

Issue Brief

AN ANALYSIS OF TRADE FLOWS BETWEEN PUERTO RICO AND CARICOM

1. THE REGIONAL AND HISTORICAL FRAMEWORK

The Commonwealth of Puerto Rico covers an area of 9,104 square kilometres with a population of 3.8 million inhabitants and occupies a central position among the islands of the West Indies in the northern Caribbean. Its GDP per capita is almost three times the Caribbean average and only surpassed by that of the British Virgin Islands. Manufacturing and services (and within services, finance, insurance and real estate services) are the main sectors of economic activity (contributing each 42% and 52% to GDP) (See Table 1, below).

For their part, Caribbean economies constitute a structurally heterogeneous sub grouping reflecting nonetheless a growing divide between resource and service-based economies. Primary sector activities contribute 10% to GDP on average underscoring the significance of agriculture and mining for Guyana, Belize and Trinidad. In spite of its tendency to stagnate in the last decade, manufacturing's share is similar to that of agriculture mirroring its importance for Belize, Jamaica and, to a lesser extent, St. Kitts and Nevis, and Guyana. The services sector is, by far, the largest contributor to the creation of value added at the aggregate level and clearly concentrated towards tourist oriented activities.

The differences in size and economic structure should not hide the historical fact that both adopted a common development strategy at early stages of their development, that of "Industrialization by Invitation."

Partly as a result of their economic policy legacy regimes, history and geographical location, Puerto Rico and CARICOM Caribbean economies are highly open economies in terms of the composition of aggregate demand. In spite of the fact that the degree of openness of some Caribbean countries has decreased during the past decade, their ratio of imports to the total amount of domestic expenditure on final goods and services still oscillates between 43% and 90%. Puerto Rico's degree of openness is above the average for 1990 (62%) and 2001 (56%).

In a similar vein, Puerto Rico and CARICOM Caribbean countries also share a similar pattern of trade orientation. Puerto Rican trade is mainly oriented, for obvious reasons, towards the United States which accounts for 77% of all of its exports on an origin of movement criterion. The second trading partner is Europe followed by Asia (13% and 3%, respectively). South America represents a mere 0.6% of total exports and Central America an insignificant 0.33%. On a country basis, the major country destinations of exports are the United Kingdom, Germany, Holland, Japan, the Dominican Republic and Italy (1.9%, 1.5%, 1.4% and 1.4%, respectively).

In addition, trade in the Caribbean is highly concentrated towards North America and Western Europe. Between 1985 and 2000, more than 45% of Caribbean countries' imports on average originated in the United States and 17% in Western Europe.

Finally it is to be noted that Puerto Rico and CARICOM Caribbean economies have important differences in the composition of their exports. Between 1985 and 1999, Caribbean countries have maintained or increased the share of natural resource based exports. In the case of the United States it has increased from 19% to 27%. In the case of Europe it has remained above 50%. Resource based manufacturing exports have declined (66% to 44% in the case of the United States and 25% to 23% in the case of Europe). Finally, manufacturing exports that are not based on natural resources have increased but due to the increasing importance of the apparel industry in the case of the United States, which is at the lower end of the value added chain.

Since the middle of the 1980s the trade relationship and interrelation between Puerto Rico and the Caribbean was centred in the Caribbean Basin and shaped by production sharing agreements. Dynamic exports towards the greater Caribbean region were mainly labour intensive and resource-based manufacturing with some medium skill and technological intensity (i.e., textiles and also electrical components). These production sharing agreements, facilitated in turn by tax credits, provided a stimulus to firms to locate final production facilities in Puerto Rico while obtaining inputs and raw materials from other countries. The main beneficiaries in the Caribbean were the Dominican Republic, Jamaica, Trinidad and Tobago and Barbados.

However, as is shown in the following section, commercial ties between Puerto Rico and Caribbean nations, in particular CARICOM Caribbean economies have remained strong in manufactures with high and medium skill and technology intensity, and in fuel products. A recent econometric estimate of a gravity model for Puerto Rico's exports based on an origin of movement criterion yielded a positive and significant coefficient for a variable capturing Caribbean Basin Initiative countries which could indicate that the trade network created during the 1980s in the Caribbean is still an important factor to consider when analysing the export potential of Puerto Rico's economy.¹

¹ See, Stewart, J. US Trade Policy and the Puerto Rico Economy: Current and Potential Impact of the Free Trade Area of the Americas (FTAA) and other US Trade Policies. Puerto Rico Industrial Development Company. Economic Analysis and Strategic Planning Area. January 2003. The effect of CBI economies is captured by a dummy variable.

