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Preferential vs. multilateral trade liberalization: evidence and open questions

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Abstract: All but one WTO member currently trade under one or more preferential trade agreements (PTAs). Despite the concern since the early 1990s that these agreements may be a stumbling block to multilateral trade liberalization (MTL) their numbers have risen at an increasing rate in the last 15 years. As preferential liberalization appears to become the rule rather than the exception, it is essential to ask whether there is evidence that it affects MTL. To do so we analyze recent empirical research that finds the US's and EU's PTAs were a stumbling block to their MTL in the Uruguay Round. We also propose new empirical work to answer more definitively whether PTAs are a stumbling block to worldwide MTL.

Introduction

> any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.
>
> (Article I of GATT 1947)

Non-discrimination was one of the pillars of the current multilateral trading system as embodied in the most-favoured nation (MFN) clause in Article I of GATT. However, currently all but one WTO member, Mongolia, use exceptions to MFN to carry out some, at times large, fraction of their trade. Despite the concern since the early 1990s that these preferential trade agreements may be a stumbling block to MFN or multilateral trade liberalization (MTL) their numbers

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have risen at an increasing rate.[1] As the exception becomes the rule, it is essential to ask whether there is evidence that MTL is affected by preferences, whether these are unilateral or bilateral (henceforth we refer to either of these as PTAs). To do so we analyze recent empirical research that finds the US's and EU's PTAs were a stumbling block to their MTL in the Uruguay Round. We also propose new empirical work to answer more definitively whether PTAs are a stumbling block to *worldwide* MTL.[2]

Judging from the recent number of PTAs, politicians have made up their minds about the desirability of these agreements for the individual countries forming them. But, even *if* a PTA benefits its members, it may very well hurt the non-members. One direct channel by which this can occur is if the PTA members divert their import demand away from the non-members and that reduces non-members' export prices. There is now direct evidence that this occurred when Mercosur was formed (Chang and Winters, 2002) and when Spain entered the EU (Chang and Winters, 2000). This and other costs to the non-members due to discrimination would be mitigated if preferences were quickly eroded by MTL. But if PTAs actually slow down MTL, then these costs become entrenched. Therefore, since most countries are non-members of most PTAs and much trade is still outside of PTAs, it is important to understand if PTAs slow down MTL.[3]

The debate on the effects of PTAs on MTL was triggered by the difficulties in completing multilateral trade negotiations in the Uruguay Round (UR). After the UR negotiations finally started in 1986, they eventually stalled. During this period in the 1980s and early 1990s the US and EU were pursuing preferential liberalization with various different partners. This has generated a voluminous theoretical literature with some arguments supporting the notion that PTAs are a stumbling block to MTL and others opposing it. However, until recently, there had been hardly any systematic evidence either way – none whatsoever for the largest trading blocs.[4]

In the Doha Round, currently under negotiation, preferences have again become a prominent issue because developing countries fear that the MFN liberalization of countries that provide them with preferential treatment will erode those preferences. The *possibility* that preference erosion would reduce MFN liberalization

1 There were 43 notifications between 01/2004 and 02/2005. (Crawford and Fiorentino, 2005: 1). From 1948 to 1994 there were 124 and since 1995 there have been at least an additional 130.

2 Bhagwati (1991) defines a PTA as a building block if it accelerates MTL and a stumbling block if it slows it down.

3 Even if all trade were intra-PTA, we would want to study if PTAs affected MTL because those trade flows may have resulted from precisely the fact that PTAs clashed with MTL. This clash would then cause a costly diversion of all trade to occur within PTAs.

4 The empirical analysis of PTAs has focused on the issue of trade creation and diversion. Soloaga and Winters (2001) use a gravity equation approach for 58 countries between 1980 and 1996 and find no evidence of significant increases in trade within PTAs. They find trade diversion only for the EU and EFTA. Romalis (2004) provides evidence of trade diversion for the North American Free Trade Area and its predecessor between the US and Canada.

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was actually noted long ago; it was a concern voiced by opponents of the generalized system of preferences (GSP) when it was originally proposed. (Johnson, 1967: 166) As we will see, there is evidence that this concern was not only present in the UR but also caused the EU and US to maintain their MFN tariffs relatively higher in GSP products.

The preference erosion problem extends well beyond preferences to developing countries. The benefit of a PTA to an exporter is directly tied to the price he receives in the country that imports the good and provides the preference. Reductions in the MFN tariff of that country reduce the preference margin and thus will be opposed by exporters that benefit from such a margin. It may also be opposed by the countries providing the preference since they are likely to be extracting something in return; for example, preferential access for their exporters or cooperation in non-trade issues. The importance of preference erosion has an additional important implication. The effect of a country's PTAs in slowing down MTL is strongest in the set of goods that it imports preferentially, because it is in those that the PTA partners will seek to maintain a high preference margin. In the next section, we argue that this is an important insight for the empirical analysis and one that is explored by the authors whose findings we discuss.

The empirical work that we discuss focuses on the impact of the US's and EU's PTAs on their respective MTL. The focus on these countries is motivated by their size and thus potential impact on non-members. Article XXIV, under which several PTAs are authorized in the GATT/WTO, explicitly forbids increases in MFN protection after PTAs. However, this is easy to circumvent by simply implementing those increases in the form of smaller reductions during the MTL Round after the PTA takes place. Therefore, Limão (forthcoming) examines the UR and finds that the US cuts in MFN tariffs for PTA products were on average only about one-half of the reduction for similar products that did not receive preferences. Thus, he argues that the US MFN tariffs on its PTA goods – nearly 90% of all goods in the sample – would have been cut by twice as much in the absence of its PTAs. In addition, he finds a stumbling block effect arising even from the PTAs the US has with small countries. Karacaovali and Limão (2005) find similar results for the EU. Moreover, they find the stumbling block in the EU occurs only on goods that have a preferential tariff of zero. This occurs because the preference erosion that is causing the stumbling block effect must necessarily occur only if the preferential tariff is zero, whereas if it is positive it may be possible to reduce the preferential and MFN tariffs by the same amount thus avoiding any erosion.[5]

In addition to presenting the quantification of the results above, we discuss a more thorough examination of the welfare costs of PTAs in terms of lost MTL of the countries granting preferences. Limão and Olarreaga (2005) argue that import subsidies can eliminate the stumbling block effect of PTAs that arises from

5 This could not be tested for the US since most of its preferential tariffs are zero.

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concerns with preference erosion. Import subsidies achieve this because, if they are set at *fixed* rate, they are completely independent of the MFN tariffs and thus the latter can be reduced without any preference erosion. They then use the estimates in Limão (forthcoming) to compute the welfare gains through the additional MTL resulting from switching away from preferences to this subsidy scheme. They find non-negligible gains for countries that grant preferences, those receiving them and outsiders even if the switch occurs only for the preferences given to least developed countries by the US, EU, and Japan.

