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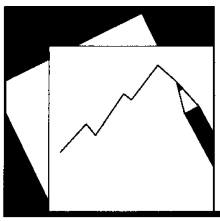

IMF Working Paper

Will a Regional Bloc Enlarge?

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Will a Regional Bloc Enlarge?[1]

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Abstract

This paper investigates whether a regional bloc would enlarge or remain stagnant in size using a model where enlargement is the endogenous outcome of the interaction between the supply of and demand for membership. We show that a maximum size of the bloc exists beyond which the regional policy-maker will be unwilling to enlarge further, and that either the supply side or the demand side of membership might be binding in the determination of the equilibrium size of the bloc. Furthermore, we analyze how the deepening of integration within a regional bloc affects its width. We show that deeper integration may lead to wider integration when the demand side of membership is binding in the determination of the equilibrium size of the bloc, while the equilibrium size of the bloc will be unaffected when the supply side of membership is binding.

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I. INTRODUCTION

The unprecedented wave of regionalism sweeping across the world since the early 1990s has given rise to a buoyant debate on whether regionalism provides an impetus to, or detracts from, the goal of multilateral non-discriminatory freeing of trade.[2,3] This paper contributes to the debate by addressing the question of whether incentives exist for a regional trading bloc to enlarge through further extensions of its membership, or not to enlarge by rejecting new membership requests. A regional trading bloc which enlarges can, in fact, be thought of as a "building bloc" toward the multilateral freeing of trade, while a bloc whose size remains stagnant can be seen as a "stumbling bloc" to the goal of multilateralism.

The contributions that have so far investigated the enlargement of regional trading blocs have taken two fundamentally different approaches. One strand of the literature has depicted the expansion of regional trading blocs as exogenous, focusing on the implications of the enlargement on aggregate social welfare. Thus, in his seminal contribution, Krugman (1991) showed that in a world divided into symmetric trading blocs, an exogenous increase in their size may reduce world welfare. Bond and Syropolus (1996), taking into account the existence of comparative advantages, generalized Krugman (1991) and showed that an exogenous increase in the size of trading blocs may increase world welfare.

A second strand of the literature has instead modeled the enlargement of regional trading blocs as endogenously determined. In this context, the main contribution is Baldwin (1995) who focused on the demand side of enlargement, and formalized the incentives of non-members countries to join a regional trading bloc, assuming the supply of membership of the bloc as perfectly elastic. However, the assumption that any country asking for membership will be admitted appears counterfactual since regional blocs seem to be closed clubs whose members decide whether or not a new country should be admitted, as the process of enlargement of the European Union shows. More recently, Alesina *et al.* (2005) investigated the related but different issue of the enlargement of an international political union modeled as a group of countries deciding together the provision of certain public goods and policies because of spillovers.

The novelty of this paper is threefold. First, we model the supply of membership of a regional trading bloc by formalizing the scheme of incentives underpinning the decision to accept or reject new membership requests. Second, we combine this supply side with a demand side à la Baldwin (1995) and formalize the enlargement and equilibrium size of a bloc as endogenously determined by the interaction between the supply of and the demand

[2] Since 1990 more than 250 new regional trade agreements are reported to have been notified to the General Agreement on Trade and Tariffs and the World Trade Organization.

[3] See Winters (1996), and Baldwin and Venables (1997) for useful surveys of the literature in the regionalism versus multilateralism debate.

for membership. Third, we assess the implications of deeper integration within a bloc on its equilibrium size taking into account the effects on both the supply of and the demand for membership.

Using a political economy framework à la Grossman-Helpman (1994), we show that pro- and anti-enlargement forces operate in a regional trading bloc, and the decision on whether to enlarge or not is a political equilibrium which balances these opposing forces. Notably, we point out that the policy maker will prevent the enlargement of the bloc beyond a certain size, labeled as the supply-side implied maximum size, to avoid losing political support.

Furthermore, we show that owing to the interaction between the supply of and the demand for membership, the regional trading bloc will enlarge when its size is smaller than its supply-side implied maximum size and a request for membership from third countries exists. However, if the supply-side implied maximum size is reached, any eventual membership request will be refused. As a result, the equilibrium size of the regional trading bloc cannot exceed, but could be smaller than its supply-side implied maximum size. In fact, while the supply side of membership implies that a maximum size exists beyond which the bloc will not further enlarge, the demand side might be binding on further enlargements if the requests for membership are not "numerous" enough.

Finally, we show that deeper integration within a regional trading bloc contracts its supply-side implied maximum size while boosting third countries' demand for membership. Thus, the impact of deeper integration crucially depends on whether the supply side or the demand side is binding in the determination of the equilibrium size of the bloc. Specifically, deeper integration might lead to wider integration when the demand side of membership is binding, while the equilibrium size of the bloc will be unaffected if the supply side is binding.

II. THE BASIC MODEL

We consider that the world is constituted by g countries, h of which are members of a regional trading bloc. To simplify our framework, we assume that the regional trading bloc is unique: countries which are not members, labeled as third countries, may ask for membership in the bloc, but cannot organize in any alternative preferential trade agreement.

We assume that countries are symmetric and characterized by a manufacturing sector and an agricultural sector. The manufacturing sector is characterized by differentiated products, increasing returns to scale and imperfect competition; in the agricultural sector a homogenous product, constant returns, and perfect competition exist.

Two different classes of agents are assumed in each country, laborers and firm owners, whose respective preferences are:

$$U^L = C_A^{(1-\lambda)} C_M^{\lambda} \tag{1}$$

$$U^F = C_A^{(1-\phi)} C_M^{\phi} \tag{2}$$

where:

$$C_M = \left[\sum_i c_i^{(\sigma-1)/\sigma} \right]^{\frac{\sigma}{(\sigma-1)}}$$

c_i being the consumption of manufactured variety i, $\sigma > 1$ the elasticity of substitution between any two varieties, $0 \le \lambda \le 1$ and $0 \le \phi \le 1$. Laborers' income is assumed to derive from the labor they provide to firms while firm owners' income derives from firms profits.

Focusing on technology, the labor input requirement for manufactured variety i is:

$$l_i = \alpha + \beta x_i \qquad \text{with } \alpha \text{ and } \beta > 0 \tag{3}$$

where x_i is the output of variety i, and α is a fixed cost.

We assume that the number of manufacturing firms in any country is given and equal to k, new entry is ruled out, and each firm is sufficiently small in the market to treat market aggregates as exogenous.[4,5] In addition, there is no possibility of relocation for manufacturing firms, and each firm is wholly owned by the residents of the country in which it is located.

In the agricultural sector, the production function is assumed to be linearly homogenous, the market structure perfectly competitive, and units of the agricultural good are chosen such that the unit labor coefficient is unity.

We consider that trade in manufactured varieties is costly, while trade in the agricultural good is costless. Iceberg trade costs are assumed such that shipping varieties between any two countries melts a fraction of the shipment, while no trade costs apply on domestic sales. Intra-bloc trade costs are lower for intra-bloc trade flows: trade in varieties between members

[4]Market behavior in the manufacturing sector is like monopolistic competition but without free entry. See Baldwin (1995), and Desrouelle and Richardson (1997) for a similar approach.

[5]Ruling out new entry guarantees that manufacturing firms have positive profits that can be used in lobbying activities. Alternatively, we could have assumed free entry and the existence of specific factor of production owned by firm owners. In this case even if firms' profits would be zero, firm owners would have a positive income to be used in lobbying activities.

requires $\mu > 1$ units to be shipped for every unit sold while all other trade requires $\tau > 1$ units to be shipped for every unit sold, with $\tau > \mu$.

III. THE EQUILIBRIUM

Since trade in the agricultural good is costless, wages will be equalized across countries as long as the agricultural good is produced in any country, which is assumed henceforth.[6] Notably, taking labor as the numeraire, laborers' wage in any country will be equal to unity. Normalizing national workforces to unity, the aggregate incomes of laborers and firm owners in country *i* are:

$$E_i^L = 1 \tag{4}$$

$$E_i^F = k\Pi_i \tag{5}$$

where Π_i are the profits of a manufacturing firm located in country *i*.

Assuming ϕ to be zero and λ to be strictly between unity and zero to simplify the derivation of the equilibrium demand patterns, the consumption demand in country *i* for any manufactured variety produced in country *j* is:

$$c_i = \frac{\lambda \cdot \left(p_j \cdot T_{ji}\right)^{(-\sigma)}}{P_i^{(1-\sigma)}} \tag{6}$$

where P_i is the manufactured composite index price of consumers located in country *i*, p_j is the mill or f.o.b. price of any manufactured variety produced in country *j*, and T_{ji} is the amount dispatched per unit received of any variety shipped from country *j* to country *i*, with $T_{ji} > 1$.

