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ABSTRACT

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This paper provides a different basis than previous analyses for regional bloc formation and regional migration. Due to low bargaining power and fixed costs, small states face a severe disadvantage in negotiations with the rest of the world and might benefit by forming a regional bloc. The study a) presents a general equilibrium model where bargaining power, international (*IC*) and regional (*RC*) negotiation costs, number of issues negotiated (*N*), and accession rule to the bloc determine its size and welfare impact, and b) examines the impact of international migration as well as the migration-trade relationship. The main findings are: i) the likelihood of regional bloc formation, its size and welfare impact increases with *IC*, *N* and decreases with *RC*; ii) bloc size is optimal (below the optimum) if an accession fee is (is not) charged; iii) South-South migration raises bloc size and welfare; iv) South-South migration and trade are complements under market access negotiations and are substitutes under negotiations for unilateral transfers as well as under migrant remittances; and vi) South-North migration and bloc formation, and South-North and South-South migration, are substitutes for the states that benefit from membership in the bloc.

JEL Classification: F15, F16, F22

Keywords: small states, regional cooperation, South-South migration, South-North migration, trade

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1. Introduction

Developing small and micro states – defined by the UN as, respectively, countries with less than 1.5 and less than one million inhabitants – face severe disadvantages in dealing with the rest of the world because of low bargaining power and limited financial and human resources available for the various international negotiations they are engaged in. By forming a regional cooperation agreement and negotiating as a bloc, small and microstates would benefit from greater bargaining power and lower international negotiation costs. As the world has become more integrated, the number of issues to be dealt with in the international arena has grown and so has the importance of regional cooperation between these states.[1]

Regional blocs often arise within a geographic region because member countries typically exhibit greater similarity of interests than more distant countries. The reason is that they tend to produce and export similar products, and negotiate about similar issues with the same regional and/or global powers and institutions. A number of regional blocs with small and micro member states located in relative proximity to each other have arisen over time. These include: i) the fifteen-member Caribbean Community or CARICOM (twelve microstates, one small state and two larger countries, Haiti and Jamaica); ii) the twelve-member Pacific Island Countries Trade Agreement or PICTA (eleven microstates and a larger country, Papua New Guinea); and iii) the six-member Gulf Cooperation Council or GCC (two microstates and four larger ones).

Though countries such as Jamaica and Haiti in CARICOM, and Papua New Guinea in PICTA, are not small in terms of the UN definition, they are small in comparison to developed countries and regions such as the US, EU and Japan in terms of population and, even more so, in terms of their GDP. Hence, the former's influence in international negotiations with the latter is likely to be very limited.[2]

Byron (1994) and IADB (1995) have argued that the fifteen Caribbean members of CARICOM pooled their negotiation resources and formulated common policy stances in negotiations with larger countries, trade blocs and international organizations.[3] Specifically,

[1] Small states should also benefit from membership in a regional bloc because of enhanced visibility and more international agreements due to lower foreign entities' costs of negotiating with a regional bloc than with each small member state separately.
[2] This does not necessarily hold for the GCC whose share of the world oil market is large, though it has declined over time.
[3] The members of CARICOM notified the GATT/WTO on formation of a regional trade agreement on goods in 1974 and on services in 2003.

CARICOM has been involved in the ACP-EU, WTO, the Commonwealth, UNCTAD and UNCLOS (UN Conference on the Laws of the Sea) negotiations and in negotiations with non-CARICOM Caribbean countries, including the Organization of Eastern Caribbean States (OECS), one of CARICOM's five associated institutions. It has also participated in bilateral and regional (Western Hemisphere) commissions with Canada, Mexico, the US, the FTAA, the OAS, the G3 (Colombia, Mexico, Venezuela), SELA and Japan. It has negotiated preferential agreements with Colombia and Venezuela, the EPA with the EU and free trade agreements with Costa Rica, Cuba and the Dominican Republic, with other ones being considered. Moreover, by trading each other's support, the CARICOM nations have succeeded in getting their nationals elected to key international positions such as Commonwealth Secretary-General and ACP Secretary-General.[4]

This paper presents a model in which bloc formation by a region's small and micro-states (henceforth referred to as "small states") is based on negotiation costs and bargaining power rather than on the traditional trade-related arguments for regional integration. While the latter's welfare impact is ambiguous,[5] the former's impact is unambiguously positive. The questions examined are: i) what are the welfare gains small states can obtain from regional cooperation on international negotiations?, ii) how can South-South migration increase the welfare gains from regional bloc formation?, and iii) what does it imply for the relationship between South-South migration and trade, and between South-South and South-North migration?

Though members of a regional bloc may benefit from sharing international negotiation costs, reaching a common position on every issue to be negotiated with foreign entities results in additional costs. The process leading to a common position could be cumbersome and costly, especially if the group size is large and initial positions differ significantly. On the other hand, greater similarity among member states would reduce the cost of reaching a joint policy stance.