The existing evidence for PTAs captures a first-order effect for the two largest traders in the world. Therefore, there is plenty of reason for concern that PTAs may be a stumbling block to MTL. However, additional empirical work would allow a more definitive answer to whether PTAs are a stumbling block to *world-wide* MTL. We identify three open questions and propose how to address them. First, what is the direct effect of preferences on the MTL of countries, other than the EU and US, which grant them? Second, what is the effect of PTAs on the MTL of countries that are either the beneficiaries of those preferences or are not members of those PTAs? Third, how do PTAs affect multilateral liberalization through non-tariff barriers? There is ongoing work on the latter question and we discuss it.

In the last section we draw some implications about the consistency of the estimated behaviour of the US and EU in the Uruguay Round with WTO rules. We also argue that simply beginning to enforce existing WTO rules on PTAs may be insufficient to avoid a clash between preferential and multilateral liberalization. What is required is a novel approach that, if necessary, accommodates the WTO member's desire for PTAs, while simultaneously ensuring they do not slow down multilateral liberalization or at a minimum compensate non-members.

1. PTAs and multilateral liberalization: predictions and inference

The main objective of this paper is to analyze the existing evidence on the effects of PTAs on MTL. Therefore, we will not devote much space to the theory.[6] Nonetheless, in order to understand our focus below and what we can infer from the evidence, it is useful to point out the types of theoretical predictions that can actually be tested and quantified.

Most formal models focus on how a country's participation in PTAs affects its *own* incentives for MTL as opposed to the response of non-members. That will also be the focus of the evidence we will discuss. There are many channels by which PTAs can cause a country to accelerate or retard its MTL but many of them are difficult to test and quantify. To illustrate the main problem consider the often-heard casual argument that PTAs are stumbling blocks because they divert

6 For a good survey of the theory see for example Winters (1999) and the various papers in the volume edited by Bhagwati, Krishna, and Panagariya (1999).

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negotiation resources away from multilateral negotiations. This assumes that these resources are fixed whether or not PTAs are pursued. However, we do not know whether that is the case, because at any given point in time either a country has PTAs or not and thus we never observe the resources it devotes to negotiation under the two situations. A similar problem occurs with testing most formal models since they predict a country's *aggregate* MTL according to whether it has PTAs or not and we observe only one of these two situations for the *same* country at any *given time* but not its counterfactual.

Confronted with the problem above we are left with two alternatives. We could rely on *a priori* arguments rather than systematic evidence. However, given the complexity of the questions involved, there will always be counterarguments to any position.[7] Alternatively, we can draw implications that rely on the most reasonable possible counterfactual and focus on quantifying them. We believe the latter is the best way forward.

What type of counterfactual is the most reasonable in answering how PTAs affect a country's own MTL? One could compare the aggregate MTL of a country if in different multilateral rounds it had different amounts of preferential trade. But with so many other possible determinants of aggregate MTL changing over rounds, it would be hard to convincingly attribute any differences in MTL solely to PTAs. A similar concern applies if we tried to compare the aggregate liberalization of countries with and without PTAs, as illustrated by the findings in Foroutan (1998). She finds lower average MFN tariffs for Latin American countries with PTAs after the Uruguay Round, but says that no causality can be drawn from such a correlation because those countries were moving away from import substitution during the 1990s, which implied considerable unilateral liberalization independently of any effects from PTAs.

An alternative strategy is the one followed in Limão (forthcoming), whose results we describe below. He argues that, if PTAs affect MTL, that effect is strongest on PTA goods, that is the subset that a country imports under PTAs, and thus proposes estimating the direct effect of the PTAs on a country's MTL by using non-PTA goods as the counterfactual for the outcome in the absence of PTAs.[8] On average this condition for non-PTA goods is more plausible than either of the ones required by the counterfactuals above that use aggregate data, that is than assuming that, in the absence of PTAs, the US would have had the same aggregate MTL as say Japan in the UR, or as itself in the previous round (Tokyo) when the

7 For example, there are likely to be economies of scale in trade negotiating and so it is possible that countries would have negligible skills in negotiation if they only participated in multilateral rounds. So PTAs may be a building block in that they will actually lead these countries to assemble such teams. However, if such teams were already in place, the resources would be stretched to negotiate PTAs, the current US focus on the Central American FTA is a case in point.

8 This raises the question of whether the goods that are chosen to receive preferences are not random, which is an issue that the author addresses in detail both through various controls and instrumental variables.

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US had fewer PTAs. Therefore, a country's MFN tariffs on non-PTA goods is possibly the most reasonable counterfactual for what the MFN tariff in similar goods imported from a PTA partner may have been in the absence of that PTA.

The evidence we now discuss focuses on estimating the difference in the MFN tariff reduction between PTA and non-PTA goods for the US and for the EU. If we accept that the non-PTA goods are a reasonable counterfactual, then the estimated difference in tariffs between the two types of goods measures the impact of PTAs on the MTL of PTA goods. There is anecdotal evidence that suggests this is a reasonable approach and exemplifies the more systematic results we discuss below. In 1996 the US and EU negotiators in the WTO initially agreed to phase out all tariffs on rum and other 'white spirits' by 2000. Caribbean governments were alarmed by this and lobbied the US government warning that such a move would be extremely costly to the Caribbean exporters, who sell low-valued rum to the US duty-free. In response, the US agreed to maintain the MFN duties on low-valued rum, but substantially liberalize the duties on expensive rum, as initially agreed with the EU.[9]

2. The impact of US and EU PTAs on own MTL: estimates for the UR[10]

Data

We first note a couple of points related to the data that are important in understanding the results in Limão (forthcoming) and Karacaovali and Limão (2005) that we describe below. As a measure of trade protection, they use the MFN *ad valorem* tariff changes that the US and the EU negotiated during the Uruguay Round at the most disaggregated level – the eight-digit harmonized standard.[11] A product is defined as a 'PTA good' if it was exported with a preferential tariff to the US or the EU by a country with which they had a PTA by 1994.[12] Thus the analysis concentrates on goods in which the US or EU had a positive MFN tariff before the round, since other goods did not benefit from a preference margin. In addition to defining the PTA variables for each individual agreement, to