Turning to the supply, since the agricultural sector is perfectly competitive, the price of the agricultural good, p_A, will equal its marginal cost. Assuming the cost of introducing a new variety to be zero, no two firms will produce the same variety, given that manufactured varieties enter consumers' demand symmetrically. The typical profit-maximizing firm located in country *j* faces the isoelastic demand curve in Equation (6), but owing to trade costs, to supply this amount of consumption, T_{ji} times this amount has to be shipped.

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[6]The non-full-specialization (NFS) condition requires that no country has enough labor to satisfy the world demand for the agricultural good, i.e., that the world spending on this good is larger than the maximum value of its production that is possible in any of the countries. Given that the *g* countries are assumed to be symmetric, the NFS condition requires that $g \cdot \left[\left(1-\lambda\right) \cdot E^L + \left(1-\phi\right) \cdot E^F\right] > p_A \cdot L$, which is assumed to hold henceforth.

Since any manufacturing firm sets its price taking the price index as given, the f.o.b. price of any variety is a constant mark-up over its marginal cost. Assuming the unit input coefficient β just equals $\sigma/(\sigma-1)$, all manufacturing firms will charge the same unitary price.

The prices consumers pay vary depending on consumers' location. Consumers in a member country will pay a price μ for any manufactured variety produced in the regional trading bloc, and a price τ for any variety produced in a third country. Consumers located in a third country will instead pay a price τ for any variety produced in any other country. It follows that the manufactured composite index prices in a member country and in a third country are:

$$P_R = \left[k + k\cdot(h-1)\cdot\mu^{(1-\sigma)} + k\cdot(g-h)\cdot\tau^{(1-\sigma)}\right]^{\frac{1}{1-\sigma}} \tag{7}$$

$$P_N = \left[k + k\cdot(g-1)\cdot\tau^{(1-\sigma)}\right]^{\frac{1}{1-\sigma}} \tag{8}$$

The aggregate consumptions of the manufactured good in any member country and any third country are:

$$C_R^M = \frac{\lambda}{P_R} \tag{9}$$

$$C_N^M = \frac{\lambda}{P_N} \tag{10}$$

The aggregate demands for the agricultural good in any member country and in any third country are:

$$C_R^A = (1-\lambda) + k\Pi_R \tag{11}$$

$$C_N^A = (1-\lambda) + k\Pi_N \tag{12}$$

with a manufacturing firm's profit in a member or a third country being:

$$\Pi_R = \frac{\lambda}{\sigma}\cdot\left[P_R^{(\sigma-1)} + (h-1)\cdot\mu^{(1-\sigma)}\cdot P_R^{(\sigma-1)} + (g-h)\cdot\tau^{(1-\sigma)}\cdot P_N^{(\sigma-1)}\right] \tag{13}$$

$$\Pi_N = \frac{\lambda}{\sigma}\cdot\left[P_N^{(\sigma-1)} + h\cdot\tau^{(1-\sigma)}\cdot P_R^{(\sigma-1)} + (g-h-1)\cdot\tau^{(1-\sigma)}\cdot P_N^{(\sigma-1)}\right] \tag{14}$$

IV. THE SUPPLY SIDE OF MEMBERSHIP

Baldwin (1995) modeled the enlargement of a regional trading bloc as demand-driven, assuming a bloc's supply of membership to be perfectly elastic. However, the assumption that any country asking for membership of a regional bloc will be admitted appears counterfactual since blocs seem to be closed clubs whose members decide whether or not a new country should be admitted. We develop a more realistic framework where a regional trading bloc can choose whether or not to admit a new country requesting membership.

More specifically, we formalize a regional trading bloc's supply of membership, focusing on the scheme of incentives underpinning the choice between accepting or rejecting third countries' membership requests, and assuming that the demand for membership is perfectly elastic. This assumption is relaxed in Section 6 where we show how the demand side might be binding on further enlargements.

Decisions in the regional trading bloc are assumed to be centralized such that a regional policy maker exists and faces two trade policy options: to enlarge the bloc by admitting a third country or not to enlarge.[7] Thus, we focus on a marginal enlargement of the bloc, i.e., an enlargement that would increase the size of the bloc by one additional country.[8]

We consider that the regional policy maker shapes its trade policy à la Grossman-Helpman (1994), taking into account not only aggregate well-being, but also the political contributions received from an organized interest group which participates in the political process to influence policy outcomes.[9,10] Thus, the regional policy maker trades off the contributions that would come from heeding the lobby's interests against the reduction in regional aggregate social welfare that would follow the choice of a socially costly trade policy.

All manufacturing firms in the bloc are assumed to be organized in a unique interest group that offers a schedule of contingent (implicit) donations to the regional policy maker to affect its choice of trade policy. The organized industrial lobby specifies a donation contract or contribution schedule that stipulates how large a donation will be made for each of the two possible stances of trade policy open to the regional policy maker, tailoring its contribution schedule to maximize the total welfare of its members, net of contributions.

The game is in two stages: in the first stage, the donation contracts are announced by the organized interest group to the policy maker, while in the second stage the policy maker sets the trade policy and collects the donations. Political contributions paid by the organized interest group to the policy maker are then *ex-post,* i.e., they are paid after the policy maker has chosen whether to enlarge or not.[11]

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[7] This modeling choice is suggested by the existence of centralized political organs in the European Union.

[8] Our framework can be used to investigate the choice to admit more than one new member.

[9] Grossman and Helpman (1994) noted that an incumbent policy-maker may value political contributions since they can be used to finance campaign spending, and aggregate social welfare since voters are more likely to reelect a government which has delivered a high standard of living. As in Grossman and Helpman (1994), we do not explicitly formalize the existence of an electoral process.

[10] See Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Mitra *et al*. (2002), Eicher and Osang (2002), McCalman (2004), and Gawande and Krishna (2005) for empirical evidence in support of the political economic approach a la Grossman and Helpman (1994).

[11] We rule out the possibility of side-payments to the regional policy-maker by organized interest groups located in third countries.

The regional policy maker will decide whether or not to enlarge the bloc with the aim of maximizing the political support received which is assumed to depend positively on the political contributions obtained from the organized interest group and on the aggregate social welfare, net of contributions, achieved in the regional trading bloc. By designating as *D* the political contribution that the regional policy maker receives from the lobby and *W* the net aggregate social welfare reached in the regional trading bloc, the objective function of the regional policy maker is:

$$G = a \cdot D + (1-a) \cdot W \tag{15}$$

where *a* measures the extent of political distortions in the policy-making process, with $(1-a) < a \leq 1$.[12] Thus, the greater is *a*, the greater is the weight that industrial interests receive in the policy-making process.

A. The Socially Optimal Choice of Trade Policy

The aggregate social welfare in the regional trading bloc is defined as the sum of the aggregate welfare in any member country, which is assumed, in turn, to be the sum of the indirect utilities of the agents in the economy. So, the aggregate social welfare reached in the bloc if the regional policy maker decided to enlarge or not to, labeled as $\widetilde{W}_{ENL}$ and $\widetilde{W}_{NON}$, is:

$$\widetilde{W}_{ENL} = h \cdot \lambda^{\lambda} \cdot (1-\lambda)^{(1-\lambda)} \cdot P_{ENL}^{(-\lambda)} + kh\Pi_{ENL} \tag{16}$$

$$\widetilde{W}_{NON} = h \cdot \lambda^{\lambda} \cdot (1-\lambda)^{(1-\lambda)} \cdot P_{R}^{(-\lambda)} + kh\Pi_{NON} \tag{17}$$

with:

$$P_{ENL} = \left[k + k \cdot h \cdot \mu^{(1-\sigma)} + k \cdot (g-h-1) \cdot \tau^{(1-\sigma)}\right]^{\frac{1}{1-\sigma}} \tag{18}$$

Comparing the regional aggregate social welfare under the two alternative stance of trade policy, we can state the following proposition:

Proposition 1. The aggregate social welfare in the regional trading bloc will be greater if the policy maker chooses to enlarge marginally rather than not to.

Proof. See Mathematical Appendix for proof.

[12] As in Grossman and Helpman (1994), we assume that the policy-maker values one dollar in its campaign coffers more than a dollar in the hand of the public.

If the regional policy maker is a social welfare maximizer, it would choose to enlarge since this is the socially optimal choice of trade policy for any size of the regional bloc.

B. Lobbying: Pro or Anti-enlargement Force?

The regional policy maker's choice will affect the profits of the typical manufacturing firm located in the regional trading bloc. Notably, the profits the firm would earn if the bloc enlarged or did not enlarge, respectively, are:

$$\Pi_{ENL} = \frac{\lambda}{\sigma} \cdot \left[P_{ENL}^{\sigma-1} + h\mu^{(1-\sigma)} \cdot P_{ENL}^{\sigma-1} + (g-h-1) \cdot P_N^{\sigma-1} \tau^{(1-\sigma)} \right] \tag{19}$$

$$\Pi_{NON} = \frac{\lambda}{\sigma} \cdot \left[P_R^{\sigma-1} + (h-1)\mu^{(1-\sigma)} \cdot P_R^{\sigma-1} + (g-h) P_N^{\sigma-1} \tau^{(1-\sigma)} \right] \tag{20}$$

The enlargement would have different effects in the three markets where the firm operates, i.e., its local market, the regional bloc market, and the third countries' market.

