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The New Trade Environment and Trade Performance in the Caribbean

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The New Trade Environment and Trade Performance in the Caribbean

Introduction

Caribbean countries' small geographical sizes seem to continue to represent a constraint to trade and prosperity. Firms' expansion in most sectors requires the exploitation of economies of scale: they need to produce more, in such a way that the cost per unit produced is reduced. As the Caribbean countries are small economies, with limited population and domestic markets, their firms are of small and medium sizes and are less likely to exploit the benefits of economies of scale. According to the World Bank Enterprises Survey (WBES), 65 percent of Caribbean exporting firms are small firms (5-19 employees), while this category of firms represents around 57 percent in Latin America. For these countries, international trade is of great importance to efforts to enlarge their markets and attain economies of scale. Therefore, promoting exports is critical for a credible growth and poverty reduction strategy in the Caribbean countries.

However, Caribbean countries face a rapidly changing trade environment, which presents both opportunities and challenges for economies highly dependent on external markets. The features of the new trade environment include: i) redefinition of relations with their main trading partners, including the United States, where Caribbean exports continue to enjoy preferential access under the Caribbean Basin Initiative, and the European Union, through the recently signed Economic Partnership Agreement; ii) the increasing economic influence of the new growth poles[1] (Brazil, Russia, India, Indonesia, China and Korea) ; iii) and the redesign of the CARICOM regional trade agreement in order to implement the Caribbean Single Market Economy (CSME) as well as a number of preferential trade agreements within the region. These changes are likely to change the trading structure of the Caribbean countries and, through this restructuring, to have implications for the welfare of these economies. Understanding these implications is critical in terms of designing appropriate policy response to the trade changes but also in terms of eventually re-shaping trade agreements and policies.

While Caribbean economies are specialized in tourism and nautical services, and the production of agricultural and some light manufacturing merchandise, there is large heterogeneity in the level of economic development and diversification of their economies. In order to group Caribbean countries into relatively homogeneous groups, we divide them into four mutually exclusive groups according to their most important source of export earnings: (i) Services economies (at least 60 percent of total exports from services); (ii) light manufacturing economies (at least 80 percent of merchandise trade in light manufacturing); (iii) agriculture and food products economies (agriculture and food products as primary source of export earnings); and (iv) natural resources dependent economies (natural resources as primary source of export earnings). Table 1 shows how the 15 countries included in this study are classified according to these criteria[2].

Table 1 : Country Groupings

Services Dependent	Light Manufacturing Dependent
Antigua and Barbuda	Dominican Republic
The Bahamas	Haiti
Barbados	**Agriculture and Food Dependent**
Dominica	Guyana
Grenada	Belize
Jamaica	**Natural Resources Dependent**
St. Kitts and Nevis	Suriname
St. Lucia	Trinidad and Tobago
St. Vincent and the Grenadines	

Source: LCSPE.
Note: This table presents the allocation of all Caribbean countries under analysis, according to their major source of export earnings.

This note analyzes the effect of this emerging trade environment on trade performance in the Caribbean. More specifically, the following aspects are assessed: i) Caribbean performance in reaping the opportunities offered by the new trade environment; ii) identification of the main factors

1 The new growth poles are the emerging economies, namely: Brazil, Russia, India, and China (BRIC) and Korea with high economic influences due to their high import and export potentials. These emerging countries with their larger markets represent potential export destinations for other economies.
2 This classification is slightly different from the grouping considered in another World Bank study on growth in the Caribbean region. While this study considers two different categories for food dependents and natural resources dependents, the growth study includes these two categories into a single grouping named "commodities exporters".

determining their performances; iii) discussion of the role of innovation and access to key services in improving productivity of exporting Caribbean firms; and iv) exploration of regional integration and trade agreements options to boost Caribbean trade performance.

Caribbean trade performance and the role of the new growth poles

Like many small island economies, countries in the Caribbean are exceptionally open to international trade. Many Caribbean countries are more open than would be expected, given their per capita income (as income rises, countries tend to trade more, although at a decreasing rate). Figure 1 and Figure 2 show the correlation between per capita income and trade to GDP ratio for a sample of countries throughout the world for the periods of 2005-2007 and 2010-2012, respectively. The curved line is the expected trade openness given each country's per capita GDP (and its square). The band around the curve represents a 95% confidence interval. The majority of Caribbean countries display a trade openness indicator that is larger than what would be expected given their stage of development, both in the middle of the last decade and the beginning of this decade.

Figure 1: Openness to Trade (Merchandise and Services) (Average 2005-2007)

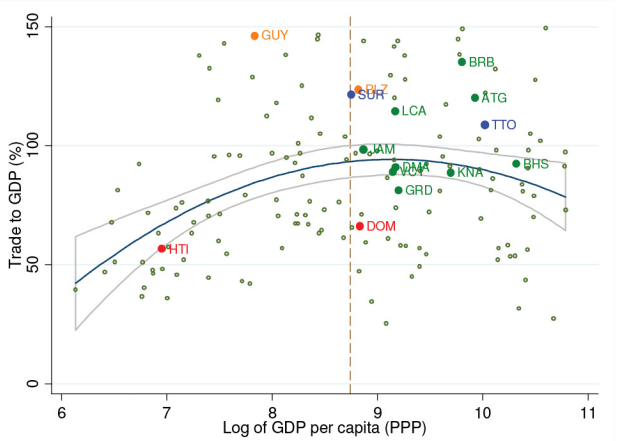
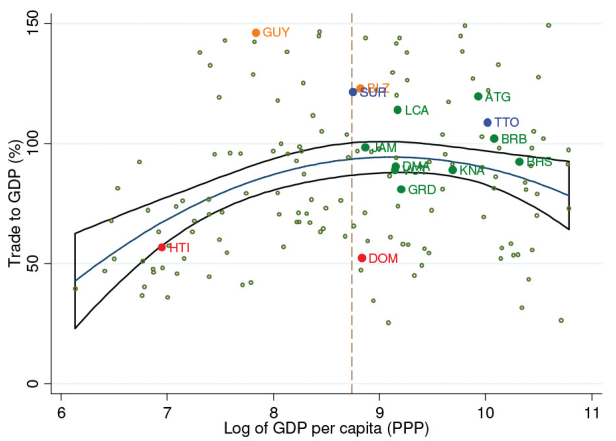


Figure 2: Openness to Trade (Merchandise and Services) (Average 2010-2012)



Source: Author's computations using data from World Development Indicators (World Bank, 2013c).
Note: Services dependent countries are colored in green; light manufacturing countries in red; natural resources countries in blue; and agriculture and food products countries in orange. The scatter plotters indicate the position of all countries in the World Bank classification of countries along two dimensions: trade openness and GDP per-capita.