Table 1
Main economic indicators
Puerto Rico and CARICOM Caribbean economies

						Composition of GDP							
	Pop.	Geographical Area	GDP growth	GDP/per capita	FDI/per capita	Agriculture	Mining	Manuf.	Services	Inflation	Fiscal deficit	External debt	Current account
Puerto Rico	3,828.0	9,104.0	2.8	11,218.0	....	0.7	.....	41.6	54.0	3.9	9.7	7.5	-10.3
Anguilla	13	0.1	3.8	7,833.6	2,076	2.9	1.0	1.3	92.3	3.6	-0.7	8.2	-24.5
Antigua and Barbuda	68.0	0.4	3.4	7,754.6	277.0	4.0	2.0	3.0	88.9	3.3	-1.85	60.6	-7.55
Bahamas	303.0	14.0	1.8		....	...	...	...	...	-0.9	...	9	...
Barbados	269.0	0.4	0.9	9,638.8	53.0	6.0	0.8	8.5	77.6	2.9	-2	19.7	0.45
Belize	235.0	23.0	4.9	3,425.3	52.0	22.7	0.7	16.2	57.3	3.0	-4.1	54.8	-3.45
Dominica	71.0	0.8	2.4	3,124.4	332.0	18.2	0.8	7.2	76.5	-2.9	-4.45	36.8	-17.5
Grenada	94.0	0.3	3.5	3,247.2	359.0	8.2	0.5	8.8	81.8	2.8	-3.05	31.5	-17.5
Guyana	865.0	216.0	4.7	685.5	73.0	28.8	11.6	10.6	40.6	33.3	-9.6	169.3	-16.5
Haiti	8,205.0	28.0	-0.9	429.0	1.0	27.0	0.1	7.6	69.0	25.8	-3.1	33.5	-1.4
Jamaica	2,561.0	11.0	0.7	2,780.7	111.0	7.3	9.1	15.5	78.5	38.8	-4.85	57.1	-4
St. Kitts and Nevis	41.0	0.3	4.1	6,410.3	908.0	4.5	0.5	12.2	71.1	2.5	-4.7	50	-18.5
St. Lucia	150.0	0.6	1.4	3,476.8	209.0	7.7	0.5	5.9	85.9	4.1	-0.5	19.4	-9.5
St. Vincent and the Grenadines	116.0	0.4	3.0	2,539.5	467.0	12.0	0.3	5.8	72.93	3.8	-1.65	47.3	-20.5
Suriname	418.0	164.0	1.0	2,160.0	1.0	11.0	17.7	10.6	52.9	163.5	....	...	.....
Trinidad and Tobago	1,291.0	0.4	2.7	6,862.5	467.0	3.0	25.0	10.0	65.0	7.7	-0.6	21.1	0.35
Average	1,049.1	30.7	2.5	4,312.0	254.6	11.1	2.5	8.6	74.8	19.4	-3.2	45.0	-11.6
Standard Deviation	2,093.2	63.8	1.6	2,750.5	248.2	8.1	3.7	4.5	14.1	40.4	2.4	39.9	8.3

Note: Population, geographical area, GDP per capita, FDI per capita, the composition of GDP and the external debt correspond to the year 2001. GDP growth, inflation, fiscal deficit and the current account are averages for 1990-2001. The fiscal deficit, the current account and the external debt are expressed as percentages of GDP. In the case of Puerto Rico growth is measured by the GNP rate of growth.

Source: ECLAC based on official data

2. AN ANALYSIS OF TRADE FLOWS BETWEEN PUERTO RICO AND CARICOM COUNTRIES

CARICOM is not a significant market for Puerto Rico. On average, for 1993-2002 Puerto Rico's imports to CARICOM countries represented 2% of its total imports and 4% of its exports. In addition, since the beginning of the 1990s, Puerto Rico's trade with CARICOM economies has exhibited a definite downward trend. CARICOM's market share of Puerto Rican imports which stood at 7% between 1989 and 1992 experienced a marked decline to 1.7% in 1993 and has fluctuated since within a 1.3%-3% range.

