}_{jt}) + \beta_3 (\ln \text{DIST}_{ij}) + \beta_4 (\text{ADJ}_{ij}) + \beta_5 (\text{LANG}_{ij}) + \beta_6 (\text{FTA}_{ijt}) + u_{ijt} ,$$

where  $T_{ijt}$  denotes the real trade flow between countries  $i$  and  $j$  at time  $t$ ,  $\text{RGDP}$  denotes real GDP,  $\text{DIST}_{ij}$  denotes the distance between countries  $i$  and  $j$ ,  $\text{ADJ}$  denotes

the existence of a common border between the two, LANG denotes the existence of a common language and FTA denotes membership in a free trade agreement. Baier and Bergstrand find the endogeneity of trade agreements to be crucial, and report that accounting for this endogeneity raises by about five times the estimate of the increase in trade flows between member countries (see Table II). Specifically, trade between member countries is predicted to double in ten years after the formation of the FTA.

The preceding discussion covers only a small sample of the research quantifying trade creation and trade diversion effects with trade preferences. Nevertheless, it should suffice to indicate just how wide a range of estimates we. On the one hand, the findings in many papers suggest that changes in trade flows due to trade preferences will be small. On the other, hand, some papers have suggested the possibility of significant trade diversion, while others have estimated large trade creation effects.

## *II. 2 External Terms of Trade*

Thus far, we have focused our discussion largely on trade flows and welfare consequences of preferential trade liberalization on the countries undertaking the liberalization. While we have not explicitly considered this so far, it should be easy to see that changes in demand by PTA members for the rest of the world's exports could lower the relative price of these exports (i.e., worsens the rest of the world's terms of trade). In general, the overall effect on the external terms of trade may be seen as a combination of income and substitution effects. The former represents the effect of real income changes due to the PTA on demand for imports from non-members and the latter reflects the substitution in trade towards from partner countries (and away from non-member) due to the preferences in trade. In the case of a real-income reducing PTA, both effects would combine to lower demand from the rest of the world. This is also the case when substitution effects dominate the income effect.<sup>3</sup>

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<sup>2</sup> See Frankel (1995) for an early example of work in this area using the gravity methodology.

<sup>3</sup>See Mundell (1964) for an analysis if how such extra-union terms of trade effects may complicate matters further for the the tariff-reducing country, whose terms of trade with respect to the rest of the world may rise or fall following a preferential reduction in its tariffs against a particular partner. On this point see also the recent analysis by Panagariya (1997)



Some indication of how the terms of trade may change for non-member countries in practice is provided by the empirical analysis of Chang and Winters (2002) who examine the impact of MERCOSUR (specifically, the exemption in tariffs that Brazil provided to its MERCOSUR partners) on the terms-of-trade (export prices) of countries excluded from the agreement. Theory would suggest that trade diversion would worsen the terms of trade of excluded countries and this indeed is what they find. They report significant declines in the export prices of the Brazil's major trading partners (the United States, Japan, Germany and Korea) following MERCOSUR. (see Figure III). These associated welfare losses sustained by the excluded countries are significant as well – amounting to roughly ten percent of the value of their exports to Brazil. For instance, the United States is estimated to lose somewhere between 550 to 600 million dollars on exports of about 5.5 billion dollars with Germany losing between 170 and 236 million dollars on exports of about 2 billion dollars.

