

Part 4: Analysing Caribbean and OECS trade
with descriptive statistics

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4.1 Introduction¹

In this part of the report, we examine key features of Caribbean trade as well as their evolution over time. We do this by looking both at aggregate trade statistics by source, and also by considering a number of descriptive statistical trade indicators. The aim of this analysis is first, to provide an overview of the evolution of Caribbean trade flows, and secondly to provide an assessment of the possible impact on the Caribbean region, and particularly on the OECS economies of possible changes in trade policy, and notably of an EPA.

This part of the report is therefore divided into three sections. The first focuses on the evolution of trade over time. This is important not simply as a matter of historical interest but also because identifying key sources and shifts over time in those source as well as in the composition of trade is also crucial for assessing the impact of an EPA. The intention here is to build up an accurate picture of both intra-Caribbean and extra-Caribbean patterns of trade. This is important in order to see which are the key import and export markets, to see their evolution over time, and to see the extent to which these patterns may differ across individual countries, and also across groups of countries, and in particular the OECS economies.

The second section examines more closely the existing structure of trade. In analysing the structure of trade, we look at the pattern of revealed comparative advantage in the Caribbean and how this has changed over time. We also examine the evidence to see how much change there has been in the composition of Caribbean imports, as well as analyse the degree of concentration of those export flows. Understanding the sectoral composition and intensity is also important from the point of view of assessing the possible impact of an EPA. Highly specialised economies may for example be more vulnerable to changes in the international trading regime.

¹ In parallel to this project a team of University of Sussex economists has been working on another DFID funded project whose objective has been to devise a handbook of summary trade statistics which can be used precisely for this sort of analysis. There are direct synergies between the two projects and hence the discussion in this section should be seen as drawing from the work undertaken on both projects. There is considerable overlap therefore in the discussion of these indicators.

Finally in the third section of the report we focus on the concepts of trade creation, trade diversion and trade reorientation in order to provide an assessment of the likely welfare impact of an EPA. These three concepts are crucial in understanding the welfare consequences of preferential trade liberalisation, and in particular what is often referred to as shallow integration (the removal of barriers to trade). Any proposed process of preferential liberalisation is likely to impact on the existing structure of trade and thence on welfare and patterns of production in the region. In the first instance whether, those changes in trade flows are likely to be welfare increasing or welfare decreasing will depend crucially on the extent to which sources of supply shift towards more efficient suppliers, or away from more efficient suppliers. Both outcomes are possible and the discussion assesses this in some detail.

It is important to note that a key issue, which arises when discussing Caribbean trade and trade policy, is the role of regional integration. As discussed earlier this is also an important dimension of the EPA process. The importance of effective Caribbean regional integration for economic growth and prosperity has long been established in the region. However, there are two key caveats to this which often emerge in discussion of the Caribbean regional integration process, which has also led some to question how effectively integrated the region really is². The first is that while integration of the Caribbean economies is in principle generally endorsed by analysts, there remains considerable concern particularly within the region as to the intra-regional distributional consequences arising from the integration process. In essence, the argument here is one that has been commonly made in many regional trading arrangements where it is felt that certain countries are more likely to gain from the integration process, while others are more likely to lose. Underlying this position is the that there are a number of prerequisites for effective market integration, which for example, include reasonably developed production structures, the ability to produce at sufficient scale, and thus the need productive systems to be geared towards extra-regional trade – and that these prerequisites may well not be shared by all the partners.

Within the Caribbean the argument is thus sometimes made that these prerequisites are more likely to be present in the “more developed” territories of, for example,

² See, for example, Trevor Farrell, ‘Five Major Problems for CARICOM’ in *The Caribbean Community-Beyond Survival* ed. by Kenneth Hall (2001) p 8-16

Barbados, Jamaica, and Trinidad and Tobago, and in particular the last of these. In contrast those islands lacking in these prerequisites, may not be able to take advantage of expanded regional markets because of underdeveloped productive systems. In this vein, a recent report Commissioned by the OECS Secretariat states that over the past decade while there has been an increase in intra-regional exports, that this is due exclusively to Trinidad and Tobago, and that the OECS, the LDC's and the MDC's excluding Trinidad have lost intra-regional market share. The discussion there suggests that this is a reflection of the uneven benefits of the regional integration process in the Caribbean³. Clearly the distribution of the benefits from integration may be unevenly distributed, and the implications of this need to be addressed by any effective regional integration scheme. There remain, however, important questions as to how best address such issues, and whether, for example, introducing special and differential treatment in trade policy is optimal. These issues are discussed in more detail later in this report.