[4] As in many regional agreements, accession to CARICOM was sequential. The original treaty was signed in 1973 by Barbados, Guyana, Jamaica, and Trinidad and Tobago. By mid-1974, seven more countries (Belize, Dominica, Grenada, St. Lucia, St. Vincent, the Grenadines, and Montserrat) had joined, followed by the Bahamas in 1983 and Suriname in 1995, and Antigua and Barbuda, Haiti, and St Kitts and Nevis later on. The British Virgin Island and the Turks and Caicos Island were granted Associate Membership in 1991.

[5] For instance, a regional trade bloc among small trading partners is likely to result in a welfare loss (Panagaryia 1995, Schiff 1997).

International migration could make a significant contribution in this context by raising the likelihood that such regional cooperation bloc takes place and by raising the benefit obtained from it. This is likely to be particularly important – and the welfare impact particularly large – in cases where the heterogeneity in the endowments of the bloc's member states is large.

Though an important international trade literature on South-North migration and on its impact in host and home countries exists, this is not the case for South-South migration. The classic trade and factor movement studies are Mundell (1957) and Markusen (1983). Mundell showed in a Heckscher-Ohlin model where wage differentials are caused by trade barriers that South-North migration and trade are substitutes. Markusen, on the other hand, showed in a model where wage differentials are caused by differences in technology that South-North migration and trade are complements.[6] A number of other studies have examined this relationship, including de Melo et al. (2001), de Melo (2007) and de Melo and Ivlevs (2008) who introduced political economy considerations in the analysis.

South-South migration may take place despite higher wages in the North because of constraints on financing South-North migration. As Ozden et al. (2009) have found, forty-seven percent of all migration from the South is to the South and over eighty percent of that is to a neighboring country. López and Schiff (1998) extended the Heckscher-Ohlin model by incorporating migration cost and financing constraints. They find that trade and migration are substitutes for skilled and complements for unskilled labor.

A number of studies have revealed other important determinants of international (and internal) migration, including migrant networks (e.g., Beine et al. 2009) and individual, household, and community characteristics (e.g., Mora and Taylor, 2006, whose analysis of Mexico's internal, international and inter-sectoral migration also accounts for the impact of networks). That migration and migrant networks result in increased trade between host and source countries was found by Gould (1994), Rauch (2001) and Rauch and Trindade (2002), and result in increased investment from host to source countries was shown by Javorcik et al. (forthcoming) and Kugler and Rapoport (2007).

[6] He also examined this issue in the case of factor market distortions, departure from constant returns to scale and perfect competition, and obtained the same result. Schiff (2006) showed that substitution can also obtain in his models.

This paper provides a different motive for migration. South-South migration is undertaken in order to increase the benefits obtained from regional bloc formation by a region's small states. Moreover, as is shown in Section 3, the decision on the level of South-South migration and on the states between which migration takes place is made by the bloc's member states while, as shown in Section 5, the decision to undertake South-North migration is made by the individuals themselves.

The remainder of the paper is organized as follows. Section 2 presents a general equilibrium model where the formation of a regional cooperation bloc among small states and its welfare implications re examined under various accession rules. Section 3 incorporates South-South migration into the model and Section 4 examines the relationship between migration and trade and shows that it varies with the objective of the negotiations and the nature of the benefits. Section 5 incorporates South-North migration in the analysis and Section 6 concludes.

2. Model

This section presents, in Subsection 2.1, a general equilibrium framework in order to examine the formation of a regional cooperative arrangement or regional bloc between some of the region's small states. Subsections 2.2 and 2.3 examine the bloc's equilibrium size and welfare impact under two different rules regarding small states' accession to the regional bloc. This section abstracts from international migration, which is taken up in Section 3.

2.1. Bloc Formation in a General Equilibrium Framework

Assume a Heckscher-Ohlin model for a region with a uniform distribution of small labor-abundant developing states $n_i \in [1,2]$ using capital and labor to produce a labor-intensive exportable (X) and a capital-intensive importable (Y). Prices, which are normalized to one ($P_X = P_Y = 1$), are given to each small state and to the region as a whole, and thus so are the normalized factor prices $w = r = 1$.

The region's small states form a regional bloc if cooperation between its members raises the benefits obtained from international negotiations. The number of foreign entities with which

each state negotiates is denoted by *m*. Internal solutions are assumed throughout unless stipulated otherwise. Each bloc member's per-issue payoff or "revenue" *R* from collective action is

$$R = R(n), R_n \equiv \partial R / \partial n > 0, R_{nn} \equiv \partial^2 R / \partial n^2 < 0 . \quad (1)$$

That $R(n)$ is an increasing function of bloc size *n* reflects the fact that a bloc's bargaining power in international negotiations increases with its size. The latter is particularly important for small states whose individual bargaining power is minimal. The concavity assumption is based on the conjecture that the increase in bargaining power associated with a given expansion in a regional bloc is more important when the group is small than when it is large, though *R* could be convex as long as the net payoff or benefit *B* is concave (see equation (5)).