First, the firm would face greater competition in its local market since the price consumers would pay for any variety produced in the new member would decrease from τ to μ. Owing to a substitution effect, the firm would experience a reduction in its profits on the local market. Second, the firm would enjoy an enlarged regional bloc market since the price paid for the firm's own variety by consumers located in the new member would decrease from τ to μ. The firm would also experience greater competition since the price consumers located in the bloc would face for varieties produced in the new member country would reduce from τ to μ. Since the profit-enhancing market-size effect dominates the profit-reducing competition effect for any size of the bloc, the firm will experience an unambiguous profit increase in the regional bloc market. Finally, the firm would face a profits reduction in the third countries' market since the size of this market would contract from $(g-h)$ to $(g-h-1)$.

Taking into account the different effects, we can state the following proposition:

Proposition 2. A size of the regional trading bloc, labeled as $\hat{h}$, exists that maximizes the profits of manufacturing firms located in the bloc.

Proof. See Mathematical Appendix for proof.

The enlargement of the bloc could then be either profit-enhancing or profit-reducing for manufacturing firms located within the bloc, depending on the bloc's size. In this regard, we can then state the following corollary:

Corollary 1. If the size of the regional bloc is such that $h < \widehat{h}$, enlarging is profit-enhancing for manufacturing firms in the bloc; if the bloc's size is such that $\widehat{h} > h$, enlarging is profit-reducing for the manufacturing firms in the bloc.

Industrial interests will then vary with the size of the bloc. For any size of the bloc smaller than $\widehat{h}$, industrial interests will coincide with the socially optimal trade policy outcome, while for any size of the bloc equal to or greater than $\widehat{h}$ industrial interests will be in conflict with the socially optimal choice.

The organized interest group's contribution schedule will comprise two items, D_{ENL} and D_{NON}, which are the political contributions associated with the regional policy maker's choice to enlarge the bloc or not to, respectively.[13,14] Following Grossman-Helpman (1994), we restrict the lobby's contribution schedule to be "truthful" in the Bernheim-Whinston (1986) specification such that the contribution schedule everywhere reflects the true preferences of the organized interest group.

The assumption of truthful donation contracts implies that the interest group will pay to the regional policy maker the excess, if any, of the lobby's gross welfare under the specified stance of trade policy, relative to an optimally chosen base level of welfare. Given that the interest group's gross welfare, labeled as $\widetilde{V}_F$, is the sum of the gross indirect utility of firms owners located in the regional trading bloc, restricting political contributions to be non-negative, the lobby's truthful contribution function can be expressed as $D = \max\left[0, \widetilde{V}^F - B\right]$.

The organized interest group's net welfare will be equal to B whenever the group makes a positive contribution. The interest group will then wish to make B as large as possible but without inducing the regional policy maker to choose an outcome damaging to the group's interests. Since the interaction between the regional policy maker and the industrial lobby configures as a principal-agent problem, the regional policy maker's voluntary participation constraint can be used to derive B.

The interest group will choose B to make the regional policy maker just indifferent between heeding the lobby's interests and the policy outcome that the regional policy maker would implement in absence of any contributions. Notably, the interest group will offer a positive

[13] We rule out the possibility for the interest group to offer contributions to foreign governments. See Grossman and Helpman (1994) and (1995) for a similar approach.

[14] It will never be optimal for the interest group to specify a positive contribution for both policy outcomes since then it could cut back equally on both of its offers without affecting the regional policy-maker's decision, and also since it will not wish to give the policy-maker an incentive to choose the trade policy outcome that it is contrary to the lobby's interests.

contribution only if its own interests are in conflict with the trade policy outcome that the regional policy maker's would choose in absence of any political contributions.

Thus, for any size of the bloc smaller than $\hat{h}$, industrial interests coincide with the choice that the policy maker would take in absence of any contribution. The interest group's contribution schedule will be $D_{ENL} = D_{NON} = 0$.

Instead for any size of the bloc greater than or equal to $\hat{h}$, industrial interests are in conflict with the policy maker's choice in absence of contributions. The organized interest group will then offer a positive contribution to the regional policy maker not to enlarge, insofar as the group's net welfare is at least equal to the welfare it could have achieved under the socially optimal outcome. The contribution schedule will then be $D_{NON} = \frac{1-a}{2a-1} \cdot \left(\widetilde{W}_{ENL} - \widetilde{W}_{NON} \right)$ and $D_{ENL} = 0$.[15]

C. The Supply-Side Political Equilibrium

The choice of the regional policy maker on whether to enlarge the bloc or not to is a political equilibrium that balances pro and anti-enlargement forces.

If the size of the regional bloc is smaller than $\hat{h}$ the regional policy maker faces no trade-off since industrial interests coincide with the socially optimum choice of trade policy. The regional policy maker will then choose to enlarge and the interest group's contribution schedule will be $D_{ENL} = D_{NON} = 0$.

On the other hand, if the size of the regional bloc is greater than or equal to $\hat{h}$, the regional policy maker faces a trade-off between heeding the industrial lobby's interests and the socially optimal outcome. In fact, the interest group offers a positive political contribution to induce the regional policy maker not to enlarge, insofar as the resulting group's net welfare is at least equal to the group's gross welfare under the social optimum.

Given the political-support maximizing behavior of the regional policy maker and the lobbying activity of the organized interest group, we can state the following proposition:

Proposition 3. The regional policy maker will choose to enlarge the regional trading bloc if and only if the following condition, labeled the supply-side condition, is satisfied:

---

[15] If the group's net welfare were lower than the welfare it would have obtained under the socially optimal trade policy choice, its contribution schedule would be $D_{ENL} = D_{NON} = 0$.

$$a \cdot \left(\Pi_{ENL} - \Pi_{NON}\right) + \left(1-a\right) \cdot \lambda^{\lambda} \left(1-\lambda\right)^{(1-\lambda)} \cdot \left(P_{ENL}^{-\lambda} - P_{R}^{-\lambda}\right) > 0 \tag{21}$$

Proof. See Mathematical Appendix for proof.

Thus, if the size of the regional bloc is greater than or equal to $\hat{h}$ and the supply-side condition holds, the regional policy maker will choose to enlarge and the interest group's contribution schedule will be $D_{ENL} = D_{NON} = 0$. However, if the supply-side condition does not hold, the regional policy maker will choose not to enlarge and the group's contribution schedule will be $D_{NON} = \frac{1-a}{2a-1} \cdot \left(\tilde{W}_{ENL} - \tilde{W}_{NON}\right)$ and $D_{ENL} = 0$.

Then, if the supply-side condition holds, a positive supply of membership arises since the regional policy maker will be willing to further enlarge. However, if the supply-side condition is not verified, the supply of membership will be nil and any third countries' request for membership will be refused. In this regard, we can state the following proposition:

Proposition 4. If the political distortions in the policy-making process are strong enough, a size of the regional trading bloc, labeled as h^*, does exist beyond which the regional policy maker will not be willing to further enlarge the bloc.

Proof. See Mathematical Appendix for proof.

While the supply-side condition is always verified for any size of the bloc smaller than $\hat{h}$ if the political distortions are strong enough, there will be a size of the bloc h^* larger than $\hat{h}$ for which the supply-side condition will no longer be verified.[16,17]

Thus, for any size of the bloc smaller than h^*, the regional policy maker will choose to enlarge. However, if the size of the regional bloc has reached h^*, the regional policy maker will choose not to enlarge. We define h^* as the supply-side implied maximum size of the regional trading bloc, i.e., the equilibrium size that bloc would reach if the demand of membership arising from third country was perfectly elastic.

We use graphical analysis to depict the supply-side political equilibrium.

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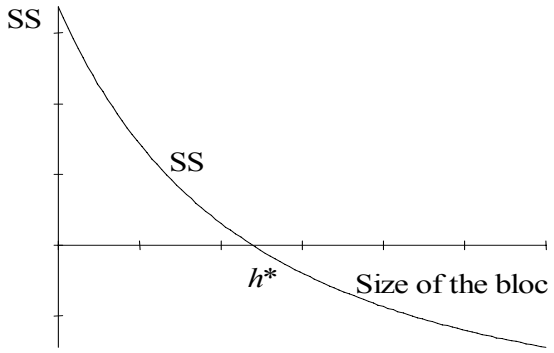
[16] In the rest of the analysis we consider that political distortions in the policy-making process are strong enough to guarantee that h^* does exist.