The second caveat, which emerges concerns the extent to which regional integration in the Caribbean has de facto been realised. As discussed earlier in Part 2 of this report, built into the relevant treaties is the explicit recognition of the special and differential treatment of the LDCs. That special and differential treatment in particular with regard to tariff and non-tariff barriers serves to introduce intra-regional trade barriers, which limit the extent of integration in the region. Of course, the very recognition of the differential treatment of LDCs is firmly grounded and in part justified by the first caveat. Of course, this is not the only reason. As discussed earlier in the report a second factor seen as being important for the justification for the differential treatment concerns the vulnerability of the LDCs. That vulnerability is in part driven by the lack of "prerequisites", but also by their vulnerability to natural disasters. Of course, there is no simple definitive measure of vulnerability. However, economic vulnerability is likely to be closely related to issues of economic size, and economic diversification.

The changes in trade flows and the movements in the structure and pattern of trade which we focus on in this part of the report are to a large extent driven by changes in the formal trading arrangements, especially with the EU. Hence, under the Lome Convention the Caribbean ACP economies enjoyed duty free access to the EU for agricultural products not covered by the EU's Common Agricultural Policy (CAP). Products covered

³ UN ECLAC, 20005

by CAP, which include the majority agricultural goods in which CARICOM and EU are competitors, are restricted on a case-by-case regime. The agreement also specified special trade protocols for trade in bananas, beef and veal, as well as rum and sugar, which had guaranteed that the EU would buy an agreed quantity of these commodities at a price significantly above world price. In order to insure WTO's compatibility, the future EPA is likely to have significant erosion of these preferences. Although for CARICOM in 2001, sugar, bananas and rum comprise only 5% of total exports, they constitute a third of exports to the EU. If one excludes two biggest CARICOM economies – Jamaica and Trinidad and Tobago, which are major exporters of natural resources, such as aluminium ores and oil respectively, the goods under special protocols are important export commodities for the remaining countries. The export of bananas comprises nearly half of exports of St. Lucia and St. Vincent and the Grenadines and almost a quarter in Dominica. For Barbados, Belize, Dominican Republic, Jamaica and St. Kitts and Nevis in 2000, sugar was one of the top three export commodities with a total export share from 6.3% to 18.8%.

The removal of these special protocols from the future EPA is, thus likely to have a significant negative effect on the CARICOM producers of these commodities in favour of low cost producers in countries like Brazil or Thailand. In most of the Caribbean economies the total exports share of bananas, sugar, or rum has declined in the past 20 years. This suggests that some degree of diversification has taken place. This is reassuring as the adjustment costs faced by CARICOM countries from the removal of special protocols might be mitigated by the structural changes, already taking place, as the majority of economies in the region move away from high dependence on agricultural commodities to specialization in tourism and financial services. These are all issues, which the descriptive statistics we consider in this part of the report shed more light on.

4.2 The historical evolution of Caribbean trade

In this sub-section, the objective is focus on the historical evolution of trade and trade structure. We do this in two ways. First, we devote some space to considering patterns of trade, and changes in those patterns of trade over time. Here we look at the data on trade flows by source and consider carefully how those trade flows have changed over time. We do this both for the region as a whole and also, where relevant, in some detail for

individual countries, as well as looking intra-and extra-regional flows. Secondly, we use summary descriptive statistical indicators, which shed light on the evolution of the underlying structure of trade for the Caribbean economies over time. Specifically our analysis involves examining indices of revealed comparative advantage, and changes in decile trade shares.