Negotiation costs are of two types, international costs and regional costs. A small state negotiating individually incurs a per-issue international negotiation cost *x*. The per-issue international negotiation cost incurred by each member of an *n*-country regional bloc is

$$C^I = C^I(n, x), C^I_n < 0, C^I_{nn} > 0, C^I_x > 0, C^I_{nx} < 0 .^7 \quad (2)$$

Bloc members also incur a per-issue regional cost $C^R(n, \alpha, m)$ of reaching a common policy stance, where parameter α -- considered exogenous in this section and endogenous in Section 3 -- is a measure of the dissimilarity in member states' endowments and hence in their positions on the *m* issues. This cost is given by

$$C^R = C^R(n, \alpha, m), C^R_\alpha > 0, C^R_{\alpha\alpha} > 0; C^R_n > 0, C^R_{nn} > 0; C^R_m < 0, C^R_{mm} > 0; C^R_{nm} < 0, C^R_{n\alpha} > 0, C^R_{\alpha m} < 0 \quad (3)$$

The regional cost C^R increases with α at an increasing rate, implying that a degree of dissimilarity exists beyond which it is more beneficial to negotiate individually than as part of a regional bloc, in which case no such bloc is formed. The same result holds for bloc size *n*, with C^R increasing at an increasing rate with *n*. On the other hand, C^R decreases at a decreasing rate with the number of issues *m* being negotiated, i.e., the negative impact of *m* on C^R due to scale and scope economies diminishes with *m*.

The total per-issue negotiation cost is the sum of the international and regional costs, i.e.:

$$C = C^I(n, x) + C^R(n, \alpha, m) . \quad (4)$$

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[7] An example is $C^I = x / n$, with $C^I_n = -x / n^2 < 0, C^I_{nn} = 2x / n^3 > 0, C^I_x = 1/n > 0$, and $C^I_{nx} = -1/n^2 < 0.$

The average per-issue benefit B is the difference between the bloc's payoff R and the sum of the international and regional negotiation costs, i.e.:

$$B(n,\alpha,x,m) = R(n) - C^I(n,x) - C^R(n,\alpha,m) \qquad (5)$$

Since $R(n)$, $-C^I(n,x)$ and $-C^R(n,\alpha,m)$ are concave in n, so is $B(n,\alpha,x,m)$, i.e., $B_{nn} \equiv \partial^2 B/\partial n^2 < 0$. This is shown in Figure 1 where B is represented by curve AB. The benefit of negotiating individually is $B^1 = R(1) - x$, which is assumed positive (see Figure 1). The likelihood that the maximum value of B is greater than B^1, and thus that a regional bloc is formed, increases with bloc members' similarity (i.e., with lower regional negotiation costs), with the level of international negotiation costs and with the number of issues being negotiated.

A bloc's equilibrium size depends on the accession rule. Two such rules are examined. The first one, presented in Section 2.2, assumes member states do not charge an accession fee. The second one, presented in Section 2.3, assumes they charge an accession fee if it is optimal to do so. The first case serves in part as a benchmark against which the second case is compared.[8]

Note that major elements of the general equilibrium model, namely the region's production, consumption and trade of the two goods, cannot be determined at this stage. The object of the international negotiations must first be specified before these variables can be solved for and the model closed. This is done in Section 4.

2.2. No Accession Fee

Denote the maximum value of average benefit $B(n,\alpha,x,m)$ by B^E and the corresponding bloc size (that satisfies $B_n = R_n - C_n = 0$) by n_E (a maximum since $B_{nn} < 0$). The n_E members of the bloc are drawn randomly from the small states in the region, with a probability $n_E < 1$ of being selected. The solution is represented by point B in Figure 1. In the absence of accession fees, new member states obtain the same benefit B as existing members and accession by an additional state generates a positive (negative) externality for $n <$ (>) n_E by raising (reducing) the value of B. Thus, as long as $n < n_E$, member states have an incentive to allow new states to join.

[8] Andriamananjara and Schiff (2001) examine bloc formation in a partial rather than general equilibrium framework and do not consider the issues of international migration or international trade.

However, they have no incentive to expand the bloc beyond size n_E since B falls for $n > n_E$. Thus, n_E is the equilibrium size under this accession rule.

The per-issue value of the regional bloc is $V^E = n_E\left(B^E - B^1\right)$ and is represented by area EFLK in Figure 1. The impact of changes in α, x and m on n_E is obtained by differentiating the first-order condition $B_n = R_n - C_n = 0$. Thus, we have: $B_{nn}dn - C^I_{nx}dx - C^R_{n\alpha}d\alpha - C^R_{nm}dm = 0$ which, with $B_{nn} < 0, C^R_{n\alpha} > 0, C^R_{nm} < 0$ (equations (1) to (3)), implies:

$$dn_E / d\alpha < 0, dn_E / dx > 0, dn_E / dm > 0. \qquad (6)$$

Thus, the bloc size n_E that maximizes the member states' average benefit falls with the degree of dissimilarity between them (i.e., it falls with regional negotiation costs) and increases with international negotiation costs and with the number of issues being negotiated.

