

Uneven Stumbling Blocks:

Latin American Regionalism Revisited

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Abstract

We develop a theoretical model of the external tariffs of regional trade agreements (RTAs) and derive predictions for the impact of the internal trade share on the external tariffs. We show that, in South-South RTAs, we should observe a stumbling bloc effect when the internal tariff equals zero. In all other cases, we should observe neither a building bloc nor a stumbling bloc effect (which we label “neutrality” result). We find estimates consistent with the model using data on internal and external tariffs and trade flows for Latin American RTAs from 1985 to 2006. Our findings offer an explanation of the different empirical results in the literature on building and stumbling blocs.

Preliminary and Incomplete. Comments are welcome, but please do not circulate.

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1. Introduction

In the past twenty years, regionalism has supplanted multilateralism as the main source of negotiated trade liberalization in the world economy. Over 400 regional trade agreements (RTAs) have been notified to the World Trade Organization (WTO) since 1995, almost four times as many as were notified in the previous five decades. Meanwhile, the WTO has succeeded in negotiating only one multilateral trade agreement – the 2013 Agreement on Trade Facilitation, which aims to simplify customs procedures.

The theoretical trade literature has long recognized that regional integration, provided it is coupled with external trade liberalization (e.g., MFN tariff cuts), can give rise to welfare benefits not only for the partners involved but also for the rest of the world (Kemp and Wan, 1976; Panagariya and Krishna, 2002). One of the main concerns, however, has been that instead of lowering external trade barriers, members of regional trade agreements (RTAs) might have an incentive to maintain or even raise their external tariffs. This is the so-called “stumbling blocs” hypothesis.⁴ The logic is that, once a country grants preferential access to its partner’s exports, it will be under pressure from its partner to maintain its external tariff so as to preserve the preference margin.

Empirical research on this question has produced mixed results. Limão (2006, 2007) and Karacaovali and Limão (2008) (henceforth, LKL) find evidence of a stumbling bloc effect for RTAs signed by United States and the European Union. In contrast, Estevadeordal, Freund and Ornelas (2008) (henceforth, EFO) find no evidence of a stumbling bloc effect for countries in Latin America. Rather they find that RTA tariff preferences lead countries lower their external tariffs, consistent with a “building bloc” effect of RTAs.

⁴ See for example Bhagwati and Panagariya (1999) and Limao (2007).

The exact source of the conflicting results is difficult to pinpoint, because the studies differ along several important dimensions. The first is the sample of countries. Not only do the U.S. and EU differ markedly from Latin American countries in terms of size and level of development, they also sign different types of RTAs. The RTAs of the U.S. and EU are notified under GATT Article 24, which calls for zero tariffs on substantially all intra-RTA trade and prohibits increases in external (MFN) tariffs upon the formation of an RTA. Instead, Latin American RTAs take advantage of GATT's "Enabling Clause" governing South-South PTAs, which allows members wide latitude with respect to internal trade liberalization. This has resulted in slow and halting phase-in of internal tariff cuts, and in some cases the outright exclusion of sensitive sectors from tariff cutting. In addition, Latin American countries tend to have large gaps between bound and applied MFN tariffs (known as "binding overhang"), which give them considerable discretion to vary their external tariffs.

Coinciding with these differences in RTA types have been substantial differences in empirical approach to the stumbling/building blocs question. Because the U.S. and EU change MFN tariffs primarily in the context of GATT negotiations and generally adhere to Article 24, LKL compare MFN tariff cuts between the Tokyo and Uruguay rounds for products imported from RTA partners versus products imported only from the rest of the world, for RTAs signed between the two rounds. The main finding is that RTA products experienced lower average MFN tariff cuts. In contrast, EFO take advantage of the relatively frequent MFN tariff changes and non-zero internal tariffs of Latin American RTAs to examine the relationship between annual changes in external and internal tariffs. The main finding is that reductions in internal tariffs lead to reductions in external tariffs.

Another difference between the two studies is that LKL use highly disaggregated data at the 8-digit HS level (several thousand products), whereas EFO use the far more aggregated 4-digit ISIC level (100 industries); however, the latter are able to exploit variation across 11 years (1990-2001) and 10 countries.