4.2.1 Changes in aggregate trade flows

In Table 4.1. we examine the changing pattern of trade shares over time. The table gives the geographic distribution of CARICOM's trade, by exploring the shares of imports accounted by the main economic groups and other relevant regions from 1995 onwards. These trade shares display relative stability over the period analysed. The key series, which presents a downward trend is the share of Nafta in Caricom's imports, which starts with 59% of imports in 1995 and declines to 44% by 2002. There is a sharp fall in Nafta from 1995 to 1996, which is matched with increases in the shares of Caricom and "Others". Among the latter, Colombia and Venezuela exhibit an increased level of exports to Caricom in that year, which is likely to be explained by the trade liberalisation processes initiated in 1994 and 1993 respectively, which then required three years to become fully implemented.

Table 4.1 Shares in Caricom's Imports for a sample of 78 countries

<i>Shares in Caricom's Imports for a sample of 78 countries</i>								
	1995	1996	1997	1998	1999	2000	2001	2002
Nafta	59.48%	50.51%	57.62%	57.54%	55.33%	53.01%	51.20%	43.87%
EU	13.42%	15.02%	13.11%	12.86%	11.43%	10.61%	13.26%	14.32%
Caricom	7.98%	10.01%	8.47%	8.42%	9.87%	10.11%	8.03%	9.33%
Japan	4.25%	4.70%	4.66%	4.95%	5.40%	4.13%	3.09%	4.75%
Others	3.71%	9.56%	7.07%	7.07%	8.38%	11.94%	10.53%	10.39%
Mercosur	2.16%	2.08%	1.40%	1.56%	1.26%	1.67%	2.69%	3.39%
Central America	1.22%	1.60%	1.25%	1.48%	1.92%	1.84%	4.23%	2.70%
Associated States	0.04%	0.01%	0.02%	0.01%	0.01%	0.01%	0.02%	0.01%
Pacific	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
Sample Sub Total	92.25%	93.50%	93.61%	93.90%	93.60%	93.34%	93.04%	88.77%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Author's Calculations based on data from World Bank

"Associated States" stands for the countries that are Associated to Caricom but do not share the same CET.

"Mercosur" includes Argentina and Brazil

"Others" includes a group of relevant industrialised countries plus Colombia Venezuela and Ecuador.

"EU" stands for the European Union (25 countries)

"Pacific" includes the Pacific islands included in ACP

Table 4.2 provides similar information but this time broken down into individual countries as opposed to country groupings. The main panel of the table gives the changing share of imports for the top 10 exporters to the Caribbean. The bottom line of the table also gives the Herfindahl index of import concentration. This index can be seen as summarising the extent to which Caribbean imports are concentrated by source⁴. Hence, if the index were equal to one this would indicate that there is only one exporter to the Caribbean. The smaller the index the more diversified are Caribbean imports.

If we consider first the changing shares of individual countries, some notable features emerge. The largest source of imports into the region is the United States accounting for between 40-50% of imports over the time period. In contrast, imports from the EU total 15% or less. In terms of the US share, we that this is declining over the period from just under 55% in 1995, to just under 39% in 2002. The biggest increase in the share of exports going to the Caribbean is by Venezuela, whose share rises from under 2% to nearly 6% of all imports. There are also modest rises for Trinidad and Tobago, Germany, Brazil and Mexico. Interestingly we see that these 10 exporters in aggregate accounted for over 82% of all Caribbean imports in 1995, but their share declined to just over 73% by 2002. This increased diversification of Caribbean imports can also be seen in the last line of the table, which gives the Herfindahl index. This index declined from 0.309 to 0.168. In terms of numbers of “equivalent sized” exporters, this suggests that at the beginning of the period there were just over 3 equivalent sized exporters, and by the end of the period this had risen to nearly 6.