2.3. Accession Fee

Denote the equilibrium bloc size in this case by $n^* < 1$, which is the bloc size where the value of the bloc for the n_E members reaches a maximum V^*. The n_E members allow $(n^* - n_E)$ additional states to accede to the bloc (in exchange for a fee) if $V^* > V^E$, i.e., if $\Delta V^* \equiv V^* - V^E > 0$. Non-member small states agree to pay an accession fee if the benefit for them is at least equal to the benefit B^1 of negotiating individually. Given the excess supply of non-member states willing to join the regional bloc $(1 - n_E > n^* - n_E)$, the n_E bloc members provide the acceding states the non-member benefit B^1.

Consequently, $V = V^E + \Delta V = V^E + (n - n_E)(B - B^1)$, with B denoting the average benefit for a bloc of size n. V reaches a maximum V^* at $n = n^*$ where $\partial V / \partial n = B - B^1 + (n - n_E)B_n = 0$ or, defining gross benefit as $TB = n_E B^E + (n - n_E)(B - B^1)$, where the marginal gross benefit of accession $MB = B + (n - n_E)B_n = B^1$. The solution is represented by point C in Figure 1, with $V^* = V^E + \Delta V^*$, where $\Delta V^* = (n^* - n_E)(B^* - B^1)$ is represented by area FGJI = area FGL.

The impact of α, x and m on n^* can be obtained by differentiating the first-order condition $B(n,\alpha,x,m) - B^1(x) + (n - n_E)B_n(n,\alpha,x,m) = 0$. Thus, $(2B_n + (n-n_E)B_{nn})dn + (B_\alpha + (n-n_E)B_{n\alpha})d\alpha + (B_x + (n-n_E)B_{nx} - B_x^1)dx + (B_m + (n-n_E)B_{nm})dm = 0$, which, together with equations (1) to (3), implies:

$$dn^*/d\alpha < 0, dn^*/dx > 0, dn^*/dm > 0. \quad (7)$$

Thus, bloc size n^* falls with member states' dissimilarity (i.e., with regional negotiation costs) and increases with international negotiation costs and with the number of issues negotiated.

Note that $B_n < 0$ for $n > n_E$ and $(n - n_E)B_n$ is the negative externality the $(n - n_E)^{th}$ new member imposes on the n_E bloc members ($n_E < n \leq n^*$). Thus, the bloc size n^* that maximizes the value of the regional bloc for the n_E members also maximizes welfare for the region as a whole since the *marginal* benefit $MB(n,\alpha,x,m) = B^1(x,m)$ and is thus the same for the n_E original members, the $(n^* - n_E)$ new members, and the $(1 - n^*)$ non-members. As is well known, welfare is maximized when the marginal (social) value of a resource is equalized across all its alternative uses, which in this case means that the value of the regional bloc is maximized when the marginal social value is the same for the three groups of small states.

In the case of a common property resource, a "tragedy of the commons" results when the *average* rather than the marginal social value of the resource employed is equated in all its uses. This obtains under free entry into the regional bloc, i.e., under open access to the common property resource, in which case the average benefit $B(n,\alpha,x,m) = B^1(x,m)$ is identical for all the region's small states and the value of the regional bloc is entirely dissipated. This situation is represented by point D in Figure 1, with migration level equal to n_F.

The main results obtained in this section are collected in the following proposition.

<u>Proposition 1</u>: Assume a region's small states negotiate with m non-regional entities on m issues, with some states doing so as a bloc, and denote the per-issue benefit of negotiating individually by B^1 and the average benefit of negotiating as a bloc by $B^N = B^E, B^*$. Then:
i) The likelihood that $B^N > B^1$ and a bloc is formed increases with international negotiation costs and with the number of issues negotiated, and decreases with bloc members' dissimilarity α (and thus with regional negotiation costs);

ii) In the absence of an accession fee, equilibrium bloc size n_E *maximizes members' average benefit* B^E *but not regional welfare;*
iii) Under an accession fee, equilibrium bloc size $n^* > n_E$ *maximizes both the average benefit of the* n_E *members (at a level* $B^* > B^E$*) and regional welfare; and*
iv) $\frac{dn_N}{d\alpha} < 0, \frac{dn_N}{dx} > 0, \frac{dn_N}{dm} > 0; n_N = n_E, n^*$.

The analysis so far has assumed that the $(1-n^*)$ small states that are not part of the bloc engage in international negotiations individually. The alternative assumption that these non-members plus the $(n^* - n_E)$ bloc members that also obtain benefit B^1 – i.e., all small states in the region except for the n_E bloc members – form a separate bloc is examined in the Appendix.