The Caribbean's high degree of integration with the global economy reflects substantial imports. The majority of the countries in the Caribbean have large trade deficits; only Suriname (with gold and aluminum exports) and Trinidad and Tobago (oil exports) have a sizeable trade surplus compared to GDP. Most countries tend to run an even larger deficit on goods trade, financed in part by a surplus on services trade (all Caribbean countries except Haiti, Belize and Suriname have a surplus on services trade), and in part by remittances and other sources of financing. The pattern of large imports financed by remittances is typical of small island economies. These economies tend to produce only a limited variety of goods in order to achieve efficient scale, requiring large goods imports to meet diverse demands. At the same time, specialization in production of goods encourages the emigration of workers with skills that are not needed domestically. The average trade deficit for all the island countries in the world (including the Caribbean) is 9.7% of GDP.

Table 2: Trade Balance (% of GDP) (Average 2010-2012)

Caribbean Countries	Trade Balance (% GDP)		
	Total	Goods	Services
Services Dependent			
Antigua and Barbuda	-9.4	-33.3	23.8
The Bahamas	-10.9	-26.8	15.9
Barbados	-3.9	-24.3	20.4
Dominica	-15.6	-32.8	17.2
Grenada	-25.0	-32.4	7.3
Jamaica	-22.3	-27.4	5.0
St. Kitts and Nevis	-16.5	-24.6	8.1
St. Lucia	-16.6	-31.2	14.6
St. Vincent and the Grenadines	-29.5	-37.0	7.5
Simple mean	-16.6	-30.0	13.3
Weighted mean	-15.6	-27.5	11.9
Light Manufacturing Dependent			
Dominican Republic	-10.1	-19.4	9.3
Haiti	-42.7	-29.5	-13.1
Simple mean	-26.4	-24.5	-1.9
Weighted mean	-15.1	-21.0	5.8
Agriculture and Food Dependent			
Guyana	0.5	-12.0	12.5
Belize	-27.5	-21.6	-5.9
Simple mean	-13.5	-16.8	3.3
Weighted mean	-17.8	-18.3	0.5
Natural Resources Dependent			
Suriname	10.8	16.6	-5.8
Trinidad and Tobago	25.2	23.0	2.2
Simple mean	18.0	19.8	-1.8
Weighted mean	23.1	22.1	1.1

Source: Authors' computations using data from World Development Indicators (World bank, 2013c).
Note: This table presents trade balances as a share of GDP for total, merchandise, and services trade for the average of 2010-2012. It also shows simple and weighted averages across countries within our country groupings, where total trade in the same period of time is used as weights.

The large Caribbean trade deficit also reflects poor export performance. The Caribbean region is facing an increasing "de-globalization" as its share of world exports declined from 0.5% in 1980 to less than 0.2% in 2012. In spite of enjoying an external trade policy anchored on unilateral preferential access to the European and North American markets (unlike other countries in Latin America as well as other developing countries that had similar levels of integration 30 years ago), the Caribbean's integration into the world economy has been much slower[3]. A policy focused on unilateral preferential access to the European and North American markets does not seem to have produced the expected results.

One reason for stagnating or declining exports has been the failure to fully exploit the emergence of new, dynamic sources of demand in the global economy. The share of Caribbean exports going to the new growth poles is lower than expected (see Table 3). Exports from the Caribbean to the new growth poles are lower than predicted by a gravity model of trade that reflects various determinants of bilateral exports, particularly size, income level, and distance[4].

3 Under the Lomé and Cotonou agreements, Caribbean countries received unilateral preferential access to the EU for traditional agricultural exports. Similarly, the region has enjoyed 30 years of unilateral preferential access to the United States for certain products under the Caribbean Basin Initiative (CBI) and subsequently through the Caribbean Basin Trade Partnership Act (CBTPA).

4 The gravity model predicts the level of exports between two economies, based on size, income level, distance, whether countries share a common border, whether they share a common language, and whether one was a colony of the other or they were colonies of the same country. The analysis covers bilateral merchandise exports among 213 countries between 2005 and 2011, and tourism receipts (or arrivals) among 194 countries over the same period. Gravity models have been used extensively in the literature on international trade (see literature reviews provided in Anderson & van Wincoop 2003, Feenstra 2004, and Baldwin & Taglioni 2006).

Table 3: Benchmarking Caribbean Merchandise Exports to New Growth Poles (Observed Value / Predicted Value in 2011)

		Brazil	China	India	Indonesia	Korea	Russia
Services Countries	Antigua and Barbuda	0.02	0.03	0.21	9.03	0.20	69.08
	Bahamas, The	12.35	0.01	22.96	0.03	0.18	2.59
	Barbados	0.32	0.03	1.49	0.09	0.41	0.04
	Dominica	0.06	1.06	3.63	0.07	0.97	0.03
	Grenada	0.06	0.02	21.83	0.13	0.00	--
	Jamaica	0.15	0.17	0.66	0.04	0.61	53.50
	St. Kitts and Nevis	28.91	1.25	0.06	--	0.92	0.81
	St. Lucia	0.65	0.64	39.96	1.08	0.68	0.43
	St. Vincent and the Grenadines	0.02	1.65	0.15	0.25	1.03	0.46
Light Man. Cou.	Dominican Republic	0.42	1.05	0.21	0.86	1.87	1.87
	Haiti	1.35	2.35	6.08	4.63	3.42	0.59
Agr. Cou.	Belize	38.14	0.62	1.00	0.02	0.53	0.59
	Guyana	0.01	2.83	2.56	1.78	1.18	1.36
Nat. Res. Cou.	Suriname	22.89	2.54	21.18	2.18	28.40	0.07
	Trinidad and Tobago	--	0.06	74.31	0.01	0.01	--

Source: Authors' calculations using mirror data from COMTRADE (UN COMTRADE, n.d.).
Note: This table shows the observed bilateral export value in 2011 as a ratio of their expected value predicted by the gravity model. The total value of merchandise includes trade in all products. Red (green) cells indicate that the observed value is smaller (larger) than what is predicted by the econometric model. COMTRADE data does not report exports from Trinidad and Tobago to Brazil and Russia; from Grenada to Russia; or from St. Kitts and Nevis to Indonesia.