Table 4.2 Shares in Caricom’s imports of the top ten exporters

Shares in Caricom's Imports of Top Ten Exporters

<i>Exporter</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>
United States	54.59%	45.49%	53.59%	52.66%	50.27%	48.18%	47.57%	38.84%
United Kingdom	5.37%	5.54%	4.62%	4.66%	4.60%	3.78%	4.71%	4.54%
Trinidad and Tobago	5.22%	6.78%	5.62%	5.63%	6.40%	7.10%	4.97%	6.43%
Japan	4.25%	4.70%	4.66%	4.95%	5.40%	4.13%	3.09%	4.75%
Canada	3.38%	3.21%	2.47%	2.97%	3.24%	2.66%	2.35%	2.88%
Netherlands	2.22%	2.98%	2.08%	2.05%	1.81%	1.88%	0.95%	1.18%
Germany	2.22%	2.38%	1.93%	1.52%	1.29%	1.27%	1.88%	3.46%
Brazil	2.01%	1.91%	1.24%	1.36%	1.11%	1.54%	2.60%	3.24%
Venezuela	1.88%	5.32%	4.06%	3.03%	4.41%	7.08%	6.45%	5.79%
Mexico	1.51%	1.80%	1.56%	1.92%	1.81%	2.16%	1.27%	2.15%
Top Ten Share	82.63%	80.13%	81.83%	80.73%	80.35%	79.80%	75.85%	73.27%
HHI	0.309	0.224	0.299	0.289	0.267	0.248	0.240	0.168

Source: Own Calculations based in data from World Bank

⁴ the Herfindahl-Hirschman Index of concentration (HHI) was calculated as, $HHI = \sum_i s_i^2$
Where, s_i stands for bloc j 's share of imports from country i .

In the above two tables we considered the pattern of trade over time but for the Caribbean region as a whole. The data indicate that the Caribbean share has been relatively stable in aggregate, and that the key regional supplier is Trinidad and Tobago. The data also indicate quite a high degree of reorientation of imports away from the US largely towards new suppliers. We now turn to looking at more detail at individual countries. This is important because as we saw earlier there is considerable diversity among the Caricom islands and it is therefore likely that the evolution of their trade and trade patterns is likely to differ. For example the EU has been consistently an important export market for Jamaica (around 30% of exports), while less for other countries such as Trinidad and Tobago (varying between 9%-14% over 1980-2001). For the Bahamas, the share of EU exports has risen from 9% in 1995 to 17.8% in 2001. Conversely, for St. Kitts, the share of exports going to the EU has declined from 40% in 1995 to 21% in 2000.

It is also important to see the extent to which the experience of the OECS islands may differ from the remaining Caricom economies. Indeed as cited earlier, a recent ECLAC report commissioned by the OECS economies suggested that “the most intra-regional oriented group and hence the most dependent group [ie the OECS] has lost, according to most sources, intra-regional market share”⁵. That loss of market share is then clearly seen by the report as evidence of the relative lack of success of the regional integration process for these islands. These are important issues, which need careful examining.

In Table 4.3 we first look at the share of both imports and exports by source for each of the Caribbean economies. These are average shares for the years 2000-2003 inclusive. The reason for taking a four-year average is that for small economies such as these trade flows from year to year can be subject to fluctuation. Consider first the left hand panel. Here we see that the US is the principal supplier for all of the Caribbean economies except Suriname, and for 10 of the 14 economies listed here the Caribbean region itself is the principal supplier. As a supplier of imports, the EU for most of the islands ranks relatively low. The picture is slightly different when looking at exports, where the EU is clearly a more important supplier in many cases. For some economies - Barbados, Surinam and the OECS micro-states such as St. Lucia, St. Vincent and the

⁵ ECLAC, 2005, Bracketed term added.

Grenadines, the EU tends to be the most important export market. The OECS micro-states and Barbados have long lasting trade relations with the UK which go back to the colonial period. On average, the share of CARICOM exports going to the EU has tended to be somewhat stable over the last 20 years, with the range varying between 15%-20%, while as seen earlier the share of exports going to the US has fluctuated somewhat more, with 54.7% of exports going to the US in 1980, and 40.8% in 2001.

What is also striking about the right hand panel of the table is the importance of the Caribbean region as a destination for the exports of several of the islands. This is most marked for Antigua and Barbuda where 77% of their exports go to the Caribbean region, but the region is also important for Barbados (48%), Dominica, Montserrat, and St Vincent and the Grenadines (in each case 60%). Although not directly of concern in this chapter, in terms of the welfare effects of any proposed EPA this pattern of trade is likely to be important in determining in the first instance the extent of any trade creation and trade diversion.

Table 4.3 Share of Trade by source : 2000-2003

	Share of imports by source			Share of exports by source		
	CAR.	EEC15	USA	CAR.	EEC15	USA
Antigua and Barbuda	0.13	0.10	0.49	0.77	0.05	0.06
Bahamas	0.01	0.02	0.83	0.00	0.28	0.68
Barbados	0.20	0.17	0.42	0.48	0.20	0.18
Belize	0.04	0.08	0.46	0.07	0.25	0.51
Dominica	0.28	0.16	0.36	0.60	0.29	0.06
Grenada	0.25	0.12	0.47	0.17	0.38	0.40
Guyana	0.18	0.12	0.38	0.14	0.25	0.33
Jamaica	0.12	0.08	0.45	0.03	0.30	0.39
Montserrat	0.18	0.10	0.60	0.60	0.08	0.27
St. Kitts and Nevis	0.18	0.13	0.51	0.03	0.23	0.73
St. Lucia	0.24	0.16	0.42	0.30	0.54	0.15
St. Vincent & the Gr.	0.27	0.21	0.35	0.60	0.36	0.01
Suriname	0.20	0.29	0.27	0.06	0.32	0.21
Trinidad and Tobago	0.03	0.18	0.34	0.20	0.09	0.42

Source: UN Comtrade database

If we take Caricom as a grouping, we see that the United States is not surprisingly then the prime destination for Caricom exports, accounting for about 40% of the value of goods exported. Less than 20% of aggregate CARICOM exports go to the EU. For example, data from 2001 shows that over 93% of the CARICOM exports to the United States have come from the MDCs, where as exports from the OECS have only accounted

for 2.4% of total exports to the United States. On the other hand, goods from the OECS accounted for nearly 20% of all goods exported to the United Kingdom from CARICOM in 2001, and goods from the MDCs, only 70% indicating the importance of the UK and EU market to the OECS states relative to the United States.

The preceding provides a snapshot of the pattern of trade by individual islands and as with many of the preceding tables focuses on shares. Shares are an extremely useful statistic for considering the relative importance, for example, of different suppliers. However, the use of shares can also mask important changes taking place. For example, earlier we cited the ECLAC report which identified the declining share of the OECS in intra-regional Caribbean trade. That declining share could occur because of declining OECS imports and exports, or in context where OECS imports and exports are rising, but not as fast as other suppliers in the region. The conclusions that one might wish to draw under the two scenarios could be quite different. In the analysis that follows therefore, we consider the changing pattern of trade by country with regard to different sources, but rather than looking at changes in the share of trade, we look more directly at the total value of trade. Importantly the data is in constant as opposed to current prices. This enables us to see if there have been any changes in real trade flows over the period 1990-2000. For ease of exposition and analysis, we present the data graphically.

4.2.2 Changes in extra-regional trade

Figures 4.1a and 4.1b give the change in total exports by the Caribbean economies for which consistent data were available. Figures 4.2a and 4.2b, give the corresponding changes in imports. In each case, the first panel gives the change in exports by the non-OECS Caricom economies, and the latter gives the change in exports for five of the OECS economies. Consider first Figure 4.1a. The striking feature in this table is the substantial rise in the real value of the exports of Trinidad and Tobago which nearly double over this time period. For Jamaica, there is a significant decline in the value of total real exports while the series for Barbados and for Belize are relatively stable.