[17] If the regional policy-maker only cared about the organized group, i.e. $a = 1$, we would have $h^* = \hat{h}$.

Figure 1. The Supply-Side Political Equilibrium



In Figure 1, the locus *SS* plots the right-hand side of the supply-side condition and it is downward-sloping since both the profit and the price index differential are decreasing in the size of the bloc. Corresponding with h^*, at the intersection between the locus *SS* and the horizontal axis, the supply-side condition will no longer be verified. Thus, h^* is the maximum size to which the regional policy maker is willing to enlarge the bloc since enlarging further would imply a loss in political support.[18]

V. THE DEMAND SIDE OF MEMBERSHIP

We model the demand side of membership closely following Baldwin(1995). The policy maker in any third country is assumed to be a political support maximizer à la Grossman-Helpman (1994) that faces two trade policy options: joining the regional bloc or not, given a perfectly elastic supply of membership. We relax this assumption in Section 6 where we show how the supply side of membership might be binding on further enlargements.

The political support received by the policy maker depends on the contribution from an organized interest group that represents local manufacturing firms and that offers a schedule of contingent (implicit) donations to the policy maker to affect its trade policy choice. In addition, it depends on the net aggregate social welfare in the third country, and on the support of those groups that oppose, or sustain, joining the bloc on non-economic grounds.[19]

[18] Respecting the integer constraint, the equilibrium size of the regional trading bloc under a perfectly elastic demand of membership is the highest integer lower than h^*.

[19] Modeling a non-economic resistance to membership which varies across countries captures real world political concerns and enables to depict an equilibrium where some third countries will choose to join the bloc and others will not. We could model a non-economic resistance or willingness to enlargement but it would only rescale the relative strength of pro- and anti-enlargement forces.

Being the aggregate social welfare the sum of agents' indirect utilities, the aggregate social welfare in a third country if the policy maker chooses to join the bloc or not to join is:

$$\widetilde{W}_{IN} = h \cdot \lambda^{\lambda} \cdot (1-\lambda)^{(1-\lambda)} \cdot P_R^{(-\lambda)} + kh\Pi_{IN} \tag{22}$$

$$\widetilde{W}_{OUT} = h \cdot \lambda^{\lambda} \cdot (1-\lambda)^{(1-\lambda)} \cdot P_N^{(-\lambda)} + kh\Pi_{OUT} \tag{23}$$

where Π_{IN} and Π_{IN}, the profits of a manufacturing firm's in a third country if the policy maker decided to join the regional trading bloc or not to join are:

$$\Pi_{IN} = \frac{\lambda}{\sigma} \cdot \left[P_{ENL}^{\sigma-1} + h \cdot \mu^{(1-\sigma)} \cdot P_{ENL}^{\sigma-1} + (g-h-1) \cdot \tau^{(1-\sigma)} \cdot P_N^{\sigma-1} \right] \tag{24}$$

$$\Pi_{OUT} = \frac{\lambda}{\sigma} \cdot \left[P_N^{\sigma-1} + h \cdot \mu^{(1-\sigma)} \cdot P_R^{\sigma-1} + (g-h-1) \cdot \tau^{(1-\sigma)} \cdot P_N^{\sigma-1} \right] \tag{25}$$

The aggregate social welfare will be greater if the policy maker chooses to join the bloc.

Firm's profits on its local market would decline if the country joined the bloc since local consumers would pay a lower price μ for varieties produced in the bloc, thereby reducing their consumption of local varieties. However firm's profits in the regional bloc market would be higher since the firm's variety would be available to consumers in the bloc at the lower price μ so that they would increase their consumption of it. Since the loss in profits that the firm would experience in its local market would be more than compensated by the gain in profits in the regional bloc market, the choice to join the bloc would be profit-enhancing for firms located in any third country. Notably, industrial interests in any third country will coincide with the socially optimal trade policy outcome.

The contribution schedule of the organized interest group in a third country will include two items, D_{IN} and D_{OUT}, the political contributions associated with the policy maker's choice of joining the regional bloc or not, respectively. Being the contribution schedule truthful in the Bernheim-Whinston (1986) specification, the interest group will offer to the policy maker the excess, if any, of the lobby's gross welfare under the chosen trade policy option relative to a base level of welfare chosen to satisfy the policy maker's voluntary participation constraint.

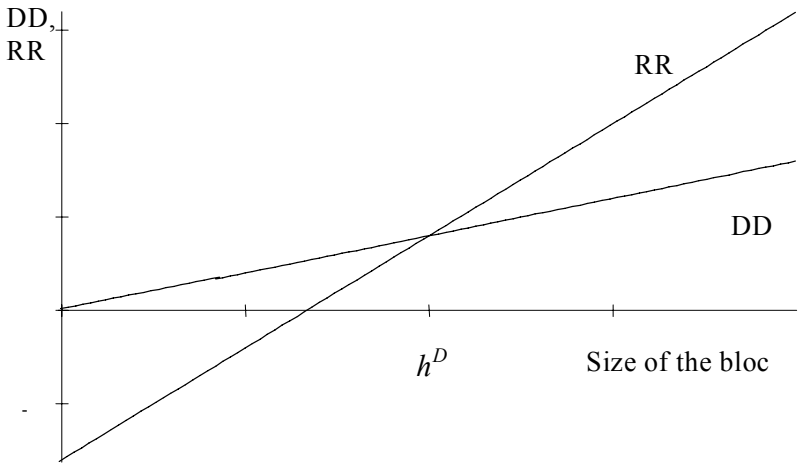
The organized interest group in a third country will offer a positive contribution when its own interests are in conflict with the trade policy outcome that the policy maker would implement in absence of any political contributions. Thus, if in third country *i* non-economic resistance to join, R_i, dominates economic gains to join in absence of political contributions, insofar as the group's net welfare is at least equal to the gross welfare it would have had

otherwise, the contribution schedule will be $D_{IN} = \frac{1}{2a-1} \cdot \left[R_i + (1-a) \cdot \left(\widetilde{W}_{OUT} - \widetilde{W}_{IN} \right) \right]$ and $D_{OUT} = 0$. The interest group's political contributions will be $D_{IN} = D_{OUT} = 0$ otherwise.

The policy maker in a third country *i* will choose to join the regional bloc if the following condition, labeled as the demand-side condition, holds: [20]

$$a \cdot \left(\Pi_{IN} - \Pi_{OUT} \right) + (1-a) \cdot \left(P_R^{-\lambda} - P_N^{-\lambda} \right) \geq R_i \tag{26}$$

Figure 2. The Demand-Side Political Equilibrium



We use graphical analysis to derive the demand-side political equilibrium. In Figure 2, locus *DD* plots the right-hand side of the demand-side condition, and it is upward sloping since both the profit differential and the index price differential are increasing in the size of the regional trading bloc. In addition, by arranging countries in order of increasing resistance to membership on non-economic grounds, locus *RR* plots the resistance to membership of each country.

The size of the bloc at which loci *DD* and *RR* intersect, labeled as h^D, is the equilibrium size that the regional bloc would reach if its supply of membership was perfectly elastic. In fact,

[20] The right-hand side of the demand-side condition will assume a positive value for those countries that have a non-economic resistance to join the regional trading bloc, and negative value for those countries that have a willingness to join on non-economic grounds. Since some countries are characterized by a willingness to enter the regional trading bloc implies that for some countries the demand-side condition will be always verified, irrespectively of the size of the bloc. In turn, this guarantees that the regional trading bloc will be formed in the first place.

for all countries on the left of h^D, the demand-side condition will be verified such that they will choose to join the bloc; for all countries on the right of h^D, the demand-side condition will not be verified so that they will not join the bloc.[21]

VI. THE EQUILIBRIUM SIZE OF THE REGIONAL BLOC

In this Section we formalize the equilibrium size of the regional trading bloc allowing for the interaction between the supply of membership of the bloc and the demand for membership arising from third countries. We define the equilibrium size of the regional trading bloc as the size of the bloc beyond which no further enlargements will take place.

First, we can state the following proposition concerning the enlargement of the bloc:

Proposition 5. The regional trading bloc will enlarge if and only if the supply-side condition in Equation (21) is verified and the demand-side condition in Equation (26) holds for at least one of the third countries.

The regional trading bloc will then reach its equilibrium size when either the regional policy maker is no longer willing to further enlarge so that any third countries' request for membership is refused, or none of the third countries is willing to join even though the regional policy maker might be willing to further enlarge. W can then state the following proposition:

Proposition 6. The regional trading bloc will reach its equilibrium size when either the supply-side condition or the demand-side condition is not verified.

As a result of the interaction between the supply of, and the demand for, membership, the equilibrium size of the regional trading bloc will not exceed, but could be smaller than the supply-side implied maximum size of the bloc. More specifically, while the supply side of membership implies that a maximum size beyond which the regional trading bloc will no further enlarge exists, the demand side of membership implies that the supply-side implied maximum size might not be reached in equilibrium.