3. South-South Migration

Assume the dissimilarity in small states' positions on the issues that are negotiated internationally is a function of the dissimilarity in their relative endowment of labor and capital $l_i = L_i / K_i$. The question examined here is whether migration between the region's small states can reduce their regional negotiation cost and contribute to the benefit obtained from engaging in international negotiations as a bloc.[9]

The heterogeneity in small states' positions is represented by the parameter α in the regional cost function $C^R = C^R(n, \alpha, m)$ in equation (3). A number of statistics of the distribution of l_i can serve as a measure of its heterogeneity. For simplicity, the measure used here is the *range* of l_i values, $l_{MAX} - l_{MIN}$, across the region's small states.

Assume, without loss of generality, that *K* is constant at level *K* = 1. Then, l_i simplifies to L_i, with $\alpha = L_{MAX} - L_{MIN}$, with $L_i \in [1,2]$ assumed to have a uniform distribution. The total amount of migration in the bloc is M. For simplicity, it is assumed that $M \geq 1$. The benefit from migration increases with the degree of dissimilarity α between the region's small states, their

[9] This assumes intra-bloc migration holds among the region's small states. Intra-GCC migration is 59.8% of total migration by GCC countries (and 82.9% without the largest country, Saudi Arabia). The figures are much lower for CARICOM, in part due to its closeness to the US market. CARICOM's intra-bloc share in its total migration is around 4% (similar to the PICTA figure) and is 9% for the intra-bloc share between CARICOM's 13 small and microstates or more than double the overall share.

geographic proximity (i.e., lower migration cost), number of issues *m* being negotiated, and with a reduction in international migration costs *x*.

Maximizing benefits with respect to α takes place in two steps. Before migration takes place, small states maximize their benefit from membership in the bloc by ensuring a compact set of labor force values, e.g., $L_i \in [1,1+n]$; $n = n_E, n^* \leq 1$. Once migration takes place, the optimum way to reduce α is to start with migration from the state with the largest labor force (the "top" state) to the state with the smallest one (the "bottom" state). Since migration reduce the labor force in the top state and raises it in the bottom one, the number of top and bottom states increases with *M*. Thus, reducing the value of α requires emigration from, and immigration to, an increasing number of states as migration proceeds. Hence, the marginal impact of migration on α declines as migration increases.

Denote the largest (smallest) post-migration labor force in the regional bloc by $L_{MAX}(L_{MIN})$. Before migration, $\alpha = L_{MAX} - L_{MIN} = (1+n) - 1 = n$. Following migration, we have $L_{MAX} = 1 + n - \int_1^M \frac{1}{M_i} dM_i = 1 + n - \log M$, and $L_{MIN} = 1 + \log M$. Thus:

$$\alpha = L_{MAX} - L_{MIN} = n - 2\log M;\ \partial\alpha/\partial M = -2/M,\ \partial^2\alpha/\partial M^2 = 2/M^2.^{10} \qquad (8)$$

Equation (8) shows that migration reduces α by -2/*M*, with the reduction falling with *M*.

The next step is to determine the optimal value of *M*. The total benefit member states obtain from bloc formation in this case is:

$$G \equiv mV(M) - C^M = mV(M) - cM;\ \partial G/\partial M = m(\partial V/\partial M) - c, \qquad (9)$$

where $C^M = cM$ is the total migration cost and *c* is the cost per individual migrant.

As mentioned above (footnote 10), the intra-regional South-South migration cost *c* is likely to be relatively small while the increase in average benefit *B* (associated with the migration-related decrease in α and thus in C^R) is multiplied by $mn_E(M)$ (with $n_E(M) > n_E(0)$) so that migration is likely to be beneficial. Denoting the maximum value of

[10] The reason the marginal impact of migration *M* on α is -2/*M* is illustrated with the following example: assume ten small states *S* = 1, …, 10 that are ordered by increasing size of their labor force *L* = 1, …, 10. In the absence of migration (*M* = 0), α = 9. With one migrant (M_1 = 1) moving from the top to the bottom labor-endowed state, *L* = 2 in states S = 1, 2, and *L* = 9 in states S = 9, 10, with α = 7 and $d\alpha/dM$ = -2/ M_1 = -2. Then, for α to fall, the additional migration M_2 must be equal to 2, in which case *L* = 3 in states S = 1, 2 and 3, and *L* = 8 in states S = 8, 9 and 10, with α = 5, i.e., $d\alpha/dM$ = -2/ M_2= 1, etc.

$G(M)$ by $\tilde{G}(\tilde{M})$, we have $\tilde{G}(\tilde{M}) = mV(\tilde{M}) - c\tilde{M} > G^*(0) = mV^*(0) > G^E(0) = mV^E(0)$, with $\tilde{M}$ determined by the equality $\frac{\partial G}{\partial M} = m\frac{\partial V}{\partial M} - c = m\left(\frac{\partial V}{\partial \alpha}\right)\left(\frac{\partial \alpha}{\partial M}\right) - c = -2mM^{-1}\left(\frac{\partial V}{\partial \alpha}\right) - c = 0$.