### **III. Preferential Trade Agreements and the Multilateral Trade System**

#### *III. 1 Expansion of Trade Blocs*

The generally ambiguous welfare results with trade preferences provoked an important question in the economic literature relating to the design of necessarily-welfare-improving PTAs. A classic result stated independently by Kemp (1964) and Vanek (1965) and proved subsequently by Ohyama (1972) and Kemp and Wan (1976) provides a welfare-improving solution for the case of CUs. Starting from a situation with an arbitrary structure of trade barriers, if two or more countries freeze their net external trade vector with the rest of the world through a set of common external tariffs and eliminate the barriers to internal trade (implying the formation of a CU), the welfare of the union as a whole necessarily improves (weakly) and that of the rest of the world does not fall. The logic behind the Kemp-Wan theorem is as follows: By fixing the combined, net extra-union trade vector of member countries at its pre-union level, non-member countries are guaranteed their original level of welfare. Since there is no diversion of trade in this case, the welfare of the member

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countries is also not adversely affected. The PTA thus constructed has a common internal price vector, implying further a common external tariff for member countries. The Kemp-Wan-Ohyama design, by freezing the external trade vector and thus eliminating trade diversion, offers a way to sidestep the complexities and ambiguities inherent in the analysis of PTAs. The Kemp-Wan-Ohyama analysis of welfare improving CUs does not extend easily to FTAs since member-specific tariff vectors in the case of FTAs imply that domestic-prices will differ across member countries. Panagariya and Krishna (2002) has, nevertheless, recently provided a corresponding construction of necessarily welfare-improving FTAs in complete analogy with the Kemp-Wan CU. Taken together, these contributions suggest that at least in principle preferential trade agreements could expand sequentially to include the whole world, while monotonically raising welfare along the way.

But will PTAs expand successively to eventually include all trading nations? Will preferential liberalization prove a quicker and more efficient way of getting to global free trade than a multilateral process? These questions concerning the interaction between preferential trade liberalization and the multilateral trade system are important and complex in involving economic considerations and complex political factors as well. Recently, several attempts have been made in the economic literature to understand the phenomenon of preferential trade and its interaction with the multilateral trade system -- taking into account the domestic determinants (political and economic) of trade policy.<sup>4</sup>

Levy (1997) models trade policy as being determined by majority voting and where income distributional changes brought about by trade lead to different degrees of support (or opposition) by different members of society. Here too, bilateral agreements could preclude otherwise feasible multilateral liberalization if crucial voters (or more generally voting blocs) enjoyed a greater level of welfare under the bilateral agreement than they would under multilateral free trade.

Grossman and Helpman (1995) and Krishna (1998) both model the influence of

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<sup>4</sup> Bagwell and Staiger (1997a and 1997b) consider self sustaining agreements and show how enforcement of an agreement may be relevant to understand this interaction.

powerful producers in decision making over a country's entry into a PTA, and while the models and analytic frameworks differ in detail, they come to a similar and striking conclusion, that PTAs that divert trade are more likely to win internal political support. This is so because governments must respond to conflicting pressures from their exporting sectors, which gain from lower trade barriers in the partner, and their import-competing sectors, which suffer from lower trade barriers at home, when deciding on whether to form or enter a PTA. As Krishna (1998) argues, trade diversion effectively shifts the burden of the gain to member-country exporters off member-country import-competing sectors and onto non-member producers, who have little political clout inside the member countries. Krishna (1998) also argues that such PTAs will lower the incentives for any subsequent multilateral liberalization – producers in trade diverting PTAs may oppose multilateral reform since this would take away the gains from benefits of preferential access that they enjoyed in the PTA that diverted trade to them. Under some circumstances, the incentive for further multilateral liberalization is completely eliminated. Both sets of papers we have discussed above argue that bilateral agreements could impede progress towards multilateral free trade and thus undermine the multilateral trade system.

Ornelas (2005a) reconsiders the preceding analyses in a context in which the external tariffs are determined endogenously rather than historically set (as implicitly assumed by Grossman and Helpman (1995) and Krishna (1998)). Through general equilibrium effects having to do with the leakage of protection to partner countries and changes in the difficulty of redistributing surplus through trade policies under an FTA, he finds, contrary to Grossman and Helpman (1995) and Krishna (1998), that it is only sufficiently welfare enhancing FTAs that are politically viable and also that predicts that external tariffs will fall subsequent to the formation of an FTA. However, in subsequent work, Ornelas (2005b) argues that when political lobbies are also allowed to lobby for the decision on the trade regime, one cannot rule out the political viability of welfare reducing FTAs.

