

Free Trade Areas with Politically Active Oligopolies

by

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Abstract

I evaluate in this paper the impact of Free-Trade Areas (FTAs) on the world trade system using a model that emphasizes the role of oligopolistic industries in the shaping of trade policies, on account of both strategic and political reasons. In this context, I find that FTAs are likely a “building block” of the multilateral system. One reason for that regards the finding that FTAs induce their members to reduce their external tariffs, thus ensuring a move toward “trade creation.” Among other things, this result reflects the facts that a FTA weakens the profit-shifting motive for protection (the “strategic effect”) and makes political influences less effective (the “distributive effect”). FTAs are shown to enhance also the prospects of a multilateral liberalization, by strengthening the support for the latter. This occurs precisely because of the softening of the strategic and the distributive motives for protection that accompany FTAs, as this will induce governments to center their trade regime decisions more on efficiency than on special interests criteria.

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I – Introduction

The fast and notable expansion of preferential – or *regional* – trade agreements (PTAs) throughout the world in the last decade is a fact that has attracted increasing attention from trade economists.¹ As asserted by Bhagwati (1993), the concerns regarding such phenomenon can be divided in two categories: the “static” issues, which refer mainly to the impact of PTAs on the world trade flows and welfare; and the “dynamic” time-path issues, which relate to the impact of PTAs on the incentives for further non-discriminatory liberalization. This paper addresses both kinds of issues in an oligopolistic-political-economy framework, focusing on preferential arrangements in the form of free-trade areas (FTAs).²

I identify new reasons that make the formation of FTAs helpful to the multilateral trade system under both the “static” and the “dynamic” time-path perspectives. I show first that member countries will tend to reduce their external tariffs once they eliminate the intra-FTA trade barriers. Using a simple model, I find four reinforcing reasons leading to that result. Two of them – the change in the terms of trade effect and the “tariff revenue effect” – were already explored by others, as Richardson (1993) and Bagwell and Staiger (1999). The other two, however, are novel in the literature.

The “strategic effect,” which arises under oligopolistic structures, indicates that a country’s profit-shifting motive for protection is weakened when the country joins a FTA. Intuitively, this happens because under the FTA, while the external tariffs still shift profits from the outside firms to the domestic ones, the partners’ firms capture part of that benefit. This decreased ability to shift profits from foreign firms to the domestic ones, in turn, makes each FTA government more inclined to lower its external tariffs.

Furthermore, if the oligopolistic firms are politically active, tariffs serve also a distributive device, by transferring domestic surplus from consumers to producers. I show that a FTA weakens such motivation for protection as well, originating the “distributive effect.” At an intuitive level, this happens because with the FTA the domestic firms lose market share in their home market to their counterparts from the partner countries. As a result, the FTA governments’ ability to use tariffs to transfer surplus from consumers to producers by means of a higher price loses some of its

¹ The WTO reports in its web page, as updated in June 2000, that “nearly all of the WTO’s 136 Members have notified participation in one or more regional trade agreements (RTAs). [...] In the period 1948-1994, the GATT received 124 notifications of RTAs (relating to trade in goods), and since the creation of the WTO in 1995, 90 additional arrangements covering trade in goods or services have been notified. [...] Out of the total of 214 agreements or enlargements so far notified to the GATT/WTO, 134 are deemed to be currently in force.”

effectiveness, since part of that benefit now goes to the partners' firms. This effect further induces the FTA governments to lower its external tariffs.

The external tariffs' reduction is itself a sensible argument in favor of FTAs, at least when evaluated in Bhagwati's "static" sense. And under this paper's framework, it is strong enough even to ensure "trade creation" between FTA members and non-members. Such trade creation, although not contingent upon political economy considerations, is strengthened by the governments' political motivation. The latter, by amplifying the distributive and the strategic effects, induces a sharper reduction of the external tariffs and, as a result, more trade creation.

With respect to the "dynamic" time-path issues, I show that, although a government may not support a welfare-improving multilateral liberalization (ML), such possibility becomes less likely precisely when the country is integrated within a FTA – or within a larger one. In that case, the strategic and the distributive effects reduce the importance of the political process in the determination of the country's trade barriers. As a result, its government start centering its trade regime decisions more on efficiency than on special interests criteria, becoming consequently less inclined to hinder an efficient (welfare-improving) ML.

There are others who attempt to examine the consequences of PTAs under oligopolistic settings, but these are still scarce. One example is Yi (1996), who studies the welfare effects of customs unions, but focuses on the impact of distinct rules of CUs formation on the world trade system. Another is Krishna (1998), who also adopts a political economy setup to address questions similar to those analyzed here. Krishna's findings, however, indicate that FTAs are a potential danger to the multilateral trade system, as he evaluates them as necessarily trade diverting and also because such trade diversion could induce the preferential partners to stop supporting a ML. These findings stand in stark contrast with the results of this paper. As I use a model similar to Krishna's, but avoiding his assumption of "exogenous" external tariffs, the importance of incorporating tariff endogeneity becomes clear: the external tariffs' reduction induced by FTAs, and in particular the "strategic" and the "distributive" effects, which reinforce the FTAs trade creating aspect and facilitate the support of ML, are ruled out in Krishna's analysis by construction.³

² As pointed out by the WTO (1995), most of the current PTAs are indeed in the form of FTAs, while only a few constitute customs unions (CUs).

³ I make a more complete analysis of the effects of endogenizing tariffs in Krishna's setting in Ornelas (2000). In the current paper, by contrast, I also depart from his framework in the political economy structure. In particular, I assume more general preferences for the policymakers and, contrary to Krishna, I make the political influences explicit. In this respect, as in Grossman and Helpman (1994), I allow the oligopolistic sector to shape its government's "political-support function" by means of financial "contributions." As Section IV attests, this change entirely alters the analysis of how the

There are also a number of studies attempting to analyze the consequences of PTAs under other perspectives. Their basic assumptions and specific modeling strategies vary substantially, and as a consequence contradictory results are often found in the literature. One could cite, for instance, Krishna (1998) and McLaren (1999) as examples showing that PTAs might be harmful to the multilateral system. In contrast, Baldwin (1995) and Ethier (1998) constitute examples of studies pointing to the other direction, i.e., evaluating the preferential initiatives as a “building block” of the multilateral system.⁴ Still, one could point to contributions that are essentially ambiguous in their conclusions, as e.g. Bagwell and Staiger (1997a and 1997b) and Riezman (1999).

This paper, nonetheless, aims to contribute to this literature by focusing on a dimension still understudied, which presumes that oligopolistic industries, while responsible for substantial share of the world trade flows, constitute also preminent forces in the establishment of protectionist trade policies, on account of both strategic and political reasons. That oligopolistic behavior might constitute by itself a reason for protection is a well-known fact, as the literature of strategic trade policy has demonstrated.⁵ Similarly, oligopolistic industries are also often regarded as politically active.⁶ There has not been, however, a systematic analysis of how the incentives to protect an oligopolistic industry and how the industry’s political activities change when its country enters in a FTA. This paper aims to start filling up such gap.

The remaining of the paper is structured as follows. The model is detailed in the next section. In Section III I evaluate how a FTA affects its members’ external tariffs and world trade flows, while in Section IV I study its impact on the support of a multilateral liberalization. Section V concludes.

II – The Model

The model’s basic structure is similar to that of Krishna (1998). However, I depart considerably from his modeling strategy by endogenizing tariffs and in the whole specification of the political economy setup.