Denote the optimum bloc size in the absence (presence) of an accession fee by $\tilde{n}_E(\tilde{n}^*)$ and the optimum migration level by $\tilde{M}^E(\tilde{M}^*)$. Since $\tilde{V}^* = \tilde{n}_E(\tilde{B}^E - B^1) + (\tilde{n}^* - \tilde{n}_E)(\tilde{B}^* - B^1)$, $\tilde{M}^*$ is given by

$$\tilde{M}^* = -\frac{2m}{c}\left\{\left[\left(\tilde{B}^E - B^1\right)\frac{\partial \tilde{n}_E}{\partial \alpha} + \tilde{n}_E\frac{\partial \tilde{B}^E}{\partial \alpha}\right] + \left[\left(\tilde{B}^* - B^1\right)\frac{\partial(\tilde{n}^* - \tilde{n}_E)}{\partial \alpha} + \left(\tilde{n}^* - \tilde{n}_E\right)\frac{\partial \tilde{B}^*}{\partial \alpha}\right]\right\}, \quad (10)$$

where $\frac{\partial \tilde{n}_E}{\partial \alpha}$ and $\frac{\partial \tilde{n}^*}{\partial \alpha}$ are given by equations (5) and (6), $\frac{\partial \tilde{B}^E}{\partial \alpha} = -\frac{\partial C^R(n_E)}{\partial \alpha}, \frac{\partial \tilde{B}^*}{\partial n} = -\frac{\partial C^R(\tilde{n}^*)}{\partial \alpha}$, and the term in the $\{\ \}$ brackets is negative.[11] Since $\tilde{V}^E = \tilde{n}_E(\tilde{B}^E - B^1)$, it follows that

$$\tilde{M}^E = -\frac{2m}{c}\left[\left(\tilde{B}^E - B^1\right)\frac{\partial \tilde{n}_E}{\partial \alpha} + \tilde{n}_E\frac{\partial \tilde{B}^E}{\partial \alpha}\right] < \tilde{M}^*. \quad (11)$$

The impact of migration on the value of the bloc and on the region's welfare in the case of an accession fee is

$$\Delta G^* = \tilde{G}^*(\tilde{M}^*) - G^*(0) = m\left[\tilde{V}^*(\tilde{M}^*) - V^*(0)\right] - c\tilde{M}^*. \quad (12)$$

Migration raises V in two ways. First, the reduction in α and in regional negotiation costs raises V at the original bloc size n^*. Second, the optimal adjustment of the bloc size from n^* to $\tilde{n}^*$ further raises V.

Given that $C^R_{\alpha\alpha} > 0$, a value of α exists for which $V^*(0) < 0$ (in the absence of migration) and no regional bloc is formed. In that case, if $\tilde{G}^* > 0$, the impact of migration on the value of the bloc is $\Delta G' = \tilde{G}^*(\tilde{M}^*) - G^*(0) = m\tilde{V}^*(\tilde{M}^*) - c\tilde{M}^*$. Not surprisingly, $\Delta G' > \Delta G$, i.e., migration has a greater impact in the case where no bloc is formed in the absence of migration.

The findings in this section are summarized in Proposition 2.[12]

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[11] The derivation $\partial(\tilde{n}^* - n_E)/\partial\alpha < 0$ is available upon request. This result also holds in the absence of an accession fee (in which case $\tilde{n}^* = \tilde{n}_E$).

Proposition 2: The impact of international migration on bloc and regional welfare is $\Delta G = m\left[\tilde{V}(\tilde{M}) - V^{*}(0)\right] > c\tilde{M}$ *. The likelihood that* $\Delta G > 0$ *increases with dissimilarity (*α*) of the small states, their proximity (i.e., with lower migration cost c), the number of issues being negotiated, and a lower international migration cost x. The benefit from migration is greater in the case where a regional bloc is formed in the presence of migration but not in its absence.*

4. South-South Migration and Trade

Section 1 described a number of studies of the migration-trade relationship. This section considers two alternative objectives small states pursue in their various international negotiations and examines the implications of each for the relationship between migration and trade. Each objective makes it possible to determine production, consumption and trade for the two goods and close the model. The first of the bloc members' objectives is to obtain a higher level of unilateral transfers from the *m* entities with which they are negotiating. The second one is to obtain greater access to their trading partners' market. The implications for the relationship between migration and trade are examined, respectively, in Sections 4.1 and 4.2 below.

4.1. Unilateral Transfers

Assume activities associated with regional and international negotiations, including migration, are "produced" with goods *X* and *Y*. Intra-bloc migration raises bloc size and unilateral transfers (equation (1)), and raises bloc members' total benefit by ΔG. Homothetic Heckscher-Ohlin preferences and constant prices for the region imply constant income shares s_X spent on *X* and $s_Y = 1 - s_X$ spent on *Y* ($0 < s_X, s_Y < 1$). Moreover, the fact that factor prices are given implies that production of *X* and *Y* is given as well and is independent of the size of the transfers obtained.