9 Limão (forthcoming).

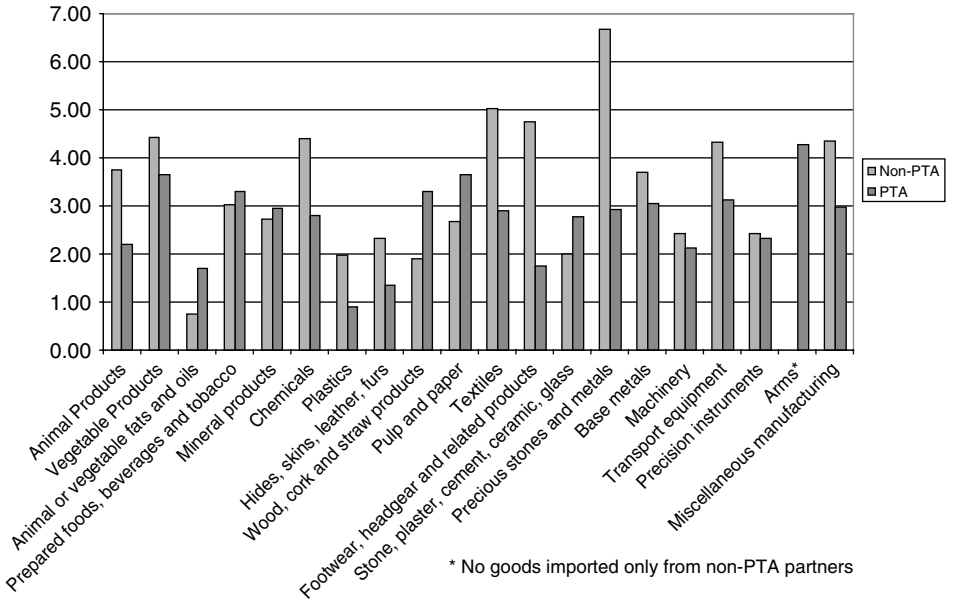
10 This section relies heavily on the results in Limão (forthcoming), Limão and Olarreaga (2005) and Karacaovali and Limão (2005).

11 In interpreting the results we note that for the US the measure is the change in the log of the tariff factor, $\ln(1+tariff_t)-\ln(1+tariff_{t-1})$, whereas for the EU it is the change, $tariff_t-tariff_{t-1}$, but for most of the products in either sample the difference between the two measures is negligible. The difference in the form of the dependent variable is due to the fact that for the EU a structural model is estimated and its prediction is defined in terms of the tariff rather than the tariff factor.

12 For the US the list is Canada and Mexico under NAFTA, Israel, various developing countries under the Generalized System of Preferences (GSP), Caribbean countries (CBI), and Andean countries (ATPA). For the EU it is the Euro-Med countries, the African, Caribbean, and Pacific states (ACP), the GSP beneficiaries, the Slovak and Czech Republics, Poland, and Hungary (CEC); Switzerland, Norway, Iceland, and Liechtenstein (that is the 1993 EFTA members excluding Austria, Finland, and Sweden), and the countries that acceded to the EU between the rounds, Austria, Finland, Sweden, Spain, Portugal, and Greece.

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Figure 1. US cuts in MFN tariff factor (%)



Source: Authors calculations based on data in Limão (forthcoming).

determine if they individually have different effects, the authors also define aggregate variables to capture the average effect: the union of the individual PTA variables, ANYPTA, and their intersection, EVRPTA.

Another important variable that the authors control for is reciprocity. They use an import weighted average tariff reduction for all the available WTO members in the Uruguay Round. The source is Finger *et al.* (2002) who calculate tariff reductions from 1986 to 1995 and reductions from 1992 to 1995. From these a measure of unilateral liberalization from 1986 to 1992 is constructed that is used as an instrument to account for the reverse causality that is present if there is reciprocity.[13]

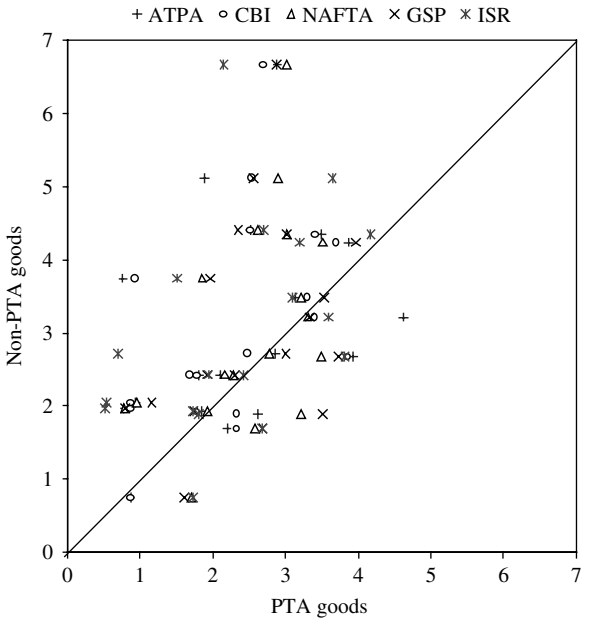
Estimates for the US

According to Limão (forthcoming), the mean reduction for non-PTA goods is 4%, which is significantly larger than for PTA goods, 2.75%. Using that raw data, we can compare the changes in MFN tariffs for goods the US imported under any of its PTAs vs. non-PTA goods. Figure 1 reveals that in 13 of the 19 sections of the tariff schedule that contain both types of goods, the reductions were smaller for the PTA goods. The differences are particularly strong for precious stones and metals, footwear, and textiles. Thus, the result is not driven by any single industry.

13 The authors explain how the timing and mode of negotiation in that trade round can be explored to use this instrument.

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Figure 2. Reductions in US average MFN tariff factors in Uruguay Round by sector and PTA (%)



Source: Calculations based on data in Limão (forthcoming).

The same paper reports a difference in the tariff reductions across PTA and non-PTA goods for individual agreements. Figure 2 plots the average reduction in the US MFN tariff factor in a given sector. The horizontal axis measures the cuts for goods exported by each individual PTA partner and the vertical axis applies to the non-PTA goods in the same sector. The fact that most points lie above the 45° line indicates that the US did not cut its MFN tariffs on PTA goods by as much as on similar goods not exported under PTAs. This suggests that the result may not be driven by any single PTA.

It is important to note that the fraction of goods affected is significant. There are over 5,000 products in the sample and nearly 90% of them are exported under at least one PTA to the US. The fraction for NAFTA is about 83% and for other PTAs it is about 61%. The smallest share is that of the ATPA, 15%. Moreover, the US continues to import on these same lines from several non-PTA partners, who are therefore affected by the relatively higher MFN tariffs.