Baldwin (1995), on the other hand, argues that PTA expansion could have “domino” effects – increasing the size of a bloc increases the incentive for others to join it (as they then gain preferential access to increasingly large markets).

Yi (1996) using advances in endogenous coalition theory compares theoretical outcomes with PTAs under two regimes, “open” membership and “unanimous” membership. Under open membership rules any country interested in joining an existing PTA is able to do so while under unanimous membership, a new country may join only if all existing members agree to admit the new member. The differences in outcomes are striking. Global free trade is an equilibrium outcome with open membership rules but this generally does not obtain under unanimous membership. Intuitively, while some within union members may have reasons not to expand membership (for reasons similar to what we have discussed before), outsiders who have had trade diverted away from them will generally be tempted to join - especially as a union expands and yet greater trade is diverted away from them. While unanimous membership rules will stop the expansion of the bloc well before global free trade is reached, open membership will accelerate the movement to global free trade. While these results have been only been rigorously demonstrated in the context of the specific theoretical structure assumed by Yi (1996), they have strong intuitive appeal. That open membership rules will bring us closer to global free trade can also be seen to hold in a variety of different formulations of the problem.<sup>5</sup>

The impact of multilateralism on regionalism has also been studied in the literature. Ethier (1998) and Freund (2000) both view the increased interest in preferential agreements in recent decades as a consequence of successful trade liberalization at the multilateral level. Specifically, Freund (2000) argues that when multilateral tariffs are low, the dangers from trade diversion are small but the benefits from trade creation remain. This increases the likelihood of self-sustaining preferential agreements.

### *III. 2 Empirical Evidence*

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<sup>5</sup> Open membership thus appears to be a valuable complement to the preferential integration process. Nevertheless, open membership in combination with preferential trade integration does not imply that discrimination is eliminated -- clearly outsiders at any point in time will still face discriminatory trade barriers. Nor does open membership guarantee a faster path to global free trade than the multilateral process. Finally, as a practical matter, it may be noted that no trade bloc in existence has adopted such liberal membership policies. Entry into existing trade blocs is a slow and carefully negotiated process. As Panagariya (2000) notes “The Canada-U.S. Free Trade Agreement was concluded almost a decade ago and, taking into account NAFTA, its membership has grown to only three so far.”

The interaction between preferential trade and multilateralism is a complex one. The question of whether trade agreements are building blocs or stumbling blocs to multilateral free trade has been examined in a number of recent empirical analyses.

Estevadeordal et al. (2008) study the effect of preferential tariffs on external trade liberalization in a group of ten Latin American countries using the following specification:

$$\Delta MFN_{ijt} = \beta_0 + \beta_1(\Delta PREF_{ijt-1}) + u_{ijt}$$

where  $MFN_{ijt}$  denotes the MFN tariff applied by country  $j$  on imports of goods in industry  $i$  (ISIC 4 Digit) at time  $t$  and  $PREF_{ijt}$  denotes the corresponding preferential tariff lagged one period. They find no evidence that trade preferences in FTAs within Latin America led to higher external tariffs or smaller tariff cuts, but find instead that preferences induce a faster decline in external tariffs (see Table III). In CUs within Latin America, however, preferential liberalization is not associated with any change in external tariffs.

Limao (2006) considers the question of whether liberalization undertaken by the US in the Uruguay round was related to preferential liberalization prior to the Uruguay round. More specifically, he examines MFN tariff cuts in the Uruguay round for a cross section of products (at HS 8 level of disaggregation) and asks if these cuts were lower on products with a regional preference in place or if the opposite was true. In contrast with Estevadeordal et al. (2008), his findings support the argument that trade preferences may indeed impede multilateral progress; MFN tariff cuts were smaller in products that were subject to trade preferences. Karacaovali and Limao (2008) repeat this exercise for the EU and find similar results.