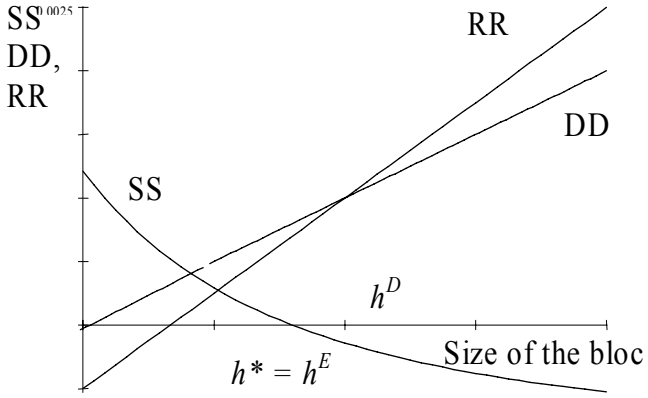
We can use graphical analysis to derive the equilibrium size of the regional trading bloc and show how the supply of or the demand for membership might be binding on further enlargements of the bloc.

First we depict a case in which the supply side of membership is binding in the determination

[21] Respecting the integer constraint, the equilibrium number of countries that will ask for membership in the bloc, under a perfectly elastic supply of membership, is the highest integer lower than h^D.

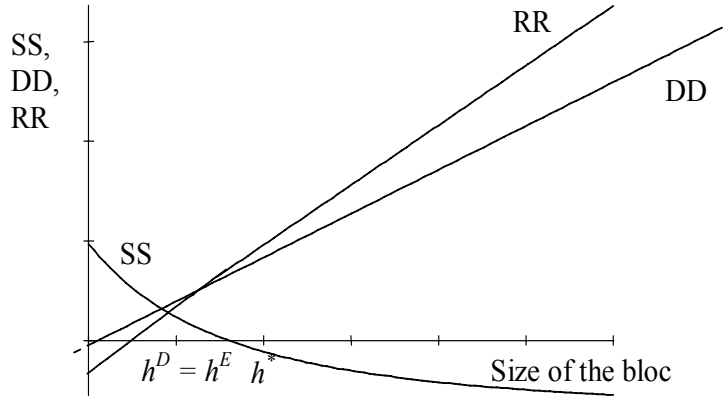
of the equilibrium size of the bloc. In Figure 3, the number of countries that would rather join the regional trading bloc if the supply of membership was perfectly elastic exceeds the supply-side implied maximum size of the bloc, i.e., $h^D > h^*$. Since the regional policy maker will not be willing to enlarge the bloc beyond h^*, the equilibrium size of the regional trading bloc, labeled as h^E, coincides with the supply-side implied maximum size of the bloc, i.e., $h^E = h^*$. Thus, the equilibrium size is smaller than the size that the bloc would have reached if the supply of membership had been perfectly elastic, i.e., $h^E < h^D$.

Figure 3. The Equilibrium Size of the Regional Bloc: Binding Supply Side



Second, we depict a case where the demand side of membership is binding in the determination of the equilibrium size of the regional bloc. In Figure 4, the number of countries willing to join the regional trading bloc is lower than the maximum size that the regional policy maker would have been willing to achieve with a perfectly elastic demand of membership, i.e., $h^D < h^*$. Since the requests for membership in the bloc are not numerous enough, the equilibrium size of the regional trading bloc is smaller than the supply-side implied maximum size of the bloc, and it coincides with the number of third countries that would like to join the bloc, i.e., $h^E = h^D$. The number of countries that in equilibrium are then in the regional trading bloc is smaller than the number of countries that would have been admitted into the bloc if the demand of membership had been perfectly elastic, i.e., $h^E < h^*$.

Figure 4. The Equilibrium Size of the Regional Bloc: Binding Demand Side



VII. Does Deeper Integration Mean Wider Integration?

In this Section we investigate the implications of deeper regional integration on the equilibrium size of the regional trading bloc. In particular, we model deeper integration within the regional trading bloc as a reduction in intra-bloc trade costs from an initial level μ_0 to μ_1, with $\mu_0 > \mu_1 > 1$, and we assess whether it will lead to wider integration, i.e., to an increase in the equilibrium size of the bloc.

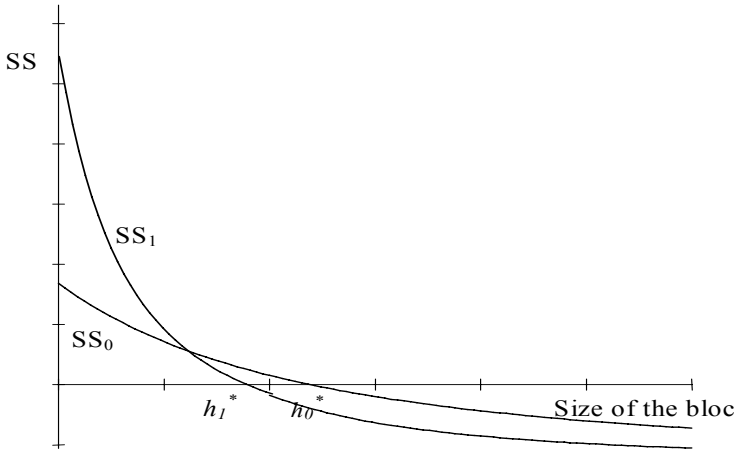
A. Implications for the Supply Side of Membership

Deeper integration within the regional bloc will affect both components of the left-hand side of the supply-side condition in Equation (21). Thus, a reduction in intra-bloc trade costs will contract the size of the regional bloc that maximizes the profits of manufacturing firms located in the bloc, and it will increase the loss in profits that those firms would experience if the bloc enlarged beyond this size. On the other hand, a reduction in intra-bloc trade costs will increase the manufactured composite index price differential that would follow the enlargement of the regional bloc. As a result, deeper integration within the regional bloc will contract the supply-side implied maximum size of the bloc, i.e., the size beyond which the regional policy maker will not be willing to further enlarge the bloc.

We use graphical analysis to illustrate the impact of deeper integration on the supply-side political equilibrium. Figure 5 depicts the left-hand side of the supply-side condition as a function of the size of the bloc for different levels of intra-bloc trade costs: locus SS_0 plots the left-hand side of the supply-side condition for the initial level of intra-bloc trade costs μ_0, while locus SS_1 plots it for the lower intra-bloc trade costs μ_1.

For the initial level of intra-bloc trade costs μ_0, the supply-side implied maximum size of the regional bloc corresponds to h_0^*, at the intersection between locus SS_0 and the horizontal axis. However, following a reduction in the level of intra-bloc trade costs to μ_1, the supply-side maximum size of the regional trading bloc will be at h_1^*, at the intersection between locus SS_1 and the horizontal axis, with $h_1^* < h_0^*$.

Figure 5. The Impact of Deeper Integration on the Supply-Side Equilibrium



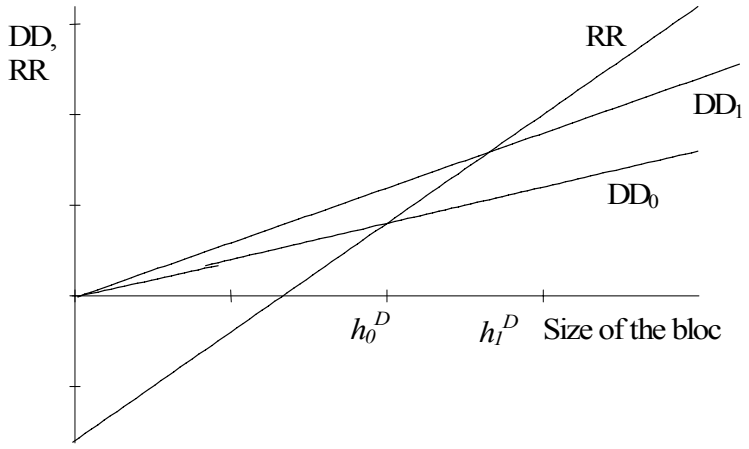
B. Implications for the Demand Side of Membership

Deeper integration within the regional bloc will affect both components of the left-hand side of demand-side condition in Equation (26). A reduction in the level of intra-bloc trade costs will increase the manufactured index price differential that would follow if a third country joins the bloc (the derivative of the price differential with respect to intra-bloc trade costs is negative). In addition deeper integration will increase the gain in profits that manufacturing firms in a third country would obtain if the country joined the bloc (the derivative of the profit differential with respect to intra-bloc trade costs is negative). As a result, deeper integration within the bloc will boost third countries' requests for membership.