Table 3 above compares the actual and predicted values for the share of each country's merchandise exports to the new growth poles in their total merchandise exports. Note that an observation that is larger (smaller) than one indicates that the observed export relationship is larger (smaller) than what is predicted by the gravity model (larger than expected trade relationships are colored in green, while the "smaller than expected" are colored in red) (see Table 4). There are three key findings from this analysis: (i) with the exception of Bahamas, St. Kitts and Nevis, St. Lucia, Belize, and Haiti, exports to Brazil from Caribbean countries are smaller than expected; (ii) exports to the new growth poles from light manufacturing and agricultural-based countries are generally in line with the model predictions; and (iii) Trinidad and Tobago oil is directed mainly to the old growth poles and to India. While there may be several reasons that bilateral exports fall below the gravity model predictions, these results may indicate the potential to increase Caribbean merchandise exports to the new growth poles.

Table 4: Benchmarking Caribbean Tourism Exports to New Growth Poles

		Brazil	China	India	Indonesia	Korea	Russia
Services countries	Bahamas, The	4.09	0.57	0.38	0.88	1.00	1.99
	Barbados	0.56	0.88	1.04	1.07		2.73
	Dominica	0.07	2.00				
	Grenada	0.59					
	Jamaica	0.55	0.87	0.48		0.42	1.81
Light Man. Cou.	Dominican Republic	2.14	0.09	0.41		0.33	12.09
Nat. Res. Cou.	Suriname	2.26	5.08	1.48	1.52	0.22	
	Trinidad and Tobago	0.57	3.28	1.13	0.50	0.50	0.14

Source: Authors' computations using data from United Nations World Tourism Organization (UNWTO,2012).

Analysis based on the gravity model provides mixed results for tourism exports of Caribbean countries to the new growth poles. Some Caribbean countries export more tourism services, defined as services provided to foreigners, than expected to the new growth poles[5], given each country's economic size, bilateral distance, and the other determinants (Table 4). This is particularly true for tourism exports to Russia from the Dominican Republic and for the exports of Caribbean countries dependent on services to Russia Tourism exports to China from the countries dependent on services (except Dominica) and the Dominican Republic are less than expected, but exports to China from the natural resource dependent countries are greater than expected. Tourists arriving from Brazil to service dependent Caribbean countries were also fewer than expected. In general, the United States and Europe remain the primary sources of tourism to the Caribbean.

Export dynamism and the structure of production

The Caribbean countries' ability to exploit trade opportunities in the more dynamic markets may be limited by the structure of production in the Caribbean. In many (but not all) Caribbean countries, merchandise exports are concentrated in a small number of sectors with relatively low value added. This lack of diversification, and high reliance on goods with minimal processing, tends to limit the potential markets that Caribbean countries can reach. To explore this issue, we calculated revealed comparative advantage indices for the 15 countries in the Caribbean region in 16 merchandise sectors. A country is estimated to have a comparative advantage in a given sector if its index is greater than one (these cells are highlighted in Table 5). This index shows whether the share of a product in a country's trade is greater than the share of that product in global trade. Countries with limited scope in terms of comparative advantage include Haiti (textiles), Antigua and Barbuda (vegetables and transportation), [6]St. Kitts and Nevis (animal and machinery), St. Vincent and Grenadines (vegetables, metals, and transportation), and Trinidad and Tobago (organic fuels, chemicals, and metals). Moreover, the sectors of animal products, vegetables, minerals, and foodstuffs account for 31 of the 65 observations representing sectors in which the RCA index is greater than one. While the level of processing differs considerably within sectors, nevertheless these sectors tend to require limited processing. As countries that export more sophisticated, higher value added products tend to achieve higher growth rates (see Hausmann, Wang, & Rodrick, 2006), many Caribbean countries' specialization in these low -value-added sectors may limit their potential growth.

5 Note that the tourism services provided to other countries by the Caribbean countries are considered as the Caribbean's export to those countries in the current context.

6 Antigua and Bermuda reports a sizeable amount of exports in chapter 89: ships, boats, and floating structures. This chapter refers to the assembly of such devices.

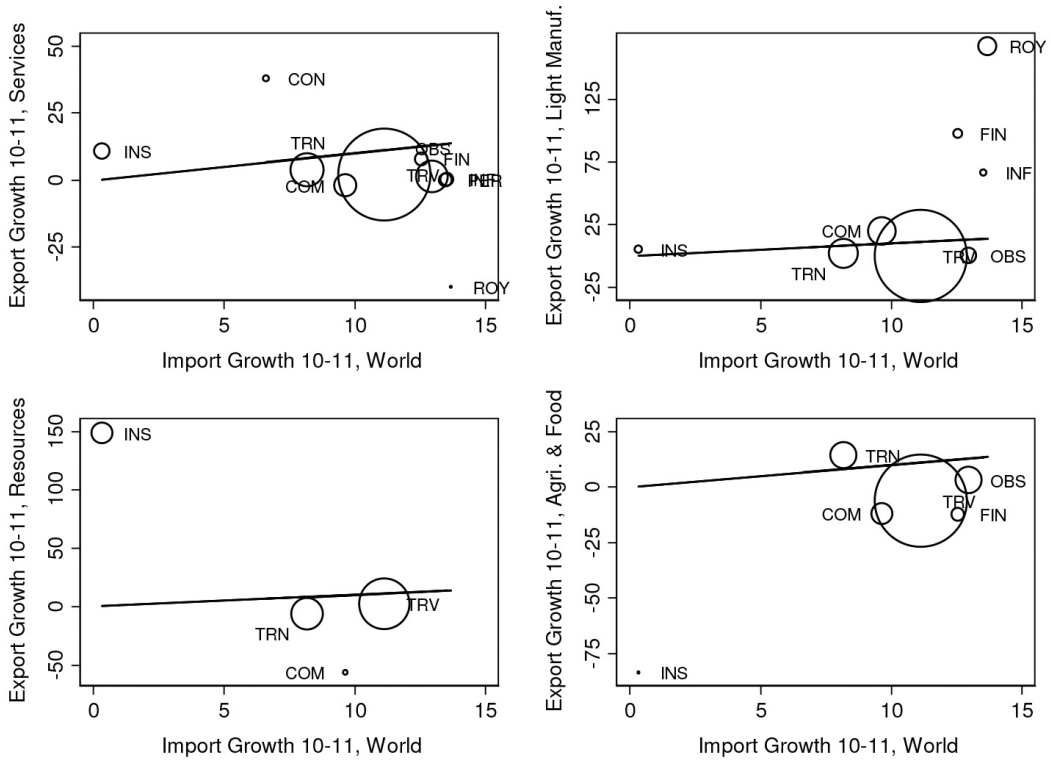
Table 5: Comparative Advantage in Merchandise Sectors (2011)