Tovar (2010) uses data disaggregated at the HS 6 level to examine the same question in the context of the formation of the free trade agreement signed between Costa Rica the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and the United States in 2004 (CAFTA-DR). Focusing on the four focus on the four Central American countries for which the agreement has been in force since 2006: El

Salvador, Guatemala, Honduras and Nicaragua, she finds that MFN tariffs were raised (or lowered by less) in products with larger reductions in preferential tariffs.

Finally, Baldwin and Seghezza (2010) examine whether MFN tariffs and PTA tariffs are complements or substitutes by examining data at the 10 digit level of disaggregation for a broad range of countries:

$$MFN_{ij} = \beta_0 + \beta_1 PTA_{ij} + u_{ij}$$

where  $MFN_{ij}$  denotes the MFN tariff imposed by country  $j$  on good  $I$  and  $PTA_{ij}$  denotes the corresponding preferential tariff. They find that MFN tariffs and PTA tariffs are complements since the margin of preferences tends to be low or zero for products where nations apply high tariffs (see Table IV). They argue that PTAs are neither building blocs nor stumbling blocs, but rather that third factors, such as vested sectoral interests, drive trade policy at both the multilateral and the bilateral level.

Given these contrary findings, one may conclude that the literature has been largely inconclusive on the question of whether preferential agreements aid or impede multilateral liberalization. In some cases, MFN tariff reductions seem to follow preferential tariff reductions, while the opposite seems to be true in other cases.

#### **IV. Trade Preferences and the Doha Round**

An important issue in the Doha round concerns the extent to which the reduction of multilateral barriers by developing countries erodes the preference margins to those developing countries that already have preferential access to the developed country markets. For instance, under the Everything But Arms (EBA) regulation signed into effect in 2001, the European Union permitted granting duty-free access to imports of all products from 49 LDCs, except arms and ammunitions, without any quantitative restrictions (with the exception of bananas, sugar and rice for a limited period). Multilateral liberalization by the EU would then erode the preferential access of the LDCs to the EU market.

Amiti and Romalis (2007) have studied the question of preference erosion under Doha and argued that lowering tariffs under the multilateral system will lead to a net increase in market access for developing countries. Nevertheless, preference erosion is likely to have important redistributive and thus political economy effects. In the context of the multilateral liberalization proposed in the Doha round, LDCs concerned about the loss of their preferential access, especially in the agricultural sector, could be expected to oppose the round while other developing countries exporters, without prior preferential access to the developed country markets, would likely gain support. Thus, in addition to the fact that developing countries which are net exporters of food have different interests in the round than those that are net importers food, divisions have developed within the set of developing countries based on their prior preferential access to the developed country markets.

The political experience with liberalization under Doha suggests the subtle, yet important, ways in which preferential agreements have impacted the multilateral process.

## **V. Conclusions**

PTAs, while conceived originally as minor exceptions to the GATT's central principle of non-discrimination, and only to be permitted under strict conditions, now number in the hundreds. A half-century of research has advanced significantly our understanding of the implications of trade discrimination, even if the frequently equivocal theoretical and empirical results have established among economists and policymakers an ambivalent attitude towards preferential trade agreements. However, concerns regarding the fragmentation of the world trade system have grown with the rapid proliferation of preferential trade in recent years. With this inexorable erosion of non-discriminatory disciplines within the trade system, research on preferential trade is certain to remain central to the field of international trade policy for many years to come.