We use graphical analysis to illustrate the implications of deeper integration on the demand-side political equilibrium. Figure 6 depicts the left-hand side of the demand-side condition as a function of the size of the bloc for different levels of intra-bloc trade costs: locus DD_0 plots it for the initial level of intra-bloc trade costs μ_0, and locus DD_1 plots it for the lower intra-bloc trade costs μ_1.

For the initial level of intra-bloc trade costs μ_0, the number of third countries that would join the regional bloc if the supply of membership was perfectly elastic is h_0^D, at the intersection between the two loci DD_0 and RR. Because of the reduction in intra-bloc trade costs to μ_1, the number of countries that would rather join the bloc is h_1^D, at the intersection between loci DD_1 and RR, with $h_1^D > h_0^D$.

Figure 6. The Impact of Deeper Integration on the Demand-Side Equilibrium



C. Implications for the Equilibrium Size of the Bloc

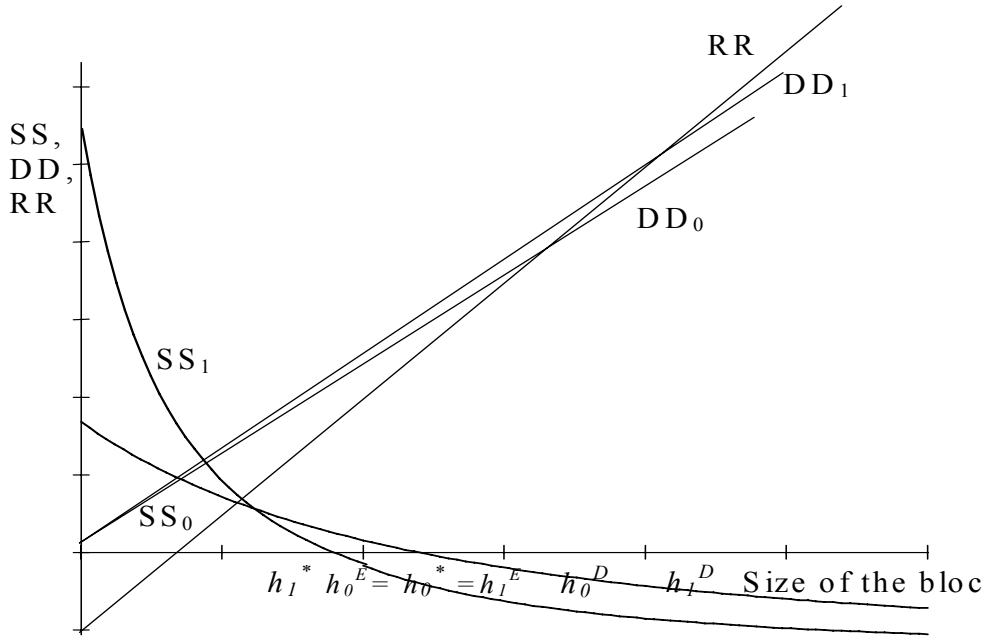
Deeper integration within the bloc boosts third countries' requests for membership, while it contracts the supply-side implied maximum size of the bloc. The impact on the bloc's equilibrium size will then crucially depend on whether the supply side or the demand side of membership is binding.

We use graphical analysis to compare the equilibrium size of the bloc at the initial level of intra-bloc trade costs μ_0 with the one that would be reached if intra-bloc trade costs were reduced to μ_1. First, Figure 7 depicts the case where, for the initial level of intra-bloc trade costs μ_0, the supply side of membership is binding in the determination of the equilibrium size of the bloc. Thus, the initial equilibrium size of the bloc, labeled as h_0^E, coincides with the supply-side implied maximum size of the bloc, i.e., $h_0^E = h_0^*$, with $h_0^E < h_0^D$.

Following deeper integration within the bloc, the supply-side implied maximum size of the bloc will shrink from h_0^* to h_1^*, and the number of countries that would join the bloc if the supply side was perfectly elastic increases from h_0^D to h_1^D. Assuming that the regional policy maker cannot reduce the size of the regional trading bloc by forcing out members, the equilibrium size of the bloc will be unaffected so that $h_1^E = h_0^E = h_0^*$. Thus, although deeper

integration stimulates the requests for membership in the bloc, the supply side of membership will be binding on further enlargements.[22]

Figure 7. Deeper Integration with Binding Supply Side: Unaffected Equilibrium Size



Alternatively, Figure 8 depicts the case where, for the initial level of intra-bloc trade costs μ_0, the demand side of membership is binding in the determination of the equilibrium size of the bloc. Thus, the initial equilibrium size of the bloc coincides with the number of third countries that would like to join the bloc, i.e., $h_0^E = h_0^D$, with $h_0^E < h_0^*$.

Deeper integration within the regional trading bloc will shrink the supply-side implied maximum size of the bloc from h_0^* to h_1^*, while boosting the number of countries that would rather join the bloc from h_0^D to h_1^D. Deeper integration removes the binding effect of the demand side, but it also reduces the maximum size to which the regional policy maker is willing to enlarge the bloc. As shown in Figure 8, if the new supply-side implied maximum size is smaller than the initial equilibrium size, i.e., $h_1^* < h_0^E$, deeper integration will not affect the bloc's equilibrium size since additional requests for membership from third

[22] If the regional policy-maker could force members out, the equilibrium size of the bloc would contract to the new supply-side implied maximum size, i.e., $h_1^E = h_1^*$ with $h_1^E < h_0^E$.

countries will be refused, i.e., $h_1^E = h_0^E$.

However, as shown in Figure 9, if the new supply-side implied maximum size of the bloc is greater than the initial equilibrium size, i.e., $h_1^* > h_0^E$, the regional policy maker will be willing to further enlarge, and deeper integration will increase the equilibrium size of the bloc. If the additional requests for membership are numerous enough, the bloc will reach its new supply-side implied maximum size, i.e., $h_0^E = h_1^*$ with $h_1^* > h_0^E$.

Figure 8. Deeper Integration with Binding Demand Side: Unaffected Equilibrium Size

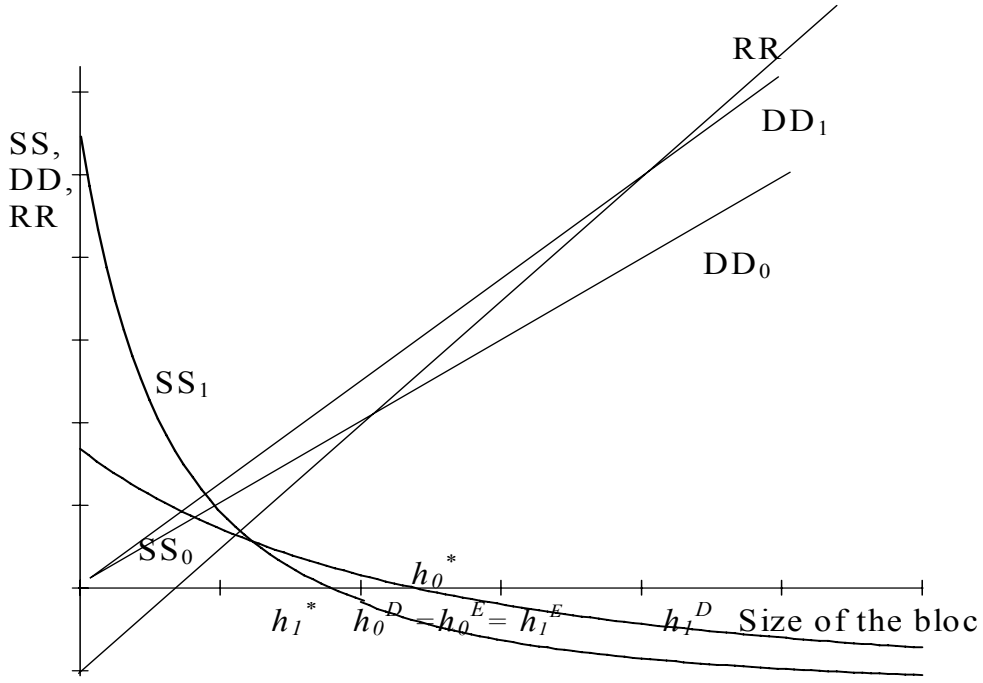
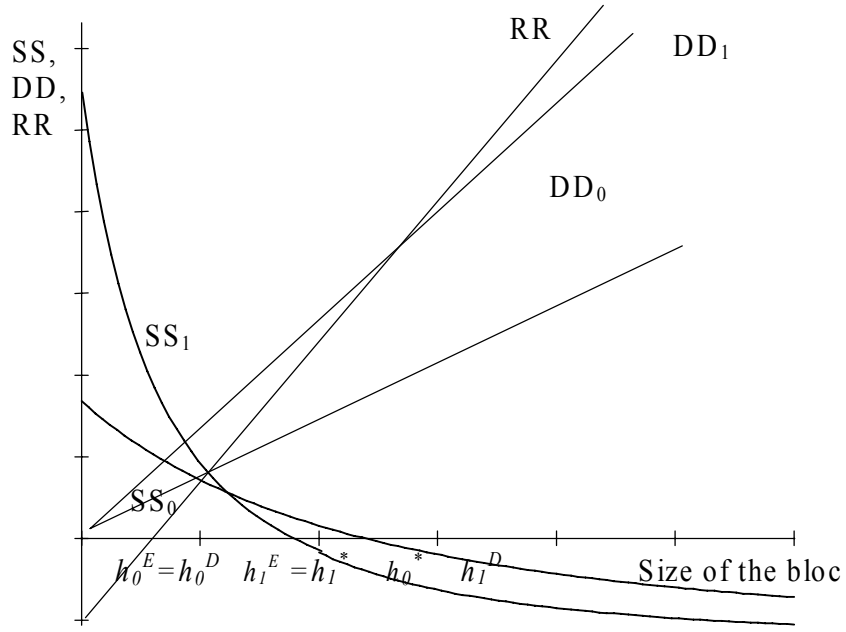