		Services Dependent									Light Man.		Nat. Res.		Agr. & Food	
		ATG	BHS	BRB	DMA	GRD	JAM	KNA	LCA	VCT	HTI	DOM	SUR	TTO	BLZ	GUY
01-05	Animal	0.2	1.9	0.7	1.5	11.6	0.4	1.7	0.1	0.2	0.6	0.1	4.9	0.2	6.4	3.9
06-15	Vegetable	1.3	0.0	0.1	2.8	12.6	2.2	0.0	11.7	1.5	0.6	2.5	1.3	0.0	7.4	0.6
16-24	Foodstuff	0.6	0.3	15.2	2.8	8.2	13.0	0.3	1.7	0.1	0.5	5.7	0.1	0.1	9.3	3.8
25-26	Minerals	0.1	0.8	0.3	9.1	0.0	8.0	0.0	0.0	0.0	0.0	1.0	0.4	0.1	0.2	7.4
27	Organic Fuels	0.1	3.2	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	3.1	1.3	0.0
28-38	Chemicals	0.1	0.3	0.1	1.5	0.1	3.8	0.0	0.0	0.1	0.2	0.6	5.1	3.8	0.3	0.0
39-40	Plastic / Rubber	0.0	1.6	0.2	0.4	0.0	0.1	0.1	0.1	0.2	0.1	0.7	0.0	0.0	0.1	0.0
41-43	Hides, Skins	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8	1.1	0.0	0.0	0.2	0.0
44-49	Wood	0.6	0.0	0.4	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.3	2.5	0.1	1.4	1.2
50-63	Textiles, Clothing	0.1	0.0	0.2	0.3	0.1	0.0	0.1	0.2	0.0	25.2	3.7	0.0	0.0	0.2	0.1
64-67	Footwear	0.0	0.0	0.0	2.7	0.0	0.0	0.1	0.0	0.0	0.4	7.5	0.2	0.0	0.0	0.0
68-71	Stone / Glass	0.3	0.2	1.3	0.6	0.5	1.0	0.1	1.9	0.7	0.0	2.3	8.6	0.0	0.2	16.5
72-83	Metals	0.3	0.2	1.2	1.5	1.1	0.1	0.1	1.3	1.3	0.6	1.1	0.4	1.2	0.4	0.1
84-85	Mach/Elec	0.1	0.0	0.3	0.7	0.1	0.0	3.2	1.4	0.1	0.0	0.4	0.0	0.0	0.0	0.0
86-89	Transportation	9.9	1.4	0.1	0.3	0.2	0.0	0.5	0.0	8.5	0.0	0.0	0.0	0.0	0.3	0.1
90-99	Miscellaneous	0.1	1.0	2.5	0.6	0.1	0.0	0.3	0.3	0.8	0.1	2.7	0.0	0.0	0.6	0.0

Source: Authors' computations using mirror data from COMTRADE (UN COMTRADE, n.d.).

Caribbean service exports may offer greater potential than merchandise exports. Caribbean countries' revealed comparative advantage in services is also highly concentrated, in the travel and communications sectors. Nevertheless, other service sectors are demonstrating more dynamism. Service sector exports declined with the financial crisis (by 5.4 percent in countries dependent on services) and the subsequent recovery has been anemic. However, the crisis depressed global service exports in general; to determine how well Caribbean countries are performing in services trade, it is necessary to compare changes in these countries' services exports with global trends. For various service sectors, Figure 3 plots the world import growth rate on the horizontal axis, against the export growth rate of each of the Caribbean country groups on the vertical axis. The circles are labeled according to Balance of Payment (BOP) categories; the size of the circles represents the importance of the sector in each country's export basket. Sectors above (below) the line represent a gain (loss) in world market share. In 2010-11, many Caribbean countries lost market share in their principle service exports, but gained market share in less important yet more dynamic export sectors (e.g. construction, insurance, finance, information, royalties and license fees). Nevertheless, these sectors remain a small share of total Caribbean services exports.

Figure 3: Gains in World Market Share, 2010-2011



Source: Author's computations using data from UNCTAD (2013).
Notes: The line passing through the scatter is a 45-degree line in a graph with equal scales in both axes. Sectors above (below) the line represent a gain (loss) in the world market share. The size of the circles represents the importance of the sector in the countries' export baskets. The circles are labeled according to sector initials: transport (TRN), travel (TRV), communications (COM), construction (CON), insurance (INS), financial (FIN), computer and information (INF), royalties and license fees (ROY), other business (OBS), personal, cultural, and recreational (PER).

The determinants of trade performance: Identifying key impediments to Caribbean trade

Disappointing export performance in the Caribbean has been driven by poor policies and inadequate infrastructure. Available quantitative indicators that measure the quality of policy and infrastructure include: (i) trade policy, measured by the level of tariff rates; (ii) trade facilitation, measured by the World Bank's logistics performance index (LPI) and the cost to export a container; (iii) the efficiency and availability of shipping services, measured by UNCTAD's liner shipping connectivity index (LSCI); (iv) the extent of innovation, measured by investment in research and development (R&D) and the number of patent applications; and (v) the business regulatory environment, proxied by the cost to register property, the cost of starting a business, and the depth of the financial sector.