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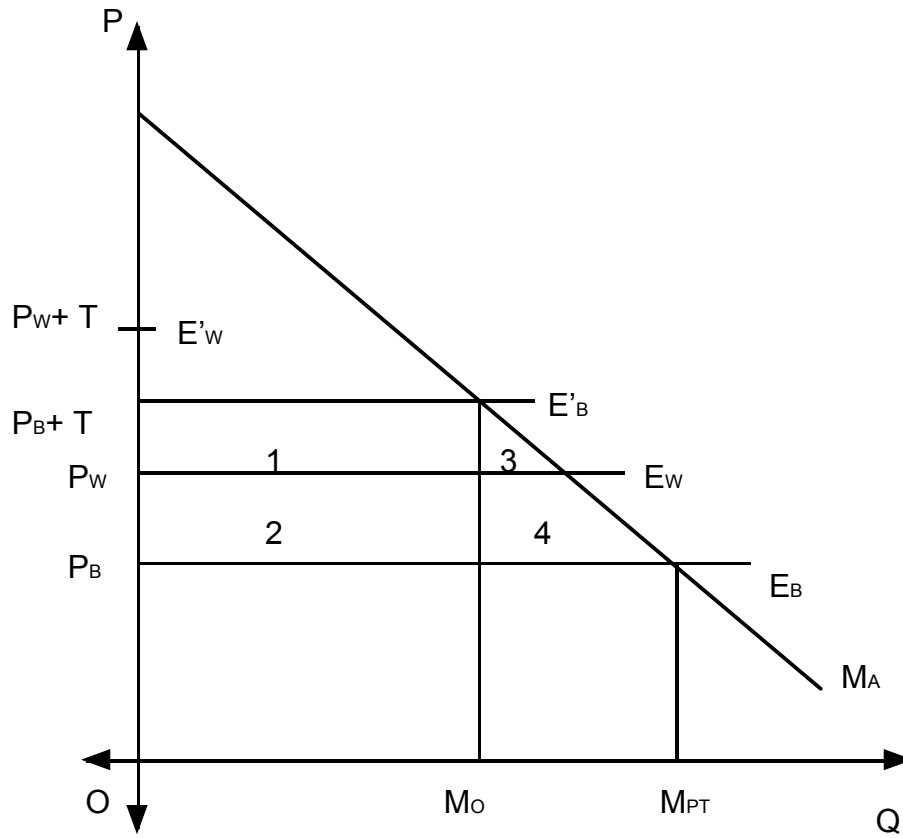
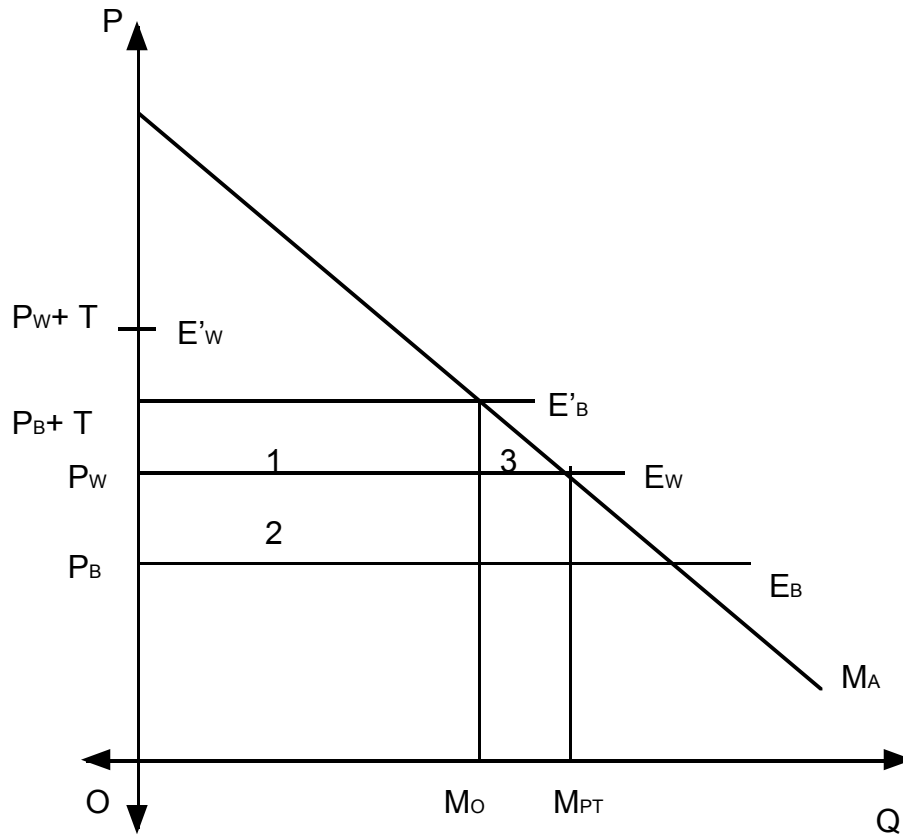