In the same vein, Puerto Rican exports to CARICOM countries have shown a steady decline during the 1990s. The share of Puerto Rican exports to CARICOM was 11% in 1989, decreasing progressively to 7% in 1992, 5% in 1996, and 2% in 1998, staying at that level thereafter.

A similar picture emerges when trade flows between Puerto Rico and CARICOM Caribbean economies are viewed for the latter's perspective. Puerto Rico's export share represents 2% of total exports and in fact is below 0.5% for most countries. The notable exceptions are Anguilla and Trinidad and Tobago. On the import side Puerto Rican imports never reach with the exception of two years (1996 and 1998) 1% of the total. Puerto Rican imports have some degree of significance only for Anguilla, Dominica, St. Kitts and Nevis (9%, 2% and 4% of the total, respectively).

The evolution of the trade balance has been increasingly unfavourable to Puerto Rico. At the aggregate level the trade outturn which was in surplus for Puerto Rico in 1989 turned to a deficit by 1993. The deficit increased from 129 to 187 million between 1989 and 2002. In the last decade imports and exports have grown by 8% and -2% on average

At the beginning of the 1990s the main CARICOM importers into Puerto Rico were in order of importance: Bahamas (74%), Haiti (11%), Trinidad and Tobago (11%), St. Kitts and Nevis (3%), Barbados and Jamaica (1% for each). At the end of the decade Trinidad and Tobago, Bahamas, St. Kitts and Nevis and Jamaica maintained their standing. Haiti's market share dropped by almost 10 percentage points reaching 0.3% in 2002. Finally, Barbados' market share also declined but by a lower percentage (1% and 0.1% in 1989 and 2002 respectively).

In terms of country destinations, Puerto Rican exports are more diversified than its imports. The main CARICOM Caribbean export markets were, in 1989, Trinidad and Tobago (25%), Haiti (23%), Jamaica (18%), Barbados (7%) and St. Kitts and Nevis (6%). In 2002, the main export destinations included the Bahamas (21%), Trinidad and Tobago (16%), Jamaica (16%) and Barbados (15%).

The composition of trade flows by commodity shows that three groups of products (corresponding to mineral fuels, organic chemicals, and electrical machinery) accounted for 91% and 76% of all Puerto Rican imports from the Caribbean in 1989 and

1995. Between 1995 and 2002, the import composition has become increasingly concentrated in mineral fuels. In 2002, it represented 83% of total imports followed by machinery and fish and crustaceans (6% and 4% respectively). (See Table 2 below).

The composition of Puerto Rican exports to the Caribbean is more diversified in terms of the number of products traded, but at the same time exhibits a similar trend as that of imports towards the concentration in terms of the weight of import products as a percentage of the total. The greater degree of diversification is illustrated by the fact that 16 products account for more than 71% of all exports between 1989 and 1995. In 2002, a third of all exports are concentrated in the product mineral fuels and the degree of trade concentration increased as eight products account for more of 71% of Puerto Rican imports from the Caribbean.

	1996	1997	1998	1999	2000	2001	2002
Mineral fuels	61.40	56.62	57.03	76.25	78.58	81.76	82.69
Electrical machinery	6.47	7.96	12.46	8.23	8.08	5.21	6.21
Fish, crustaceans and molluscs	2.81	0.91	3.45	0.85	0.39	6.19	3.77
Preparations of meat of fish or of crustaceans	0.00	0.26	0.69	0.35	0.00	0.00	1.85
Paper and paperboard	2.59	3.21	4.74	2.91	2.22	0.93	0.92
Soap	0.93	1.17	1.95	1.22	1.18	0.81	0.68
Organic chemicals	13.63	19.61	1.00	2.50	3.38	1.00	0.49
Totals	87.83	89.74	81.32	92.31	93.83	95.9	96.61