High tariff rates raise the cost of imported inputs, thus reducing domestic firms' ability to compete against foreign firms operating in countries with lower tariff levels[7]. The Caribbean region's weighted average tariff rate is higher than all other regions, except South Asia (Table 6). And while average tariff rates vary substantially across Caribbean countries, two-thirds of these countries impose tariff rates that exceed 11 percent, which is higher than most regions' average tariff rate. However, it is worth noting that while Caribbean average tariffs level estimated at 11.6 percent is significantly higher than that of the Small Island economies (7.4 percent), it is just slightly higher than that of the group of the Successful Small Islands (9.8 percent)[8].

7 In fact, openness as a ratio of trade to GDP is high in the Caribbean, However, the tariffs (trade policy) as a tool of openness is still high in many Caribbean countries. It is important to note that while countries like Haiti and Jamaica have made tremendous efforts in reducing their tariffs, tariffs remain high in some other Caribbean countries causing the average regional tariff to be high relative to that of other regions.

8 Successful Small Islands are defined in this study as Small Island Economies that gained market share in global trade over the last three decades.

Table 6: Regional Average Tariffs of Origin, 2000 to 2010

Region	Weighted Average	Standard Deviation
European Union	4.4	9.4
Europe and Central Asia	6.3	6.2
East Asia	6.5	10.4
North America	7.5	8.8
Middle East and North Africa	10.4	17.7
Sub-Saharan Africa	11.5	9.6
South Asia	13.5	10.9
Latin America	8.8	7.2
Caribbean	11.6	11.9
All Non-Caribbean Islands	7.4	8.6
Successful Non-Caribbean Islands	9.8	10.2

Sources: Authors' calculations using TRAINS

Caribbean countries' performances on trade facilitation have been mixed. The Caribbean region's average score on the World Bank' Logistics Performance Index (LPI) was lower than in any other region (Table7).[9] All Caribbean countries, except The Bahamas, perform below the Latin American average on all LPI components. The Caribbean also performs below the successful Small Island Economies. This suggests that the weak development of trade logistics might be a factor explaining trade performances difference between the Caribbean and this group.

Table 7: Cross-Regional Comparison: Average LPI Score (2005-2012)

Region	Overall LPI Score	
	2007-2012	2014
North America	3.9	3.9
Europe	3.4	3.5
East Asia	3.1	3.1
Middle East and North Africa	2.8	2.8
Europe and Central Asia	2.5	2.6
South Asia	2.5	2.6
Sub-Saharan Africa	2.4	2.5
Latin America	2.8	2.8
All Non-Caribbean Islands	2.7	2.8
Successful Small Islands	2.8	2.8
Caribbean	2.4	2.6

Source: World Bank Logistics Performance Index (World Bank, 2014b).

9 The World Bank's Logistics Performance Index (LPI) measures the quality of transport and logistics services, based on six core dimensions: customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. The overall average reflects the average across the six dimensions. For more information about the logistics performance index components see http://data.worldbank.org/data-catalog/logistics-performance-index

On line with their weak logistics performances, Caribbean maritime connectivity is relatively limited compared to other regions as well as when compared to other small I island economies. One important indicator of the efficiency of maritime trade, and thus the magnitude of transport costs, is the Liner Shipping Connectivity Index (LSCI), which measures the development of containerization in a country's maritime transport.[10] Despite some improvement in the most recent data compared to the average from 2004 to 2011, the average LSCI of the Caribbean countries remains the lowest of all regions (Table 8). And while performance varies within the region, 9 of the 13 Caribbean countries with available data have lower scores than the average level in every other region, including Sub-Saharan Africa. The Bahamas was the best Caribbean performer as of 2012, while Jamaica had the highest annual average for the period from 2004 to 2011, reflecting its role as a regional hub.

Table 8: Average Regional Performances on LSCI

Liner Shipping Connectivity Index (LSCI)

Region	Average 2004-2012	Most Recent Data (2013)
East Asia	29	32.9
Europe and Central Asia	11.6	18.7
European Union	31.6	38.7
Middle East and North Africa	19.9	26.2
North America	19.9	27.2
South Asia	24	26.7
Sub-Saharan Africa	9.3	11.5
Latin America	16.3	20.8
Caribbean	7.9	9.4
Non-Caribbean Islands	9.8	11.7
Successful Non-Caribbean Islands	14.1	16.9

Source: World Development Indicator (World Bank, 2014c).

Innovation may be limited in the Caribbean. Innovation is a key determinant of trade, as it enables firms to produce more at lower cost, achieve economies of scale, and therefore expand market share. Overall the Caribbean performance in innovation is very weak, although there is an important degree of heterogeneity across the region. The 2013–14 Global Competitiveness report (GCR) ranks 150 economies in terms of innovation[11] performances, based on 6 criteria: the capacity for innovation, the quality of scientific research institutions, company spending on research and development (R&D), university-industry collaboration in R&D, availability of scientist and engineers, and Patent Cooperation Treaty (PCT) patent applications. Table 9 shows current rankings for individual Caribbean economies in selected sub-indexes from the Global Competitiveness Report. Barbados is the only Caribbean economy among the 50 top countries in terms of innovation. Haiti, Suriname, Dominican Republic and Trinidad and Tobago were ranked amongst the lowest countries in the world in innovation. As expected, results were similar for the sub-indexes[12].

11 Rankings are available for Barbados, Dominican Republic, Guyana, Haiti, Jamaica, Suriname, and Trinidad and Tobago.

12 Similar results were found in the 2013 Global Innovation Index (GII). In terms of performance, only Barbados (48) ranked in the top 50 economies, and the remaining Caribbean countries ranked between positions 78-82 out of the 142 economies measured by the index. The GII includes seven pillars divided into two areas: elements supporting innovative activities (institutions, human capital, infrastructure, market sophistication and business sophistication), and products of innovation (scientific and creative).

The poor performance of the Caribbean on innovation is also reflected in the number of patent applications and the technological content of exports. The number of patent applications in the Caribbean by both residents and non-residents has been lower than that of every other region in the world in recent years (Table 10).[13] The innovation seems to be another key factor explaining the difference between the Caribbean and the successful Small Island Economies. While the share of manufacturing exports from successful small islands was 15 percent on average between 2005 and 2012, it was only 5 percent in the Caribbean region (Table 10).