This paper attempts to resolve the stumbling/building blocs question by re-examining the case of Latin American regionalism. We argue that the flexibility afforded by non-zero internal tariffs, and corresponding lack flexibility when internal tariffs are zero, is key to understanding the behavior of external tariffs in an RTA. In our theoretical model, we consider an RTA that sets both its internal and external tariffs to maximize the joint welfare of the partners but ignores the welfare of the rest of the world. As long as the internal tariff is completely flexible – this is a purely theoretical case – there is no direct effect of the internal trade share on the RTA’s external tariff – no stumbling block effect, no building block effect. This is because external and the internal tariffs are used as tools to target different objectives. If instead the internal tariff is constrained to be zero – this is the case of RTAs signed under Article XXIV – the flexibility hypothesis does not hold and the internal trade share does affect the RTA’s external tariff. The sign of this effect depends on whether the desired internal tariff is positive or negative: in the former case, the internal trade share has a negative impact on the RTA’s external tariff (building block effect); in the latter case, the internal trade share has a positive impact on the RTA’s external tariff (stumbling block effect). Finally, if the internal tariff is subject to a non-negativity constraint – as is the case of RTAs signed under the Enabling Clause – then the flexibility hypothesis always holds except when the internal tariff is zero (or small). Zero internal tariffs may indicate that the desired internal tariff is negative in

which case the internal trade share has a positive impact on the RTA's external tariff (stumbling block effect). Given our focus on RTAs based on the Enabling Clause, this is the case we consider in the empirical analysis.

For the empirics, we have constructed a dataset on internal and external tariffs and trade flows for Latin American RTAs from 1985 to 2006. Our empirical strategy is to examine the impact of intra-RTA trade shares on external tariffs across products, countries and time, comparing this impact for goods with positive internal tariffs (and thus, downward flexibility) with that of goods with zero internal tariffs (and thus, no downward flexibility). The idea is that the greater the share of a country's imports from its RTA partner, the greater should be its incentive to maintain a high external tariff, if, and only if, its internal tariff is downward-constrained. Our empirical analysis shows that this is indeed the case.

2. Theory

We focus our analysis on two developing countries that have formed an RTA. We assume that the RTA is free to set both internal tariffs (on trade between members) and external tariffs (on imports from the rest of the world) so as to maximize the joint payoff of its members. In the context of the WTO, this means that (a) the RTA members enjoy sufficient binding overhang that WTO obligations do not constrain their external tariff choices,⁵ and (b) the RTA operates under the "Enabling Clause" governing South-South PTAs – and not GATT Article 24 – which gives it flexibility in setting internal tariffs.

⁵ It is possible to relax this assumption by supposing instead that the RTA sets its external tariffs in the context of negotiations with the rest of the world. The main message of the theory would be unaffected.

This second feature sets our work apart from the vast majority of the regionalism literature, which assumes zero internal tariffs.

The model is based on the “competing exporters” framework, originally developed by Bagwell and Staiger (1998) and used extensively in the literature on MFN (e.g., Saggi, 2009) and regionalism (e.g., Ornelas, 2008). There are three countries, two of which are the RTA members, with the third being the rest of the world. There exists a single numeraire good and K non-numeraire goods. Each non-numeraire good k is imported by a single country and exported by the other two. These goods are produced with sector-specific capital and a common factor, labor, under conditions of perfect competition and constant returns to scale. The numeraire is produced with labor alone. Each country has a representative consumer with a quasi-linear utility function.

A. Tariffs and Prices

For now, let us focus on a single non-numeraire good imported by one of the RTA members. We refer to the member importing this good as the importing country, and denote it by I . The other RTA member is called the partner country, P .

Let τ_P and τ_E denote one plus the *ad valorem* tariff rate that country I imposes on imports from P and from the rest of the world, respectively. Let p_I denote the domestic price in I . Accordingly, partner exports E_P depend on the price in the partner country $p_P = p_I / \tau_P$, whereas non-partner exports E_E depend on world prices, $p_E = p_I / \tau_E$. Market clearing requires $M_I = E_P + E_E$, where M_I measures the importer’s total imports.

The effect of tariff changes on the equilibrium prices can be found by differentiating the market clearing condition as follows:

$$-m\frac{\partial dp_I t_j}{\partial dt_j p_I} = F X_P \frac{\partial dp_P t_j}{\partial dt_j p_P} + (1-F) X_E \frac{\partial dp_E t_j}{\partial dt_j p_E}, \quad j = P, E \quad (1)$$

where Φ is the partner's share of I 's imports, and μ , ξ_P , and ξ_E denote the elasticities of import demand, partner export supply and non-partner export supply, respectively. Using

$\frac{dp_j t_j}{dt_j p_j} = \frac{dp_I t_j}{dt_j p_I} - 1$ and $\frac{dp_k t_j}{dt_j p_k} = \frac{dp_I t_j}{dt_j p_I}$ for $j, k = P, E$, in expression (1) we obtain,

$$\frac{dp_I t_P}{dt_P p_I} = \frac{F X_P}{F X_P + (1-F) X_E + m} \hat{\Gamma} \quad (0,1) \quad (2)$$

$$\frac{dp_I t_E}{dt_E p_I} = \frac{(1-F) X_E}{F X_P + (1-F) X_E + m} \hat{\Gamma} \quad (0,1) \quad (3)$$

Thus, the effect of a change in the internal tariff on the domestic price of the importing country increases with the share of imports coming from the partner, while the impact of the external tariff decreases with this share.