The econometric model that Limão (forthcoming) estimates controls for other factors that may affect the determination of US tariff reductions and establishes the direction of causality from the PTA to the MFN tariff changes by using an instrumental variables approach, which is carefully explained and tested. This is important because otherwise it is possible that other factors jointly determine which goods receive preferences and the extent of the MFN tariff reductions in the

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PTA vs. non-PTA goods. For example, suppose that there is product that the Andean countries *expect* the US to reduce its MFN tariff, and thus any preference margin, to zero, while in another they expect no change for reasons unrelated to its PTAs. The Andean countries are then more likely to lobby for a preference in the latter, which would generate a positive correlation between the PTA good variable and the MFN tariff change.[14]

For ease of comparison with the EU results, we write the estimated model as follows:

$$\Delta tariff = \phi PTA + \rho RECIPROCITY + \mathbf{x}\delta + u \quad (1)$$

where $\Delta tariff$ is the vector of tariff changes for all hs-8 goods, which for the most part will be a negative value reflecting the reductions in the UR. The variable *PTA* will take on a value of 1 if the good is a PTA good according to the alternative definitions above. The reciprocity variable also varies across goods, since it is a weighted measure of the aggregate tariff reductions of the top five exporters of each particular good to the US. The interpetation of ϕ in (1) is simple. If it is positive, it indicates that the MFN tariff for PTA goods did not fall by as much as that in the non-PTA goods. Using the latter as our counterfactual for the outcome in the absence of PTAs, a positive ϕ indicates that the PTAs caused a relatively higher MFN tariff on the PTA goods.[15]

In Table 1 we report the values of the two coefficients of interest, ϕ and ρ, which are obtained from estimating (1) using instrumental variables to address the causation issues mentioned above. The estimate for the coefficient on *ANYPTA* corresponds to ϕ in (1) for goods exported under any PTA. It is positive and significant over the different specifications and thus consistent with a direct stumbling block effect.

The stumbling block effect is 60% larger for the subset of goods that are exported under every PTA, which suggests that the US may have taken greater care to maintain the margins in those products. Moreover, it is likely that in products that are important exports for a PTA partner, that partner will lobby the US particularly hard to maintain the margin. There is indeed evidence of a stronger stumbling block effect for such goods – it is about 48% larger than that for *ANYPTA*, as we can see from column (3) for the US in Table 1.[16]

14 In particular, the instrument for whether the good is exported by the PTA partner *and* receives a preference is whether the good is exported before the multilateral tariff changes with or without preference, which is correlated with the variable but excludes the potentially endogenous components, i.e. the preference. The author also uses other instrument such as transport costs and world price variables.

15 Other controls are included in the matrix **x**, including, in the case of the US, industry dummies and a measure of the change in bargaining power relative to exporters.

16 This is obtained by adding an additional variable that is the interaction of ANYPTA with an indicator equal to 1 if the export value of the product exported by a given PTA is above the mean of its total exports to the US.

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Table 1. Stumbling block estimates for the US and EU

	US $\Delta\ln(1+\text{tariff})$[a]			EU Δtariff [b]		
Dependent variable:	(1)	(2)	(3)	(1)	(2)	(3)
ANYPTA (ϕ)	1.3***	1.3***	1.2***	1.6***	1.5***	1.1***
	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
EVRPTA		0.78***			0.7***	
		(0.22)			(0.2)	
ANYPTAxHI_EX			0.58***			0.5***
			(0.1)			(0.2)
RECIPROCITY (ρ)	0.014**	0.015**	0.017***	0.006*	0.005*	0.006**
	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)
…[c]	…	…	…	…	…	…
Observations	5079	5079	5079	6294	6294	6294

Notes: ANYPTA = 1 if good exported under any PTA of US (or EU in last 3 columns), otherwise 0.
EVRPTA = 1 if good exported under every PTA of US (or EU in last 3 columns), otherwise 0.
ANYPTAxHI_EX = 1 if ANYPTA = 1 and good is an important export for PTA partner to US (or EU in last 3 columns).
RECIPROCITY average tariff reduction in UR for principal suppliers of the good to the US (or EU in last 3 columns).
Robust standard errors in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.
(a) *Source*: Limão (forthcoming).
(b) *Source*: Karacaovali and Limão (2005). Tariffs turned into percentages for comparability with US results. Clustering at the 3-digit SIC level.
(c) Other variables included but not reported here. See sources for details.

It is also interesting to ask if, once we take the various determinants into account, the individual PTAs affect the MFN tariffs. By separating NAFTA from the other PTAs, the author finds that both caused relatively higher MFN tariffs in their respective PTA goods and their magnitude is similar. The estimates for each individual PTA are also positive and, with the exception of Israel, significant.

The results above on individual PTAs strongly suggest two points. First, even PTAs with small countries affect the US's MFN tariffs. Second, the relatively higher MFN tariffs in PTA goods were not just the result of the US overall strategy of pursuing PTAs, as otherwise, we should *not* find a significant effect for each individual PTA.

Finally, we note that the US tariff reductions were larger in products exported by countries that reduced their tariffs by relatively more, i.e. there is evidence of reciprocity in tariff reductions. Below we will describe similar findings for the EU.[17] This is relevant because previously there was not much systematic evidence for

17 One difference is that the reciprocity estimates in Table 1 for the US refer to goods where US non-tariff barriers (NTBs) are absent, since one of the controls in that equation is US NTBs and its interaction with reciprocity.

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reciprocity and it may amplify the importance of PTAs as stumbling blocks. To see the interaction of the stumbling block and reciprocity suppose that there is a country that does not have a PTA with the US, but exports only PTA goods to the US. Reciprocity implies that this country, call it Japan, offers fewer reductions on the goods it imports from the US. The US internalizes this effect on itself. But countries that export goods similar to those of the US will also face Japan's higher MFN tariff and potentially lower export prices.

Before discussing the economic significance of the results for the US, we contrast them with those found for the EU.

Estimates for the EU

Karacaovali and Limão (2005) provide evidence of the effect of the EU's PTAs on its MTL in the UR. They find that the average reduction in MFN tariffs by the EU was 4.4 percentage points for non-PTA products but only 2.9 for PTA products, a significant difference of 1.5 percentage points. One of the features of the tariff structure of the tariff schedule of the EU that is considerably different from the US is that it varies much more across industries than within industries.[18] Therefore, according to the raw data, when one considers individual industries there is not a significant difference in tariff reductions between PTA and non-PTA goods. This is unlike the US where the difference was clear within several industries even before controlling for other factors.