	1996	1997	1998	1999	2000	2001	2002
Mineral fuels	6.92	10.61	4.41	6.59	12.33	10.03	23.24
Pharmaceutical products	1.35	2.28	5.78	9.47	8.11	11.90	15.71
Plastics and articles	5.13	6.55	10.35	10.46	10.75	10.38	7.25
Electrical machinery and equipment	4.43	4.23	5.61	6.33	10.31	7.70	7.25
Optical photographic	2.47	3.67	1.96	1.35	3.07	3.21	5.16
Essential oils and resinoids	8.95	8.98	6.26	6.18	6.37	6.62	5.16
Miscellaneous edible preparations	3.42	3.99	6.14	8.31	6.64	7.98	4.76
Nuclear reactors, boilers and machinery	7.68	6.37	10.46	5.16	5.44	5.96	3.86
Ores, slag and ash	0.11	0.00	0.00	0.00	0.00	0.00	2.77
Preparations of cereal	2.43	3.64	0.82	1.52	1.69	2.79	2.03
Miscellaneous chemical products	11.03	5.61	2.93	2.35	1.85	1.98	1.96
Aluminium and articles	1.24	1.22	2.01	3.89	2.91	3.49	1.79
Tools, implements	0.13	0.28	0.02	0.55	0.85	1.60	1.56
Vehicles	5.20	4.19	4.07	3.93	4.38	2.68	1.33
Sugars and sugar confectionery	2.20	2.39	1.41	2.08	1.97	1.26	1.29
Salt, sulphur	2.01	2.37	2.27	0.88	0.01	0.03	1.27
Paper and paperboard	3.66	1.83	1.82	2.35	2.02	2.02	1.23
Lac, gums, resins	3.10	1.79	0.98	0.98	0.77	1.65	1.16
Total	71.46	70	67.3	72.38	79.47	81.28	88.78

The evolution towards concentration and in fact specialization of the trade flows between Puerto Rico and the Caribbean is also prevalent at the most disaggregated level available. Using disaggregated data at the 10-digit level of the harmonized code, a coefficient of trade concentration was computed. The results are shown in Table 4 below. The trade concentration index shows a clear difference in the degree of concentration in imports and exports and an increase in the concentration of imports from 1993 to 2002.

	Imports	Exports
1989	0.54	0.01
1993	0.15	0.02
1995	0.20	0.01
1998	0.25	0.02
2002	0.29	0.04

Note: Trade concentration was measured by computing a modified Herfindahl-Hirschmann Index for products. The computations were carried out at the ten digit level of the harmonised system code. The index is defined as $(\sum(x_{ij}/x_{ti})^2 - 1/n)/(1 - 1/n)$, where x_{ij}/x_{ti} equals the export share of commodity i to country (or sub regional grouping) j and n is the number of products exported. A lower value of index implies a higher degree of diversification.

3. PERSPECTIVES FOR FURTHER COMMERCIAL INTEGRATION BETWEEN PUERTO RICO AND THE CARIBBEAN

As emphasized and extensively analyzed in the previous sections, the current trade relationship between Puerto Rico is (perhaps with the exception of Jamaica) limited in scope and its importance has declined over time from the perspective of both Puerto Rico and CARICOM Caribbean countries. This diagnostic is reinforced by the computation of a trade compatibility index between Puerto Rico and CARICOM Caribbean countries between 1996 and 2001

The index compares import structure of a 'home country' with that of a partner's export structure. It can take two extreme values 0 and 1. A value of 0 indicates that there is no compatibility in trade and that the partner country does not export any commodity or group of commodities that the home country imports. At the other extreme, a value of 1 indicates that there is full trade compatibility between two trade partners and that the composition of the partner country exports coincides with that of the home country's imports.

For most countries the trade compatibility indices are below 0.25 highlighting a weak potential for trade between Puerto Rico and the Caribbean. Nonetheless, it should be taken into account that previous exercises performed for the cases of Barbados, Belize and Trinidad and Tobago with all trade partners yielded indices of 0.20, 0.05 and 0.21 indicating perhaps that CARICOM Caribbean countries have a simple and very specialized trade composition (See Table 5, below).

Table 5
Puerto Rico and CARICOM Caribbean economies
Indices of trade compatibility by country
1996 - 2001

Country	1996	1997	1998	1999	2000	2001	Average
Anguilla	0.23	....	0.22	0.24	0.20	0.21	0.22
Antigua and Barbuda	....	....	....	0.35	....	....	0.35
Bahamas	....	....	....	....	....	....	....
Barbados	0.19	0.21	0.19	0.19	0.19	0.16	0.19
Belize	0.09	0.07	0.07	0.04	0.04	0.05	0.06
Dominica	0.20	0.18	0.19	0.19	0.18	0.17	0.19
Grenada	0.22	0.16	0.26	0.21	0.21	0.16	0.20
Guyana	....	0.12	0.11	0.11	0.11	0.10	0.11
Haiti	....	....	....	....	....	....	....
Jamaica	0.23	0.19	0.22	0.21	0.23	0.27	0.23
St. Kitts and Nevis	....	....	0.17	0.16	0.15	0.12	0.15
St. Lucia	0.19	0.19	0.17	0.20	0.16	0.26	0.20
St. Vincent and the Grenadines	0.31	0.29	0.30	0.28	0.24	0.22	0.27
Trinidad and Tobago	0.37	0.38	0.38	0.31	0.34	0.29	0.35

Note: ... denotes not available.

Source: On the basis of ECLAC's Caribbean Trade data Base using the SITC for both Puerto Rico and Caribbean economies.

The trade compatibility index is equal to $1 - (\sum m_{ij} - x_{ik})/2$, where m_{ij} is share of good i in total imports of the home country (i.e., country j). and x_{ik} is the share of good i in total exports of country k (the partner country). $m_{ij} - x_{ik}$ is calculated in absolute value.

See, Michaely M. and Papageorgiou. Small economies: trade liberalization, trade preferences and growth. The Caribbean Quest: Directions for the Reform Process, 25-26 June 1997. Port-of-Spain, Trinidad and Tobago.

The optimal framework for commercial integration between Puerto Rico and the Caribbean in the twenty-first century is yet to be defined, shaped and fully articulated although, as mentioned in the first section, there are recent examples that attest to the creation of commercial ties and trade potential between both trade partners. Moreover, the linkages created during the 1970s and 1980s still seem to shape the trade pattern of Puerto Rico with its Caribbean trade partners although changing and adapting to a new set of circumstances, events and trends.

The commercial integration regime that will ensue will be shaped by several factors among which the most important are the implications of the Commonwealth status of Puerto Rico, size considerations and economic structure, investor's confidence and expectations, the trading regimes and the profile of competitiveness of both the Caribbean CARICOM economies and Puerto Rico.

The small size of CARICOM Caribbean economies and their trading regime which imposes higher tariffs to imported goods relative to those of Puerto Rico combined with the latter's lack of autonomy have constrained, to some extent, the development of trade. However, the diversity of these economies and their structural transformation into

resource and service- based economies point to the possibility of developing a trading relationship in dynamic and value added sectors that could spur, if not aggregate, the development of these economies' small and medium sized firms.

In fact when viewed from this perspective, the trade flows between Trinidad and Tobago and Puerto Rico provide an example of this trade orientation. In terms of commodities the authorities and the private sector have expressed interest in continuing to develop trade based on food products which for the most part do not have tariff barriers and in which Puerto Rico, through one of its main providers, is well established in the international market. Construction materials are another product that has attracted interest and could constitute a focus of export efforts.

Besides resource-based economies, Puerto Rico needs to explore, in an effort combining the public and the private sectors, the possibilities of developing trade in services. Puerto Rico has a solid human capital in diverse areas such as design, environment, transport and finance. In fact, trading in these areas would complement the development and expansion of tourism based activities in the Caribbean, the regional efforts at creating a capital market and would perhaps constitute an alternative to off-shore banking.

The potential for trade exists in a series of productive activities. It needs to be materialised through existing mechanisms for institutional coordination and policy actions. Some of these would be to design and provide an enhanced and wide information system for exporters including not only data and trade indicators (some of which have been used in this paper) but also detailed steps "on how to export." In the same vein the efforts at developing further a centralised export institution such as the existing Promo export in Puerto Rico are fundamental as the experience of countries such as Chile, Costa Rica and Mexico illustrate. A centralised and strong promotion agency not only creates export awareness but has also played a crucial role in outlining, guiding and implementing a coherent stakeholders' policy. In promoting a trade policy it is important to link domestic firms to the export promotion efforts. Finally, part of the difficulty of policy implementing is to create the mechanisms to avoid excessive gains and losses when there are important changes in the orientation of economic policy.