Figure 9. Deeper Integration with Binding Demand Side: Greater Equilibrium Size



VIII. CONCLUSIONS

This paper investigated whether a regional trading bloc will expand or remain stagnant in size in a model where the incentives both for a regional trading bloc to enlarge and for non-member countries to join are formalized.

First we showed that, owing to the interaction between pro and anti-enlargement forces in the policy-making process, a supply-side implied maximum size of the bloc exists beyond which the regional policy maker will not be willing to further enlarge so as not to lose political support.

In addition, we depicted the enlargement of the bloc as the endogenous outcome of the interaction between the supply of membership of the bloc and the demand for membership arising from third countries. Thus, if the size of the bloc is smaller than the supply-side implied maximum size, the bloc will enlarge if a request for membership from third countries arises; the bloc will not enlarge further if its supply-side implied maximum size is reached and any request of membership will be refused.

We also pointed out that the equilibrium size of the bloc will not exceed but could be smaller than the supply-side implied maximum size of the bloc. Specifically, the equilibrium size of the bloc cannot exceed the supply-side implied maximum size since the regional policy maker will not enlarge beyond this size, but it might be smaller if the requests for

membership are not numerous enough. While the supply side of membership is binding on the maximum size the bloc will achieve, the demand side might prevent it to be reached.

Finally, we showed that the implementation of deeper integration among the members of a bloc will affect its equilibrium size through its impact on the supply side and the demand side of membership. In particular, we showed that deeper integration contracts the maximum size to which the regional policy maker is willing to enlarge, while it boosts the demand for membership of third countries. We concluded that deeper integration may lead to wider integration when the demand side of membership is binding in the determination of the equilibrium size of the bloc, while the equilibrium size of the bloc will be unaffected if the supply side of membership is binding.

MATHEMATICAL APPENDIX

A. Derivation of the Regional Aggregate Social Welfare

The aggregate social welfare in the representative member country *i* under the alternative two stances of trade policy is:

$$\widetilde{W}_i^{ENL} = V_L^{ENL} + V_F^{ENL}$$

$$\widetilde{W}_i^{NONENL} = V_L^{N} + V_F^{N}$$

where V_L and V_F are the indirect utility of laborers and firm owners.

Given $p_A = 1$ and $E_L = 1$ in equilibrium, laborers' consumption of the agricultural good and the composite manufactured good are:

$$C_A^L = (1-\lambda)$$

$$C_M^L = \frac{\lambda}{P}$$

It follows that laborers' indirect utility function of is:

$$V_L = (1-\lambda)^{(1-\lambda)} \cdot \lambda^{\lambda} \cdot P^{-\lambda}$$

Given firm owners income, their demand of the agricultural good is:

$$C_A^F = k \cdot \Pi$$

Having assumed $(1-\phi)$ to be equal unity, firm owners' indirect utility is:

$$V_F = k \cdot \Pi$$

Since member countries are symmetric, the regional gross aggregate social welfare under the two trade policy options is:

$$\widetilde{W}_{ENL} = h \cdot \left[\lambda^{\lambda}(1-\lambda)^{(1-\lambda)} \cdot P_{ENL}^{(-\lambda)} + k \cdot \Pi_{ENL} \right]$$

$$\widetilde{W}_{NON} = h \cdot \left[\lambda^{\lambda}(1-\lambda)^{(1-\lambda)} \cdot P_R^{(-\lambda)} + k \cdot \Pi_{NON} \right]$$

B. Proof of Proposition 1

The aggregate social welfare in the representative member country *i* as a function of the size of the bloc is:

$$\widetilde{W}_i(h) = k^{\frac{\lambda}{\sigma-1}} \lambda^{\lambda}(1-\lambda)^{1-\lambda} \cdot (1+(h-1)\cdot\mu^{(1-\sigma)} + (g-h)\cdot\tau^{(1-\sigma)})^{\frac{\lambda}{\sigma-1}} + \\ + \frac{\lambda}{\sigma k}\left[\frac{1+(h-1)\mu^{(1-\sigma)}}{(1+(h-1)\mu^{(1-\sigma)}+(g-h)\tau^{(1-\sigma)})} + \frac{(g-h)\tau^{(1-\sigma)}}{(1+(g-1)\tau^{(1-\sigma)})} \right]$$

The first order derivative of $\widetilde{W}_i(h)$ with respect to *h* is:

$$\frac{\partial \widetilde{W}_i(h)}{\partial h} = (1+(h-1)\mu^{(1-\sigma)} + (g-h)\cdot\tau^{(1-\sigma)})^{\left(\frac{\lambda}{\sigma-1}-1\right)}(\mu^{(1-\sigma)} - \tau^{(1-\sigma)}) \cdot \\ \cdot \frac{\lambda}{\sigma-1} \cdot k^{\frac{\lambda}{\sigma-1}} \lambda^{\lambda}(1-\lambda)^{1-\lambda} + \\ + \frac{\lambda\tau^{(1-\sigma)}}{\sigma k} \cdot \left[\left(\frac{1+\mu^{(1-\sigma)}(g-1)}{\left(1+(h-1)\cdot\mu^{(1-\sigma)}+(g-h)\cdot\tau^{(1-\sigma)}\right)^2} - \frac{\tau^{(1-\sigma)}}{(1+(g-1)\cdot\tau^{(1-\sigma)})} \right) \right]$$

After some manipulations, we have that a sufficient condition for the above derivative to be positive is:

$$(1+(g-1)\cdot\mu^{(1-\sigma)}) > \frac{1}{(1+(g-1)\cdot\tau^{(1-\sigma)})}$$

This condition is always verified since $\tau > \mu > 1$ and $\sigma > 1$ so that the first order derivative of $\widetilde{W}_i(h)$ with respect *h* is always positive.

C. Proof of Proposition 2

The operating profit of the typical manufacturing firm in the regional trading bloc as a function of the size of the bloc is:

$$\Pi(h) = \frac{\lambda}{\sigma} \cdot [P_R^{\sigma-1} + (h-1)\mu^{(1-\sigma)}P_R^{\sigma-1} + (g-h)\tau^{(1-\sigma)}P_{NON}^{\sigma-1}]$$

After several manipulations, the first-order derivative of the operating profit function with

respect to *h* is:

$$\frac{\partial \Pi(h)}{\partial h} = \frac{\lambda}{\sigma k} \cdot \left(\frac{\tau^{(1-\sigma)} + \mu^{(1-\sigma)}(g-1) \cdot \tau^{(1-\sigma)}}{\left(1+(h-1)\cdot\mu^{(1-\sigma)}+(g-h)\cdot\tau^{(1-\sigma)}\right)^2} - \frac{\tau^{(1-\sigma)}}{(1+(g-1)\cdot\tau^{(1-\sigma)})} \right)$$

where the right-hand side is positive for any value of the parameters. The profit function has then a global maximum in $\hat{h}$ which corresponds to the optimal size of the bloc for manufacturing firms located in the bloc:

$$\hat{h} = 1 + \frac{(1+(g-1)\cdot\tau^{(1-\sigma)})^{1/2} \cdot \left[(1+\mu^{(1-\sigma)}(g-1))^{1/2} - (1+(g-1)\cdot\tau^{(1-\sigma)})^{1/2} \right]}{(\mu^{(1-\sigma)} - \tau^{(1-\sigma)})}$$

D. Profit Differential

Given Equations (19) and (20), the profit differential that a manufacturing firm in the regional bloc would experience if the regional policy maker decided to enlarge is:

$$\Pi_{ENL} - \Pi_{NON} = \frac{\lambda}{\sigma} \cdot \left[\begin{array}{c} (P_{ENL}^{\sigma-1} - P_R^{\sigma-1}) + (h-1)\cdot(P_{ENL}^{\sigma-1} - P_R^{\sigma-1})\cdot\mu^{(1-\sigma)} \\ +P_{ENL}^{\sigma-1}\mu^{(1-\sigma)} - P_N^{\sigma-1}\tau^{(1-\sigma)} \end{array} \right]$$