B. Government Objectives

Governments are assumed to be politically motivated and thus possess objective functions represented by weighted social welfare functions, along the lines of Baldwin (1987). The payoff that government I derives from the good in question is thus,

$$w_I = s_I(p_I) + (1 + l_I) \rho_I(p_I) + (p_I - p_P) E_P(p_P) + (p_I - p_E) E_E(p_E) \quad (4)$$

The first term in (4) is consumer surplus, which is a function of the domestic price p_I .

The second term is the surplus of import-competing producers with an extra weight l_I ,

representing the political clout of the import-competing sector. The third and fourth terms are the tariff revenue derived from P and the rest of the world, respectively.

The government payoff of the partner country is given by,

$$w_P = s_P(p_P) + (1 + l_P)\rho_P(p_P) \quad (5)$$

where l_P is the political clout of the export sector of the partner.

C. Optimal Tariffs

Tariffs are chosen to maximize the joint payoff of the RTA members,

$$\{t_P^n, t_E^n\} = \underset{\{t_P, t_E\}}{\operatorname{argmax}} w_I + w_P \quad (6)$$

Differentiating the right-hand side of (6) and using the market clearing condition allows us to write the first-order conditions as,

$$\left[l_I X_I + (p_I - p_E) M_C \right] \frac{dp_I}{dt_j} + \left[l_P X_P - (p_P - p_E) E_C \right] \frac{dp_P}{dt_j} - E_E \frac{dp_E}{dt_j} = 0 \quad (7)$$

for $j = P, E$. The terms in equation (7) are familiar from the literature. The first term reflects the effect working through the change in the domestic price of the importing country. As in the case of a small open economy with producer political pressure, there is a trade-off between the political pressure of the import-competing producers and the efficiency loss, which is proportional to the tariff. The second term captures the effect working through the change in the partner's price. It reflects both the political pressure of the partner producers and a trade diversion effect. The final term captures the effect on the terms-of-trade vis-à-vis the rest of the world.

Solving (7) using (2) and (3) gives an expression for each tariff,

$$\tau_E^* = \frac{1 + \frac{1}{\xi_E}}{1 - \frac{\lambda_I X_I}{\mu M}} \quad (8)$$

$$\tau_P^* = \frac{1 - \frac{\lambda_P X_P}{\xi_P E_P}}{1 - \frac{\lambda_I X_I}{\mu M}} \quad (9)$$

From (8) and (9) equations, we see that as long as both internal and external tariffs are set to maximize participant payoffs, only the external tariff reflects terms-of-trade considerations, while only the internal tariff reflects the political influence of partner producers. The partner's share of total imports Φ enters neither equation. An important implication is that *there is no direct effect of the RTA's internal trade on its external tariff* – no stumbling block effect, no building block effect. The only way internal trade could impact the external tariff is indirectly by affecting the non-partner's export elasticity or the importer's political-economy term.

C. Constrained Internal Tariffs

The forgoing conclusion is true only if the internal tariff is flexible. If internal trade is constrained to be τ_P , then the optimal external tariff becomes,

$$\hat{\tau}_E = \frac{1 + \frac{1}{\xi_E}}{\left(1 - \frac{\lambda_I X_I}{\mu M}\right) \left[1 - \Delta \left(\frac{\tau_P - \tau_P^*}{\tau_P}\right)\right]} \quad (10)$$

where $\Delta = \frac{\xi_P \Phi}{\mu + \xi_P \Phi}$. Note that Δ is increasing in Φ .

Comparing (10) with (8) we see that, if the internal tariff is constrained, the partner's share of total imports Φ directly affects the external tariff. However, whether

the external tariff is increasing in Φ , giving rise to a stumbling block effect, or decreasing in Φ , giving rise to a building block effect, depends on whether τ_P is greater than or less than the desired internal tariff τ_P^* , given by equation (9). If $\tau_P < \tau_P^*$, there is a building block effect; if $\tau_P > \tau_P^*$, there is a stumbling block effect.