Figure I

Trade Creating Tariff Preferences  
 Change in Welfare = (3+4)



**Figure II**

**Trade Diverting Tariff Preferences:  
Change in Welfare = (3-2)**

Figure III: Chang and Winters (2003)

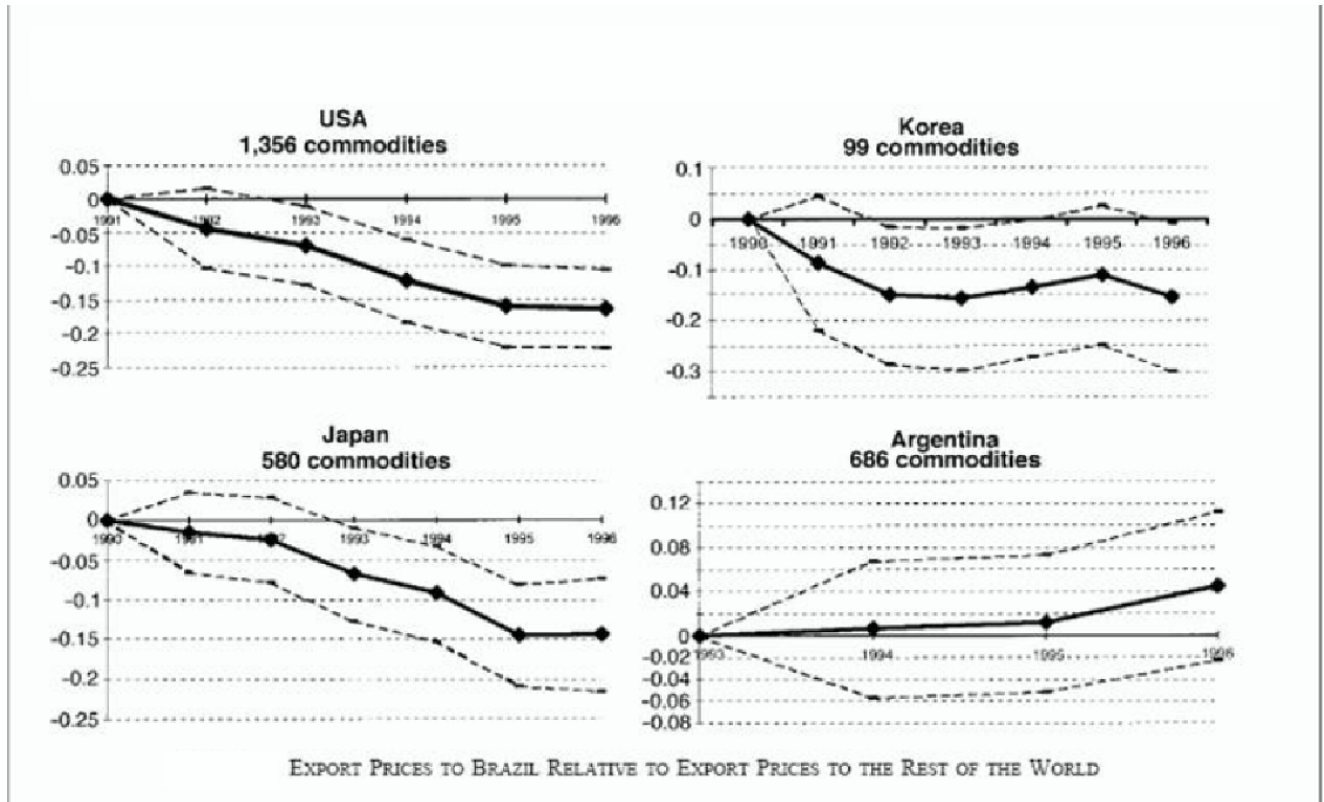


Table I: Yeats (1998)

<i>Mercosur Exports with the Largest Change in Regional Orientation toward Mercosur Markets, 1988-94</i>						
<i>Commodity<sup>a</sup></i>	<i>Exports (thousands of dollars)</i>		<i>Regional orientation index<sup>b</sup></i>			<i>Revealed comparative advantage index<sup>c</sup>, 1994</i>
	<i>1988</i>	<i>1994</i>	<i>1988</i>	<i>1994</i>	<i>Change, 1988-94</i>	
Nonalcoholic beverages (111)	349	26,238	2.35	48.47	46.12	0.05
Lead (685)	642	219	3.03	25.42	22.39	0.00
Prepared dairy (022-024)	23,495	204,019	4.31	22.49	18.17	0.13
Nonwheat meal or flour (047)	4	954	0.05	17.26	17.21	0.04
Perfumes and cosmetics (553)	4,766	86,282	5.22	13.37	8.16	0.14
Wheat meal or flour (046)	65	35,051	0.22	5.67	5.44	1.08
Cork manufactures (633)	18	721	1.18	6.30	5.13	0.05
Preserved vegetables (055)	23,404	48,745	17.66	22.61	4.95	0.13
Articles of paper (642)	15,763	72,249	2.16	7.10	4.93	0.20
Nonmotor road vehicles (733)	3,118	35,854	2.23	6.88	4.65	0.13
Alcoholic beverages (112)	4,137	81,671	1.87	6.48	4.61	0.19
Agricultural machinery (712)	39,608	121,294	2.08	5.88	3.81	0.45