Table 9: 2013-2014 Global Competitiveness Index – Rankings of selected sub-indexes of Innovation Pillar

Country	Innovation Index	Capacity for Innovation	Quality of scientific research institutions	Company spending in R&D	University industry collaboration in R&D	Availability of scientists and engineers	PCT patents, application ranking	PCT patents, applications/ million pop
Barbados	48	123	100	117	102	48	63	11.3
Dominican Republic	115	113	128	114	108	123	73	0.29
Guyana	57	60	48	87	68	103	76	.
Haiti	144	140	145	143	141	133	126	.
Jamaica	83	38	83	31	62	71	126	0.56
Suriname	125	98	126	96	91	125	83	0.67
Trinidad and Tobago	107	81	45	78	39	63	32	1.42

Source: World Economic Forum (WEF, 2012).

Table 10: Regional Averages on Key Indicators of Innovation (2005 to 2012)

Region/Groups	Patent Application Non-Resident	Patent Application Residents	High Tech. Exports (% of Manufactures Exports)
East Asia	16924	47450	17
Europe and Central Asia	1511	3182	6
Europe and Central Asia	879	3269	14
Middle East and North Africa	1415	516	3
North America	128494	118026	19
South Asia	10150	2456	3
Sub-Saharan Africa	1494	193	5
Latin America	3816	499	9
Caribbean	133	30	5
Non- Caribbean Small Islands	4367	1076	11
Successful Non-Caribbean Islands	7544	673	15

Source: Authors' Calculation using World Development Indicator data (World Bank, 2014c).

13 The number of patent applications varies widely across the region, from 2 in Dominica to 107 in Trinidad over the 2000–2011 periods. However, the number of applications per capita is uniformly very low, much lower than in other developing regions.

The business environment in the Caribbean has improved substantially in recent years. However, important gaps remains in key areas. According to the World Bank's Doing Business Index, starting a business in the Caribbean requires more time, on average, than any other region, and costs more (relative to per capita income) than any other region except Sub-Saharan Africa (Table 11). Registering property in the Caribbean requires more time than in any other region except South Asia, and costs more (relative to the property's value) than any other region except Sub-Saharan Africa (Table 12). The Caribbean also scores relatively poorly on most indicators of the strength of the credit system. For example, the Caribbean has the lowest average regional score on the depth of credit information index (DCII), which measures the rules that affect the scope, accessibility, and quality of credit information available to the public and private business operators.[14] The Caribbean region's performance is rated more highly in access to electricity, with the lowest number of days required to get electricity, and lower costs and number of procedures required to obtain this service compared to some of the other regions.

The business environment in the Caribbean also performs significantly below that of successful small economies. For all the six doing business indicators considered, the Caribbean performs below the successful small islands. Remarkably, although doing business performances in successful small islands were better than those of the Caribbean in early 2000, the pace of reforms in these countries has been faster than in Caribbean region (Tables 11, and 12).

Table 11: Regional Averages: Starting a Business, Indicators

Doing Business index: Starting a Business						
Region	Procedures (number)		Time (number of days)		Cost (as % of per capita income)	
	Average 2004-2012	**2013 Data**	Average 2004-2012	**2013 Data**	Average 2004-2012	**2013 Data**
North America	1.5	**1**	4	**5**	0.6	**0.6**
Europe and Central Asia	8.31	**4.3**	28.2	**12.9**	10.7	**10.7**
European Union	6.68	**5.6**	21	**13.4**	9.2	**9.21**
East Asia	7.81	**7.2**	38.1	**29.9**	33.3	**33.3**
Sub-Saharan Africa	9.6	**7.4**	48	**28.6**	139.7	**139.71**
South Asia	8.78	**7.8**	32.6	**16.1**	46.2	**45.54**
Middle East and North Africa	9.23	**8**	25.6	**15.4**	40	**39.96**
Latin America	10.74	**8.7**	45.2	**26.6**	43.5	**43.49**
Caribbean	7.8	7.4	78.9	68.4	43.1	22.1
All Small Islands	7.8	7.2	61.8	45.6	49.4	28.6
Non-Caribbean	7.6	6.8	47.6	26.6	45.5	20.2
Successful Islands	7.3	5.3	18.6	6.5	14.1	7.4

Source: Authors' calculations using data (World Bank, 2014a).

14 Data are available at the World Bank's Doing Business project (http://www.doingbusiness.org/).
See the definition of this indicator at http://search.worldbank.org/data?qterm=depth%20of%20credit%20information&language=EN

Table 12: Regional Averages: Registering a Property, Indicators

Doing Business: Register a Property						
Region	Procedures (number)		Time (number of days)		Cost (as % of property value)	
	Average 2004-2012	**2013 Data**	Average 2004-2012	**2013 Data**	Average 2004-2012	**2013 Data**
East Asia	5.1	**5.2**	95.5	**76.6**	4.6	**5.1**
European Union	5.1	**5**	62.2	**26.5**	5	**4.9**
Middle East and North Africa	5.6	**5.5**	42.3	**35.5**	6.7	**6.3**
North America	6	**6**	16.5	**16.5**	2	**3.4**
South Asia	6.4	**6.2**	136.5	**118.8**	7.3	**6.2**
Europe and Central Asia	6.5	**5.4**	45.8	**23**	1.6	**1.2**
Sub-Saharan Africa	6.6	**6.3**	86.4	**59.3**	11	**8.8**
Latin America	7.1	**6.9**	53.7	**48**	3.7	3.4
Caribbean	6.8	6.9	88.6	73.8	9.3	9
All Small Islands	5.7	5.8	117.6	97.7	7.6	7.2
Non-Caribbean	4.9	4.9	127.3	104.5	6.4	5.9
Successful Islands	5.5	5.5	44.2	19.6	4.7	3.3

Source: Authors' calculations using data (World bank, 2014a).

Determinants of exporting firms' productivity: The role of innovation and access to key services

Caribbean exporters are still lagging behind other Latin American exporters in terms of productivity (Table 13). Although no substantial difference emerges between non-exporters in Caribbean and Non-Caribbean countries, exporters from other LAC countries are 43% more productive than those of Caribbean countries. However, most of this difference comes from the large economies of Latin America. The level of productivity of small economies in other non-Caribbean countries is even lower than Caribbean countries. One possible explanation might be related to economies of scale. In large economies, firms, even those considered small firms, tend to have higher revenues compared to similar firms in small economies.