We can now see the implications of constraining the internal tariff of an RTA to be zero, i.e., $\tau_P = 1$. If the RTA's desired internal tariff is positive but its actual internal tariff is constrained to be zero, then an expansion of trade within the RTA would reduce the external tariff. This occurs whenever, $\frac{I_I X_I}{m M_I} > \frac{I_P X_P}{X_P E_P}$. On the other hand, if the RTA's desired internal tariff is negative but, as a practical matter, it is constrained to be non-negative, then an expansion of trade within the RTA would increase the external tariff. Given that in South-South PTAs we frequently observe positive internal tariffs, often observe zero internal tariffs, but never observe negative ones, we might suppose that a non-negativity constraint is in effect. If this is so, for products on which the internal tariff is zero, the desired one might be negative, in which case we should observe a positive relationship between the PTA share of imports and the external tariff. For all other products, there should be no impact of internal trade on the external tariff. This is the hypothesis that we test.

3. Data

We have collected tariff data, both MFN (Most Favored Nation) and preferential on a bilateral basis, disaggregated at the 5-digit SITC (Standard International Trade Classification) Revision 2 level for 9 countries in Latin America – Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela – over the period

1985-2006.⁶ Note that we use substantially more disaggregated data than in EFO (2008) as we analyze 1875 products as opposed to 110 sectors. Hence, we exploit information at a level which is closer to the one in which decisions on tariffs are actually taken.

In addition, our dataset significantly extends the EFO's (2008) database by covering ten additional years: 1985-1989 and 2002-2006. As we shall see below, the former period is particularly important because it is when most sample countries implemented unilateral trade reforms and signed agreements that deepened regional trade integration and eventually led to more comprehensive arrangements such as the MERCOSUR or the Andean Community. For instance, between 1985 and 1989, Argentina, Brazil, and Uruguay signed a number of bilateral agreements within the LAIA (Latin American Integration Association) framework established through the 1980 Montevideo Treaty. These agreements were based on positive lists of products, i.e., products that obtained tariff preferences (with varying degree of preference margins) and also were exempted from non-tariff barriers (Estervadeordal et al., 2000). Later on these preferences were increased through progressive, linear, and automatic tariff reductions at six months intervals with the establishment of MERCOSUR in 1991.

Table 1 reports moments of the distributions of the two key policy variables in our analysis, i.e., MFN and preferential tariffs. Specifically, as in EFO (2008), the latter corresponds to the minimum tariff imposed across partners within the main trade agreement within Latin America over our sample period, namely, MERCOSUR for Argentina, Brazil, Paraguay, and Uruguay, and Andean Community for Bolivia,

⁶ While we also have data for Chile and Mexico, we are not including these countries in our analysis because they joined several regional trade agreements both within and outside of Latin America over our sample period, thus making it less clear whether they have a relevant reference agreement in the region. Peru and Colombia also signed multiple extra-regional trade agreements but they did so after 2006.

Colombia, Ecuador, Peru, and Venezuela. Trade liberalization in the region has been significant. Average and median (50th percentile) MFN tariffs declined roughly 75% over the sample period, from approximately 40% in 1985 to around 10% in 2005. Expectedly, tariffs cuts were more pronounced within the region. Average preferential tariffs as defined above diminished from about 39% to 2%, whereas median preferential tariffs did it so from 33.5% to literally 0%. This can be clearly seen in Figure, which presents the evolution of average MFN and preferential tariffs for all countries in the sample. Notice that, as pointed out above, in many countries these tariffs experienced sharp declines between 1985 and 1990.

Furthermore, as shown in Figure 2, the relative importance of tariff lines with MFN and preferential tariffs equal to zero co-moved until 1994, but began to diverge afterwards. In particular, the share of the preferential tariffs set to zero substantially increase starting in 1995 to reach 60% towards the end of our sample period.

Dispersion, as measured by the coefficient of variation, fell in the case of MFN tariffs but increased in the case of preferential tariffs. This primarily reflects asymmetric tariff treatments across products within main trading arrangement – i.e., MERCOSUR and Andean Community. This is evident in Figure 3, which presents box plots of both MFN and preferential tariffs for 1985 and 2006. This figure confirms that substantial heterogeneity still exists in tariffs across countries and products.

4. Empirical Strategy

The theoretical model delivers different predictions, according to whether we consider the scenario where the internal tariff is constrained or not. If the internal tariff is

not constrained, then the internal trade share should have no impact on the external tariff (neutrality result).

If instead the internal tariff is constrained – and in particular the constraint is zero – then the internal trade share should have a non-zero impact on the external tariff. The intuition is that, since the internal tariff cannot be used as a policy tool to achieve RTA-related goals, the external tariff will be used to accomplish both RTA-related and terms-of-trade goals.

We can linearize the tariff equations (8), (9) and (10) for the purpose of estimation. We take a first-order Taylor approximation of each equation around the point of welfare maximization ($t_I = t_P = 0$), which is also the point of zero internal tariff in (9). This gives,

$$\tau_E^* - 1 = \frac{1}{\xi_E} + \frac{\lambda_I}{\mu} \frac{X_I}{M_I} \quad (11)$$

$$\tau_P^* - 1 = \frac{\lambda_I}{\mu} \frac{X_I}{M_I} - \frac{\lambda_P}{\xi_P} \frac{X_P}{E_P} \quad (12)$$

for the case of flexible internal tariffs. If internal trade is constrained to be free, then we have,

$$\hat{\tau}_E - 1 = \frac{1}{\xi_E} + \frac{\lambda_I}{\mu} \frac{X_I}{M_I} - \left[\frac{\lambda_I}{\mu} \frac{X_I}{M_I} - \frac{\lambda_P}{\xi_P} \frac{X_P}{E_P} \right] \Delta \quad (13)$$

We can use the predictions of the two alternative scenarios (flexible internal tariffs vs. zero-constrained internal tariffs) to derive an estimating equation for our case (Enabling Clause RTAs) which is a combination of the two scenarios. In particular, in our case a non-negativity constraint is in effect, which means that the external tariff is equal to the desired external tariff under the flexible case (equation (11)), if the internal tariff is

positive, and to the external tariff under the zero-constrained case (equation (13)), if the internal tariff is zero. In other words,

$$\tau_E^{Enabling\ clause} - 1 = \begin{cases} \tau_E^* & \text{if } \tau_P > 0 \\ \hat{\tau}_E & \text{if } \tau_P = 0 \end{cases} \quad (14)$$

The intuition is that a zero internal tariff is indicative of the fact that the desired internal tariff is negative (or zero): Since the government cannot lower the internal tariff below zero, the only way it can set the preference margin at the desired level is by increasing the external tariff. If instead the internal tariff is positive, the external tariff equals the desired external tariff.

Based on equation (14), we estimate the following specification:

$$\tau_{ckt}^E = \alpha + \beta \Phi_{ckt} + \gamma \Phi_{ckt} I_{ckt}^0 + \eta \tau_{ckt}^P + \varepsilon_{ckt} \quad (15)$$

where τ_{ckt}^E is the external tariff applied by country c on product k at time t , and Φ_{ckt} is the share of importing country c 's imports of product k coming from its RTA partners. In addition, τ_{ckt}^P is the internal tariff applied by country c on product k at time t . However, since countries in our sample have signed multiple RTAs, we observe variation in internal tariffs at the bilateral level. Thus, as a measure of τ_{ckt}^P , we consider the minimum internal tariff applied by country c on product k at time t across RTA partner countries. The dummy variable I_{ckt}^0 is an indicator of whether $\tau_{ckt}^P = 0$. Finally, we include a battery of fixed effects to account for unobserved heterogeneity. In particular, the fixed effects allow us to control for the additional terms that appear in equations (11) and (13), i.e. market power of country c for product k (i.e., $1/\xi_{ck}^E$) and importing country c 's domestic political economy determinants for product k (i.e., $\lambda_{ck}^I X_{ck}^I / \mu_{ck}^I M_{ck}^I$).

We expect an insignificant direct effect of the RTA import share β , i.e. the impact of Φ_{ckt} should be negligible when the internal tariff is positive. The reason is that, when

the internal tariff is positive ($I_{ckt}^0 = 0$), the external tariff is governed by equation (11), which does not include the RTA import share. We expect γ , the coefficient on $\Phi_{ckt}I_{ckt}^0$, to be positive and significant. This is because when $I_{ckt}^0 = 1$, the external tariff is governed by equation (13). In this equation, the external tariff is increasing in Φ_{ckt} provided that the desired internal tariff, given by the right-hand side of (12), is negative. If the internal tariff is being set optimally, then it should be the case that $I_{ckt}^0 = 1$ if and only if the desired internal tariff is negative or zero. Note that, while the estimate of γ is informative about the term $\left[\frac{\lambda_{ck}^I X_{ck}^I}{\mu_{ck}^I M_{ck}^I} - \frac{\lambda_{ck}^P X_{ck}^P}{\xi_{ck}^P E_{ck}^P} \right]$, it is not exactly an estimate of this term, given that we do not have a direct measure of Δ .

Specification (15) also includes the level of the internal tariff τ_{ckt}^P . The reason is that the regression includes an interaction term of the dummy variable I_{ckt}^0 with the variable Φ_{ckt} , thus the linear effects of each variable should be included in the specification. By including the level of the internal tariff τ_{ckt}^P , we capture the linear effect of the dummy variable I_{ckt}^0 . We opt to include the level of the internal tariff τ_{ckt}^P , as opposed to the dummy variable I_{ckt}^0 , for the following reasons. According to our theory, when τ_{ckt}^P is flexible and set optimally, there should be no *causal* effect of τ_{ckt}^P on the external tariff; however, the internal and external tariffs are likely to be correlated for at least three reasons. First, from equations (11) and (12), we see that the two tariffs share in common the domestic political economy factors of the importing country. Second, in practice, many of the Latin American RTAs in our sample specify an agreed preference margin at each point in time. This means that changes in the internal and external tariffs are linked by the obligation to maintain the preference margin specified by the

agreement. Third, if τ_{ckt}^P is positive but exogenously deviates from the optimal internal tariff specified by (12), then equation (10) tells us that τ_{ckt}^P should have a positive causal effect on the external tariff.

Our main independent variables are likely affected by endogeneity. The RTA import share is quite likely affected positively by the external tariff, thus imparting bias due to reverse causality. We instrument for the RTA import share using data on the import share of other Latin American countries from the same set of exporters. For the internal tariff, we follow EFO in using as an instrument for τ_{ckt}^P the minimum internal tariff charged by importing country c 's RTA partners for the same product and year. We use the same data to construct the instrument for the zero internal tariff dummy, I_{ckt}^0 .

5. Empirical Results

The empirical results are found in Table 2 (OLS results) and Table 3 (IV results). The two tables have the same format. In both tables, we estimate specification (15) including country-by-product fixed effects. In addition, we cluster standard errors at the country-by-product level in columns (1) and (2) and at the 2-digit product level in columns (3) and (4). Finally, in regressions (1) and (3), we include year fixed effects, while in regressions (2) and (4) we include country-by-year fixed effects.

The results are consistent with the theoretical predictions. In particular we find that, in all specifications, the RTA import share has a positive and significant effect on the external tariff when the internal tariff hits the zero constraint, i.e. we estimate a positive and significant γ , the coefficient on the interaction $\Phi_{ckt}I_{ckt}^0$ (see specification (15)). In most specifications, in particular in the IV ones, the direct effect β of the RTA

import share is insignificant, as expected. Thus, using data on external and internal tariff rates of Latin American RTAs between 1985 and 2006, we find evidence that the non-negativity constraint on the internal tariff – associated with the Enabling Clause – plays an important role. Finally note that, consistent with our remarks in the previous section, the coefficient on the internal tariff is positive and significant.

We carry out a number of robustness checks of these results. First, we re-estimate specification (15) using the same data set as in EFO, at the 4-digit ISIC level (100 industries), for 11 years (1990-2001) and 10 countries.

6. Do our findings shed light on the results of the existing literature?

In this section we investigate whether our model, which we found evidence for in the data, can shed light on the different empirical results in the literature – i.e., evidence of a stumbling bloc effect of RTAs for the U.S. and EU (Limao 2006, 2007 and Karacaovali and Limao 2008) and evidence of a building bloc effect for Latin American RTAs (EFO 2008). As mentioned in the introduction, one important difference between these types of RTAs is that the former ones were signed under Article XXIV and the latter ones were signed under the Enabling Clause. The theoretical model predicts that, for a given distribution of desired internal tariffs, Enabling Clause RTAs are more likely than Article XXIV RTAs to give rise to a stumbling bloc effect on average. However, since countries self select into signing a RTA as a function of the distribution of desired internal tariffs they face, Article XXIV RTAs are less likely to be building blocks than Enabling Clause RTAs. The next two paragraphs explain these results in greater detail.

Let's assume that two sets of countries, one including developed countries and the other developing countries, face the same distribution of desired internal tariffs but sign a RTA under different rules, Article XXIV and the Enabling Clause, respectively. For products with negative desired preferential tariffs, there will be a stumbling block effect in both types of agreements. However, for products with positive desired preferential tariffs, Article XXIV RTAs will have a building block effect while Enabling Clause RTAs will have no effect. Therefore, given the same distribution of desired internal tariffs, Enabling Clause RTAs are more likely than Article XXIV RTAs to give rise to a stumbling bloc effect on average.

However, countries self select into signing a RTA as a function of the distribution of desired internal tariffs they face. Given a positive desired internal tariff, two developed countries may choose not to sign a RTA - which would be under Article XXIV – because they would be forced to set those internal tariffs equal to zero. On the other hand, given a positive desired internal tariff, two developing countries signing a RTA with the Enabling Clause will not be discouraged from going ahead. Given a negative desired internal tariff, any type of country – either developed or developing – would be wary of signing a RTA given that both Article XXIV and the Enabling Clause include a non-negativity constraint. Thus, Article XXIV RTAs are less likely to have positive desired tariffs than Enabling Clause RTAs. Our findings are consistent with Limao

But (Rod): A lot of positive desired internal tariffs would be more of a deterrent to signing Article XXIV RTAs than a lot of negative ones.

7. Conclusions

5. References

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Table 1

Average MFN and Preferential Tariffs, 1985 and 2006									
Tariff	Year	Mean	Percentile					S.D.	C.V.
			10	25	50	75	90		
MFN Tariffs	1985	41.8	10.3	20.8	36.6	53.0	80.5	30.1	0.720
	2006	10.6	3.8	5.3	10.0	15.0	20.0	6.5	0.613
Preferential Tariffs	1985	39.2	9.7	19.8	33.5	50.8	75.4	28.9	0.737
	2006	2.1	0.0	0.0	0.0	2.0	6.8	4.2	2.000

Table 2
External MFN Tariffs of Latin American RTAs, 1985-2006 (OLS)

	Clustered by Country-Product			Clustered by 2 Digit Product		
	(1)	(2)	(3)	(1)	(2)	(3)
PTA Share	-1.388*** (0.117)	-0.391*** (0.127)	-0.274*** (0.101)	-1.388*** (0.329)	-0.391* (0.197)	-0.274 (0.184)
PTA Share *Lagged PT (min)=0	7.115*** (0.219)	4.382*** (0.169)	2.263*** (0.138)	7.115*** (1.056)	4.382*** (0.520)	2.263*** (0.309)
Lagged PT (min)	0.801*** (0.003)	0.675*** (0.006)	0.590*** (0.006)	0.801*** (0.012)	0.675*** (0.018)	0.590*** (0.020)
Country-Product Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	No	No	Yes
Year Fixed Effects	No	Yes	No	No	Yes	No
Observations	271,203	271,203	271,203	271,203	271,203	271,203
R-squared	0.686	0.832		0.686	0.832	

Table 3
External MFN Tariffs of Latin American RTAs, 1985-2006 (IV)

	Clustered by Country-Product			Clustered by 2 Digit Product		
	(1)	(2)	(3)	(1)	(2)	(3)
PTA Share	-2.320*** (0.349)	-6.409** (3.182)	-0.938 (1.814)	-2.320** (1.000)	-6.409 (4.293)	-0.938 (2.860)
PTA Share *Lagged PT (min)=0	6.206*** (0.675)	8.554*** (1.083)	2.434*** (0.619)	6.206*** (1.961)	8.554*** (2.510)	2.434** (1.121)
Lagged PT (min)	0.779*** (0.004)	0.153*** (0.040)	0.621*** (0.010)	0.779*** (0.018)	0.153 (0.132)	0.621*** (0.033)
Country-Product Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	No	No	Yes
Year Fixed Effects	No	Yes	No	No	Yes	No
Observations	271,203	271,203	271,203	271,203	271,203	271,203
R-squared						

Table 4
First Stage Regressions for Instrumental Variables

	Clustered by Country-Product			Clustered by 2 Digit Product		
	(1)	(2)	(3)	(1)	(2)	(3)
PTA Share						
RTA Crossed Share	0.987*** (0.024)	0.127*** (0.014)	0.119*** (0.014)	0.987*** (0.07)	0.127*** (0.02)	0.119*** (0.02)
RTA Crossed Share * Lagged PT of Partners (min)=0	-0.015 (0.037)	0.033* (0.017)	0.032* (0.017)	-0.015 (0.05)	0.033 (0.024)	0.032 (0.023)
Lagged PT of Partners (min)	-0.002*** (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.002*** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Country-Product Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	No	No	Yes
Year Fixed Effects	No	Yes	No	No	Yes	No
Observations	271,203	271,203	271,203	271,203	271,203	271,203
F-Stat	736.7	47.5	41.3	91.0	22.5	20.5
PTA Share *Lagged PT (min)=0	(1)	(3)	(4)	(1)	(3)	(4)
RTA Crossed Share	-0.002 (0.01)	-0.160*** (0.014)	-0.154*** (0.013)	-0.002 (0.015)	-0.160*** (0.031)	-0.154*** (0.029)
RTA Crossed Share * Lagged PT of Partners (min)=0	0.721*** (0.034)	0.588*** (0.027)	0.557*** (0.026)	0.721*** (0.081)	0.588*** (0.075)	0.557*** (0.069)
Lagged PT of Partners (min)	-0.004*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.004*** (0.000)	-0.001** (0.000)	-0.001* (0.000)
Country-Product Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	No	No	Yes
Year Fixed Effects	No	Yes	No	No	Yes	No
Observations	271,203	271,203	271,203	271,203	271,203	271,203
F-Stat	1028.7	173.5	166.6	91.9	21.6	22.5
Lagged PT (min)	(1)	(3)	(4)	(1)	(3)	(4)
RTA Crossed Share	-5.746*** (0.582)	-1.843*** (0.561)	0.122 (0.472)	-5.746*** (0.862)	-1.843** (0.77)	0.122 (0.548)
RTA Crossed Share * Lagged PT of Partners (min)=0	2.496*** (0.73)	5.685*** (0.684)	1.872*** (0.589)	2.496** (1.196)	5.685*** (1.042)	1.872** (0.903)
Lagged PT of Partners (min)	1.326*** (0.019)	0.280*** (0.015)	0.526*** (0.013)	1.326*** (0.022)	0.280*** (0.046)	0.526*** (0.03)
Country-Product Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	No	No	Yes
Year Fixed Effects	No	Yes	No	No	Yes	No
Observations	271,203	271,203	271,203	271,203	271,203	271,203
F-Stat	2085.4	123.0	560.0	1205.7	29.7	114.3

Figure 1
Average and Median MFN and Preferential Tariffs, All Countries, 1985-2006

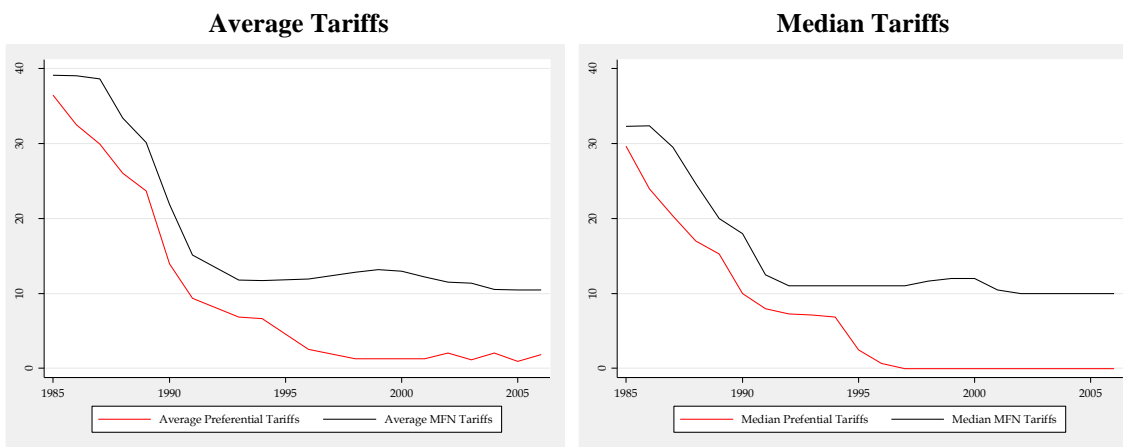


Figure 2
Share of MFN and Preferential Tariffs Set Equal to Zero, All Countries, 1985-2006

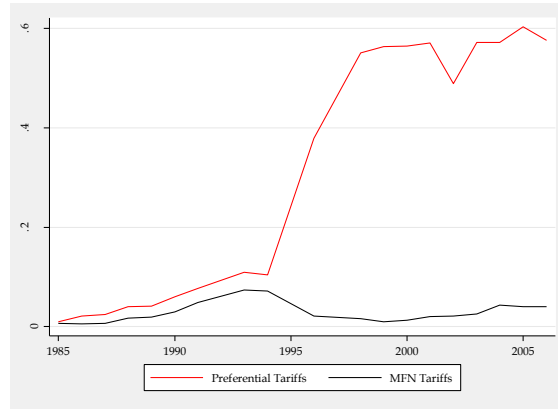


Figure 3
Box Plots of MFN and Preferential Tariffs, 1985 and 2006