After several manipulations, the derivative of the profit differential with respect to *h* can be written as:

$$\frac{\partial(\Pi_{ENL} - \Pi_{NON})}{\partial h} = -\tau^{(1-\sigma)} \cdot \frac{\lambda}{\sigma k} \cdot \left[(g-1)\mu^{(1-\sigma)} + 1\right] \cdot \left[\begin{array}{c} \frac{1}{\left(1+(h-1)\mu^{(1-\sigma)}+(g-h)\tau^{(1-\sigma)}\right)^2} \\ -\frac{1}{\left(1+h\mu^{(1-\sigma)}+(g-h-1)\tau^{(1-\sigma)}\right)^2} \end{array} \right]$$

Since $\sigma > 1$, $\tau > \mu > 1$, and for $g > 1$, the above derivative is negative.
The derivative of the profit differential with respect to μ is:

$$\frac{\partial(\Pi_{ENL}-\Pi_{NON})}{\partial\mu}=\left\{\begin{array}{c}h[1+h\mu^{(1-\sigma)}+(g-h-1)\tau^{(1-\sigma)}]^{-2}+\\-(h-1)[1+(h-1)\mu^{(1-\sigma)}+(g-h)\tau^{(1-\sigma)}]^{-2}\end{array}\right\}\cdot$$
$$\cdot\frac{\lambda h(\sigma-1)\mu^{-\sigma}k^{-2}}{\sigma}-\frac{\lambda(\sigma-1)\mu^{-\sigma}k^{-1}}{\sigma}\cdot$$
$$\left[\begin{array}{c}[1+h\mu^{(1-\sigma)}+(g-h-1)\cdot\tau^{(1-\sigma)}]^{-1}+\\-[1+(h-1)\mu^{(1-\sigma)}+(g-h)\cdot\tau^{1-\sigma}]^{-1}\end{array}+\right]-$$
$$\frac{\lambda(\sigma-1)\mu^{-\sigma}k^{-1}}{\sigma}[1+h\mu^{(1-\sigma)}+(g-h-1)\tau^{(1-\sigma)}]^{-1}$$

The above derivative is positive sign for $h>\tilde{h}$ with $\tilde{h}=1+\frac{(g-1)\cdot\left[1+(g-1)\cdot\tau^{(1-\sigma)}\right]}{2+(g-1)\cdot\left[\tau^{(1-\sigma)}+\mu^{(1-\sigma)}\right]}$, and negative otherwise. In particular, it is possible to show that $\hat{h}>\tilde{h}$.

E. Price Index Differential

Given Equations (14) and (28), the derivative of the price index differential in the representative member country with respect to *h* is:

$$\frac{\partial(P_{ENL}^{-\lambda}-P_R^{-\lambda})}{\partial h}=\frac{\lambda^{\lambda+1}(1-\lambda)^{(1-\lambda)}\cdot k^{\frac{\lambda}{\sigma-1}}\cdot(\mu^{(1-\sigma)}-\tau^{(1-\sigma)})}{\sigma-1}\cdot$$
$$\cdot\left[\begin{array}{c}[1+h\mu^{(1-\sigma)}+(g-h-1)\tau^{(1-\sigma)}]^{\frac{\lambda}{\sigma-1}-1}+\\-[1+(h-1)\mu^{(1-\sigma)}+(g-h)\tau^{(1-\sigma)}]^{\frac{\lambda}{\sigma-1}-1}\end{array}\right]$$

Assuming that $\sigma>1+\lambda$, i.e., the elasticity of substitution is not excessively low, the above derivative is negative since $\tau>\mu>1$, $1>\lambda>0$, and $\sigma>1$.

The derivative of the price index differential with respect to μ is:

$$\frac{\partial(P_{ENL}^{-\lambda}-P_R^{-\lambda})}{\partial\mu}=-k^{\frac{\lambda}{\sigma-1}}\cdot\lambda^{\lambda+1}\cdot(1-\lambda)^{1-\lambda}\cdot\mu^{-\sigma}\cdot$$
$$\cdot\left[\begin{array}{c}h\cdot(1+h\cdot\mu^{(1-\sigma)}+(g-h-1)\cdot\tau^{(1-\sigma)})^{\frac{\lambda}{\sigma-1}-1}\\-(h-1)\cdot(1+(h-1)\cdot\mu^{(1-\sigma)}+(g-h)\cdot\tau^{(1-\sigma)})^{\frac{\lambda}{\sigma-1}-1}\end{array}\right]$$

Given $1>\lambda>0$ and $\sigma>1$, the derivative of the price differential with respect to is negative.

F. Proof of Proposition 3

For any size of the regional bloc greater than or equal to $\hat{h}$, the interest group's preferred trade policy outcome is for the regional bloc not to enlarge while enlarging is the socially optimal outcome. For the regional policy maker to heed the group's interests, the lobby has to offer a political contribution that makes the regional policy maker just indifferent between choosing not to enlarge and the trade policy option that it would implement in absence of any contribution. Given Equation (21), D_{NON} has to be such that:

$$aD_{NON} + (1-a) \cdot W_{NON} = (1-a) \cdot \widetilde{W}_{ENL}$$

So the political contribution that the organized interest group has to pay for the regional policy maker to choose not to enlarge is:

$$D_{NON} = \frac{1-a}{2a-1} \cdot \left(\widetilde{W}_{ENL} - \widetilde{W}_{NON} \right)$$

This would imply the organized interest group's net welfare to be equal to:

$$B = \Pi_{NON} - \frac{1-a}{2a-1} \cdot \left(\widetilde{W}_{ENL} - \widetilde{W}_{NON} \right)$$

The interest group will offer a positive contribution to the regional policy maker not to enlarge insofar as the group's net welfare is at least equal to the welfare it would have obtained under the socially optimal outcome, i.e.:

$$\Pi_{NON} - \frac{1-a}{2a-1} \cdot \left(\widetilde{W}_{ENL} - \widetilde{W}_{NON} \right) \geq \Pi_{ENL}$$

If this condition is satisfied, the lobby will offer a political contribution so that the regional policy maker will choose not to enlarge. However, if the condition is not verified the lobby will not contribute since the required contribution to make the regional policy maker heed the group's interest would imply a group's net welfare lower than the welfare that would have been obtained otherwise. Rearranging, the regional policy maker will choose to enlarge if and only if:

$$a \cdot (\Pi_{ENL} - \Pi_{NON}) + (1-a) \cdot \lambda^{\lambda} (1-\lambda)^{(1-\lambda)} (P_{ENL}^{-\lambda} - P_{R}^{-\lambda}) > 0$$

G. Proof of Proposition 4

Having shown that the first-order derivatives of the profit differential and of the price index differential with respect to *h* are negative, it follows that the first-order derivative of the right-hand side of the supply-side condition with respect to the size of the bloc is negative.

Thus, since $SS(h)$ is monotonically decreasing in *h* and it is positive for $h=1$, if $SS(h)$ has a negative value in $h=g$, a size of the bloc h^* exists for which $SS(h^*)$ equals zero. After some manipulations, we have that $SS(h)$ will assume a negative value in $h=g$, if the following condition on the political distortions in the political process is verified:

$$a > \frac{\beta \cdot \left[(g-1)^{-1} + \mu^{(1-\sigma)} + \left(\frac{\lambda}{\sigma-1} - 1\right)(\mu^{1-\sigma} - \tau^{1-\sigma})\right]}{\tau^{1-\sigma}[1+(g-1)\mu^{1-\sigma}]^{-\frac{\lambda}{\sigma-1}} + \beta\left[(g-1)^{-1} + \mu^{(1-\sigma)} + \left(\frac{\lambda}{\sigma-1} - 1\right)(\mu^{1-\sigma} - \tau^{1-\sigma})\right]}$$

where

$$\beta = k^{\frac{\lambda}{\sigma-1}-1} \cdot \lambda^{\lambda}(1-\lambda)^{1-\lambda} \cdot \frac{\sigma}{\sigma-1}$$

So if the political distortions are strong enough to satisfy the above condition, there is a size of the bloc, h^*, for which the supply-side condition is not verified so that the regional policy maker will not be willing to further enlarge the bloc. Notably, since it can be shown that $\frac{\partial^2 SS(h)}{\partial h}$ is positive, $\frac{\partial SS(h)}{\partial \mu}$ is negative and $\frac{\partial SS(h=g)}{\partial \mu}$ is positive, it follows that $\frac{\partial h^*}{\partial \mu}$.

A reduction in intra-bloc trade costs reduces then the supply-side implied maximum size of the regional bloc.

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