Table 13: Labor Productivity

Regions	Caribbean		Latin American - Non Caribbean	
Categories	Obs.	Labor Productivity	Obs.	Labor Productivity
Exporter	504	60,870	2,350	87,041
Non Exporter	1,979	56,392	7,314	55,080
Manufacturing Firms	847	46,090	6,802	45,596
Service Firms	1,636	60,188	2,862	65,635
Small Firms	1,190	50,866	3,354	54,529
Medium Firms	895	65,556	3,605	58,566
Large Firms	398	75,775	2,705	76,105
Large Economies	988	53,236	3,959	68,278
Small Economies	1,495	58,704	5,705	56,186
All Firms	2,483	57,213	9,664	58,604

Note: Large economies for Caribbean are Dominican Republic, Jamaica and Trinidad and Tobago; while for non-Caribbean countries, they are Argentina, Brazil and Mexico.

Exporters in the Caribbean have much lower labor productivity premiums than their regional competitors. Productivity levels in direct and indirect exporters in Central and South America are 49.6 and 20.0 percent higher than levels in non-exporters, compared to a difference of only 13.5 percent in the Caribbean.

Regression analysis shows that both the level of technological capability (as indicated by TCI) and access to key services (as indicated by AKSI) are positively and significantly related to firms' labor productivity. A 10 percent increase in TCI is associated with a 1.5 percent rise in productivity (Table 11). The impact of TCI on labor productivity rises with the size of firms, and is twice the level for firms located in large economies compared to those in small economies. Manufacturing firms are less affected by the level of technological capability than service sector firms. Similarly, a 10 percent rise in AKSI is associated with a 2 percent increase in productivity. However, the results for AKSI are not as robust as for TCI (Table 14). The relationship between AKSI and productivity is strongly significant for firms in the service sector, firms of medium size, and firms located in large economies.

Table 14: Labor Productivity versus TCI and AKSI components

Dependent Variable Labor Productivity	(1) All Firms	(4) Manufacturing Sector	(5) Services Sector	(9) Large Economies	(10) Small Economies
Investment TCI	0.013	0.034	-0.000	0.083	-0.043
	(0.057)	(0.091)	(0.074)	(0.096)	(0.072)
Production TCI	0.171***	0.061	0.238***	0.158**	0.174***
	(0.049)	(0.072)	(0.068)	(0.080)	(0.065)
Linkages TCI	0.064	0.236*	-0.071	0.081	0.023
	(0.090)	(0.125)	(0.135)	(0.143)	(0.125)
Operational KSI	-0.097	-0.136	-0.060	-0.202	0.057
	(0.101)	(0.162)	(0.130)	(0.146)	(0.145)
Business KSI	0.176**	0.100	0.229**	0.306**	0.068
	(0.086)	(0.139)	(0.108)	(0.126)	(0.122)
Export Status	0.168***	0.239***	0.107	0.126	0.210***
	(0.063)	(0.084)	(0.095)	(0.123)	(0.073)
Foreign Status	0.077	0.025	0.092	0.005	0.092
	(0.069)	(0.102)	(0.092)	(0.114)	(0.089)
Medium Size	0.126**	0.100	0.156**	0.028	0.199***
	(0.060)	(0.095)	(0.078)	(0.113)	(0.074)
Large Size	0.160*	0.225*	0.135	0.179	0.134
	(0.082)	(0.129)	(0.110)	(0.126)	(0.123)
Sector Dummy	Yes	Yes	Yes	Yes	Yes
Country Dummy	Yes	Yes	Yes	Yes	Yes
Observations	1,379	507	872	543	836
Adjusted R-squared	0.189	0.260	0.146	0.186	0.195

Note: Robust standard errors in parentheses
*** p<0.01, **p<0.05, *p<0.1

Regional integration and trade performances in the Caribbean

Contrary to the widespread perception that Caribbean intra-regional integration is limited, intra-Caribbean trade performed relatively well, with the share of intra-regional exports increasing substantially over the last decades. A combination of a gravity model and a general equilibrium approach was used to assess the historical impact of trade agreements on Caribbean exports and to evaluate the likely impact of new trade agreements, including implementation of a Caribbean single market and deeper integration with other trading. The rising share of intra-regional exports in total exports

has been driven by the increasing attractiveness of Caribbean destinations to Caribbean exporters, and not by more rapid growth in the Caribbean than in extra-regional trading partners (Figure 4). That is, the share of intra-regional exports in total Caribbean exports has risen much faster than the share of Caribbean GDP in world GDP. This intra-regional attractiveness was already evident in 1985, when Caribbean intra-regional exports were 40 times larger than exports outside the region (once we control for destination market sizes), and rose to 68 times larger by 2010.[15] The increase in intra-regional trade has been driven to large extent by energy products from Trinidad and Tobago, which represented 65 percent of intraregional trade in 2008 (ECLAC, 2012). Food products and construction materials are other major items traded regionally, representing 12 percent, and 9 percent of total intra-regional trade, respectively in 2008.

Figure 4: Relative Regional Specialization – Accounting for Market Sizes

Source: Authors' construction using COMTRADE data (UN COMTRADE, n.d.).

Moreover, the rise of Caribbean intra-regional exports does not reflect geographical proximity, suggesting that CARICOM agreements might be the main driving force behind this performance. The share of total Caribbean exports going to Latin American countries (Guatemala, El Salvador, Nicaragua, Costa Rica and Panama) that as destination countries are comparable in terms of size and geographical location to Caribbean countries has remained roughly constant at 1.5 percent.

Implementation of a common market would lead to a substantial rise in exports in the Caribbean (Figure 5). The decline in trade barriers should lead to an intensification of competitive pressures, and thus an improvement in the quality and quantity of the products of Caribbean firms. As a result, intra-regional exports would be expected to rise, nominal GDP to increase, and the price level to fall. While Caribbean firms would be more competitive on world markets, their production costs would rise due to more intense competition from other Caribbean firms for labor and materials. Countries that already direct a large share of their exports to the region (e.g. St. Lucia and Barbados) would enjoy the greatest benefit (Table 15). This initial share mostly depends on geographical features (e.g. spatial proximity with other countries of the Caribbean) and the initial economic size.

15 This measure of regional integration (the GDP-scaled intra-regional export share) remains well below the average of approximately 300 for EU15 and NAFTA, admittedly among the most integrated trade blocs in the world.