Domestic electrical equipment (725)	12,568	97,322	2.19	5.94	3.76	0.23
Road motor vehicles (732)	206,996	2,112,750	1.25	4.42	3.17	0.45
Materials of rubber (621)	3,636	30,780	3.13	6.26	3.13	0.32
Glassware (665)	5,381	45,017	2.21	5.09	2.88	0.38
Synthetic fibers (266)	13,381	21,170	6.28	9.14	2.87	0.11
Rice, glazed or polished (042.2)	22,583	148,079	9.28	11.65	2.37	1.03
Lace and ribbons (654)	1,386	13,157	3.56	5.86	2.29	0.22
Food preparations not specified elsewhere (099)	7,727	45,412	2.10	4.35	2.25	0.28
Structures and parts (691)	1,783	19,834	0.72	1.77	1.05	0.39
Tobacco manufactures (122)	2,032	112,681	0.95	1.86	0.91	0.39
Textile yarn and thread (651)	26,523	118,120	0.85	1.73	0.88	0.90
Metal manufactures not specified elsewhere (698)	5,984	51,430	0.90	1.77	0.87	0.33
Nails, nuts, and bolts (694)	3,021	24,782	2.86	3.66	0.81	0.28
Nonelectric power machinery (711)	25,140	290,687	0.40	1.20	0.79	0.45
Nonfur clothing (841)	19,342	138,805	0.63	1.34	0.71	0.27
Plumbing and lighting equipment (812)	3,819	14,363	2.23	2.93	0.70	0.13
Electrical distributing machinery (723)	6,821	35,775	1.55	2.22	0.67	0.26
Glass (664)	4,851	25,079	1.27	1.93	0.65	0.36
Total	488,345	4,058,540	2.83	5.97	3.14	0.31

a. Numbers in parentheses are the SITC codes. Mercosur countries are Argentina, Brazil, Paraguay, and Uruguay.