The authors also estimate a theoretical model, which builds and extends on Limão (2002) adapting it to the EU. One of the differences is that the EU is a customs union and some of the preferential treatment it extended to other countries between rounds was in the form of acceding countries. The model predicts that acceding countries, which adopt a common tariff and can implement (receive/make) direct transfer payments with the EU, should not affect the external tariff, because there exist enough other instruments for compensation so that the preference margin and thus the MFN tariff need not be used for that purpose. So the effects for those countries are estimated separately.[19]

Although some of the details of the estimation differ from those in the US, the general econometric model can still be written as in (1). Therefore, the estimates of the key parameters are reproduced in Table 1 in a form that allows for easy

18 The share of between-industry variation relative to total variation in the MFN tariffs for the EU is twice as high as in the US for instance. This is the case both in levels and in changes. Karacaovali and Limão (2005) hypothesize that this may be due to the fact that the original CET in 1968 was an average of the tariffs of the founding members and that, from a political economy perspective, it is easier to build consensus for tariffs at the industry level (most countries are likely to produce some product in any given industry) rather than at the product level (some countries do not produce some products and would clearly loose when the CET on it is raised).

19 The model is also useful in suggesting what variables to control for. Some of the industry lobbying for protection is still channeled through individual governments. The model provides a way to aggregate these country-industry terms into a EU-wide variable, which helps us to control for differences in tariff reductions across industries in the EU that are due to political economy motives.

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comparison. We see a pattern similar to the US. The MFN tariffs for goods exported under any PTA to the EU (excluding acceding countries) remained about 1.6 percentage points higher than for the non-PTA goods. That effect is about 46% bigger for goods exported under every PTA or for goods that are important exports for the EU's PTA partners.[20]

There are two other interesting results that are specific to the EU. First, as predicted by the model, there is no effect of the acceding countries to the EU.[21] Second, there is no stumbling effect for the PTA goods that had a positive preferential tariff, which is also predicted by the model. The intuition for this is simple: the relatively higher MFN tariff is caused by the 'need' to minimize the erosion of the preference margin. However, if the preferential tariff is positive then a reduction of the same magnitude as the MFN tariff change ensures the margin remains unchanged. This has a lower cost for the EU than maintaining the MFN tariff relatively higher because the latter implies that non-PTA partners will reciprocate with smaller tariff reductions. To the extent that since the UR the EU has reduced many of its preferential tariffs to zero (for example through the EBA initiative), there is more scope for a stumbling block effect in the Doha Round.

Although there is a positive correlation among the variables for the different PTAs that the EU has, the authors do identify a stumbling block effect originating from each (excluding the acceding countries as seen above). All individual effects are significant with the exception of the one for the ACP, which is nonetheless significant when tested jointly with the GSP, a program that shares many of the same PTA goods with the ACP and is therefore highly correlated with it.[22]

Finally, there is also evidence of reciprocity. The coefficient is smaller than the one for the US, which reflects perhaps the fact that in the case of the EU it is the average effect for all goods rather than the subset where there are no NTBs (as in the US). Where NTBs are present, it is possible that *tariff* reciprocity is not as strong, since countries still fear the NTB.

To obtain a sense of the economic importance of the effects above, we now report two types of quantification exercise.

Price effects and other countries' MTL in the UR

In Limão (forthcoming), it is shown how the estimates above can be used to calculate average price effects. If we assume there is perfect pass-through, i.e.

20 A note of caution is that, although the signs and order of magnitude of the coefficients for the EU are directly comparable with the US, we should not place too much emphasis on comparing their exact magnitudes. The dependent variable is measured slightly differently; in the case of the EU we construct a political economy variable rather than using industry dummies and for the EU there is no control for NTBs and so the reciprocity estimate applies to all goods rather than only the ones without NTB.

21 This is true even when we separate the group that entered as the UR finished (Austria, Finland, Sweden) from the earlier group (Spain, Portugal, and Greece).

22 Another possible reason for the absence of a significant stumbling block effect for ACP is that it incorporates several instruments other than trade preferences by which the EU can compensate the beneficiary countries for any preference erosion arising due to the EU's MTL.

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Table 2. Interpretation and quantification of estimates for the US and EU (%)

	US[a]			EU[b]		
	(1)	(2)	(3)	(1)	(2)	(3)
Growth of domestic relative price of PTA goods if pass-through = 1 (ϕ)	1.3	2.11	1.79	1.6	2.2	1.6
Relative price growth ($1+\phi/\bar{a}$)	52	23	31	53	38	55
Foreign tariff reduction equivalent (ϕ/ρ)	91	140	104	267	440	267

Notes: See text for explanation.
(a) *Source*: Limão (forthcoming).
(b) *Source*: Karacaovali and Limão (2005).

that the tariff reductions are 100% passed as lower domestic prices to the US consumer, then the US domestic price of PTA goods increased by 1.3% relative to similar non-PTA goods. The average US domestic price growth for a 'benchmark' non-PTA good was approximately −2.7% and therefore the reduction of the domestic price for the PTA good in the US was only 52% of that experienced by the average non-PTA good, as shown in the second row of Table 2 (column (1) for US).

Assuming imperfect pass-through, we can also provide an interpretation of the relative price growth as follows. The increase in the export price for a country that does not have a PTA with the US but exports any of the PTA-type goods is only 52% of the price increase for a similar non-PTA good.[23] As we can also see in Table 2, the effect is even stronger for goods exported by every PTA (23%, column (2) for US) or for goods that are important exports for any PTA (31%, column (3)).[24] In Table 2, we also reproduce the equivalent estimates for the EU. They are 53% for goods exported under any PTA, 38% for those under every PTA, and about 55% for exports important to PTA partners.

Taking the non-PTA goods effect as the counterfactual for the outcome that would obtain if the US and EU had no PTAs, the effects above suggest an important effect of PTAs on non-member's export prices. There is direct evidence that even countries that are smaller than the US and EU, such as Brazil and Argentina, can depress the price received by exporters to that market because of Mercosur's reduced demand.[25] So it is quite likely that if, in the absence of PTAs, the EU and US MFN tariffs on PTA goods had fallen by more they would have increased their import demand and thus the price that non-member countries would have received for their exports.

23 For the individual PTAs the effect is strongest for NAFTA (68%), followed by GSP (74%) and ATPA and CBI (84%).

24 This also assumes that the pass-through is similar for PTA and non-PTA goods.

25 Chang and Winters (2002) find that Mercosur caused lower export prices for non-members.

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There is much disagreement on whether a country's PTAs make non-partners more or less likely to liberalize. There are arguments in both directions. As we discuss in the next section, this is still a somewhat open question. However, we can ask how important that channel would have to be in order to overturn the direct stumbling block effect we summarized. The papers we described above answer this question by calculating how much larger other countries MTL would have to be in order for the US's and EU's reciprocal response to be such that it would neutralize the direct stumbling block effect.