Figure 5: Common Market – Changes for Insiders

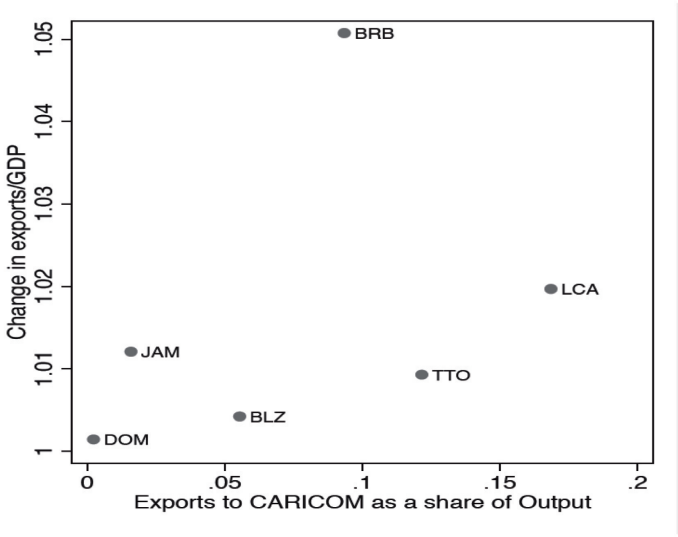


Table 15: Implementation of a Common Market

	No Common Market		With a Common Market		Change Due to Common Market (%)		
Country	Exports/GDP (%)		Exports/GDP (%)		Exports/GDP (%).		
	Regional	World	Regional	World	Total	Regional	World
BLZ	5.54	59.65	8.8	57.58	1.81	58.79	-3.48
BRB	9.34	21.47	15.41	21.92	21.15	64.9	2.11
DOM	.23	31.91	.36	31.98	.62	58.49	.21
JAM	1.59	51.13	2.7	52.65	4.99	70.16	2.97
LCA	16.86	49.85	26.1	45.88	7.9	54.82	-7.96
TTO	12.16	35.36	17.04	32.29	3.79	40.11	-8.7
TOTAL CARICOM	5.02	35	7.23	34.01	3.06	44.13	-2.83

Source: Authors' construction
Note: The benchmark year is 2006.

Deeper trade integration with North America through entry of Caribbean countries into NAFTA will generate substantial gains larger, and these gains would be larger than that of the implementation of a common market. Clearly, the gains to Caribbean exports would be large, given that the United States is the Caribbean's major trading partner. Moreover, the agreement also would end the preferences that Mexican exporters enjoy in the US market, compared to Caribbean exporters. The gains for the Caribbean of entry into NAFTA would be six times the size of the gains from implementing a Caribbean common market. Here, again, Caribbean countries that already trade intensively with the NAFTA zone – due to spatial proximity or a large economic size -- would enjoy the greatest benefit. The benefits for the current members of NAFTA are negligible, as the Caribbean countries are small economies compared to the North American trading bloc.

The impact of Caribbean countries joining MERCOSUR would be also substantial, although smaller than the impact of joining NAFTA. The gains to the Caribbean are about 2.5 times larger than the gains from implementing a common market. These gains remain smaller than the impact of joining NAFTA, despite the fact that Caribbean exports are more sensitive to growth in MERCOSUR than in the NAFTA members, because Caribbean exports to MERCOSUR are much smaller than Caribbean exports to NAFTA.

Potential preferential agreements with emerging economies would generate modest gains at the very best. Compared to gains with alternative scenarios, the projected impacts are small, often of an order of magnitude smaller, with noticeable exceptions for trade with China. As in other simulations, the size of the impact is mostly related to the initial level of trade relations.

Conclusion

We have seen that the Caribbean countries face severe challenges in international trade. Caribbean trade deficits are high and export performance has been poor, while their comparative advantage is largely in sectors with low value added, and thus perhaps limited growth potential.

Caribbean exporters have failed to exploit sufficiently the opportunities offered by rapid-growing markets in some of the large developing countries (new growth poles). Although Caribbean countries are exceptionally open to international trade, linkages with the new growth pole countries are low. Of our four country groups, the share of merchandise exports to, and of tourism arrivals from, the new growth poles is highest for the natural resources dependent countries. Nevertheless, these shares are only 6 and 8 percent, respectively. The shares of the new growth poles in the light manufacturing dependent countries' merchandise exports and tourism arrivals are somewhat less, with the Dominican Republic having closer ties than does Haiti.

On positive note, the Caribbean countries have been gaining world market share in small yet dynamic service sectors. The contribution to Caribbean export growth of the traditional services sectors of travel and transport, where many Caribbean countries have a comparative advantage, has declined since 2006. Other smaller sectors, such as communications, finance and other business services, have made a positive contribution to growth, in particular for the light manufacturing and services dependent countries.

Furthermore, contrary to general perceptions, intra-Caribbean merchandise exports performed relatively well in recent decades. In 1985, Caribbean intra-regional trade was 40 times larger than exports outside the region, once we account for destination market sizes; in 2010, intra-regional trade was 68 times larger thanks to the CARICOM agreement. Our analysis found that the implementation of a common market in the context of the CARICOM Single Market and Economy would substantially increase intra-regional trade.

There is a role for policy to improve Caribbean trade performances, despite the countries' size constraint. Our analysis shows that Caribbean countries underperformed relative to the group of successful small island economies on almost all major trade determinants except for tariff level: underperforming areas include trade logistic infrastructure, business environment regulatory impediments to starting and operating a business, limited innovation, and poor infrastructure. These constraints are important reasons why Caribbean's exports to many trading partners, and in particular the large, rapidly-growing emerging markets (Brazil, Russia, India, Indonesia, China, and Korea, and South Africa), remain considerably below potential. Improvements in trade-related services and in the regulatory environment to bring Caribbean economies closer to the levels of successful small islands and other developing countries would significantly enhance exports. Furthermore, the gains from a deepening of the current preferential access of Caribbean countries to full membership in the NAFTA bloc would be very large. Along the same lines, the entry of Caribbean countries into MERCOSUR also would bring large economic gains, although lower compared to NAFTA. The global economy offers considerable potential for increasing Caribbean exports. Steps to exploit this potential are long overdue.

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