Assume, plausibly, that transfers are made in units of good (*Y*) exported by the donors. Then, migration and trade are substitutes, even if – as assumed here – *all* negotiation-related expenditures are in units of good *Y*. In that case, the (net) benefit ΔG is in units of good *Y* as well, and since a share s_X of ΔG is spent on *X*, exports of *X* fall by $s_X \Delta G$. Similarly, since a

[12] Note that individuals have no incentive to migrate since migration entails a private cost while its benefit accrues to the entire population of the bloc. Thus, bloc formation and migration are decisions that must be taken by member states' authorities.

share s_Y of ΔG is spent on *Y*, imports of *Y* fall by $(1-s_y)\Delta G = s_X \Delta G$. Thus, migration and trade are substitutes.[13]

The same holds if migrants to the North (see Section 5) send remittances home. The assumption of remittances provided in donors' exportable units *Y* is not only plausible but can also be observed in the case of migrants who send, or take with them on their visits home, goods that are unavailable in their country of origin or only at much higher cost.

4.2. Market Access

In this case, the larger size of the regional bloc implies that its members obtain greater access for their exports. Thus, migration and trade are complements in this case.[14] The results obtained in this section are summarized in Proposition 3.

Proposition 3: The relationship between international migration and international trade depends on the object of the negotiations. Under negotiations for increased unilateral transfers that are, as seems plausible, provided in units of the donor's exportable good, migration and trade are substitutes. Under negotiations for increased market access, migration and trade are complements. Substitution also holds for remittances sent by migrants to the North.

5. South-South and South-North Migration

Assume small member states first decide on bloc formation and South-South migration, after which individuals decide on South-North migration. Equilibrium South-North migration is given by equality between the heterogeneous migration cost and the North-South income gap. Under unilateral transfers, the income gap is equal to the difference between the wage rate in the North and the sum of the wage rate in the South and the per-capita benefit of bloc formation. Thus, South-North migration declines with the per-capita benefit from bloc formation.

The implications of these are provided below in Proposition 4.

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[13] The opposite holds for payment in *X*-units. Partial equilibrium analysis typically assumes money transfers are made in some convertible currency. As benefit ΔG is spent on both goods, imports rise and exports fall, i.e., migration and exports are substitutes (and migration and imports are complements. This differs from our result because money cannot be consumed). The Heckscher-Ohlin model is a *real* general equilibrium model and does not include fiat money as no one would hold money in a static (or finite-period) model because it would imply a loss of current (or final-period) consumption without any future period where the money could be used to buy consumer goods or to bequeath it.

[14] If the benefit is infra-marginal, as with a small increase in a binding tariff quota, the marginal export price and output is unchanged. If the quota is not binding, increased preferences raise the marginal export price and output.

Proposition 4: i.e., South-North migration and bloc formation are substitutes, i.e., South-North migration is smaller for the n_E bloc members than for the other small states (whether non-member states or, in the case of an accession fee, the additional ($n^* - n_E$) member states); ii) South-North migration and South-South migration are substitutes; and iii) South-North migration and accession fees are substitutes, whether under South-South migration or in its absence.

6. Conclusion

This paper examined, first, the issue of regional bloc formation among small states for the purpose of obtaining greater benefits from international negotiation, with bloc formation based on regional and international negotiation costs and bargaining power rather than on the traditional trade-related arguments for regional integration. The analysis was conducted within the framework of an augmented Heckscher-Ohlin model that includes international negotiations. Small states benefit from the creation of a regional bloc by saving on international negotiation costs and by obtaining a higher return from international negotiations, and they incur a regional negotiation cost of achieving a unified position. The findings were as follows.

First, bloc size and its welfare impact depend on the accession condition. A selective membership without accession fee leads to an inefficiently small bloc from the viewpoint of its members and of the region as a whole because the marginal accession benefit is greater than non-member states' benefit. In the case of an accession fee, bloc size is optimal for the original bloc members and for the region as a whole.

Second, the likelihood a regional bloc is formed and its size under both accession rules increases with the level of international negotiation costs, the number of issues being negotiated, and the degree of similarity between the members of the bloc (i.e., with a decrease in regional negotiation costs).

Third, with low migration costs within a region (e.g., CARICOM), South-South migration raises the average benefit obtained by members of the bloc and the region's welfare. The likelihood this obtains increases with the degree of dissimilarity between the region's small states, their geographic proximity, the number of issues being negotiated, and with a reduction in international migration costs.

Fourth, migration and trade are substitutes in the case when negotiations are for increased unilateral transfers and migrants to the North send remittances back home, under the plausible assumption that they are provided in units of the donors' export good. They are complements under negotiations for increased market access.

Fifth, South-South and South-North migration are substitutes.

Appendix

The case where the sum of non-member states and member states with benefit B^1 forming a separate bloc is examined here. Assume they form a bloc of size z, with average benefit $B^Z > B^1$, and assume first that $z < n_E$. Since $MB^E = B^E$ at $n = n_E$ (since B is maximized at B^E) and $B^Z < B^E$, it follows that members of the n_E-bloc have an incentive to let some outsiders accede to their bloc. They do so as long as $MB^n > B^v$, where v is the number of outsiders left after z - v outsiders have joined the n_E-bloc.