Figure 4.1a: Change in Real Total Exports

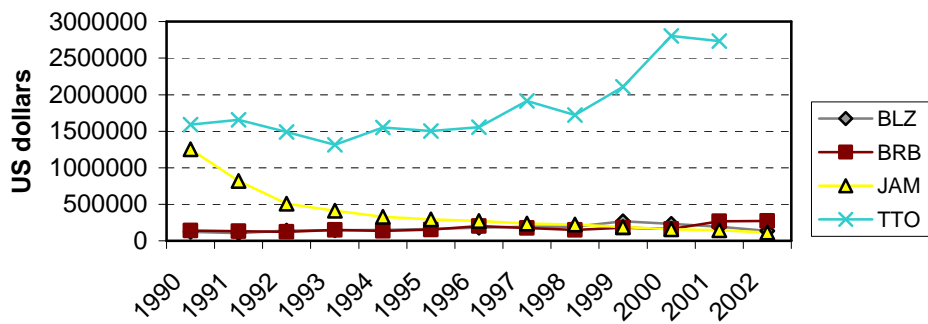


Figure 4.1b Change in Real Total Exports

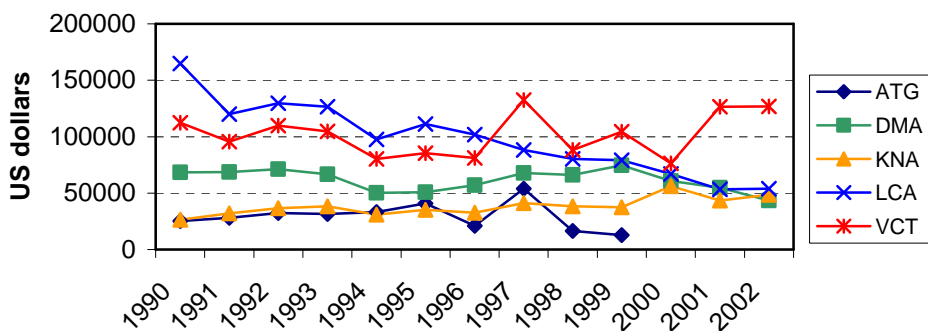


Figure 4.2a Change in Real Total Imports

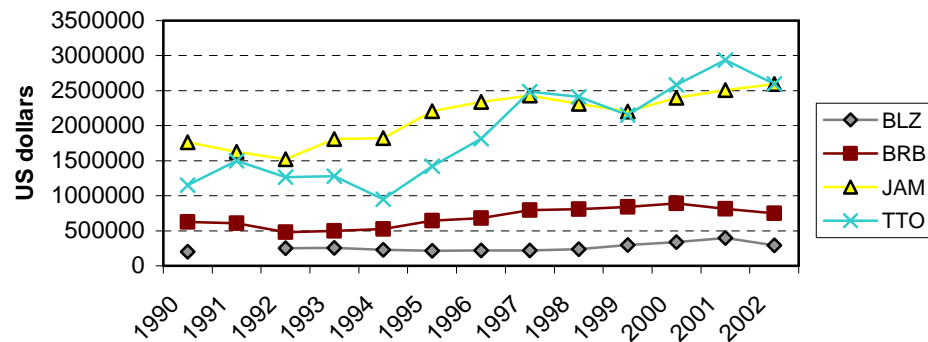
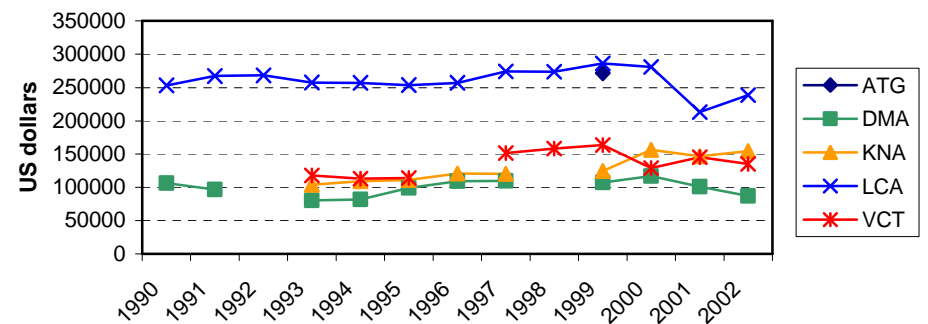


Figure 4.2b Change in Real Total Imports



For Trinidad and Tobago, concomitant with the rise in exports we see a rise in imports over the period. There is also a rise in real imports for Jamaica, which with the decline in exports implies a significant worsening of the trade balance. As with exports, for Barbados and Belize there is little real change in imports over the period. If we turn to the OECS economies (Figure 4.1b), we see that not surprisingly the overall levels of trade are much lower. Two of the islands (St.Kitts and Nevis, and St.Vincent and the Grenadines) see a small overall rise in the overall pattern of their exports over the time period; Dominica's exports are fairly stable until the year 1999 after which they see a decline. The biggest overall decline in exports is that experienced by St.Lucia, which sees a steady and substantial decline over the period. For each of these economies (except Antigua and Barbuda for whom there is insufficient data) real imports remain fairly constant throughout the time period, though with some decline towards the end of the period for St Lucia, Dominica, and St Vincent and the Grenadines.