More specifically, the authors consider a country that does not have a PTA with the US (or EU) but exports the same good as a PTA partner. They then ask how much *more* this country must lower its average tariff in order to obtain the same average tariff reduction by the US (or EU) in that good as the one received by a country that exports a similar non-PTA good. The answer is in the last row of Table 2. It is 91 % for the US and even higher for the EU, if the exporter country has an export share close to one. The median decrease in the tariff of the exporters is about 44 %, which suggests that to overturn the direct effect the authors estimate the extra MTL that PTAs needed to have created in other countries had to be implausibly large.

Welfare estimates of lost MTL in Doha Round due to stumbling block effect

The quantification above provides some information about the magnitude of the economic effects. But, ultimately, we would like to determine the welfare effects of preferences in terms of lost MTL. Limão and Olarreaga (2005) use the results in Limão (forthcoming) along with data for 170 countries and approximately 5,000 goods to provide the first such welfare estimates.

As in any welfare calculation, we require a baseline or counterfactual for comparison. The authors state the following criteria for the counterfactual: 'It should remove the stumbling block effect, generate a Pareto improvement in the context of a well defined model, so we can expect it to be supported by WTO members, and be simple enough to permit estimation and implementation' (p. 4). They argue that it is not interesting to consider the alternative of no preferences because it would not be supported by several countries.

Since it is important to think of novel approaches that, if necessary, accommodate the WTO member's desire for PTAs, while ensuring they do not slow down multilateral liberalization, we briefly describe the proposal in Limão and Olarreaga (2005). The source of the stumbling block effect that they focus on arises because PTA members are trying to avoid preference erosion. A reduction in the MFN tariff need not erode the margin as long as the preferential tariff can fall by the same amount. However, if the preferential tariff cannot be reduced by the full amount of the MFN reduction, for example if it is already zero, any further reductions in the MFN tariff reduce the margin. Recall that the evidence for the EU supported this: the stumbling block occurred only in the goods with positive

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preferential tariffs. If this is indeed the source of the problem, then the solution is conceptually simple: allow for a preferential import *subsidy* that maintains the preference margin unchanged relative to the initial MFN tariff.

To see how the subsidy works suppose that the US initially has an MFN tariff of 10% on flowers but charges a preferential tariff of zero to Colombia, so the preference margin is 10%. Switching to the subsidy the US now charges the MFN tariff on Colombian flowers but pays a *fixed* subsidy rate of 10% to the Colombian *producers*. Initially all participants are indifferent. However, the US could now maintain the fixed subsidy rate and reduce its MFN tariff without the opposition that arises from preference erosion. So in effect, the existing preferences remain but they do not hinder the MTL of the granting country.

Given the above, the authors estimate the welfare cost of lost MTL in the Doha Round due to the preferences that the US, EU and Japan provide to the poorest countries. They assume that under the current preferences the TRIAD would reduce protection by an average of 33%. Under the subsidy, an additional 8.3% would be feasible (according to the estimates in Limão (forthcoming)) and this is the main (but not the only) source of the change in welfare.

They estimate annual welfare gains of $520 million for the 48 LDCs that receive the preferences considered; with the countries that most oppose MTL because of its preference erosion effect gaining the most from the switch. The maximum yearly gain is 6.7% of GDP and all but one of the LDCs are left better off. For the TRIAD countries, welfare would increase by $2,934 million per year, with the larger gain accruing to the EU. The TRIAD's gain is mainly due to the additional MFN tariff reductions that would be allowed by the subsidy. For an identical reason the rest of the world also obtains an annual welfare gain of $900 million.[26]

3. Open questions and future work

Before we can definitively say whether PTAs are a stumbling block to *worldwide* MTL, the following questions should be addressed. First, what is the direct effect of PTAs on MTL in countries, other than the EU and US, which grant the preferences? Second, what is the effect of PTAs on the liberalization of countries that receive preferences and on the liberalization of non-member countries? Third, all of the questions above should be asked with respect to non-tariff barriers, i.e. how do PTAs affect multilateral liberalization through non-tariff barriers?

26 They argue that these values may be lower bounds for several reasons. For example, because they estimate the effects at the disaggregated tariff line level, they employ a simple model with no dynamic gains from trade, which is known to typically generate modest gains from liberalization. Moreover, they may be overestimating the amount of liberalization that is possible under the preference scheme, given that the concern with preference erosion may, under an extreme scenario, prevent the completion of the round. If that were the case, those preferences would cost an additional $47 billion in terms of lost MTL.

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PTAs and own MTL: beyond the US and EU

The first systematic evidence on the effect of PTAs on a country's MTL was provided for the US and the EU as previously summarized. This was a good starting point, given they are the two largest traders and, in the case of the EU and increasingly the US also, users of preferences. Moreover, when the debate was triggered off, it focused largely on these countries.

It is now important to understand whether PTAs had similar effects in other countries. In terms of developed economies, the obvious candidates are Canada and Japan. This could be done using the approach described for the US, since, by the Uruguay Round, both countries provided unilateral preferences through GSP and Canada was part of NAFTA.[27] Both of these countries have signed new PTAs since then and therefore the estimates could be used to extrapolate what the effect of these PTAs may be for their MTL in the Doha Round.[28]

Developing countries have also become very active in preferential liberalization, particularly since the UR. Many of these agreements involve developed countries and this number is bound to increase with the EU's and US's conversion of its unilateral preferences into reciprocal ones. But several of these agreements are among developing members.[29] Another motive to study these countries is that their share in world trade is increasing due to their unilateral liberalization in the 1980s and 1990s and the income growth of some of them. Several of these developing countries are also becoming more active participants in the multilateral negotiations. Thus, if they start to engage in reciprocal market access negotiations, the effect of their PTAs on *world* MTL may start to take on considerable importance.

In choosing which developing countries to analyze, one must be careful about the approach and the time period of the analysis. Countries that decided to move away from import substitution, for example in Latin America, often adopted both unilateral and preferential liberalization. Therefore, if one were to compare the average liberalization for those countries vs. others that did not pursue PTAs, one may conclude that PTAs helped with those countries' unilateral liberalization, even though no such causal relation existed.[30]

Part of the problem above may be avoided by focusing on the tariff changes for PTA vs. non-PTA goods. However, even this may be problematic because in

27 Moreover, most of their tariff lines were bound before the UR and, at least in the case of Japan, the applied and bound tariffs were similar. Therefore the UR schedule of concessions, which is readily available, should accurately reflect the actual changes in tariffs.