There are two sectors, one competitive (X) and another oligopolistic (Q). Both goods are homogeneous, produced under constant returns to scale and use only labor (L) as input. I

support for a ML is affected by FTAs. And in fact, as I shall point out in Section II, Krishna’s assumption that governments care only about producers’ profits arises as a very special case of my specification.

⁴ This phrasing is also from Bhagwati (1991), who first asked whether PTAs are “stumbling blocks” or “building blocks” of the multilateral trade system.

⁵ See Brander (1995) for a survey.

⁶ Trefler (1993), e.g., finds that seller concentration is a significant explanatory factor for the U.S. levels of protection.

normalize units so that one unit of X requires one unit of L , while each unit of Q requires $c > 0$ units of L . Technologies are the same across countries and L is inelastically supplied in every country. Choosing good X as numeraire, any equilibrium with diversified production requires wages set to one and implies a marginal cost of c to produce Q . To simplify matters, I assume the existence of only one oligopolistic firm per country. Thus, trade takes place only because of the oligopolistic behavior in the market of Q .

I assume the existence of N symmetric countries, with $N \geq 3$. In the oligopolistic sector, every firm sells in every country, but by selling abroad they bear an increase in their marginal cost, brought by specific import tariffs, t .⁷ Thus, a firm selling in its home country faces a marginal cost of c , but one of $c + t_j$ if it sells in foreign country j . In each of the national markets, assumed to be segmented, the firms compete in a Cournot fashion, whence a foreign firm f selling in the “home country” H takes t_h and the sales of all other firms as given and solves:

$$\text{Max}_{q_h^f} P(Q_h)q_h^f - (c + t_h)q_h^f,$$

where q_h^f represents how much a foreign firm sells in country H , whose inverse demand is given by $P(Q_h)$, with Q_h representing H 's consumption of the oligopolistic good. For the local firm, the problem is analogous, being changed only because it does not face any tariff when selling at home.

I assume that H 's representative consumer has a quasilinear utility function U with a quadratic non-linear part, which generates a linear demand for the oligopolistic good, represented as $Q_h = A - P_h$. The demand for the competitive good is then found residually as $X_h = L_h - Q_h P(Q_h) = L_h - (AQ_h - Q_h^2/2)$.

A brief discussion of the assumptions is opportune here. Market segmentation, together with constant marginal costs and a quasilinear utility function, assures that the sales decisions of every firm are independent across markets. Without that, there would be a full interdependence between the (non-cooperative) trade policies of every country, complicating the analysis considerably. Moreover, while this assumption does not seem too unrealistic, it is also consistent with much of the literature using oligopolies in international trade theory, in particular that of strategic trade policies (see Brander, 1995). Demand linearity is assumed to simplify matters as well.⁸

I now solve for the equilibrium sales in terms of t_h , A , c and N . Since preferences and technology are the same for everyone, the only distinction with respect to the quantities sold in a

⁷ I ignore transport costs, which are inconsequential for the analysis, and treat the import tariffs as if they were non-discriminatory, unless the country is within a FTA. Nevertheless, because of the symmetry across countries, in the absence of FTAs, nondiscrimination is actually an *equilibrium* result.

given market regards the origin of the firm, whether domestic or foreign. In an equilibrium without trade agreements, they correspond, respectively, to:

$$q_h^h = \frac{A - c + t_h(N - 1)}{1 + N} \quad \text{and} \quad q_h^f = \frac{A - c - 2t_h}{1 + N}. \quad (1)$$

One can also easily check that the profit of a firm in any market is given just by the square of its sales volume there. Consequently, it follows from (1) that a firm always benefits from a tariff in its home country, but always loses from tariffs elsewhere.

In each country, supply and demand of Q are equalized in equilibrium, while trade balance is obtained by the flow of the competitive good. Nevertheless, because of the model's symmetry, each economy has in equilibrium no net imports of Q , though each exports Q to and imports Q from all others.

My definition of the governments' preferences is analogous to the one used by Grossman and Helpman (1994), who assume that governments value a dollar received as a "contribution" (D) potentially more than a dollar added to general welfare, W .⁹ Thus, the government of a generic country H has its payoff specified as:

$$G_h(t_h, D_h) = W_h(t_h) + bD_h, \quad \text{with } b \geq 0 \text{ and constant.}^{10}$$

I incorporate political activities with a simple principal-agent framework, in the following way. The net payoff of H 's oligopolistic firm, V_h , is given by its total profits ($\Pi_h \equiv \sum_{j=1}^N \pi_j^h$) minus the contribution (D_h) given to the local government. As in Grossman and Helpman (1995), I assume that the firms are unable to coordinate themselves to lobby internationally and that their market behavior is non-cooperative as well. The goal of a lobby is to affect the policymaker's tariff choice. Since the firm knows its government's preferences, it can map tariffs to D_h , then balancing marginal gains (with higher tariffs) against marginal losses (from numeraire given to the policymaker). The game, taking the trade regime as given, can then be summarized as:

- (S1) Each firm offers a "menu" of choices composed by pairs (t, D) to its government.
- (S2) Given the menu offered, each government chooses one pair (t, D) or uses its best outside option, $(t^*, 0)$, where t^* is the tariff level that maximizes domestic welfare.
- (S3) Given the tariffs, the firms decide simultaneously how much to sell in each market.

⁸ The dependence of the paper's results on the assumption of demand linearity is further discussed in the Appendix.

⁹ These contributions can be understood also as a measure of the "effectiveness" of more general lobby activities, evaluated in terms of the numeraire.

¹⁰ If $b = 0$, political economy issues do not arise. On the other hand, Krishna's (1998) assumption that governments care only about producer's profits can be represented under this formulation as the special case where $b \rightarrow \infty$. As shall be clear below, in such case tariffs would be always prohibitive.

Stages (S1) and (S2) take place in isolation in each country, but at (S3) the firms' decisions depend on the worldwide choices at (S2). In equilibrium, H 's oligopolistic firm requests a tariff t_h and choose to donate an amount D_h to its government when solving the problem:

$$\text{Max}_{t_h, D_h} \pi_h^h(t_h) - D_h, \quad (2)$$

subject to the government's individual rationality constraint (IR_g), $G_h(t_h^h, D_h) \geq W_h(t_h^*)$.¹¹

A consequence of the principal-agent specification employed here is that, in equilibrium, the resources D_h received by the government do not affect its payoff, since IR_g is always satisfied with equality. Thus, the lobby activities in this model serve only as a way for the oligopolistic firms to extract an extra-surplus from their home countries' consumers.¹² Since in equilibrium a firm offers only one pair (D_h^*, t_h) to its government, and because IR_g is binding, we find (after substituting for the definition of G_h) that:

$$D_h^* = [W_h(t_h^*) - W_h(t_h)]/b \geq 0. \quad (3)$$

Because b reduces $W_h(t_h)$ – through its effect on the equilibrium t_h – but increases D_h^* 's denominator, the relationship between D_h^* and the political parameter is ambiguous. With non-prohibitive tariffs, it is typically “U-shaped,” with the change in $W_h(t_h)$ prevailing when b approaches the level that makes tariffs prohibitive, but not when it is close to zero.

The tariff choice (or, strictly speaking, the choice of the tariff in excess to its welfare-maximizing level), which is constrained by its “cost,” D_h^* , completes the firm's problem. Using (3), government H 's problem (2) can be rewritten as:

$$\text{Max}_{t_h} CS_h(t_h) + T_h(t_h) + (1+b)\pi_h^h(t_h) - W_h(t_h^*), \quad (4)$$

whose last term is a constant and where CS_h and T_h represent, respectively, the home country's consumer surplus and tariff revenue. The problem's FOC is therefore:

$$\frac{\partial CS_h(t_h^d)}{\partial t_h} + \frac{\partial T_h(t_h^d)}{\partial t_h} + \frac{\partial \pi_h^h(t_h^d)}{\partial t_h} (1+b) \geq 0, \quad (5)$$

where t_h^d is the equilibrium tariff level. If (4) has an interior solution, (5) holds with equality. Otherwise, the tariff will be set to a prohibitive level. Notice also that the difference between the “optimal tariff” (t_h^*) and the “politically optimal tariff” (t_h^d) – henceforth just the “political tariff” –

¹¹ Note that the timing *within* the second stage is irrelevant, as a direct consequence of the governments' “horizontal” reaction functions when selecting their optimum tariffs. This explains the absence of $\pi_j^h, j \neq h$, in problem (2). That is, since π_j^h is affected only by t_j , which is entirely determined by the internal political game in country j , firm h does not need to consider it when lobbying for t_h .

is due only to the “extra weight” b posted on π_h^h , making this formulation a version of the general politically driven objective functions analyzed by Baldwin (1987). Solving (5), we then find t_h^d :

$$t_h^d = \begin{cases} t_h^* = \frac{3(A-c)}{7+N}, & \text{if } b = 0 \\ \frac{(A-c)(3+2b)}{7+2b+(1-2b)N}, & \text{if } b \in (0, 1/2) \\ \text{prohibitive,} & \text{if } b \geq 1/2. \end{cases} \quad (6)$$

The political tariff t_h^d is increasing in b (and strictly increasing when the solution is interior), and this has a straightforward intuition. The oligopolistic firm will be more willing to lobby for a higher tariff the “cheaper” protection is – or equivalently, the more sensitive to contributions its government is –, and therefore the equilibrium tariff ought to be increasing in b . If b is too high (above $1/2$), the oligopolistic firm obtains a prohibitive tariff – of $(A - c)/2$ or more. I shall nevertheless restrict the analysis to the more interesting – and certainly closer to the real practices – case where $b < 1/2$, thus assuring that non-prohibitive tariffs will arise in equilibrium.

Note, in addition, that tariffs are strictly positive even if $b = 0$. This protectionist bias is the result of two forces. One is the typical terms of trade motivation, as here no country is “small” in the theoretical sense. The other is the tariffs’ strategic content, as typically emphasized in the literature of strategic trade policy. Here, a government is able to increase the marginal costs of the foreign firms selling in the domestic market by raising its import tariff levels, thus creating a cost advantage to the domestic producer. This makes the foreign firms lose market share to the domestic producer, who increases local sales and profits. Although such motivation for protection arises despite of political economy considerations, it is reinforced by the latter, as a higher b makes governments more concerned (in equilibrium) about producers’ surplus, relative to consumers’. I nevertheless postpone a more thoroughly discussion of the motivations for protection to the next section, where I appraise also the effects of a FTA on each of them.

Up to now, I ignored the possibility of trade agreements. The determination of the (external) political tariffs and the equilibrium contribution levels with a FTA in place is, however, totally analogous to the preceding analysis. The only change is the introduction of a constraint setting tariffs within the FTA to zero. With a multilateral free-trade agreement in place, on the other hand, all tariffs are eliminated and there is actually no further trade policy to be chosen.

¹² Giving all the bargaining power to the oligopolistic firms is, in fact, unessential for the analysis. I indicate in Section IV the limited impact that providing the governments with part of the rents from the political process would have on the paper’s results.

III – FTAs, External Tariffs and World Trade Flows

I evaluate first the impact of a FTA between M countries on their external tariffs, with a FTA meaning that every firm within the area will face zero tariffs when selling at any of the members' markets. That is, I analyze how the internal free-trade affects the members' incentives in the determination of their external tariffs. GATT's Article XXIV establishes that they cannot be increased, but here it is actually *not* binding, as Proposition 1 asserts.

PROPOSITION 1: *When a group of M countries, $M \in [2, N - 1]$, creates a FTA, they are induced to reduce also their external tariffs, and to reduce them more deeply the larger is the FTA.*

Proof: Generalizing equations (1) to incorporate the effects of the FTA and denoting by t_e the external tariff set under the FTA, one finds that:

$$q_h^h = q_h^p = \frac{(A-c) + t_e(N-M)}{1+N} \quad \text{and} \quad q_h^f = \frac{(A-c) - t_e(1+M)}{1+N}, \quad (1')$$

where h , p and f index, respectively, the home country firm, its partners' and the firms outside the FTA. Given those quantities, the home country variables under the FTA, $CS_M(t_e)$, $T_M(t_e)$ and $\Pi_M(t_e)$, can be straightforwardly computed. The FTA "political tariff" maximizes the sum $CS_M(t_e) + T_M(t_e) + (1+b)\Pi_M(t_e)$, whence we find that:

$$t_e^d = \frac{(A-c)(3+2b)}{(2M-2b-1)N + (5+2b)M + 2}, \quad (6')$$

which is clearly decreasing in M .¹³ Therefore, after a FTA has been formed (or enlarged), its members will find a reduction of its external tariffs optimal. ■

Proposition 1 states that, if a nation eliminates its tariffs against a group of countries, it will also want to reduce its remaining tariffs – i.e., that tariffs are "complementary." In order to show the driving forces behind Proposition 1 and clarify its intuition, I first identify the governments' motivations for and against protection and then show how a FTA affects each of them. To help exposition, I indicate the tariffs against the partners by t_{int} – although it will be zero with the FTA in force.¹⁴ Thus, using the notation established in Proposition 1's proof – but dropping the subscripts M and h whenever that does not imply ambiguity – note that the effect of a marginal change in t_e on government H 's (equilibrium) payoff is given by:

¹³ Naturally, if $M = 1$, (1') simplifies to (1) and (6') simplifies to (6), the case without a FTA.

$$\begin{aligned} \frac{\partial G}{\partial t_e} &= \frac{\partial CS}{\partial t_e} + \frac{\partial T}{\partial t_e} + (1+b) \frac{\partial \Pi}{\partial t_e} \\ &= \left(\frac{\partial U}{\partial Q} \frac{\partial Q}{\partial t_e} - P \frac{\partial Q}{\partial t_e} - \frac{\partial P}{\partial t_e} Q \right) + \left[(N-M) \left(q_h^f + t_e \frac{\partial q_h^f}{\partial t_e} \right) + (M-1) t_{int} \frac{\partial q_h^p}{\partial t_e} \right] + (1+b) \left[(P-c) \frac{\partial q_h^h}{\partial t_e} + q_h^h \frac{\partial P}{\partial t_e} \right]. \end{aligned} \quad (7)$$

Since $\partial U/\partial Q = P$, with some manipulation this expression can be rewritten as:

$$\begin{aligned} \frac{\partial G}{\partial t_e} &= \left[(N-M) q_h^f \left(1 - \frac{\partial P}{\partial t_e} \right) - (M-1) q_h^p \frac{\partial P}{\partial t_e} \right] + \\ &\quad \left[t_e (N-M) \frac{\partial q_h^f}{\partial t_e} + t_{int} (M-1) \frac{\partial q_h^p}{\partial t_e} \right] + \left[(1+b)(P-c) \frac{\partial q_h^h}{\partial t_e} \right] + \left[b q_h^h \frac{\partial P}{\partial t_e} \right]. \end{aligned} \quad (7')$$

From (1') it is straightforward to see that $\partial q_h^f/\partial t_e < 0$ and $\partial q_h^p/\partial t_e > 0$, for $j \neq f$. A little more algebra ensures also that $\partial P/\partial t_e \in (0, 1)$. We can then obtain the signs of each effect generated by varying t_e .