How do the z outsiders respond to the invitation for some of them to join the n_E-bloc? Any member of the z-bloc that joins the n_E-bloc generates a negative externality for the other z-bloc members since $-\partial B^z / \partial z < 0$ for $z < n_E$. In other words, the remaining v members of the z-bloc lose and the members of the n_E-bloc are able to reduce the benefit provided to successive members of the z-bloc that joins their bloc. Thus, the z-bloc members have an incentive not to have anyone join the n_E-bloc and they are able to pay any member so as to stop it from defecting. Hence, no z-bloc member joins the n_E-bloc and the latter's equilibrium size is n_E. The analysis above holds for a number of small states z above a critical value. On the other hand, if z is below that crit ical value, members of the n_E-bloc benefit from having all members of the z-bloc accede by paying them the benefit B^Z.

Finally, assume $n_{MAX} > 2n_E$, say $n_{MAX} = \lambda n_E + z$, $\lambda > 2$. Then, λ additional blocs of size n_E are formed. If $\lambda > z$, the z outsiders benefit from excess-demand for accession to the λ blocs and each member joins a different bloc and obtains a benefit B^E rather than the lower B^Z. If $z > \lambda$, either z/λ members would join each one of the λ blocs and be paid B^Z, or none of them would

join. No matter the outcome, outsiders would do better by forming a bloc than acting individually, while members of the n_E-bloc would do worse.

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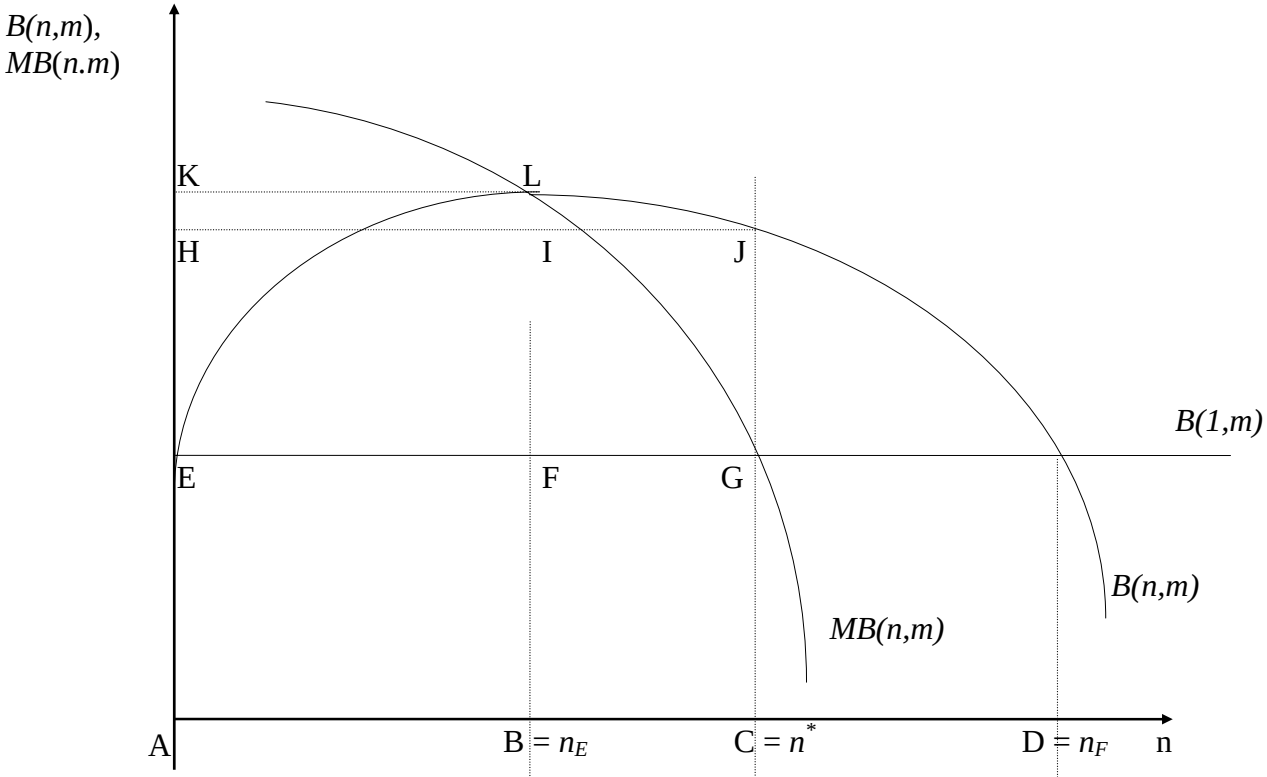
Figure 1: Equilibrium Bloc Size



NO ACCESSION FEE:

Bloc Size = AB

Reject new members

Bloc Size = AC

Accept new members

Reject new members

ACCESSION FEE: