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Regional Integration: What Is in It for CARICOM?

E conomic and political integration has long been a painful issue on the Caribbean agenda. As one analyst states, "The recognition of the seminal truth that only a unified Caribbean, politically and economically, can save the region from its fatal particularism is at least a century old."[1] Despite this early awareness, the first ambitious and wide-reaching policy initiative was only implemented in 1958, with the short-lived West Indian Federation. The collapse of this initiative in 1962 did not mean, however, the end of the integrationist ideal, which flared up again six years later in the form of the less ambitious Caribbean Free Trade Association (CARIFTA). Countries in the region have since raised the stakes, aiming at deeper, broader, and more complex forms of integration. In 1973, they established the Caribbean Community and Common Market (CARICOM), which sought to establish a customs union and policy and functional cooperation. In the 1990s, a number of culturally and economically diverse nations joined the agreement, and ambitious targets were set to create a single market and economy with full factor mobility and harmonization of economic policies (namely, the CARICOM Single Market and Economy, or CSME).

All this integrationist zeal begs the question of whether politics or economics (or both) is the driving force behind the movement. Exploring the underlying forces may provide clues to the rationality of the process and, therefore, its chances of success. Politicians and economists alike have already made numerous efforts to clarify these issues and to draw lessons from the region's experience with over three decades of integration. Even so, some gaps of

1. Lewis (1968, p. 363).

understanding remain about motivation, rationality, and results. Given that politicians in the region are building in the midst of what may arguably be the deepest and most comprehensive process of integration in the western hemisphere, the time could not be more opportune for a concerted effort to fill these gaps.

The rest of the paper is divided into three sections. the next section draws on the literature on trade, growth, and regional agreements to discuss the motivation behind the Caribbean drive for integration. We argue, with the help of an empirical growth model, that the traditional gains from regional integration are bound to be limited for three reasons: the Caribbean economies' openness, the relatively small common market, and the countries' similar factor endowments. We also argue, however, that integration may produce substantial gains in the area of nontradables.

The subsequent section uses descriptive data and a gravity model to discuss the results of integration over the last three decades in the light of the issues raised earlier. The analysis of descriptive data indicates that regional preferences have had a positive, though modest, impact on intraregional trade, with most of the gains happening before CARICOM was signed. The gravity model confirms the trade-creating nature of the preferences, but suggests that the gains have been declining since the 1970s, despite (or because of) the trade-creating reforms of the 1990s.

The final section summarizes the main findings and conclusions, with a focus on what is arguably the main message of this paper. Specifically, integration can generate significant benefits in nontradables as a result of regional cooperation in the countries' social and physical infrastructure, and these gains are likely to dwarf the traditional gains from trade.

Motivation

The literature on regional agreements suggests that such pacts are inspired by the interplay of political and economic arguments.[2] The political motivations range from regional security to bargaining power. That is, countries sign regional agreements because they believe integration will reduce political and military rivalry among member countries (as in the case of the European Union and the Southern Common Market, or MERCOSUR), reduce the political and military threat of countries outside the agreement (for example, the Association

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2. World Bank (2000); IDB (2002).

of Southeast Asian Nations, or ASEAN), and increase their bargaining power in international negotiations.

None of these political arguments seems to have carried much weight in the case of the Caribbean—or, to be more precise, of the Anglo-Saxon Caribbean—with the possible exception of the bargaining argument in later stages of CARICOM integration. That does not mean, however, that politics did not play a part. In fact, regional integration appears to have emerged as a tool for political independence. Both the colonizer (Great Britain) and the colonies (West Indies) at some point shared the belief that, given the small size of the administrative units, political independence was only viable under the form of a federation, namely, the West Indian Federation established in 1958.[3]

Behind this political motivation lay an economic understanding that there is a minimal size below which countries or governments cannot be economically viable. It did not take long, however, for the larger units of the federation (namely, Jamaica and Trinidad and Tobago) to realize that the size constraints on political emancipation were not that binding. This realization, combined with a skeptical view of the benefits of regional integration, led to the collapse of the federation in 1962. Nevertheless, politicians appear to have held on to the underlying idea that size is an important constraint—not as an impediment to statehood, but as a limitation on economic development—and this perception appears to have been the main driver behind renewed attempts at regional integration, including CARIFTA in 1968, CARICOM in 1973, and the CSME in the late 1990s.

Some Caribbean analysts, while acknowledging that economic motivation has played a leading role in the integration process, argue that "the real basis and impetus for our integration is cultural."[4] That may well be the case, but the overriding motivation for regional agreements has been to reduce some of the disadvantages of small size.[5] Countries join forces to create economies of scale, which allow them to increase productivity, diversify their output, and ultimately boost growth.

Economic theory, since the writings of Adam Smith, supports the notion that size matters for welfare and growth. Smith, for instance, explains that the extent of the market limits the division of labor and any benefits thereof in terms of productivity and output diversification. More recently, the literature on trade argues that economies of scale play a key role in shaping trade

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3. Lewis (2002).
4. Farrell (1981). Ross-Brewster (2000) makes a similar point.
5. Venables (2003).

patterns, particularly between countries with similar factor endowments, and also have a bearing on the gains from trade.[6] Likewise, the endogenous growth theories suggest that large countries are likely to grow faster than small countries because growth depends on innovation, which is intensive in scale effects.[7]

Other arguments in the literature go beyond the impact of size on trade and growth. Alesina and Spolaore, for instance, speak of size advantages that are perhaps more closely related to the concerns that led to the West Indian Federation.[8] They argue that larger countries have lower per capita costs in the provision of public goods (including infrastructure, defense, regulation, health, and police services); can better internalize cross-regional externalities by centralizing the regulation of externality-prone activities (such as environmental regulation); can provide better insurance against region-specific shocks (for example, recessions and natural disasters); and can attenuate regional disparities with redistributive schemes. All these advantages are essentially advantages to developing the country's social and physical infrastructure, with the former defined as "the institutions and government policies that determine the economic environment within which individuals accumulate skills and firms accumulate capital and produce output."[9]

Such arguments resonate deeply in a region where all but three countries (namely, Jamaica, Trinidad and Tobago, and Haiti) are classified by the United Nations as microstates.[10] In fact, this type of reasoning has led some analysts, from the Caribbean and elsewhere, to elaborate on the specific vulnerabilities of small island states, a category that suffers from both economic and geographical disadvantages and that encompasses most Caribbean states.[11] Some of the alleged economic disadvantages of the small island states are based on the arguments reviewed above (for example, high export concentration and vulnerability to natural disasters), whereas others are specific neither to islands nor to small countries (for example, remoteness, energy dependence, and financial dependence) and still others cannot even be considered disadvantages at all (for example, trade openness).[12]

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6. Helpman and Krugman (1986).
7. See, for example, Grossman and Helpman (1991); Rivera-Batiz and Romer (1991).
8. Alesina and Spolaore (2003).
9. Hall and Jones (1999).
10. Countries with a population of one million or less.
11. See, for example, Witter, Brigulio, and Bhuglah (2002); CARICOM Secretariat (2005, chap. 7).
12. See Srinivasan (1986) for a critical review of these arguments.

Inconsistencies aside, the very existence of this type of literature confirms the strong perception among Caribbean states that their limited size generates economic disadvantages. While this helps explain why economics and not politics appears to be driving integration in the region, it also suggests a paradox: if the Caribbean states are so size conscious, why did they not move earlier and faster toward deeper, more complex forms of regional integration?

Part of the answer lies in the politics of sovereignty, but the costs and benefits of size also play a role. As Alesina and Spolaore argue, if size had only benefits (and no costs), the world would be organized as a single political entity.[13] This is particularly true for the Caribbean, where most countries are quite small. Size also has costs, however, mainly in the form of heterogeneous preferences. That is, the larger the country, the more difficult it is to devise policies and produce public goods that satisfy everybody's preferences, particularly since larger populations and territories tend to have more heterogeneous preferences. Countries that are considering joining some sort of political union or even a common market thus face a trade-off between the benefits of size and the costs of heterogeneous preferences. In the Caribbean, the equilibrium between these costs and benefits has thus far translated into very small countries and limited forms of integration. Either the Caribbean countries value their distinct preferences very highly (despite the supposed shared cultural identity) or they perceive the size benefits of integration to be small. Both forces are likely to be operating.

We can only speculate about preferences, but the region's history of political independence and integration suggests that they are indeed a major issue. As Doumenge points out, small island states are known to be highly protective of their sovereignty rights: "Islanders are never happier with insularity than when asserting that they are completely different from their neighbors, particularly with regard to language, customs, laws, legal and administrative regulation, currency, system of government, and all other symbols which demonstrate the small self-contained universe. Consequently, small islands tend to band together only under the influence of external forces."[14]

Size benefits are easier to estimate than preferences, and they seem to provide good reason for the region not to be enthusiastic about integration. Whereas the theory behind the advantages of country size seems to be robust, the empirical evidence falls well short of supporting its conclusions. As a number of authors point out, there is no systematic evidence showing that small countries are

13. Alesina and Spolaore (2003).
14. Doumenge (1983), quoted in Srinivasan (1986, p. 212).

poorer or grow more slowly than larger countries, even after the analysts control for a number of factors, including natural resources.[15] This seems to hold even for the Caribbean alone. A quick look at the data suggests, if anything, that smaller countries grow faster than larger countries and are wealthier. The coefficients of correlation between size and growth and size and wealth for the region are −0.6 and −0.5, respectively.[16] These results may well be reversed after we control for all possible omitted factors. Nevertheless, size constraints, if they are really binding, have not prevented a significant number of very small countries in the Caribbean from outperforming their larger counterparts.

Thus, while the theory looks sound, the data do not offer any significant support. Nevertheless, before jumping to the conclusion that size does not matter for development, Caribbean policymakers should be aware that the theory has induced analysts to overrate the disadvantages of size by not drawing attention to the distinction between the political size of the country and the size of its market. This point is convincingly made by Alesina and Spolaore, who point out that the two do not necessarily coincide in an open economy.[17] Even if the area and population of a country are small, access to world markets can imply that the actual size of the country's market is many times that of its domestic market. Trade, then, can be a powerful instrument for attenuating size restrictions, and it can effectively shift the trade-off between the associated costs and benefits.

This insight suggests that the Caribbean paradox may not be a paradox at all. As shown in table 1, all countries in the region, with the exception of Haiti, have trade-to-GDP ratios that are well above the world and Latin American averages. Increased openness, fueled by unilateral preferences granted by the United Kingdom and later by the European Union, the United States, and Canada, has probably attenuated the size handicap, reducing the appeal of regional integration without reducing its heterogeneity costs.

Openness to capital flows, which in the Caribbean are largely made up of foreign direct investment (FDI) and aid, may also have played a role in relaxing size constraints and making integration less of an imperative. The Caribbean's

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15. For example, Easterly and Kraay (1999); Alesina, Spolaore, and Wacziarg (2005); Rose (2006).
16. We calculate the coefficient of correlation between size and growth using the countries' average population and their average real rate of per capita gross domestic product (GDP) growth in the 1971–2003 period. The level of significance is 5 percent. For size and wealth, we use population and purchasing power parity (PPP) per capita GDP for 2003. The level of significance is 10 percent. Data for both coefficients are from the Penn World Table version 6.2
17. Alesina and Spolaore (2003).

T A B L E   1 .   Average Aid per Capita, FDI, and Trade-to-GDP Ratio, 1970–2003[a]

Country or region	Aid	FDI	Openness
Barbados	27.2	2.8	107.5
Belize	96.9	2.4	119.2
Dominica	171.5	5.5	116.7
Grenada	97.9	6.0	104.5
Guyana	68.2	3.9	199.0
Haiti	23.3	0.4	50.1
Jamaica	42.8	3.0	92.4
St. Kitts and Nevis	115.4	9.7	117.2
St. Lucia	91.2	10.0	98.5
St. Vincent and the Grenadines	86.3	6.3	109.5
Suriname	148.8	n.a.	66.2
Trinidad and Tobago	6.7	5.5	96.5
Latin America and the Caribbean	7.6	1.5	44.4
Sub-Saharan Africa	19.7	1.2	65.4
East Asia and the Pacific	3.4	1.7	68.5
World	7.8	1.1	38.3

Source: World Bank, *World Development Indicators.*

a.   "Aid" is measured in constant 1982–84 U.S. dollars. "FDI (foreign direct investment)" is averaged over the period, in percent. "Openness" is measured for 2002, in percent.

inflows of aid per capita in the last three decades reached levels well above those of sub-Saharan Africa or Latin America as a whole, particularly among the smaller countries that form the Organization of Eastern Caribbean States (OECS) (see table 1). Most countries in the region also received substantial amounts of foreign direct investment as a percentage of their GDP, often reaching levels well above the averages for Latin America and East Asia.

The Specifics of a South-South Caribbean Integration

Even if greater openness had not alleviated size constraints, the Caribbean states would still have good reason to question the enlarged market effect or the benefits of integration, in general. South-south agreements, in general, and CARICOM, in particular, are subject to important structural limitations, most notably size constraints and factor endowments.

SIZE CONSTRAINTS.   Although one of the objectives of south-south agreements is to overcome the disadvantages of small size, the enlarged market created by such arrangements (assuming the inclusion of a full customs union) often does not allow for substantial scale gains. This is particularly true for CARICOM, where the combined GDP of all member countries in 2003 (US$29.2 billion) ranked above the world's median country (US$14.4 billion),

but was not that much different from small Latin American countries such as Ecuador (U.S.$27.2 billion). In terms of population, CARICOM also ranked above the world median country in 2003 (15 million versus 6.4 million), but was smaller than Latin American countries such as Chile (15.6 million).

To gauge the magnitude of this market-size effect, we use Alesina, Spolaore, and Wacziarg's empirical framework to simulate the impact of the enlarged CARICOM market on the region's growth rates.[18] The exercise includes two stages: we first estimate the relationship between long-term growth rates, size, and openness, controlling for other key growth determinants such as investment and human capital, and then use this estimated relationship to simulate shocks in some of the key variables to measure their impact on the growth of the four Caribbean countries for which data are available (namely, Barbados, Guyana, Jamaica, and Trinidad and Tobago).

The empirical framework for the first stage uses the following general growth specification:

$$(1) \qquad \ln\left(\frac{y_{it}}{y_{it-\tau}}\right) = \beta_0 + \beta_1 \cdot \ln\left(y_{it-\tau}\right) + \beta_2 \cdot \ln\left(S_{it}\right) + \beta_3 \cdot O_{it}$$
$$+ \beta_4 \cdot \left[O_{it} \times \ln\left(S_{it}\right)\right] + \beta_5' \cdot \mathbf{Z}_{it} + \varepsilon_{it},$$

where $i = 1, \ldots, n$ denotes country i; $t = 1, \ldots, T$ denotes time t; y represents per capita income; S is a measure of country size (real GDP or population); O is a measure of openness (trade to GDP in current prices of purchasing power parity); and $\mathbf{Z}$ is a vector of control variables that are determinants of the steady-state level of per capita income, including human capital (the average years of secondary schooling in the total population over age twenty-five) and the ratios of investment and government consumption to real per capita GDP.

As in Alesina, Spolaore, and Wacziarg, we run the model using both seemingly unrelated regressions (SUR) and three-stage least squares (3SLS).[19] SUR is essentially a flexible form of the random-effects panel estimator; the estimation procedure involves formulating one equation per decade, constraining the coefficients to equality across periods, and running SUR on the resulting system of equations. The 3SLS estimator alleviates the possible endogeneity of openness and GDP growth; as in Frankel and Romer, we use

18. Alesina, Spolaore, and Wacziarg (2005).
19. Alesina, Spolaore, and Wacziarg (2005).

geographical variables as instruments (namely, dummies for small country, island, small island, and landlocked country).[20]

The data are structured in a panel comprising four periods of ten-year averages (1960–69, 1970–79, 1980–89, 1990–99) and up to eighty-two countries, which includes Barbados, Guyana, Jamaica, and Trinidad and Tobago.[21] Table 2 presents the results of the regressions, with different measures of size and openness. The magnitude, sign, and significance of the coefficients across specifications are similar to those of Alesina, Spolaore, and Wacziarg and generally robust to the two econometric techniques used.[22] The fact that the coefficient of the interaction term is negative and significant confirms the argument that the positive impact of size is tempered by the countries' openness.

In the second stage of the exercise, we use the coefficients of the most robust specification (namely, population and current openness) to simulate CARICOM's size effect on growth (that is, we raise each country's population, *i,* to the size of CARICOM's total population). We then compare it with other growth-enhancing shocks, such as bringing the countries' openness, stock of human capital, investment, and government consumption to the level of Hong Kong, arguably one the most successful small economies before being returned to mainland China. This type of comparison is always somewhat arbitrary because it is not clear what sort of shock would be comparable to full integration. Nevertheless, it serves to illustrate the order of magnitude of the impacts. Table 3 shows the magnitude of the shocks per variable per country. In the case of government consumption, the shock implies reducing the above-average Caribbean levels to Hong Kong's modest levels. Since government consumption is negatively correlated with growth, a reduction brings about a positive impact. As shown in figure 1, CARICOM's effect compares unfavorably with the other shocks, delivering a small, negative impact on growth, which probably reflects the fact that openness in these countries is already above the world average and that an increase in size would have a stronger effect on costs (such as policymaking costs in the face of heterogeneous preferences) than on benefits.

While these results seem to rule out size as a major constraint for growth in the Caribbean, they should not be interpreted as definitive proof that there are no relevant scale benefits to be reaped from regional integration in the

20. Frankel and Romer (1999).
21. Alesina, Spolaore, and Wacziarg (2005) do not include the four countries mentioned. See the appendix for a list of our data sources and country sample.
22. Alesina, Spolaore, and Wacziarg (2005).

T A B L E 2 . Size and Openness in a Growth Model, 1960–99[a]

Explanatory variable	Size measured as population				Size measured as real GDP			
	Current openness		Real openness		Current openness		Real openness	
	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
Size * Openness	-0.006**	-0.008**	-0.007	-0.011*	-0.003*	-0.002	-0.007**	-0.014***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Size	0.467***	0.680***	0.258*	0.466**	0.484***	0.838***	0.450***	0.903***
	(0.14)	(0.17)	(0.13)	(0.18)	(0.13)	(0.20)	(0.13)	(0.19)
Openness	0.104***	0.138***	0.111*	0.191*	0.095*	0.100	0.193**	0.399***
	(0.03)	(0.04)	(0.05)	(0.08)	(0.04)	(0.07)	(0.07)	(0.11)
Initial per capita GDP	-0.859***	-0.849***	-1.023***	-1.129***	-1.109***	-1.725***	-1.224***	-1.780***
	(0.18)	(0.19)	(0.19)	(0.21)	(0.19)	(0.24)	(0.21)	(0.25)
Human capital	0.524***	0.488***	0.592***	0.580***	0.496***	0.495**	0.523***	0.498**
	(0.14)	(0.14)	(0.14)	(0.15)	(0.14)	(0.16)	(0.15)	(0.16)
Investment (percentage of GDP)	0.109***	0.102***	0.110***	0.104***	0.099***	0.083***	0.097***	0.078***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Government consumption (percentage of GDP)	-0.038***	-0.041***	-0.037**	-0.040***	-0.036**	-0.043***	-0.038**	-0.050***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	0.944	-2.855	5.852*	3.282	-1.400	-5.986	0.618	-6.127
	(2.92)	(3.54)	(2.80)	(3.41)	(3.31)	(5.07)	(3.27)	(4.60)
Intercept 1970–79	0.462	-3.422	5.397	2.753	-1.952	-6.770	0.058	-6.892
	(2.96)	(3.59)	(2.84)	(3.46)	(3.35)	(5.12)	(3.32)	(4.67)
Intercept 1980–89	-0.725	-4.671	4.251	1.599	-3.187	-8.176	-1.084	-8.015
	(2.97)	(3.60)	(2.84)	(3.46)	(3.35)	(5.13)	(3.31)	(4.66)
Intercept 1990–99	-0.629	-4.670	4.376	1.680	-3.171	-8.514	-0.952	-7.981
	(2.95)	(3.61)	(2.82)	(3.45)	(3.35)	(5.13)	(3.29)	(4.63)
No. of observations per period	82	82	82	82	82	82	82	82

Source: Authors' calculations.
*Statistically significant at the 10 percent level.
**Statistically significant at the 5 percent level.
***Statistically significant at the 1 percent level.
a. The dependent variable is the growth rate of real per capita income. Standard errors are in parentheses.

T A B L E   3 .   Magnitude of the Shocks per Variable

Percent change

Country	Size (population)	Openness	Human capital	Government consumption
Barbados	2,220	146	11	−43
Guyana	667	29	186	−83
Jamaica	144	137	123	−77
Trinidad and Tobago	386	213	63	−62

Source: Authors' calculations.

F I G U R E   1 .   Impact of CARICOM's Market Size Effect on Growth in Four Countries[a]
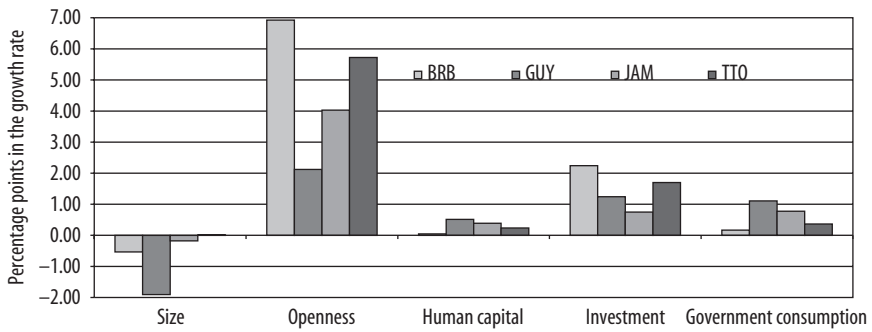
BRB = Barbados; GUY = Guyana; JAM = Jamaica; TTO = Trinidad and Tobago.
a. For change in size, we raised each countryís population to the level of the Caribbean Community and Common Market (CARICOM) as a whole. For change in openness, human capital, and government consumption, we equalized each country's levels to Hong Kong's level in the last year of the sample. See the text and appendix for details.

Caribbean. There are least two good reasons to be careful about ruling out those benefits. First, these results reflect mainly empirical regularities across countries and time and do not necessarily capture all the specific conditions of the Caribbean economies involved. In particular, lack of data prevented the inclusion of the smaller economies, which in theory could be the main beneficiaries of these gains.

Second, Alesina, Spolaore, and Wacziarg do not incorporate nontradables into the production function, although their theoretical discussion suggests that larger countries face lower costs in the provision of public goods and other nontradables.[23] To get a complete picture of the size effects, the model would to have to take into account the interaction of size with this input and

23. Alesina, Spolaore, and Wacziarg (2005).

the interaction of this input with the other variables, particularly investment in human and physical capital.

Nontradables can be treated as an input whose complementarity with other inputs makes a direct contribution to growth, or they can be viewed as affecting growth mainly through total factor productivity (for example, improving information flows, reducing uncertainty via better institutions, and generating agglomeration economies).[24] Either way, improvements in the social and physical infrastructure brought about by, say, economies of scale at the regional level are bound to raise the profitability of the other factors and promote their accumulation. This level effect (as opposed to the productivity effect) cannot be captured if, as in the Alesina-Spolaore-Wacziarg model, investment in physical and human capital is held constant and assumed to be exogenous to productivity and to the nontradable variables omitted from the equation.

Building an empirical model that addresses those shortcomings would involve insurmountable (small state) data difficulties, not to mention the conceptual complexities of measuring social infrastructure. Winters and Martins, however, provide some solid empirical evidence on the existence of those nontradable gains, including their likely shape.[25] They test for the existence of size effects using 2002 business cost data from the Economist Intelligence Unit and the Commonwealth Secretariat for ninety-two countries, including a large sample of small states (among them, eleven CARICOM members). Six of the dependent variables are directly related to the countries' infrastructure (namely, airfreight, sea freight, telephone, electricity and water charges, and the cost of personal air travel) and, therefore, of direct interest to this argument about the relevance of nontradable gains.

For air and sea freight, they find a U-shaped relationship between cost and population, with a turning point for airfreight between 1.5 million and 3.5 million people (which is larger than all CARICOM countries except Haiti and Jamaica) and a turning point for sea freight that is well beyond any existing country size. For the other infrastructure variables, they find a linear, negative, and statistically significant relationship between costs and country size. The authors also estimate the cost disadvantages that arise from these size effects for representative small countries vis-à-vis a median-sized country (defined as 10 million people, which is close to CARICOM's 15 million total population). The results

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24. See Canning, Fay, and Perotti (1994) on how to interpret the contribution of physical infrastructure to growth. Gwartney, Holcombe, and Lawson (2006) discuss the whole of the social infrastructure.

25. Winters and Martins (2004).

point to severe cost disadvantages for micro (12,000 people) and very small states (197,000 people), ranging from an average of 31 percent in airfreight to 158 percent in sea freight. The threshold (1.6 million people) and small countries (4 million people) have lower, but still substantial cost disadvantages, ranging from 15 percent in sea freight to 30 percent in electricity usage.

The magnitude of these cost disadvantages supports our claim that CARICOM faces relevant scale gains in nontradables and that those gains might have a significant impact on productivity and capital accumulation, something that is not entirely captured by the Alesina-Spolaore-Wacziarg empirical model.[26] The precise magnitude of those gains in CARICOM, as well as their overall impact on growth, is anybody's guess because the required data are just not available. By definition, these nontradable effects cannot be mitigated by openness, and they are likely to be nonlinear since they are mainly associated with fixed costs and tend to lose importance once a country reaches a certain size. In other words, they are likely to be particularly relevant to countries such as the CARICOM members, which are in the bottom of the size distribution. This reasoning, combined with the results of the Alesina-Spolaore-Wacziarg model and the magnitude of gains estimated by Winters and Martins, suggests that nontradable gains are much more promising for the region than traditional trade gains.

FACTOR ENDOWMENTS.   The second limitation on south-south agreements such as CARICOM is the similarity of the member countries' technology and factor endowments. Similar factor endowments and technology imply that the countries' array of comparative advantages tend to overlap, suggesting that a great deal of their trade would necessarily come from outside the agreement. This, in turn, increases the agreement's exposure to trade diversion and agglomeration.[27]

The costs and benefits of trade diversion are well known and inherent in any preferential agreement.[28] The losses are mainly associated with replacing efficient, extraregional suppliers with inefficient, regional ones, while the benefits include scale and learning gains accruing from the replacement of

26. Alesina, Spolaore, and Wacziarg (2005). A recent World Bank (2005) report on the Caribbean infrastructure similarly recommends that a regional approach can lead to higher economies of scale, lower regulatory costs, higher bargaining power in procurement, and greater efficiency gains through competition in areas such as telecommunications, water, and energy. Some countries in the region are already reaping some of those benefits, as in the case of the Eastern Caribbean Regulatory Authority (ECTEL), a regional telecommunication advisory body established by the OECS countries.
27. See, for example, Venables (2003).
28. See, for example, de Melo and Panagariya (1993).

extraregional producers with regional producers. The key to the net result lies in the level of the agreement's protection against the rest of the world. High levels of protection could impose severe costs on member countries that are consumers of the diverted good, whereas the scale and learning gains linked to the production of this good are likely to be compromised by the size constraints discussed above.

The process of agglomeration is also relevant for the understanding of the full consequences of trade diversion. When countries share similar technology and factor endowments, the centripetal forces of agglomeration—that is, the forces that encourage firms to locate close to each other—can be overwhelming.[29] Since the advantages of size are not balanced by significant differences in factor prices (such as capital and labor), the most likely result is the agglomeration of economic activities in the large countries of the agreement (in this case, Jamaica and Trinidad and Tobago), assuming that there are no major differences in factors such as macroeconomic management and the quality of institutions. This is particularly true for activities that are intensive in scale and sensitive to labor and technological externalities, such as manufacturing. In the context of free trade, agglomeration may not be cause for concern since it can reduce costs in the region as whole, raising welfare. In the context of a regional agreement, however, agglomeration may be driven beyond optimal levels by the forces of trade diversion. The benefits of trade diversion could thus be concentrated on the largest countries, with the costs being borne by the smaller, poorer partners.

Looking Back: Integration Policies and Results

The previous sections provided an overview of what to expect from agreements such as CARICOM. This section looks at the actual results of the integration initiatives to date. The aim is not to make a comprehensive evaluation of all economic implications, which is virtually impossible given methodological and data constraints. Rather, we concentrate on what is widely seen as the main channel through which economic integration affects member countries' economic performance, namely, intra- and extraregional trade flows. Data restrictions forced us to tighten the focus of the analysis to exclude trade in services. This would not be a cause for concern in most regions in the world, but it does limit our analysis of CARICOM since the majority of the member countries (particularly the smaller ones) have a major stake in the export of services.

29. Venables (2003).

That characteristic does not invalidate an analysis based purely on goods, however, for a number of reasons. First, the ability to expand and diversify the production and export of goods has been a key motivation (implicitly or explicitly) in all integration initiatives in the region since the West Indian Federation. Second, the limitations of south-south agreements in general (such as market size and the similarity of factor endowments) and CARICOM in particular (namely, openness) also apply to trade in services, so the inclusion of services probably would not change either the direction or the magnitude of the impacts on trade flows, particularly intraregional trade flows. Finally, even though countries such as the members of the OECS do not have a significant stake in the production of goods, their welfare depends heavily on the price and quality of the goods they consume, including capital, intermediate goods, and consumer goods. In sum, while we would have preferred to include services, their exclusion does not invalidate the analysis and probably does not change its main conclusions.

Intraregional Trade, Trade Costs, and the Distribution of Benefits

Figure 2 offers a broad picture of intra- and extraregional merchandise trade flows in CARICOM in 1970–2003. We excluded trade in oil products because it was not subject to relevant trade barriers at any time during the period, and its high share of intraregional trade (an average of 37 percent over the period) and high price volatility would cloud the analysis. Since the first integration initiative was in 1958 with the West Indies Federation, we would have liked to examine trade and tariff data starting in the 1950s. This would provide a better perspective of trade flows before and after the first preferences were granted. Data constraints, however, force the analysis to begin in 1970, three years before CARICOM was signed, and to be limited to trade flows. It seems reasonable to assume that at that time, a number of trade preferences were already in place among most Caribbean countries; for instance, the CARIFTA agreement speaks of immediate free trade among member countries. Nevertheless, it is difficult to assess how important they were, since there were many exceptions and differential treatment for less developed countries.[30]

Figure 2 shows that intraregional trade grew much faster than extraregional trade in the first half of the 1970s, even before CARICOM was signed.

30. See the Dickenson Bay Agreement (available online at www.sice.oas.org/Trade/CCME/dikson.asp) and CARICOM Secretariat (2005). CARIFTA included all present CARICOM members except Suriname and Haiti. The Eastern Caribbean Common Market included all OECS members.

FIGURE 2. CARICOM's Non-Oil Intra- and Extraregional Trade Flows, 1970–2003[a]
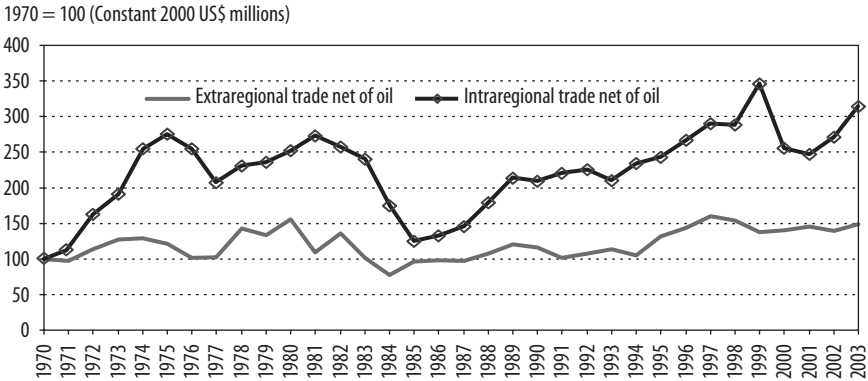
1970 = 100 (Constant 2000 US$ millions)

Source: United Nations Commodity Trade Statistics Database (COMTRADE); Caribbean Community and Common Market (CARICOM) Secretariat.

a. Oil products are SITC 3 V.1. Haiti is not included.

CARICOM is widely seen as a landmark in the integration process, since it represented the member countries' decision to upgrade CARIFTA's free trade zone to a common market.[31] From the strict perspective of trade costs, however, it is not clear whether the new treaty markedly changed the status quo. CARIFTA's two main characteristics were inherited by CARICOM and prevailed into the early 1990s: first, CARIFTA was an incomplete free trade zone that incorporated several exceptions and differential treatment for countries, sectors, and regions; and, second, the agreement imposed relatively high tariffs on extraregional trade.[32] The customs union, which was the innovation introduced by CARICOM, was not seriously enforced until the late 1990s. The fact that intraregional trade grew slightly faster after 1973 but soon hit a ceiling seems consistent with the hypothesis that the status quo did not change. However, many factors may explain this behavior, including the structural limitations of the agreement discussed earlier and the debt crisis that affected the region in the 1980s.

OPEN REGIONALISM. Whatever the underlying factors, the bottom line is that the peak reached by intraregional trade in 1975, in constant dollars, was only

31. See the Treaty of Chaguaramas (available online at www.sice.oas.org/Trade/CCME/CCME2.asp).

32. Information about the member countries' tariffs in the 1970s and 1980s is sketchy, but most analysts describe this period as one of import substitution. Caldentey (2005), for instance, estimates the average nominal protection for manufactured goods in the 1980s (including tariffs and surcharges) at 50 percent in Trinidad and Tobago, 43 percent in Barbados, and 41 percent in Jamaica.

surpassed twenty-two years later, in 1997 (figure 2). The new increase in trade followed a series of reforms that started with the decision to establish the CSME in 1989 and were institutionalized by the revised Treaty of Chaguaramas signed in 2001. These reforms improved the discipline and implementation of the free trade zone and customs union, and they reduced protection against extraregional imports at both the country and the regional levels. A common external tariff was finally agreed in 1992, but it took another ten years to be fully implemented by most member countries. The common external tariff simple average thus fell from 20 percent in the early 1990s to 10 percent in 2003.[33]

An examination of actual tariff levels (measured as tariff revenue divided by the value of imports) across countries and sectors shows, however, that some of the problems of the agreement still lingered in 2003–04. Interregional tariffs were close to zero in most countries, but the picture changes markedly when import taxes are taken into account.[34] Average import taxes ranged from 7.0 to 8.0 percent in countries such as Dominica, Grenada, and Saint Lucia, and they were as high as 19.3 percent in Suriname. Moreover, extraregional actual tariffs still showed considerable variation across countries, ranging from 7 percent in Jamaica to 15 percent in Suriname, and sectors, leaving considerable room for trade diversion. In manufacturing, for instance, preferences ranged from 7 to 18 percentage points and in agriculture they reached 20 percentage points for some goods.[35]

The reforms of the 1990s gave intraregional trade a new boost, but it was not enough to generate a robust performance. Figure 2 shows that the declining trend that set in during the debt crisis of the 1980s was reversed, but so far the share of intraregional trade excluding oil remains around the modest levels achieved in the late 1970s, at 5.6 percent in 2003 (the latest figure available). The situation looks better when oil is included, with the share of interregional trade reaching all-time highs in the 1990s and finishing at 7.6 percent in 2003. Trade in oil has little to do with trade liberalization, however, given that it is guided by supply and price dynamics. Nevertheless, even if we overlook these issues and consider all trade, intraregional trade remains indisputably marginal.

33. See Jessen and Vignoles (2005).

34. Import taxes are introduced for a variety of reasons, but their main purpose is to prop up fiscal revenue without undermining common market discipline. Since governments cannot change tariffs, they create other taxes on imports to replace the lost revenue.

35. Data are from the countries' customs administration, collected by the Inter-American Development Bank's project on "Fiscal Impact of Integration and Trade Liberalization Efforts in the Caribbean." For details, see the working paper version of this study (Moreira and Mendoza 2006).

TABLE 4. CARICOM Member Countries' Share of Intraregional Trade, 1970–2003[a]
Percent

Country	Total exports				Non-oil exports[b]			
	1970	1980	1990	2000–03	1970	1980	1990	2000–03
Non-OECS countries	81.9	73.2	68.7	74.2	92.9	82.1	86.6	88.7
Barbados	15.2	17.7	16.8	18.9	8.3	13.9	13.1	13.0
Belize	0.9	0.9	3.5	1.4	1.6	2.5	1.4	2.3
Guyana	25.5	15.5	9.7	10.1	17.6	8.9	6.7	11.3
Jamaica	21.2	14.8	27.3	35.4	17.6	18.7	10.8	7.0
Trinidad and Tobago	19.1	24.4	11.4	8.4	47.9	38.2	54.6	55.3
OECS countries	18.1	26.8	31.3	25.8	7.1	17.9	13.4	11.3
Antigua	3.3	6.1	4.7	4.0	1.5	2.1	0.8	0.7
Dominica	2.1	3.5	3.7	3.2	0.7	3.0	3.8	3.7
Grenada	3.4	3.9	5.3	4.7	0.4	1.2	1.3	1.4
Montserrat	0.6	1.0	0.8	0.3	0.0	0.1	0.0	0.1
St. Kitts and Nevis	0.8	2.5	3.0	2.9	0.5	1.0	0.4	0.3
St. Lucia	4.6	6.0	8.6	6.3	2.8	4.6	2.8	2.4
St. Vincent and the Grenadines	3.2	3.8	5.1	4.4	1.2	6.0	4.3	2.7
CARICOM	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: United Nations Commodity Trade Statistics Database (COMTRADE); Caribbean Community and Common Market (CARICOM) Secretariat.
OECS = Organization of Eastern Caribbean States.
a. The CARICOM sample does not include Suriname and Haiti, which joined the bloc later in the period.
b. Excludes SITC 3 rev.1.

While the protracted implementation of the free trade zone and customs union probably contributed to those meager results, it is not the sole explanation. Given the limitations of size and factor endowment discussed earlier, it is unlikely that a swift, faultless process would have created more trade. The share of intraregional trade in the bloc is not much different from that of other south-south agreements that share similar limitations. For instance, intraregional trade peaked in 1998 at just over 11 percent of total trade in MERCOSUR and not more than 13 percent in the ANDEAN community.[36]

INTRAREGIONAL TRADE COMPOSITION AND THE DISTRIBUTION OF GAINS.
Other issues worth examining include the distribution and composition of intraregional trade. Table 4 shows how the market is distributed among member countries and how this distribution has evolved. Export shares changed drastically over the sample period even among the non-OECS countries, with Jamaica more than halving its participation and Barbados nearly doubling

36. Own calculation, based on COMTRADE data.

its share. The OECS members gained considerable ground in the 1970s, but their share of intraregional non-oil exports then shrank significantly, with the exception of Dominica.

Disaggregated export data are available starting in the 1980s. They confirm the concentration of export activity, both within and across country groups, and reveal the contours of the intraregional division of labor (see table 5). Trinidad and Tobago seems to be reinforcing its dominant position in the region as the main agricultural and manufacturing producer, in addition to mining. Other trends include the collapse of Jamaica's position and a decline in the OECS' share, with the exception of ores and metals.

While these figures are too crude to support a conclusive inference on the distributive impact of regional integration, it seems safe to assume that trade diversion has played a nonnegligible role, given the size of the preferences, the asymmetries in country size, and the similarities in factor endowments. This hypothesis is confirmed by the gravity model presented below. Without time-series data on preferences, however, it is impossible to determine the exact size of this effect, particularly at the sectoral level.[37]

THE EXTERNAL POSITION.   As in the case of intraregional flows, the impact of integration on extraregional trade does not appear to have been significant. To be sure, non-oil extraregional exports showed signs of improvement in the 1990s, an event that coincided with the bloc's deepening (see figure 3). Since 1998, however, non-oil extraregional exports have fallen sharply, which raises doubts about any long-term positive impact. This declining trend is particularly worrying considering that the annual average of extraregional exports in 2000–03 was only 28 percent above the 1970s average. This contrasts sharply with the trend for Latin America and the Caribbean as a whole, where the average in 2000–03 was 240 percent above the 1970s average.

The distribution and composition of extraregional exports among countries are very similar to those of intraregional exports, although the movements are less pronounced (table 6). We find limited signs of dispersion toward the OECS countries in manufacturing in the 1990s, but this trend was reversed in

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37. An important caveat is that, as mentioned earlier, the analysis does not include services, and this is by far the dominant activity for the small OECS countries. The inclusion of services probably would not change our results significantly, however. The bulk of these countries' services exports (namely, tourism) are to markets outside the region, which does not affect their share of intraregional trade. Integration may have accelerated the growing specialization of these countries in tourism, but this would reinforce our argument. The dominant share of services in these economies undoubtedly reduces the cost of any structural adjustment, but as consumers of goods, these countries remain exposed to trade diversion.

T A B L E 5 . Country Share of CARICOM Intraregional Exports by Sector: 1980s, 1990s, and 2000−03
Period average, in percent

Country	Agriculture			Manufacturing			Fuels			Ores and metals		
	1980s	1990s	2000–03	1980s	1990s	2000–03	1980s	1990s	2000–03	1980s	1990s	2000–03
Non-OECS countries	77.3	87.8	90.5	87.8	90.9	92.2	100.0	100.0	99.9	98.0	93.6	88.3
Barbados	9.0	11.8	9.8	24.7	19.6	17.4	2.8	0.8	1.9	8.0	13.5	3.9
Belize	8.5	3.9	3.5	0.1	0.2	0.9	0.0	0.0	0.0	0.0	0.2	0.4
Guyana	20.3	13.8	19.1	5.9	3.8	2.5	0.0	0.0	0.0	8.2	14.1	35.8
Jamaica	15.7	9.9	7.8	24.9	11.0	6.3	2.6	1.8	0.2	63.2	35.2	18.4
Trinidad and Tobago	23.8	48.4	50.2	32.2	56.3	65.1	94.5	97.4	97.8	18.6	30.8	30.2
OECS countries	22.7	12.2	9.5	12.2	9.0	7.8	0.0	0.0	0.1	1.9	6.2	11.3
Dominica	1.4	0.7	0.6	4.7	5.9	5.4	0.0	0.0	0.0	1.3	4.1	7.4
St. Kitts and Nevis	0.9	0.6	0.4	1.0	0.1	0.1	0.0	0.0	0.1	0.5	0.1	0.8
St. Lucia	6.0	3.1	3.7	4.3	1.9	1.4	0.0	0.0	0.0	0.0	0.0	2.2
St. Vincent and the Grenadines	14.3	7.8	4.9	2.3	1.2	0.9	0.0	0.0	0.0	0.2	2.0	0.9
CARICOM	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: United Nations Commodity Trade Statistics Database (COMTRADE) (SITC, rev. 1).
OECS = Organization of Eastern Caribbean States.

F I G U R E 3 .   **CARICOM's Extraregional Total and Non-Oil Exports, 1970–2003**[a]
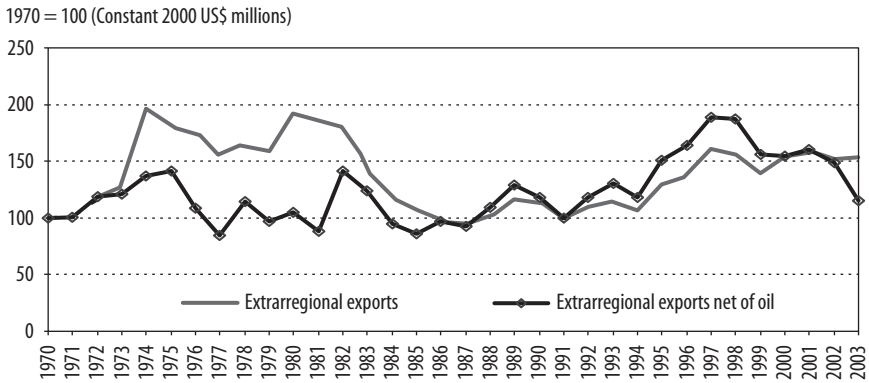
1970 = 100 (Constant 2000 US$ millions)

Source: United Nations Commodity Trade Statistics Database (COMTRADE); Caribbean Community and Common Market (CARICOM) Secretariat.
a. Oil products are SITC 3 V.1. Haiti is not included.

the 2000s. Overall, extraregional exports remain heavily concentrated among larger members. Trinidad and Tobago, in particular, has consistently captured increasing shares of both agriculture and manufacturing, although total exports in these sectors have barely grown in the last three decades.

The Gravity Test

We have raised a number of hypotheses about the impact of regional integration in the Caribbean based only on theory and descriptive statistics. In this subsection, we take a more rigorous approach and use a gravity model to test some of those hypotheses. This is not the first time the gravity model has been used to assess CARICOM's impact. Égoumé-Bossogo and Mendis pioneered this effort, and they reach very positive conclusions using data for forty-four countries over the period 1980–99.[38] They find that CARICOM is trade creating and that this positive impact increased throughout the period, especially after the member countries agreed to reduce the common external tariff in the early 1990s.

These results should be considered with some skepticism, however. Gravity models are notorious for overestimating the impact of trade agreements, and this clearly seems to be the case with Égoumé-Bossogo and Mendis's work.[39]

38. Égoumé-Bossogo and Mendis (2002).
39. Égoumé-Bossogo and Mendis (2002). See Anderson and van Wincoop (2004) for a review.

T A B L E 6 . Country Share of CARICOM Extraregional Exports by Sector: 1980s, 1990s, 2000–03
Period average, in percent

Country	Agriculture			Manufacturing			Fuels			Ores and metals		
	1980s	1990s	2000–03	1980s	1990s	2000–03	1980s	1990s	2000–03	1980s	1990s	2000–03
Non-OECS countries	85.0	86.0	91.3	94.2	93.1	93.7	99.6	99.4	99.9	99.6	99.3	98.5
Barbados	4.8	3.4	4.0	13.0	3.2	2.7	0.2	0.2	4.6	0.1	0.8	0.6
Belize	7.8	12.5	16.0	2.1	1.7	1.6	0.0	0.1	0.6	0.2	0.5	0.7
Guyana	26.6	22.0	25.8	3.2	1.9	2.6	0.0	0.0	0.0	37.9	40.0	38.8
Jamaica	36.9	33.5	33.7	50.3	52.0	36.6	0.8	1.9	0.9	56.0	52.8	49.1
Trinidad and Tobago	8.9	14.5	11.9	25.5	34.3	50.3	98.6	97.1	93.8	5.4	5.3	9.3
OECS countries	15.0	14.0	8.7	5.8	6.9	6.3	0.4	0.6	0.1	0.4	0.7	1.5
Dominica	3.5	2.9	1.7	1.2	2.2	1.1	0.1	0.2	0.0	0.2	0.6	0.9
St. Kitts and Nevis	1.6	1.0	0.9	3.4	1.2	1.9	0.2	0.0	0.0	0.1	0.0	0.1
St. Lucia	6.3	5.7	2.9	0.7	1.4	0.7	0.0	0.3	0.1	0.0	0.1	0.1
St. Vincent and the Grenadines	3.5	4.4	3.2	0.6	2.1	2.6	0.1	0.1	0.0	0.0	0.0	0.3
CARICOM	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: United Nations Commodity Trade Statistics Database (COMTRADE) (SITC, rev. 1).
OECS = Organization of Eastern Caribbean States.

For instance, their estimates suggest that CARICOM has led member countries to trade between five and forty-eight times more than would have been predicted based on their size and geographical characteristics. These estimates simply are not plausible given the theoretical limits of intra-CARICOM trade discussed earlier and the patterns shown in the descriptive data. One possible explanation is that the only small-island countries in the authors' sample are from CARICOM, which may lead the regional dummy to pick up geographical effects that have nothing to do with the agreement. Moreover, the authors do not control for country-specific effects or sample selection bias.

The empirical strategy used here tries to mitigate these problems by putting together a data set that consists of a panel of 152 countries (including fourteen Caribbean countries and twenty-eight other small economies), for the period 1970–2003 (see the appendix for information on the sample). The period is not long enough to include intraregional preferences dating back to the formation of CARIFTA in 1968, but it does include three years prior to the signing of the CARICOM agreement and all the changes over the course of its existence. To address the issues of unobserved country characteristics and sample selection bias, we draw on recent advances in the gravity literature.[40]

Our specification takes the following form:

$$
\begin{aligned}
(2) \quad \ln M_{ij} = {} & \alpha + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln N_i + \beta_4 \ln N_j + \beta_5 \ln L_i \\
& + \beta_6 \ln L_j + \beta_7 LK_i + \beta_8 LK_j + \beta_9 I_i + \beta_{10} I_j + \beta_{11} \ln D_i \\
& + \beta_{12} COL_{ij} + \beta_{13} CON_{ij} + \beta_{14} LANG_{ij} + \sum_k INT_k \cdot \left(P_{ki} \cdot P_{kj} \right) \\
& + \sum_k IM_k \cdot \left[P_{ki} - \left(P_{ki} \cdot P_{kj} \right) \right] + \sum_k EX_k \cdot \left[P_{kj} - \left(P_{ki} \cdot P_{kj} \right) \right] + \varepsilon_{ij},
\end{aligned}
$$

where where $i = 1, \ldots, I$ denotes the reporting country; $j = 1, \ldots, J$ denotes the partner country; $k = 1, \ldots, K$ denotes a trade agreement; M denotes the flow of imports (in current U.S. dollars); Y denotes GDP (in current U.S. dollars); N denotes population; L denotes the land area; LK is a dummy variable taking the value of one if the country is landlocked, and zero otherwise; I is a dummy variable taking the value of one if the country is an island, and zero otherwise; D denotes the simple geodesic distance between the most important cities in each country; COL is a dummy variable taking the value of one if the countries

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40. See, in particular, Soloaga and Winters (2001); Feenstra (2002); Rose (2004); Helpman, Melitz, and Rubinstein (2007).

involved share a colonial relationship, and zero otherwise; *CON* is a dummy variable taking the value of one if the countries involved share a border, and zero otherwise; *LANG* is a dummy variable taking the value of one if the countries involved share the same language, and zero otherwise; *P* is a dummy variable taking the value of one if the country is a member of the trade agreement *k,* and zero otherwise; and ϵ is the error term, assumed to be log-normally distributed.

As in Soloaga and Winters, we decompose the total effect of each trade agreement, *k,* into three separate effects: the impact on the members' intraregional trade (both exports and imports), measured by the coefficients INT; the impact on the members' imports from the rest of the world, measured by the coefficients IM; and the impact on the members' exports to the rest of the world, measured by the coefficients EX.[41] Soloaga and Winters' primary concern is with the marginal impact of the agreement on trade and welfare. They therefore define net trade creation as a situation in which INT is positive and IM is negative, and the sum of the two coefficients is positive. That is, the agreement's positive impact on the propensity to import from the region outweighs its negative impact on the propensity to import from outside the region. Net trade diversion, in turn, is defined as a situation in which the sum of the coefficients is negative. If both coefficients are positive, these authors assume that there is only trade creation (on the margin). The purpose of this last EX variable is to measure the agreement's marginal impact on the region's exports to the rest of the world.

Another way of interpreting these coefficients is to compute their absolute impact on their respective trade flows.[42] Net trade creation is then defined as the difference between the amount of trade diverted from nonmembers (obtained by applying the coefficient IM to the observed extraregional trade flows) and the amount of trade created between members (obtained by applying the coefficient INT to observed intraregional trade flows).[43]

In our estimation procedure, we use separate fixed effects for exporters, importers, and years.[44] Using exporting and importing country fixed effects

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41. Soloaga and Winters (2001).

42. This approach is closer to Viner (1950).

43. As de Melo, Panagariya, and Rodrik (1993) point out, Viner's conclusion that trade creation is always welfare improving and trade diversion always welfare diminishing is less general than initially proposed and involves a number of caveats. Nevertheless, most analysts consider that agreements generating a net trade creation are likely to improve the members' welfare.

44. This approach follows Feenstra (2002) and Rose (2004).

helps us control for the countries' idiosyncratic and asymmetric behavior as exporters and importers (in that every country pair can be represented twice, with imports from i to j and imports from j to i). At the same time, it eliminates the possibility of identifying the agreement dummy throughout the sample period, rather than just after the agreement was signed. If such an agreement dummy were introduced, its effect would not be distinguishable from those of the country fixed effects because the dummy and the fixed effects would be perfectly collinear. Including the dummy in all years would provide the extra security of knowing if the effects captured by the coefficient were already present before the agreement for some "abnormal" reason, as Soloaga and Winters put it.[45] However, given that the implementation of CARICOM has been protracted (with marked changes in both intra- and extraregional tariffs) and, in fact, has yet to be completed, the variation of the agreement dummy coefficient throughout the various phases of the agreement can provide relevant information about the sign and trend of the effects.

Fixed effects improve the accuracy of the estimation but do not address the sample selection problem. That is, the model only takes into account bilateral relationships with positive trade flows. Nor does it control for the fact that policies that affect trade costs have an impact not only on the intensive margin of trade (that is, firms that already export), but also on its extensive margin (or the number of exporting firms). Using a gravity equation derived from a general equilibrium model of trading countries with heterogeneous firms, Helpman, Melitz, and Rubinstein show that when the analysis does not control for changes in the extensive margin, "the coefficient, γ, on distance (or any other coefficient on a potential trade barrier) can no longer be interpreted as the elasticity of a firm's trade with respect to distance (or other trade barriers). . . . Instead, the estimation of the standard gravity equation confounds the effects of trade barriers [including trade agreements] on firm-level trade with their effects on the proportion of exporting firms, which induces an upward bias in the estimated coefficient, γ."[46]

To address these two types of bias, we closely follow Helpman, Melit, and Rubinstein's proposed solution. We use a two-stage strategy, in which the

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45. Soloaga and Winters (2001). For instance, if the regression estimates a positive and significant coefficient for the CARICOM dummy in 1968 (five years before the agreement was signed), then this would indicate that the dummy is picking up more than just the agreement itself. It would also provide a benchmark for assessing the impact of the agreement after it was signed. The true impact would be given by the difference between the coefficients before and after the agreement.

46. Helpman, Melitz, and Rubinstein (2007 p. 11).

first stage consists of a probit equation that uses an indicator variable (equal to one if there is a positive flow of trade and zero otherwise) to estimate the probability of country j exporting to country i as a function of observable variables (namely, the same independent variables used in the gravity equation above). All the information available in the data set is used in this stage, so we consider all the possible bilateral relationships between the countries involved (that is, 152 reporting countries * 151 partners * 34 years = 780,368 possible relationships). The intuition here is that the same variables that affect export volume from country j to country i also affect the probability that country j exports to country i. The probit procedure provides enough information to decompose these two effects.

We then use the predicted probabilities of the probit equation to build two variables for all country pairs with positive trade flows. The first ($\hat{\eta}$) is the variable used in the standard Heckman correction for sample selection (namely, the inverse Mills ratio).[47] It controls for the bias produced by having only country pairs that trade in the sample. The second variable ($\hat{W}$) is built under the assumption (derived from the theoretical model) that we can use the predicted probabilities to estimate a latent variable, Z_{ij}, which is the ratio of the variable export profits of the most productive firm to the fixed costs of exporting from country j to country i. Positive exports are only observed if $Z_{ij} > 1$, and a higher value for Z_{ij} implies a larger number of exporting firms. The inclusion of ($\hat{W}$) in the gravity model helps control for the effect of trade frictions and country characteristics on the proportion of exporters: the extensive margin effect.[48]

The second stage consists of estimating the gravity equation with the same independent variables plus the two variables calculated in the first stage. Since the reduced form of the gravity equation is nonlinear in ($\hat{W}$), we use a maximum likelihood (ML) estimation procedure. All stages include separate fixed effects for exporters, importers, and years to ensure consistency.

Table 7 presents the main results, including a simpler version of the model using ordinary least squares (OLS) and fixed effects. As expected, the difference between the OLS and ML estimations are confined to the magnitude of the coefficients, so we concentrate our analysis on the latter. We present two specifications. The first follows equation 2, while the second allows the

47. Heckman (1976).
48. The formula for the second variable is $\hat{\omega}_{ij} = \ln\{\exp[\delta(z_{ij} + \hat{\eta}_{ij})] - 1\}$, where z_{ij} is the latent variable defined as $z_{ij} = \phi^{-1}(\hat{p}_{ij})$, with ϕ denoting the cumulative normal distribution function and $\hat{p}_{ij}$ denoting the predicted probabilities estimated by the probit equation. The variable, $\hat{\eta}_{ij}$, represents the Mills ratio. See Helpman, Melitz, and Rubinstein (2007) for a formal derivation of this formula.

T A B L E 7 . Gravity Equation with Trade Agreements, 1970–2003[a]

Explanatory variable	OLS		ML	
	(1)	(2)	(3)	(4)
GDPi	0.538	0.539	0.429	0.429
	(0.020)***	(0.020)***	(0.022)***	(0.022)***
GDPj	0.553	0.554	0.444	0.446
	(0.021)***	(0.021)***	(0.023)***	(0.023)***
Population$i$	0.507	0.463	0.452	0.415
	(0.057)***	(0.059)***	(0.058)***	(0.060)***
Population$j$	0.001	−0.030	−0.134	−0.161
	(0.073)	(0.074)	(0.077)*	(0.078)**
Land area$i$	−0.060	−0.054	0.039	0.044
	(0.023)**	(0.023)**	(0.027)	(0.027)
Land area$j$	0.266	0.281	0.285	0.298
	(0.044)***	(0.044)***	(0.044)***	(0.045)***
Landlocked$i$	−1.917	−1.805	−2.214	−2.120
	(0.272)***	(0.275)***	(0.273)***	(0.275)***
Landlocked$j$	−4.439	−4.472	−3.509	−3.540
	(0.223)***	(0.224)***	(0.236)***	(0.235)***
Island$i$	−0.415	−0.214	−1.824	−1.645
	(0.353)	(0.359)	(0.387)***	(0.390)***
Island$j$	−2.682	−1.995	−1.753	−1.457
	(0.375)***	(0.424)***	(0.379)***	(0.409)***
Distanceij	−1.358	−1.357	−0.917	−0.918
	(0.019)***	(0.019)***	(0.047)***	(0.046)***
Colonyij	0.474	0.472	0.271	0.270
	(0.051)***	(0.051)***	(0.053)***	(0.053)***
Shared borderij	0.580	0.583	0.891	0.893
	(0.096)***	(0.096)***	(0.096)***	(0.096)***
Languageij	0.631	0.630	0.418	0.417
	(0.039)***	(0.039)***	(0.045)***	(0.045)***
CARICOM (intraregional)	1.150		0.336	
	(0.154)***		(0.187)*	
CARICOM (imports)	−0.662		−0.855	
	(0.078)***		(0.081)***	
CARICOM (exports)	−0.856		−0.928	
	(0.080)***		(0.080)***	
$\hat{\eta}$			0.299	0.302
			(0.084)***	(0.082)***
$\hat{\delta}$			0.745	0.742
			(0.089)***	(0.087)***
Summary statistic				
No. of observations	403,481	403,481	403,481	403,481
R^2	0.6977	0.6979		

Source: Authors' calculations.

CARICOM = Caribbean Community and Common Market; MERCOSUR = Southern Common Market; NAFTA = North American Free Trade Agreement; SPARTECA = South Pacific Regional Trade and Economic Cooperation Agreement.

*Statistically significant at the 10 percent level.

**Statistically significant at the 5 percent level.

***Statistically significant at the 1 percent level.

a. In the table, i denotes the reporting country and j the partner country. The dependent variable is ln(IMPORTSij). Specifications 2 and 4 estimate the coefficients of the CARICOM set variables by year (not reported in the table). See figures 4 and 5 for exporter, importer, and year fixed effects (not reported in the table). The trade agreements included (coefficients not reported) are the Andean Community, ASEAN, European Union, MERCOSUR, NAFTA, and SPARTECA. Robust standard errors (clustering by country pair) are in parentheses.

coefficient of the CARICOM dummies to vary over time to capture changes in the agreement's impact over the period. Our estimation confirms Égoumé-Bossogo and Mendis's result of CARICOM's having a positive impact on intraregional trade (column 3), but the level of magnitude is much more plausible and, certainly, more in line with theory and the way the agreement has been implemented.[49] Our results imply that CARICOM has increased intraregional trade by about 40 percent, or [exp (0.336) − 1]*100, on average over the period.

Our results also point to a negative impact on extraregional imports, which contrasts with Égoumé-Bossogo and Mendis's findings. This implies a net trade diversion as suggested by our analysis of the descriptive data, both on the margin, as defined by Soloaga and Winters (that is, the sum of the INT and IM coefficients is negative), and in absolute terms (that is, IM is considerably higher than INT, and it affects a much larger extraregional base).

The introduction of CARICOM dummies by year in the second specification (column 4) sheds some light on how the agreement's impact evolved over the period and how it might behave in the future. The yearly results are particularly important given that the barriers to intra- and extraregional trade changed considerably over the period. As discussed earlier, this instability reflects the difficulties encountered in implementing a fully operational common external tariff, the numerous exceptions to the free trade zone and common external tariff granted to the smaller and poorer countries, and an overall lack of discipline in implementing agreed rules. Given the lack of data on these constant changes, the evolution of the agreement's coefficients is our best shot at tracking down CARICOM's trade impacts.

The results, which are plotted in figure 4, suggest that the agreement's heyday was on the early 1970s, right after it was signed. Since implementation moved slowly, the positive impact on intraregional trade in those years may reflect the preferences established under CARIFTA in 1968 or even some idiosyncrasy of trade in the region, though the latter option is not likely to have played a significant role given the fixed effect controls used in the estimation. As the agreement moved into the late 1970s and 1980s, the positive impact on intraregional trade decreased abruptly. This may have resulted from the increase in intraregional barriers to trade imposed by import substitution policies in the larger countries in the 1970s and, later, by the debt crises in the 1980s. The reforms of the 1990s seem to have stopped the free fall of the agreement's benefits, but they were clearly unable to reverse the declining trend.

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49. Égoumé-Bossogo and Mendis (2002).

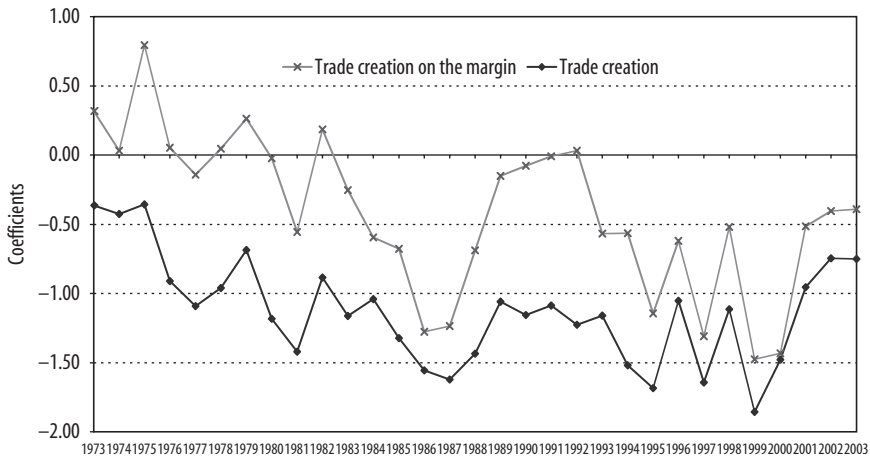**FIGURE 4.   CARICOM's Estimated Coefficients, 1973–2003**
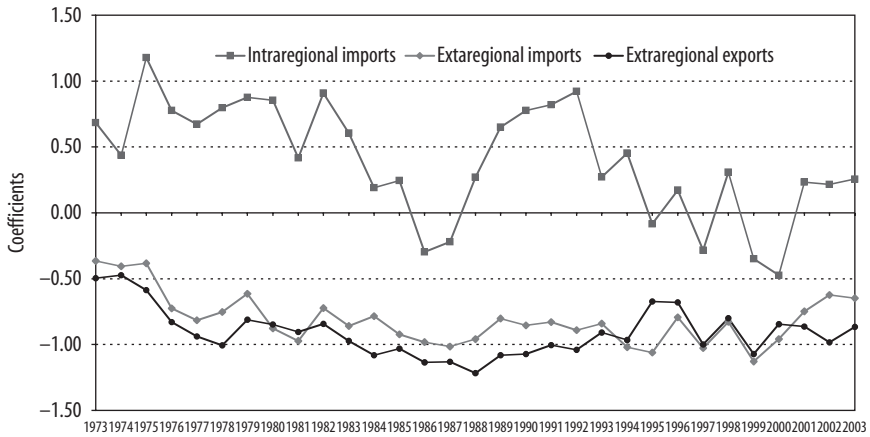
Source: Data from table 6, column 4. Time-variant CARICOM coefficients are available on request.
CARICOM = Caribbean Community and Common Market.

The impact on extraregional trade is estimated to be negative right from the start of the series. It worsens in the 1970s and 1980s, probably as a result of the increase in extraregional protection triggered by the same shocks experienced by intraregional trade. It then undergoes a slight improvement after the reforms in the early 1990s, when members reached an agreement on implementing a considerably lower common external tariff.[50] The behavior of the coefficient on extraregional exports follows a similar pattern, failing to show any positive impact on the region's competitiveness.

Figure 5 shows how trade creation and diversion evolved during the period, using the marginal and absolute concepts discussed earlier. In absolute terms, the agreement was net trade diverting over the whole period, increasingly so in the late 1970s and 1980s and less so in the 1990s. The drop in external protection apparently was not sufficient to minimize the negative impact on external imports, while factors such as the limited size of the common market and the similarity of factor endowment did not provide enough fuel for trade creation. The marginal concept followed a similar negative trend; the only marked difference was a brief period of net trade creation in the early 1970s.[51]

50. The previous CET was never fully implemented.
51. In the working paper version of this study (Moreira and Mendoza 2006), we use a smaller database (sixty-nine countries, for the period 1970–2003) and a panel with country-pair random effects; we reached similar results in terms of the trends of CARICOM's impacts.

F I G U R E 5 . **CARICOM's Trade Creation, 1973–2003**[a]

Source: Data from table 6, column 4. Time-variant CARICOM coefficients are available on request.
CARICOM = Caribbean Community and Common Market.
a. Trade creation on the margin is the sum of the coefficient of the intraregional (INT) and extraregional (IM) import dummies. Trade creation is the sum of the value of intraregional and extraregional imports that stand above the level predicted by geographical variables and country fixed effects, normalized by the value of total observed imports.

What has been happening in the region is arguably trade destruction rather than trade diversion, since the negative impact on trade abroad has not been matched by the creation of trade at home. The region imports less from the rest of the world, but since it does not have the necessary skills and endowment to substitute for those imports, it stops consuming those goods altogether or, more likely, starts buying them from smugglers. This picture contrasts heavily with the rosy scenario described by Égoumé-Bossogo and Mendis, and it confirms the agreement's limitations in generating traditional trade gains.[52] The fact that the agreement failed to boost trade even after the reforms of the 1990s suggests that the trade-creating prospects of the CSME are not at all encouraging.

Policy Implications and Conclusions

In the Caribbean, where all but three countries are classified by the United Nation as microstates, the motivation behind regional integration arises from a deep-rooted economic perception about size constraints on development.

52. Égoumé-Bossogo and Mendis (2002).

Economic theory lends qualified support to this concern, but the theory does not contend that the advantages of size are absolute. Large size carries costs in the form of heterogeneous preferences, and trade can often attenuate size restrictions. These insights are particularly useful for understanding the dynamics of Caribbean integration The costs and benefits of size help explain why, despite their profound awareness of their size limitations, Caribbean countries have long resisted deep forms of political and economic integration. The high degree of openness that marks most economies in the region, the countries' nonreciprocal preferential access to markets in the United States and the European Union, and the substantial inflows of aid and FDI to the region have probably attenuated the size handicap, thereby reducing the appeal of regional integration without lowering the associated heterogeneity (or sovereignty) costs.

Our growth accounting exercise, which simulates the impact of the enlarged CARICOM market on the growth rates of Barbados, Guyana, Jamaica, and Trinidad and Tobago, illustrates these points. The results show that changes in size—the so-called market-size effect—have little impact on these countries' growth rates, particularly when compared to changes in other growth determinants such as openness, investment, and human capital. These results seem to reflect the fact that these economies are already more open than the world average, and an increase in size would carry more costs (in the form of heterogeneous preferences) than benefits.

The interaction between size, openness, and preference costs also seems to be behind the timing of the CSME initiative. Two of the main pillars of CARICOM's openness—namely, unilateral preferences for CARICOM exports to world markets and inflows of international aid and FDI—are being rapidly eroded by the proliferation of preferential agreements and unfavorable rulings by the World Trade Organization (WTO), together with the growing competition for aid and FDI. Thus, while globalization is expanding the world market, the Caribbean's export markets are shrinking because of the idiosyncrasies of their insertion into the world economy. To put it in another way, globalization is tightening the region's size constraints.

So, how can the CSME help Caribbean countries redress the balance between size and openness and thereby improve the region's growth prospects? Policymakers should have no illusions about the traditional trade gains of integration, for three key reasons: policy barriers to intraregional trade are, on average, already low; the countries' factor endowments are generally very similar; and the region as a whole fits into the description of small country. Our descriptive analysis of the region's trade flows supports these claims. Three decades of

integration have not done much to bolster intraregional trade, and the CSME is unlikely to change this picture. True, the period analyzed covers different levels of discipline and implementation of the free trade zone and common market, and the analysis of actual tariffs and tax burdens on imports suggests that removing those trade costs will lead to additional gains. On average, though, these costs are not high enough that their removal would substantially change the rather modest performance of intraregional trade.

We also performed a more rigorous analysis using a gravity model. The results confirm that the agreement has had a positive impact on intraregional trade over its three decades of existence. At the same time, the trade-creating benefits are much lower than previously estimated and have been declining since the early 1970s, despite the reforms of the 1990s. Moreover, the agreement has been net trade diverting, on average, and the recent changes in the common external tariff were not enough to change that. Finally, the impact on extraregional exports is, if anything, negative.

The signs of trade diversion are particularly troubling considering that the production of goods is clearly moving toward one of the largest countries in the region. To avert a politically unsustainable scenario in which larger and wealthier countries receive all the benefits of integration, it is important to design policies that favor the smaller and poorer partners, beyond further reductions in the common external tariff. CARICOM has already taken a key initiative in this direction with the creation of the Regional Development Fund. Other possibilities include giving smaller, poorer countries the possibility of offering more generous fiscal and credit incentives than their larger counterparts, within the context of a much needed harmonization of investment policies, and adopting a distribution criterion of the common tariff revenue that would favor the more vulnerable partners.

The free movement of labor, which also figures among the objectives of the CSME, is also likely to spread the benefits of integration more evenly. It allows labor to follow spatial changes in the allocation of investment, creating job options for workers that live in countries or regions that might eventually lose from integration. It also prevents wages and incomes among member countries from following a politically unstainable divergence path. Liberalization in this area has to be gradual, however, to avoid large and rapid movements of labor across borders, a phenomenon that could cause a political backlash. An intraregional work visa scheme with quotas for unskilled workers might be an efficient way to start this process.

The prospects of trade-related gains are thus modest and conditional on common market rules' being strictly enforced (and distributional risks' being

managed). The advantages of size go well beyond the production of tradable goods, however, and the real payoff of integration may come in non-trade-related areas. Size matters in the production of goods and services that make up the countries' social and physical infrastructure. The empirical evidence on infrastructure costs in small states supports this claim, and there is no reason for these gains to be limited to physical infrastructure. Other nontradable sectors such as education and all the institutions of government are likely to have a minimum efficient scale that is far larger than most states in the Caribbean. Reaping those gains can have very concrete implications for growth if it stimulates investment in human and physical capital, as suggested by the empirical growth model reviewed.

This point has not gone unnoticed by CARICOM governments and officials, who list "functional cooperation" as one of their goals, and the region already has a number of important initiatives in areas such as education, disaster management, and foreign policy coordination. Nevertheless, the text of the treaties and their implementation seem to give functional cooperation an ancillary role to the traditional, trade-related areas of CARICOM. Functional integration is even described as the "noneconomic" side of integration, when, in fact, integration gains in nontradables are likely to dwarf the traditional gains from trade. To maximize those nontradable gains, the region must broaden the focus of integration and undertake more ambitious efforts than have been seen so far. The key to those gains is to find nontradable goods and services whose joint provision on a regional basis reduces costs—and, therefore, the fiscal burden on firms and individuals—while improving their availability.

Appendix: Data Sources and Country Samples

We used the following data sources in constructing our version of the growth regression:

- —Growth rate of real per capita income, population, GDP, real per capita GDP, investment, and government consumption: Penn World Table version 6.2.[53]
- —Human capital: Barro and Lee (2001).
- —Small country, island, small island, and landlocked country (geographic dummy variables): source: authors' calculations.

53. Heston, Summers, and Aten (2002).

The countries included in the growth exercise are as follows:

—Industrial countries: Australia, Austria, Belgium and Luxembourg, Canada, Denmark, Finland, France, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

—Africa: Algeria, Benin, Botswana, Cameroon, Congo, Gambia, Ghana, Kenya, Lesotho, Malawi, Mali, Mauritius, Mozambique, Niger, Rwanda, Senegal, South Africa, Togo, Uganda, Zambia, and Zimbabwe.

—Asia: Bangladesh, Fiji, Hong Kong (China), India, Indonesia, Korea, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, and Thailand.

—Developing Europe: Iceland and Turkey.

—Middle East: Iran, Israel, Jordan, and Syria.

—Latin America and the Caribbean: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

—Caribbean Community and Common Market (CARICOM): Barbados, Guyana, Jamaica, and Trinidad and Tobago.

Table A-1 lists the countries included in our gravity tests, together with their respective regional trade agreements. Our data sources for this exercise are as follows:

—Import flows (in current U.S. dollars): United Nations Commodity Trade Statistics Database (COMTRADE); CARICOM Secretariat.

—GDP (in current U.S. dollars) and population: World Bank, *World Development Indicators* (WDI); Penn World Table, version 6.2.

—Land area, geodesic distance between the cities, colonial history, geographical characteristics, and language: the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) database.

T A B L E A - 1 . Gravity Model: Countries and Agreements in Sample[a]

	Country	Agreement		Country	Agreement		Country	Agreement
1	Afghanistan		30	Comoros		59	Haiti	
2	Algeria		31	Congo		60	Honduras	
3	Antigua and Barbuda	CARICOM	32	Costa Rica		61	Hong Kong	
4	Argentina	MERCOSUR	33	Cuba		62	Hungary	
5	Australia	SPARTECA	34	Cyprus		63	Iceland	
6	Austria	EU	35	Côte d'Ivoire		64	India	
7	Bahamas	CARICOM	36	Democratic People's Rep. Korea		65	Indonesia	
8	Bahrain		37	Democratic Rep. Congo		66	Iran	
9	Bangladesh		38	Denmark	EU	67	Iraq	
10	Barbados	CARICOM	39	Dominica	CARICOM	68	Ireland	EU
11	Belize	CARICOM	40	Dominican Republic		69	Israel	
12	Benin		41	Ecuador		70	Italy	EU
13	Bermuda		42	Egypt		71	Jamaica	CARICOM
14	Bhutan		43	El Salvador		72	Japan	
15	Bolivia		44	Equatorial Guinea		73	Jordan	
16	Botswana		45	Ethiopia		74	Kenya	
17	Brazil	MERCOSUR	46	Fiji	SPARTECA	75	Kiribati	
18	Brunei Darussalam		47	Finland	EU	76	Kuwait	
19	Burkina Faso		48	France	EU	77	Lao People's Democratic Rep.	
20	Burundi		49	Gabon		78	Lesotho	
21	Cambodia		50	Gambia		79	Liberia	
22	Cameroon		51	Germany	EU	80	Macao	
23	Canada	NAFTA	52	Ghana		81	Madagascar	
24	Cape Verde		53	Greece	EU	82	Malawi	
25	Central African Republic		54	Grenada	CARICOM	83	Malaysia	
26	Chad	MERCOSUR	55	Guatemala		84	Maldives	
27	Chile		56	Guinea		85	Mali	
28	China		57	Guinea-Bissau		86	Malta	
29	Colombia		58	Guyana	CARICOM	87	Mauritania	

(continued)

TABLE A-1. Gravity Model: Countries and Agreements in Sample[a] (Continued)

#	Country	Agreement	#	Country	Agreement	#	Country	Agreement
88	Mauritius		110	Poland		132	Suriname	CARICOM
89	Mexico	NAFTA	111	Portugal	EU	133	Swaziland	
90	Micronesia		112	Qatar		134	Sweden	EU
91	Mongolia		113	Republic of Korea		135	Switzerland	
92	Morocco		114	Romania		136	Syrian Arab Republic	
93	Mozambique		115	Rwanda		137	Thailand	
94	Namibia		116	Saint Kitts and Nevis	CARICOM	138	Togo	
95	Nepal		117	Saint Lucia	CARICOM	139	Tonga	SPARTECA
96	Netherlands Antilles		118	Saint Vincent and the Grenadines	CARICOM	140	Trinidad and Tobago	CARICOM
97	Netherlands	EU	119	Samoa	SPARTECA	141	Tunisia	
98	New Zealand	SPARTECA	120	São Tomé and Príncipe		142	Turkey	
99	Nicaragua		121	Saudi Arabia		143	Uganda	
100	Niger		122	Senegal		144	United Arab Emirates	
101	Nigeria		123	Seychelles		145	United Kingdom	EU
102	Norway		124	Sierra Leone		146	United Rep. of Tanzania	
103	Oman		125	Singapore		147	United States	NAFTA
104	Pakistan		126	Solomon Islands	SPARTECA	148	Uruguay	MERCOSUR
105	Panama		127	Somalia		149	Vanuatu	SPARTECA
106	Papua New Guinea	SPARTECA	128	South Africa		150	Venezuela	
107	Paraguay	MERCOSUR	129	Spain	EU	151	Zambia	
108	Peru		130	Sri Lanka		152	Zimbabwe	
109	Philippines		131	Sudan				

CARICOM = Caribbean Community and Common Market; EU = European Union; MERCOSUR = Southern Common Market; NAFTA = North American Free Trade Agreement; SPARTECA = South Pacific Regional Trade and Economic Cooperation Agreement.

a. Agreements are listed on the basis of data availability and identification.