The first square bracket in (7') represents the terms of trade effect (*tot*). Its first element reflects the impact of an increase in t_e on home's *tot* with the outside countries, *tot(f)*, while the second represents the effect on home's *tot* with the other FTA members, *tot(p)*. The former is positive, but the latter is negative. The second square bracket represents the impact on tariff revenue due to the shift in the volume and the origin of imports caused by a change in t_e . An increase in t_e reduces the volume of imports from the outside countries while increasing the imports from the partners. Whereas the latter raises revenues proportional to t_{int} , a sufficient condition for the whole expression to be negative is that $t_{int} \leq t_e$. The third square bracket represents the strategic reason for protection. Once $P > c$, an increase in t_e shifts sales – and thus profits – from the outside firms to the domestic producers. This effect is magnified by the governments' political economy concerns (i.e., by a $b > 0$). Finally, the last bracket represents the distributive motive for protection. As long as $b > 0$, a tariff benefits the government also by increasing the local price, since a higher price shifts domestic surplus from consumers to producers, who have a higher weight in the government's (equilibrium) payoff function.

The sum of these factors, when set to zero, constitute the necessary (and here also sufficient) FOC for the equilibrium t_e . I compare now that FOC before and after the FTA by analyzing the effects of changing $t_{int} = t_e$ to $t_{int} = 0$ on each component of (7'). Critical for the following discussion is the recognition that the elimination – or the reduction – of the internal tariffs, which is what characterizes the FTA, will necessarily increase competition in the home

¹⁴ This will also make clear that the whole argument does not really require the facilitating assumption that $t_{int} = 0$ under the FTA. In fact, as long as it is reduced by the preferential arrangement, all the paper's qualitative results remain unaltered.

markets for a *given* external tariff. Those receiving the advantage – the partners’ firms – will then increase sales in the home market at the expense of the local firm and of those outside the FTA. Overall, however, aggregate sales will increase, forcing the price down. As can be inferred from the comparative statics analysis of Dixit (1986), these kinds of effects are general, as they do *not* depend on the specifics of the demand structure.¹⁵

(1) *The change in the terms of trade effect*

The increase in H 's $tot(f)$ due to a marginally higher t_e is less significant under the FTA than it would otherwise be, as for any given t_e the FTA reduces the imports from the outside countries. On the other hand, the FTA makes the worsening of H 's $tot(p)$ due to a higher t_e more significant, as for a given t_e the FTA expands the imports from the partners. Thus, the FTA makes H 's $tot(f)$ improvement less relevant, but H 's $tot(p)$ deterioration more critical; both push for a lower external tariff.

(2) *The loss in tariff revenue – the “tariff revenue effect”*

A second force pushing for lower external tariffs arises because any increase in t_e tends to raise less tariff revenue with the FTA in force than otherwise. With initial $t_{int} = t_e$, an increase in t_e would reduce q_h^f but would also increase q_h^p , which generates some tariff revenue before the FTA and thus partially compensates the revenue loss due to a lower q_h^f . With the FTA, on the other hand, $t_{int} = 0$ and the increase in q_h^p that accompanies the reduction in q_h^f following an increase in t_e raises no revenue. Hence, because of the loss of tariff revenue caused by the shift of imports from those who pay duties to those who do not, the incentives to raise t_e are lessened under the FTA.

(3) *The weakening of the strategic motive for protection – the “strategic effect”*

Because for any given t_e the FTA increases domestic competition and lowers the local price, it reduces also the mark-up for the home firm. As a result, any fraction of the market taken by the local firm from the outside ones generates less profit under the FTA than it would otherwise. Consequently, the FTA reduces the home government’s ability to use its tariff to shift foreign profits to the local firm, thus decreasing its marginal “profit-shifting” incentives to raise t_e . Note also that this “strategic effect” is stronger the more important is the government’s political economy concerns, since this implies (in equilibrium) a more important role for profits – and thus for the profit-shifting motive – in the tariffs’ determination process.

¹⁵ I discuss the robustness of the assumed demand linearity more thoroughly in the Appendix.

(4) *The weakening of the distributive motive for protection – the “distributive effect”*

Because for any given t_e the FTA reduces the local firm’s domestic sales, each increase in P brought by a higher t_e becomes less valuable for the local firm, with the benefits of such increase being partially captured by the partners’ firms. Consequently, the FTA reduces the home government’s ability to use its tariff to shift consumers’ surplus to producers’, thus softening its marginal “distributive” incentives to raise t_e .

Those four reasons constitute the economic motivations leading to Proposition 1. They reinforce each other at inducing governments forming a FTA to reduce their external tariffs. It is direct to see that all of them are strengthened once the FTA is enlarged – i.e., once M increases. Notice that, allowing for a distinct number of oligopolistic firms in each country would also be straightforward, as the role of more firms would be similar to the role of the parameter M . For instance, if H established a FTA with a country possessing n_p firms, this would be equivalent (from H ’s perspective) to a FTA with n_p countries having each one firm.¹⁶

It should be noted, however, that I am not the first to claim that a FTA induces a reduction of its members’ external tariffs; Richardson (1993) and, more recently, Bagwell and Staiger (1999) have already noted this possibility. The former shows, in a perfect competition setting, that countries within a FTA might compete for tariff revenues generated by imports from non-preferential sources, and that this would result in lower external tariffs. Though the model structures are quite distinct, Richardson’s reasoning could be seen as the correspondent of the tariff revenue effect identified above. Bagwell and Staiger (1999) also identify a “tariff complementarity” between tariffs applied on distinct sources of a good, in a “competing exporters” model with fixed supply and competitive markets. In this paper’s specification, their reasoning could be seen as analogous to the change in the terms of trade effect and the tariff revenue effect taken together.

The weakening of the strategic and the distributive motives for protection, on the other hand, are novel to the literature. They indicate that a “dissipation of rents” will follow the creation of a FTA. That is, the FTA will make the shifting of rents from the foreign firms and from the local consumers to the domestic producer more difficult. As a consequence, the latter will have less incentive to lobby for higher tariffs under the FTA than otherwise.

¹⁶ For example, if one wonders about NAFTA, the model would predict a reduction of Mexico’s external tariffs considerably smaller than that of the U.S. external tariffs.

It is true, however, that Proposition 1 need not hold for *any* specification. There are, in fact, studies pointing to the other direction, i.e., suggesting that tariffs might increase as a consequence of FTAs. Examples of these are Panagariya and Findlay (1996) and Cadot et al. (1999). Both use a competitive 3-good-3-countries model with sector-specific capital and labor as the only common factor. Cadot et al. use a reasoning similar to Richardson (1993) and assert that the introduction of political economy issues *a la* Grossman and Helpman (1994, 1995), when general equilibrium effects through the labor market are taken into account, *may* turn Richardson's results around. Panagariya and Findlay, on the other hand, assume that tariffs arise from the allocation of labor itself into lobby activities. Then, since a FTA between two countries makes lobbying for protection against the partner innocuous, it reduces the overall demand for labor. This, in turn, reduces wages and makes the use of labor to lobby against the third country more attractive, whence the external tariffs tend to increase.¹⁷

Important as they may be, the model used here does not capture these kinds of general equilibrium effects. On the other hand, the present model clarifies a wide spectrum of motivations that might lead to the claimed external tariffs' reduction, incorporating as special cases other studies reaching the same result, as pointed above, while identifying the novel strategic and distributive effects. The mitigation of the strategic and the distributive motives for protection has also an additional – and crucial – implication. As I shall clarify in the next section, they indicate that the political economy distortions in the governments' tariff decisions are smaller when countries are integrated in FTAs, whence governments will be more likely to support a welfare-improving multilateral liberalization when countries are grouped in FTAs.

The external tariffs' reduction is important also to indicate that countries left out of FTAs are not necessarily worse off afterwards. Indeed, in this model the reduction is strong enough to ensure an *increase* of the non-preferential imports in each of the FTA markets. This reflects the net effect of two forces with opposite directions, from the perspective of the FTA non-members: (a) more stringent competition within each of the FTA markets, because of the elimination of the intra-FTA tariffs; and (b) the reduction of the external tariffs (Proposition 1). The former push q_h^f down, but the latter bring it up and actually dominate (a). Hence, FTAs in economic environments like the one studied here generate overall net “trade creation.”

¹⁷ Assertions that external tariffs should increase once a PTA is formed are typical also in the analysis of Customs Unions that focus on market power effects. A widely cited example of that is Krugman (1991).

PROPOSITION 2: A FTA generates overall “trade creation,” as it induces an increase of the trade flows between every pair of countries. More specifically, a FTA with M countries, $M \in [2, N - 1]$, has the following effects on the volumes of trade:

- (i) The trade flows between the FTA member countries strictly increase.
- (ii) The trade flows between the FTA member and non-member countries strictly increase.
- (iii) The trade flows between the FTA non-member countries remain constant.

Proof: (i) Take any pair of countries participating in the FTA. The sales from one to the other change from q_h^f (from equations 1) to q_h^p (from equations 1’). But since t_e^d and t_h^d are both strictly greater than zero, the result follows trivially from the comparison between q_h^f and q_h^p .

(ii) Take any pair of countries composed by a member and a non-member country. The sales from the former to the latter are unaltered by the FTA, since the tariffs outside the FTA do not change. On the other hand, the sales from the non-member to the member strictly increase with the FTA – or with its enlargement. In order to show that, note first that the impact of the FTA on the non-member exports to the member can be characterized by the sign of $\Delta q_h^f / \Delta M$. But there is both a direct and an indirect effect of M on q_h^f :

$$\frac{\Delta q_h^f}{\Delta M} = \frac{\Delta q_h^f}{\Delta M} \Big|_{t_e^d \text{ fixed}} + \frac{\Delta q_h^f}{\Delta t_e^d} \frac{\Delta t_e^d}{\Delta M}. \text{ The first term is the FTA direct effect, which is negative because of the FTA}$$

impact on q_h^f through enhanced competition. The second term corresponds to the FTA indirect effect on q_h^f through the change in the external tariff, which is positive because of Proposition 1. Proposition 2 states that the second term dominates the first. But from equations (1’) and (6’), having $DEN(t_e^d)$ denoting the denominator of t_e^d and evaluating $\Delta q_h^f / \Delta M$ with derivatives, calculations reveal that:

$$\frac{\Delta q_{h,M}^f}{\Delta M} = \frac{(3+2b)}{DEN(t_e^d)} t_e^d > 0, \tag{8}$$

so indeed the FTA indirect effect outweighs its direct effect on q_h^f .

- (iii) Since tariffs do not change outside the FTA, the result follows immediately. ■

Though items (i) and (iii) are relatively straightforward, item (ii) is the most interesting – and perhaps surprising – part of Proposition 2. Item (ii) is also in stark contrast with the results of Krishna (1998), who uses a similar framework but concludes that FTAs cause mainly *trade diversion*, by *reducing* the trade flows between FTA members and non-members. Here, Proposition 2 implies the opposite, by associating FTAs with *trade creation*. The reason for such differences

relies primarily on the endogeneity of tariffs, which is present here but, as indicated in the onset, is assumed away by Krishna.^{18, 19}

Bagwell and Staiger (1999) find that FTAs might lead to overall trade creation as well. Both their work and this paper, however, cannot assure generality to that result. This does *not* mean, however, that the result of Proposition 2 is specific to our frameworks only. As the proposition's proof shows, what is required is only that the FTA indirect and positive effect on q_h^f through the change of the external tariff outweighs the FTA direct and negative impact on q_h^f through enhanced competition. Naturally, this might be accomplished by other specifications as well.²⁰

Proposition 2 highlights an important role of the external tariffs' reduction identified in Proposition 1, as it shows that it is *possible* for non-members to benefit from FTAs, a contingency usually neglected in the literature. But even without Proposition 2, it is important to note that Proposition 1 would still ensure a shift *toward* it – or toward trade creation.

It is worth analyzing also the role of political economy in the trade creation result. Note first that political economy, as manifested in the parameter b , is not critical for Propositions 1 and 2, which hold even if $b = 0$. However, I have already indicated that the equilibrium tariff increases with b , as a higher b would increase the importance of both the strategic and the distributive motives for protection. But then, considering that a FTA weakens both of these “proportional-to- b ” protectionist motivations, one may expect the FTA-induced external tariffs' reduction and volume of trade created to be proportional to b as well. Proposition 3, which is proved in the Appendix, shows that this is indeed the case.

PROPOSITION 3: *The FTA-induced external tariffs' reduction and trade creation are larger the more politically motivated are the FTA member governments.*

Proposition 3 shows that, while it is true that governments more easily influenced by political lobbies will be more protectionist, they will be also more affected by the trade-creating aspect of a FTA. Therefore, the dissipation of rents promoted by a FTA will have its widest consequences precisely on the originally less open economies.

The proposition could be used – and tested – also in inter-industry comparisons. It implies that the sectors politically more active should correspond to those experiencing the widest FTA-

¹⁸ Grossman and Helpman (1995) also find that FTAs are more likely to be formed when it generates 'net' trade diversion. As Krishna (1998) – though under a quite distinct framework –, they also assume exogenous tariffs.

¹⁹ I explore the consequences of endogenizing external tariffs in Krishna's framework more thoroughly in Ornelas (2000).

²⁰ Although it could surely not arise in frameworks that treat the external tariffs as exogenous, as e.g. Krishna's (1998), as this would shutdown the indirect effect.

induced external tariffs' reduction and trade creation. Moreover, since the strategic motive for protection is specific to oligopolistic settings, the proposition suggests also that those effects should be stronger in more concentrated industries.

IV – FTAs and Multilateral Liberalization

I study now the FTAs' effect on the prospects of multilateral liberalization (ML). I address this question by evaluating how the membership in a FTA, and in FTAs of distinct sizes, alters the willingness of a government to support a ML. As in Levy (1997), Krishna (1998) and McLaren (1999), I define “multilateral liberalization” here as the elimination of all world trade barriers. This is, nevertheless, made only to simplify the analysis, as I shall clarify below.

I remain conducting the analysis from the perspective of a representative “home country.” The home government, when deciding whether to support a ML or not, considers the effects of general free-trade on local welfare and on the profits of the domestic firm elsewhere, but considers also the elimination of the lobby contributions that multilateral free-trade would imply. That is, the government supports a ML iff *its* equilibrium payoff is enhanced by general free-trade, be this criterion in accordance with the change in the national welfare or not.

Specifically, when H is within a FTA with M countries, $M \in [1, N - 1]$, the analysis of Section II applies and its government's equilibrium payoff is given by:

$$G_h(M) = CS_M[t_e^d(M)] + T_M[t_e^d(M)] + \pi_h^h[t_e^d(M)] + (M - 1)\pi_p^h[t_e^d(M)] + \sum_{j=M+1}^N \pi_j^h[t_e^d(M_j)] + bD_M^*[t_e^d(M)], \quad (9)$$

where the subscript M_j indicates that foreign country j is within a FTA composed by M_j members.²¹ For clarity, the functional dependence of t_e^d to M or M_j is made explicit.

Equation (9) can be rewritten in a more concise form once we denote the home country's *local* welfare – i.e., not considering export profits – by $W_M^l[t_e^d(M)]$ and its firm's aggregate export profits simply by $\Pi_{ROW}^h[\{t_j^d\}]$. Recalling also that the principal-agent specification ensures that each government is (just) compensated by raising its own tariff beyond its optimal level [see equation (3)], one can then respecify (9) as:

$$G_h(M) = W_M^l[t_e^*(M)] + \Pi_{ROW}^h[\{t_j^d\}]. \quad (9')$$

²¹ Naturally, if $M = 1$, the home country is not within any FTA, with the same applying to foreign country j when $M_j = 1$.

Under general free-trade, on the other hand, all tariffs are set to zero and there is no scope for lobbying, so $G_h(N) = W_N^l [0] + \Pi_{ROW^h} [\{0\}] \equiv W_{ML}$. Government H will be willing to support a multilateral agreement if $G_h(N) > G_h(M)$, or equivalently, if:

$$W_{ML} > W_M^l [t_e^*(M)] + \Pi_{ROW^h} [\{t_j^d\}]. \quad (10)$$

In contrast, a ML is welfare-improving (or “efficient”) for country H whenever:

$$W_{ML} > W_M^l [t_e^d(M)] + \Pi_{ROW^h} [\{t_j^d\}].^{22} \quad (11)$$

It is then clear from conditions (10) and (11) that governments do not face the “right” incentives when deciding whether or not to support a ML, as they do not evaluate the status quo regime from an efficiency perspective, but rather from the appraisal of their “politically distorted” equilibrium payoffs. The latter, which are higher than actual national surpluses, reflect the compensation that the governments receive to increase tariffs beyond their welfare-maximizing levels. For government H , such distortion is critical when:

$$W_M^l [t_e^*(M)] + \Pi_{ROW^h} [\{t_j^d\}] > W_{ML} > W_M^l [t_e^d(M)] + \Pi_{ROW^h} [\{t_j^d\}]. \quad (12)$$

In that case, although general free-trade would improve the country’s welfare, the government does not want to liberalize multilaterally. So, if condition (12) holds, because government H does not face incentives from an efficiency perspective, it makes a “wrong” decision regarding the support of a ML.

In order to analyze the effect of FTAs on the incentives for ML, I evaluate how the parameters’ range under which a ML improves H ’s aggregate welfare, but is not supported by its government, changes when H enters in a FTA – or enlarges its current one. It is in this sense that I will assert that it is more or less “likely” that government H will support a ML. That is, I consider that the narrower the range under which an efficient ML lacks the support of government H , the less likely such event will be. Rewriting condition (12) as:

$$W_M^l [t_e^*(M)] > W_{ML} - \Pi_{ROW^h} [\{t_j^d\}] > W_M^l [t_e^d(M)], \quad (12')$$

one can then affirm that it is less likely that the home government will inefficiently choose not to liberalize multilaterally the narrower is that interval, or equivalently, the smaller is the difference $\Delta W_M^l \equiv W_M^l [t_e^*(M)] - W_M^l [t_e^d(M)]$.²³ With that understanding, Proposition 4 then shows that the undermining of an efficient ML becomes *less likely* once countries form FTAs – or enlarges their current ones.

²² Notice that a ML might enhance H ’s welfare, but this need not be the case, as long as the trade regimes vary across countries. If all countries shared the same trade regime (i.e., if the world were divided in symmetric FTAs – or if it did not have any FTA) a ML would be surely welfare-improving for all countries, but otherwise this may not be the case.

²³ Note that ΔW_M^l is always positive, since by definition t_e^* is the tariff that maximizes local welfare.

PROPOSITION 4: *A government is more likely to support an efficient ML if its country is within a FTA (or within a larger FTA) than otherwise.*

The rationale behind Proposition 4 – which is proved in the Appendix – is simple. As pointed out above, governments do not consider a ML from an efficiency perspective, since they evaluate the status quo regime based on $W_M^l(t_e^*)$, rather than on $W_M^l(t_e^d)$. But when their countries integrate in a (larger) FTA, because of the FTA-induced strategic and distributive effects, the “political tariff” diverges *less* from the “optimal tariff” than it would otherwise. As a result, the difference between $W_M^l(t_e^*)$ and $W_M^l(t_e^d)$ reduces and the governments’ decisions regarding the support of ML get *closer* to the efficient ones.

Proposition 4 is illustrated in figure 1. The figure shows how ΔW_M^l behaves as M changes. For $(A - c) = N = 10$, it displays the ΔW_M^l corresponding to $b = .15$, $b = .25$ and $b = .35$. In all cases, the figure clearly shows the effect of a wider integration in diluting the impact of political economy forces in the local welfare, which is what makes the undermining of an efficient ML less likely. The figure also clarifies the role of the political parameter b . While the role of a FTA in raising the support for an efficient ML is not much relevant when b is low, it gets increasing importance as b rises. The reason is that a higher b represents “cheaper” protection, which in turn induces more political activities – and more distortions in the government’s equilibrium payoff.

It should be noted that, as indicated in the beginning of this section, Proposition 4 is *not* specific to a ML that leads to overall free-trade. Indeed, defining “multilateral liberalization” as the (exogenous) reduction of all tariff by $\alpha\%$, with $\alpha \in (0, 100]$, the same analysis could be done and the *same* qualitative results would arise. This analysis would require that, rather than ΔW_M^l , $\{W_M^l[t_e^*(M)] - W_M^l[(1 - \alpha)t_e^*(M)]\} - \{W_M^l[t_e^d(M)] - W_M^l[(1 - \alpha)t_e^d(M)]\}$ reduces with M . I nevertheless hang on to the simpler case of a “full” ML, since proving the general case would be algebraically substantially more demanding but would not provide additional insights.

It is opportune here to position the Proposition 4 also within the related literature. Note first that it shares a similarity with Staiger’s (1995) “bicycle theory.” Staiger’s main point is that a partial trade liberalization today would facilitate future advances in the same direction. His reasoning is that the first step induces a reallocation of workers with sector-specific skills away from protected industries. Afterwards, those workers might lose their sector-specific skills and, thus, their ability to obtain rents in the protected industry, hence reducing the resistance to further liberalization. Here, though in a very distinct context, a very similar reasoning is found: a partial

liberalization (in the form of a FTA), also by help dissipating protectionist rents, acts as a facilitating device for further (multilateral) liberalization as well.

Proposition 4 relates also with the work of Maggi and Rodríguez-Clare (1998). Those authors identify conditions under which a government may seek a trade agreement as a commitment device aimed to neutralize harmful effects that political activities might have on its long run payoff. In their paper, these harmful effects emerge because of distortions in investment decisions that take place under protectionist regimes, and by which governments are not compensated. Here, a trade agreement (in the form of a FTA) might prevent detrimental political activities as well, not with respect to inefficient investment decisions, but rather those related with the hindering of an efficient ML.

Finally, I discuss here also two of the paper's assumptions. The first is the firms' first-mover advantage in the lobbying game, which as pointed out in Section II, is unessential for the paper's results. Although without it governments would derive strictly positive rents from the political process, the analysis of Section III would remain entirely unaltered by such change. But since this would increase the governments' payoffs, they would become more willing to undermine an efficient ML. That is, such change would increase ΔW_{M^l} , implying that the obstruction of an efficient ML would become more likely to occur. Proposition 4 would nevertheless remain intact, as the relationship between ΔW_{M^l} and M would not be altered.

One may also wonder about the results' sensitivity to changes in the lobbying game that allowed the oligopolistic firms to lobby directly against trade agreements, either to obstruct a ML or to avoid FTAs in the first place. The latter could happen if the firms anticipated losses due either to the FTAs themselves or to general free-trade, since, as showed, free-trade is easier to obtain if it follows the formation of FTAs. Such extension would require the endogenization of FTAs and would make a ML harder to achieve, but the paper's main qualitative results would nevertheless tend to remain. The reason is that any effective lobby would have to compensate its government for the losses related to the adoption of an inefficient trade regime, and this constraint would impose a limit on such forward-looking initiatives.²⁴

²⁴ In fact, I allowed the oligopolistic firms to lobby explicitly against ML in a previous version of this paper. The results of such extension were, however, qualitatively very similar to those presented here – and for this reason were suppressed from this version.

V – Concluding Remarks

I study in this paper a topic that has attracted increasing attention from trade economists in recent years: the consequences of the spread of preferential trade arrangements for the world trade system. Besides the positive interest that the topic certainly draws, there is also a normative reason for its study, which is the possible redesign of the WTO rules concerning preferential trade agreements. In order to analyze that, I use a framework based essentially on the presumption that oligopolistic industries, while accountable for a significant fraction of the world trade flows, constitute also central forces in the shaping of trade policies, because of both strategic reasons and political influences that they may generate.

I examine first the “static” impact of a FTA on its members’ external tariffs and on world trade flows, when I show that countries tend to reduce their external tariffs after joining a FTA. Four reasons contribute for that. First, a FTA reduces the terms of trade gains of each increase in the external tariff. Second, a FTA reduces also the tariff revenue generated by each increase in the external tariff (the “tariff revenue effect”). Third, the profit-shifting motive for protection gets weaker under a FTA (the “strategic effect”). And fourth, a FTA also reduces the scope for national surplus redistribution by means of trade policies (the “distributive effect”). This external tariffs’ reduction is shown to be strong enough to enhance the trade flows between FTA members and non-members, as compared with the pre-FTA figures. As a consequence, a FTA ensures an overall “trade creation,” from which the outside countries benefit. I also show that, because both the strategic and the distributive effects are reinforced when the oligopolistic firms are politically active, the FTA-induced external tariffs’ reduction and trade created are larger the more politically motivated are the member governments.

Because the oligopolistic firms compensate their governments for the establishment of tariffs beyond their “optimal” levels, the governments’ decisions regarding other trade policies are moved away from efficiency criteria. In particular, governments do not evaluate trade regimes from an efficiency perspective because of those compensations. Such “distorted preferences” constitute the reason that may lead to the hindering of a welfare-improving multilateral liberalization in this model. This is possible whenever the oligopolistic firms are politically active; I show, however, that the obstruction of an efficient ML is *less* likely to happen when countries are integrated within FTAs. In such a case, the strategic and the distributive effects make political economy less relevant in the determination of trade decisions. This, in turn, induce governments to evaluate the costs and benefits of a ML more efficiently (i.e., less affected by special interests),

indicating that the “dynamic” time-path impact of FTAs on the multilateral trade system seems as favorable as their “static” consequences.

The few empirical studies aimed to evaluate the impact of PTAs, though in general not much structural and not very conclusive, seem consistent with the general conclusions of this paper. An example is Anderson and Norheim (1993), who find that the trade growth since the thirties has not been impaired by the proliferation of trade agreements, though trade within partners have increased faster – as this paper would indicate, if taken from a truly dynamic perspective. More recently, Grether and Olarreaga (1998) also reveal trade figures in conformity with the theoretical conclusions of this paper. They find that more open countries tend to have larger shares of preferential trade, a result that is consistent with the results identified here – though with an inverse causation.

Summing up, this paper suggests that considering FTAs a threat to the multilateral trade system might constitute an exaggeration, at least when oligopolies are the main economic agents affecting trade policy decisions. A word of caution is, nevertheless, worth mentioning. The model used here is stylized in many aspects and does not incorporate a number of elements that are likely to be important to a “full” analysis of the topic in question. For one, it abstracts from all kinds of comparative advantage, as a way to make the mechanisms analyzed here more transparent. One must, therefore, have in mind considerations like this while interpreting the paper’s results.

In any case, however, by studying FTAs under circumstances still not well explored in the literature, though presumably quite important to the topic’s understanding, I identify motivations that seem to support the view that FTAs might be, *yes*, a “building block” of the multilateral system.

Appendix

(A) The effects of a FTA on a member’s external tariff under a general demand structure:

I detail here the impact of a FTA on a country’s marginal incentives to determine its external tariffs under more general demand structures. I note also that, as long as the oligopolistic goods remain “strategic substitutes” (i.e., $\partial q_i^i / \partial q_j^j < 0$, $i \neq j$), the analysis would apply for heterogeneous goods as well.

The marginal effect of an increase in t_e on the home government’s (equilibrium) objective function is represented by equation (7'). Applying the analysis of Dixit (1986), one obtains straightforwardly that $\partial P / \partial t_e > 0$, $\partial q_h^f / \partial t_e < 0$ and $\partial q_p^j / \partial t_e > 0$, $j = h, p$, in any “well-behaved” case – i.e., provided that stability conditions are satisfied. As indicated in Section III, the Dixit’s analysis allows one to find also that, for a *given* t_e , the foreign firms getting into the FTA increase their sales at H and sustain a higher aggregate consumption and a

lower price level in that market, the simultaneous reduction of the other firms' sales notwithstanding. With these results, we can then obtain the signs of each effect generated by varying t_e when $t_{int} = 0$. For that purpose, I assume the home country FTA expands from M_1 to M_2 countries, with $M_1 < M_2 < N$,²⁵ and denote this change by ΔM .

The change in the terms of trade effect caused by ΔM can be expressed as $-q_h^f \left(1 - \frac{\partial P}{\partial t_e}\right) + (N - M) \left[\frac{\Delta q_h^f}{\Delta M} \left(1 - \frac{\partial P}{\partial t_e}\right) - q_h^f \frac{\Delta}{\Delta M} \left(\frac{\partial P}{\partial t_e} \right) \right] - q_h^p \frac{\partial P}{\partial t_e} + (M - 1) \left[-\frac{\Delta q_h^p}{\Delta M} \frac{\partial P}{\partial t_e} - q_h^p \frac{\Delta}{\Delta M} \left(\frac{\partial P}{\partial t_e} \right) \right]$. The third and, provided that $\partial P / \partial t_e < 1$, the first term above are both negative, as with the first element of the two square brackets. Therefore, sufficient conditions for the whole expression to be negative – and therefore favor a lower external tariff under the new regime – are that $\Delta(\partial P / \partial t_e) / \Delta M > 0$ and $\partial P / \partial t_e < 1$ – or at least that $\Delta(\partial P / \partial t_e) / \Delta M$ and $(1 - \partial P / \partial t_e)$ be not *too* negative. Noting that $\Delta(\partial P / \partial t_e) / \Delta M = P'(\partial Q / \partial t_e) \Delta Q / \Delta M$, where P' denotes the demand curvature and since $\partial Q / \partial t_e < 0$ and $\Delta Q / \Delta M > 0$, and that $\partial P / \partial t_e > 1$ only with a sufficiently convex demand (see Dixit, 1986), the whole expression will remain negative as long as the demand is not too convex. [In the linear demand case, $\partial P / \partial t_e < 1$ but $\Delta(\partial P / \partial t_e) / \Delta M < 0$. The latter is, however, not strong enough to reverse the expression's negative sign.]

With respect to the “tariff revenue effect,” before the FTA expansion its correspondent term in (7') can be expressed as $\left[(N - M_2) t_e \frac{\partial q_h^f}{\partial t_e} + (M_2 - M_1) t_e \frac{\partial q_h^p}{\partial t_e} \right]$, while afterwards it becomes $\left[(N - M_2) t_e \frac{\partial q_h^f}{\partial t_e} \right]$. Since $\partial q_h^p / \partial t_e > 0$, the whole expression becomes more negative after the FTA expansion unless the change in $\partial q_h^p / \partial t_e$ is positive and large enough to overturn the FTA direct effect. [In the linear demand case, $\Delta(\partial q_h^p / \partial t_e) / \Delta M < 0$, thus *reinforcing* the direct effect.]

The “strategic effect,” in turn, corresponds to a change of $(1 + b) \left[(P - c) \frac{\Delta P}{\Delta M} \left(\frac{\partial q_h^h}{\partial t_e} \right) + \frac{\Delta}{\Delta M} \left(\frac{\partial q_h^h}{\partial t_e} \right) \right]$ when the FTA expands. Since $\partial q_h^h / \partial t_e > 0$ and $\Delta P / \Delta M < 0$, it favors a lower external tariff unless $\Delta(\partial q_h^h / \partial t_e) / \Delta M > 0$ and large enough to outweigh the FTA direct effect in increasing competition and reducing the local price. [In the linear demand case, $\Delta(\partial q_h^h / \partial t_e) / \Delta M < 0$, also *reinforcing* the direct effect.]

Finally, the “distributive effect” corresponds to a change of $b \left[(P - c) \frac{\Delta q_h^h}{\Delta M} \left(\frac{\partial P}{\partial t_e} \right) + q_h^h \frac{\Delta}{\Delta M} \left(\frac{\partial P}{\partial t_e} \right) \right]$ when the FTA expands. Since $\partial P / \partial t_e > 0$ and $\Delta q_h^h / \Delta M < 0$, it favors a lower external tariff unless $\Delta(\partial P / \partial t_e) / \Delta M > 0$ and large enough to offset the FTA direct effect in increasing competition and reducing the local sales of the domestic industry. Using again the fact that $\Delta(\partial P / \partial t_e) / \Delta M = P'(\partial Q / \partial t_e) \Delta Q / \Delta M$, this constraint is equivalent to a demand not too *concave* – in contrast with the requirement on the terms of trade effect. [In the linear demand case, $\Delta(\partial P / \partial t_e) / \Delta M < 0$, once again *reinforcing* the direct effect.]

²⁵ Naturally, if $M_1 = 1$, this corresponds to the *creation* of a FTA, and otherwise it is the *enlargement* of an existent one.

In summary, the paper's results are based on the seemingly least questionable, direct effects of a FTA – namely, that in each member country, with everything else constant, it enhances competition by offering free access to the partners' exporters. This, in turn, reduces the domestic and the non-member firms' sales in the local market, but increases the partners' sales to an extent that suffices to ensure a reduction the local price. All arguments used in the discussion of Proposition 1 focus on these effects. Whereas there exist other, subtler reasons related to the demand curvature that may play in the opposite direction, it is unclear that they could be strong enough to overturn the direct effects. Nonetheless, in the most conservative perspective, I can at least state that the results hold if the demand is neither too convex nor too concave.

(B) Proof of Proposition 3:

The proposition states that the external tariffs' reduction induced by a FTA should be larger when governments are more politically motivated – that is, when b is higher. Although M is an integer, showing that $\frac{\partial^2 t_e^d}{\partial M \partial b} < 0$ suffices for the proof. Calculations reveal that:

$$\frac{\partial^2 t_e^d}{\partial M \partial b} = -\frac{1}{[DEN(t_e^d)]^2} \left\{ \left[\frac{\partial t_e^d}{\partial b} (5 + 2b + 2N) + 2t_e^d \right] DEN(t_e^d) - t_e^d (5 + 2b + 2N) \frac{\partial DEN(t_e^d)}{\partial b} \right\}. \quad (13)$$

The square bracket and $DEN(t_e^d)$ are both positive. But since $\partial DEN(t_e^d)/\partial b = -2(N - M) < 0$, then the whole expression (13) must be negative.

Proposition 3 asserts also that the higher is b , the more trade a FTA will create. In order to show that, I differentiate expression (8), which gives the volume of trade created by a FTA, with respect to b , obtaining as a result:

$$\frac{\partial(8)}{\partial b} = \frac{2}{DEN(t_e^d)} \left[t_e^d + (\frac{3}{2} + b) \frac{\partial t_e^d}{\partial b} - \frac{1}{DEN(t_e^d)} \frac{\partial DEN(t_e^d)}{\partial b} \right]. \quad (14)$$

This is certainly positive, as $\partial DEN(t_e^d)/\partial b < 0$ but all other terms are positive. ■

(C) Proof of Proposition 4:

Mathematically, what the proposition states is that ΔW_M^l is inversely related to M . In order to show that, I substitute t_e^d [from (6')] and t_e^* (which corresponds to t_e^d when $b = 0$) into the definition of local welfare to find, respectively, $W_M^l(t_e^d)$ and $W_M^l(t_e^*)$. After substantial manipulation, ΔW_M^l can be expressed in terms of the primitive parameters of the model as:

$$\Delta W_M^l = \frac{8(A - c)^2 b^2 (1 + M)^2 (N - M)}{[(5 + 2N)M - N + 2][(5 + 2N + 2b)M - (1 + 2b)N + 2]^2}. \quad (15)$$

Then, an integer, showing that the derivative of (15) with respect to M is everywhere negative, for $M \in [1, N - 1]$, suffices for the proof. Calculating that derivative and manipulating, one finds that:

$$\frac{\partial(\Delta W_M^l)}{\partial M} = -32(A-c)^2 b^2 (1+M)(1+N) \times \frac{\{[N^2 + (\frac{1}{2}-b)N - (5+4b)]M^2 + [(\frac{7}{2}+b)N^2 + (13+6b)N + (\frac{1}{2}-b)]M - [2(1+b)N^2 - (\frac{7}{2}+b)N - 1]\}}{[(2M-1)N + 5M + 2]^2 [(2M-2b-1)N + (5+2b)M + 2]^3}. \quad (16)$$

The first multiplicative term of (16) is clearly negative and the second term's denominator is surely positive, so the whole expression is negative iff the latter's numerator is positive. Expressing it as $(A)M^2 + (B)M - (C)$, it is straightforward to see that A , B and C are all positive expressions that do not contain M . Therefore, the numerator is negative only if C is large relative to $(A)M^2$ and $(B)M$, which is more likely to occur when $M = 1$. Imposing $M = 1$ on that expression, it reduces to $(5 - 2b)N^2 + (34 + 12b)N - (7 + 10b)$. It is then easy to see that, $\forall N \geq 3$, the numerator is, indeed, strictly positive.

Hence, ΔW_M^l necessarily decreases with M and the creation of a FTA (or its enlargement) ensures that the participating governments will be, indeed, more willing to support an efficient ML. ■

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Figure 1 - The impact of the political process on the local welfare