28 Canada as signed PTAs with Israel, Chile, and Costa Rica and Japan with Singapore, Mexico, and the Philippines.

29 According to the data from the WTO secretariat in Crawford and Fiorentino (2005: 7) 73 PTAs involving a developing country entered into force between 1958 and 2005, with about 49 occurring after 1995. Forty seven out of these 49 involved developed countries, 16 developing and the remaining transition economies.

30 See also the discussion on page 6.

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the big episodes of unilateral liberalization there may exist considerable variation in tariff reductions across industries or products. We first need to have good empirical (and theoretical) models of this rather than simply assuming, as is often done, that in these big liberalization episodes (for example India, Colombia, Brazil) there is simply a large uniform reduction in all tariffs. Before we have such models, it is problematic to assign changes in MFN protection in those countries to PTAs. Failing this the best way to proceed is to choose countries that sign PTAs after they have either fully undertaken their unilateral liberalization or to try to find deviations from the announced path of MFN liberalization.

PTAs and the MTL of non-members and beneficiaries of preferences

Thus far we have discussed the effects of the preferences that a country provides on its *own* MTL. Most of the theoretical literature has also focused on this.[31] However, to determine the effect of PTAs on *worldwide* MTL, we would ideally like to determine the effect of those preferences on the MTL of both the countries that receive them and those that are not members of that PTA.

We can distinguish between two effects of PTAs on non-members' MTL. We call the first a reciprocity effect – for example, if the EU liberalizes less because of its PTAs, then Japan reciprocates by liberalizing less. The second we will call a bargaining effect. It is a catch-all term we use to capture if, for example, the US strategy to pursue PTAs made the EU more or less likely to reduce its tariffs in the Uruguay Round, once we take into account the actual US MTL.

Suppose first that there is no bargaining effect; that is, we are agnostic or ignorant about the direction of that effect and consider only the reciprocity effect. In this case, if countries responded with reciprocal tariff reductions in the UR, the stumbling block estimates for the US and the EU suggest that their PTAs caused not only less MTL on their part but also on the part of non-members. We found estimates of reciprocity for those two countries but we would need similar estimates of reciprocity for other participants. Moreover, it would also help to know if the PTAs of other countries caused them to liberalize less, as suggested in the previous subsection.

Consider now the possibility of a bargaining effect. As we noted in Section 2 the estimates of the direct stumbling block effect for the EU and the US provide some bounds on the magnitude of this bargaining effect that would be required in order for their PTAs to be a building block to their own MTL. We noted that this could only have happened if, in the absence of those PTAs, non-members would have been considerably less likely to liberalize in the UR.

In addition to providing bounds, it may be interesting to try to provide some estimate of the bargaining effect directly. The difficulty in doing so is that countries that are non-members respond to aggregate MTL. However, we do not know what the EU's or the US's aggregate MTL would have been without PTAs and therefore

31 One recent exception is Ornelas (2005).

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we do not know the response of the countries that are not members of the US's and EU's PTAs. Moreover, given the nature of this bargaining effect, it may also be argued that the whole negotiation (and therefore the econometric model) would have been different, so the potential problem is not only unobservability of a variable but possibly a different response to it. Perhaps one way to partially address these two concerns is to ask if non-member countries reciprocated differently across goods, depending on whether the main exporter was involved in PTAs or not.[32]

In any PTA, there is obviously at least one country that grants and another that receives preferences. Is the MTL of a country affected by the preferences it receives? It is quite possible. One plausible channel is that exporting lobbies in the receiving country may be 'bribed' by its government with preferences so as not to pressure it to liberalize multilaterally. This channel would suggest that PTAs are a stumbling block for the MTL of the receiving country. Alternatively, the preferences may lead exporter lobbies to form and demand more MTL. The two effects may come together strongly if preferences are given and then removed, so that the organized export sector, with the preference bribe gone, now lobbies for MTL.

In identifying any such effect empirically, we run into a problem identical to that for non-members. There is thus far no specific prediction of what goods the change in MTL is stronger for. Thus, we must focus on differences for a country over long periods of time or over different sets of countries. To our knowledge, there is no evidence on the effect of new preferences on the multilateral (or unilateral) liberalization of the receiving country. However, Ozden and Reinhardt (2003) provide interesting evidence that the *elimination* of GSP preferences is correlated with subsequent aggregate multilateral liberalization of that beneficiary country. It is important to note that, even if we believe that the causation runs from the removal of preferences to MTL, this does not necessarily imply that receiving new preferences would slow down the MTL for that country. Suppose that, as we describe above for example, preferences caused exporters to organize. In this case, preferences are actually a catalyst for future MTL, which occurs precisely when they are removed. Thus, the question of the effect of new preferences on a beneficiary's MTL is still open.

PTAs and non-tariff barriers against non-members

Preferential treatment in PTAs is traditionally defined with respect to tariffs. However, one of the motivations for entering PTAs is that they can also protect members against each other's non-tariff barriers (NTBs). GATT/WTO rules allow

32 Suppose for example that we re-estimate (1) for the EU but we modify it to allow the reciprocity coefficient to vary according to whether the principal suppliers have several PTAs. Then, if we found that the reciprocity elasticity of the EU was lower (higher) for goods it imports mainly from the US (with several PTAs) than on those imported from Japan (few PTAs), this may suggest the US PTAs had a bargaining effect that lead the EU to less (more) MTL.

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for some NTBs to discriminate across trading partners. Therefore, by exempting its PTA partners from an NTB, a country can provide protection not only to its domestic producers but also to the producers in the PTA partner that export to it. This phenomenon has occurred even with NTBs that should, according to GATT/WTO rules, be non-discriminatory.[33]

The estimates we have discussed thus far focus on the effect of PTAs on MFN tariffs. But it is also possible that PTAs cause higher NTBs against non-members, such as antidumping measures and other trade remedies. Although one may argue that this type of protection is not really multilateral – it can be set on a discriminatory basis and is often subject to lax multilateral controls – we think that its increasing importance worldwide makes it crucial to examine how it is affected by PTAs. Moreover, since article XXIV does not prevent an increase in non-tariff barriers from being used after PTAs, it may be easier for countries to reveal, and thus for us to detect, the effect of PTAs on their desired protection against non-member's imports.

Among NTBs, antidumping has become a particularly 'popular' and important form of protection, which makes it a particularly interesting NTB to focus on.[34] Bown and Limão (2005/in progress) examine whether PTAs lead the US to increase its antidumping activity against non-members between 1980 and 2001. There is evidence from other work that different stages of the anti-dumping (AD) process have a protectionist effect. Therefore, the authors study how the preferences affect various different measures of protection related to antidumping activity: the initiation of the investigation, the decision, and the eventual level of duties.