b. The regional orientation index ( $R_j$ ) for Mercosur exports of product  $j$  is defined as  $R_j = [(x_{ij}/X_{ij}) / (x_{ij}/X_{ij}^*)] \times 100$ , where  $x_{ij}$  and  $X_{ij}$  represent the value of exports of  $j$  in Mercosur's intratrade and to third countries, respectively. Similarly,  $X_{ij}$  and  $X_{ij}^*$  reflect the total value of member countries' exports within and outside the arrangement. An index value above unity indicates a greater tendency to export the good to regional markets.

c. The revealed comparative advantage index ( $C_j$ ) is defined as  $C_j = [(x_{ij}/X_{ij}) / (x_{ij}^*/X_{ij}^*)] \times 100$ , where  $x_{ij}^*$  and  $X_{ij}^*$  represent world exports of product  $j$  and total world exports exclusive of the intratrade of the regional trade arrangement member countries, respectively. Values above unity indicate that the region has a revealed comparative advantage in the product.

Source: Computed from United Nations Comtrade records.

Table II: Baier and Bergstrand (2007)

Variable	(1) No fixed or time effects	(2) With time effects	(3) With bilateral fixed effects	(4) With time and bilateral fixed effects
$\ln \text{RGDP}_i$	0.95 (217.50)	0.97 (230.98)	0.71 (34.54)	1.27 (47.16)
$\ln \text{RGDP}_j$	0.94 (224.99)	0.97 (235.43)	0.58 (26.57)	1.22 (41.60)
$\ln \text{DIST}_{ij}$	-1.03 (-79.09)	-1.01 (-78.60)		
$\text{ADJ}_{ij}$	0.41 (8.23)	0.38 (7.28)		
$\text{LANG}_{ij}$	0.63 (19.06)	0.58 (17.73)		
$\text{FTA}_{ij}$	0.13 (3.73)	0.27 (7.19)	0.51 (10.74)	0.68 (14.27)
RMSE	1.9270	1.8601		
Overall $R^2$	0.6575	0.6809		
Within $R^2$			0.2036	0.2268
No. observations	47,081	47,081	47,081	47,081

Table III: Estevadeordal, Freund and Ornelas (2008)

CORRELATIONS BETWEEN MFN TARIFF CHANGES AND PREFERENTIAL  
TARIFF CHANGES

Dependent variable	$\Delta$ MFN			$\Delta$ PREF		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ PREF	0.570** [15.65]	0.598** [16.03]				
$L.\Delta$ PREF		0.150** [8.06]	0.102** [4.43]			
$\Delta$ MFN				0.705** [21.56]	0.424** [12.95]	
$L.\Delta$ MFN					-0.030** [3.75]	-0.038** [3.29]
Observations	9.897	9.647	9.745	9.897	8.996	8.996
$R^2$	0.80	0.81	0.64	0.85	0.74	0.63

*Note.* Country-year and country-industry fixed effects included in all regressions. Robust  $t$  statistics in brackets adjusted for clustering at the country-industry level.

\*Significant at 5%.

\*\*Significant at 1%.



Table IV: Baldwin and Seghezza (2010)

	Pooled OLS	Random Effects <sup>1</sup>	Fixed Effects <sup>1</sup>
PTA tariff	0.90 (0.0020)	0.92 (0.0019)	0.92 (0.0019)
Constant	5.19 (0.029)	6.32 (0.82)	4.90 (0.03)
<i>R</i> -squared overall	0.81	0.81	0.82 (within)

Notes: Robust standard errors in parentheses. <sup>1</sup> The number of clusters is 23; the number of observations is 985,165. Chapter dummies not reported.