The work above is still in progress so there are no definitive results to report but it is worth noting the methodology as it may elucidate the types of results that may be obtained. The authors employ bilateral protection and trade data for the US, which they match with the antidumping data, both at the eight digit hs product level. They then use three estimation approaches. The first is to simply explore the fact that, unlike MFN tariffs, AD activity varies yearly so one can ask the effect of a PTA on AD by testing whether within any given product there was a change in AD against non-members after the PTA. Second, in order to address the possibility that events that are contemporaneous (but unrelated) with the PTA may be changing AD activity they also estimate if the PTA caused a differential increase in AD on non-member countries *relative* to members. Third, for reasons similar to

33 Bown (2004), for example, provides direct evidence that Canada and Mexico gained from being exempt of the US's steel safeguard in 2002. An additional important motive to study the effect of PTAs on NTBs is that even when a WTO dispute challenging an imposed NTB rules that it should be removed, the dispute settlement process is sufficiently slow such that the measure always provides at least temporary protection.

34 For the United States, Gallaway *et al.* (1999) estimate that its antidumping and countervailing duties impose $4 billion (1993 data) in welfare costs annually, placing such trade remedies as second only to the MultiFiber Arrangement in terms of welfare costs to the US. Recently many other countries have become heavy users of antidumping as documented in Zanardi (2004) for example.

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the second approach, they follow Limão (forthcoming) and compare the change of AD against non-members in PTA goods vs. similar non-PTA goods.

There is still a fairly limited knowledge of the interaction of PTAs and NTBs, both theoretical and empirical. This, and the fact that NTBs vary more across countries and time than MFN tariffs, suggests that estimating their interaction is crucial in understanding whether PTAs are stumbling blocks. Moreover, such estimates are essential in the ongoing WTO negotiations in determining whether stronger disciplines must be imposed on AD and the PTAs themselves.

4. Conclusion

In the ten years since the formation of the WTO, over 100 PTAs were initiated. Even if these PTAs are beneficial to its members, they discriminate and can hurt non-members. The costs to non-members would be mitigated if the PTAs also caused faster MTL by its members. But the evidence for the largest traders, the EU and the US, strongly suggests that the opposite is more likely, that PTAs are delaying MTL and entrenching the costly discrimination. This is a concern that all countries must consider, since most of them are not members of most PTAs.

What lessons and implications does the existing evidence have for the WTO and its members? The first basic point is that, despite the importance of the issue, there was until recently hardly any evidence on it. Given that one of the important roles of the WTO is to convey information about trade policy, particularly if it has the potential to hurt other members, it should take a lead in collecting and disseminating any effects that PTAs may have on a country's MTL. This can be done in the regular trade policy reviews by using the methodology we described, i.e. by asking if countries change their MFN protection on products that they offer preferences in. In countries with applied tariffs below the binding, any such change would be simple to detect even in between rounds. For other countries, the reviews that occur for years in between rounds should be particularly careful in describing whether NTBs against non-members changed after a PTA. Furthermore, the proposed tariff changes in any given round can also be analyzed to check if smaller reductions are taking place in PTA goods.

The broader question is what should be done with any such evidence. Would the enforcement of existing rules reduce the possibility that PTAs lead to less MTL? To answer this, we must first ask if the evidence for the EU and the US for example violated existing rules. One could argue that they did not. Article XXIV forbids increases in protection after PTAs, but those countries could claim that they did not raise the *level* of their MFN protection but rather simply lowered it by less than they would have otherwise. On the other hand, the stumbling block effect we found for the GSP preferences that the US and EU extend may be in violation of WTO rules. These preferences fall under the Enabling Clause, which requires that 'Any differential and more favourable treatment provided under this clause … shall not constitute an impediment to the reduction or elimination of

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tariffs and other restrictions to trade on a most-favoured-nation basis.'[35] Furthermore if we observed the same behaviour in the Doha Round there may also be a case against the US and EU unilateral preferences that use waivers because of a 1999 WTO decision requiring that 'Any preferential tariff treatment implemented pursuant to this Waiver [of the MFN rule for the purpose of preferential tariff treatment for LDCs …] shall not constitute an impediment *to the reduction or elimination* of tariffs on a most-favoured-nation basis.'[36] Perhaps recognizing this possibility, the US and EU are currently converting several of those agreements into reciprocal ones, which will not require this waiver.

There is one rule that is not currently enforced and should probably not be enforced if we want to minimize the impact of *existing* PTAs on MTL: reduction of all preferential tariffs to zero. The logic of preference erosion and the evidence we described for the EU indicates that it is in goods with preferential tariffs equal to zero that countries are more likely to reduce MFN protection. Given that the rule is not currently enforced, it is difficult to say if countries feel constrained by it or not. If they are, then we may still want to maintain it for new PTAs, otherwise MFN would become completely meaningless.

Should new rules be adopted and enforced? Although more evidence is required to answer definitively whether PTAs lower MTL worldwide, we can confidently note two simple points. First, countries have demonstrated they are intent on pursuing PTAs. Evidence may change this but it is unlikely to in the short run. Second, for PTAs to exist, MTL *must* at some point stop, otherwise no preferences can be offered. Therefore, if we take as given the desire to pursue PTAs, they will clash with further MTL at some point. To avoid this there are two broad alternatives. The first is to identify the motives behind many of the recent PTAs and ask if they can be achieved through the WTO. One such motive is that PTAs have allowed countries to pursue cooperation in issues that go beyond trade policy. Some of these issues – labour, environment, investment, etc. – have been kept out of the WTO and this exclusion may be contributing to the boom in PTAs. However, there may be costs of addressing these issues in the WTO, as the difficult negotiations in the UR and the aborted attempt to start a new round in Seattle in 1999 showed.

The second broad alternative is to find ways to, if necessary, accommodate the WTO member's desire for PTAs, while simultaneously ensuring that they do not slow down MTL or at a minimum compensate non-members. One possibility is to use import subsidies for PTA partners, as analyzed in Limão and Olarreaga (2005). Another possibility is to modify article XXIV (and other provisions that allow preferential treatment in the WTO) to require that the implementation of a PTA be accompanied by some reduction of protection against non-members.[37]

35 Enabling Clause paragraph 3b.

36 In WT/L/304, p. 2, accessed April 2003 on <www.wto.org/english/docs_e/legal_e/waiver1999_e.pdf>.

37 I thank Alan Winters for this suggestion.

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Serious discussion and eventual implementation of these or other options is essential to avoid a clash of preferential and multilateral liberalization.

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