In the subsequent graphs, we break these overall changes in export flows down into different regional sources and destinations. In this section, we consider extra-regional sources and destinations, and then subsequently we consider regional trade flows by focussing on trade with the non-OECS Caricom countries, and the OECS countries. As above, we look at the changes in export and import flows for selected non-OECS Caricom economies and selected OECS economies depending on data availability.

If we focus on the figures themselves, a number of features then emerge. First consider the overall rise in the exports of Trinidad and Tobago. We see that this is principally driven by the rise in exports to the US especially towards the end of the period in question. Interestingly exports to the EU rise in the first part of the period but then decline from 1998 onwards, and there is a similar pattern also for Belize. For Trinidad and Tobago while there is tailing off of exports to the EU, there is a substantial increase in imports. The decline in Jamaican exports occurs with respect to both NAFTA and the EU, and with respect to both these markets there is a steady increase in real imports over this time period. As in the aggregate graphs, there tends to be less movement in the real pattern of trade for Belize and for Barbados. Both imports and exports with regard to NAFTA and the EU remain fairly constant over

the time period. There is some evidence of a decline in both imports and exports with respect to NAFTA for Barbados towards the end of the period.

Figure 4.3a Change in Real Exports to the EU

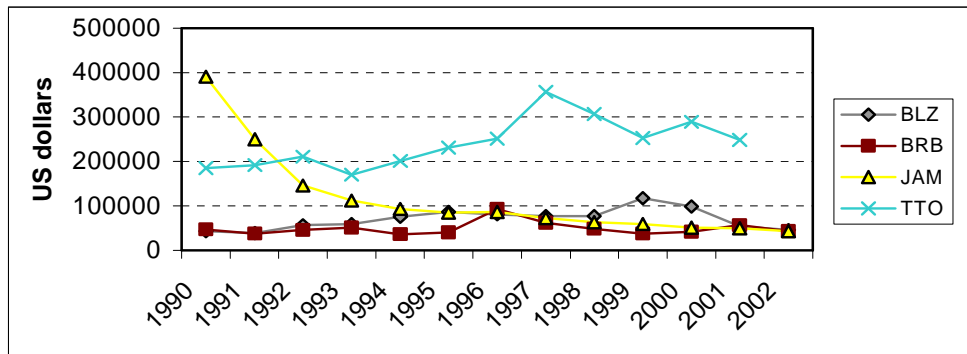


Figure 4.3b Change in Real Exports to the EU

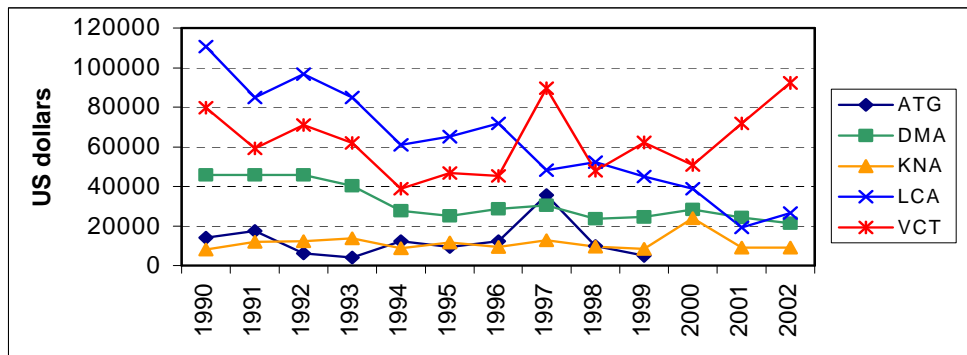


Figure 4.4a Change in Real Imports from the EU

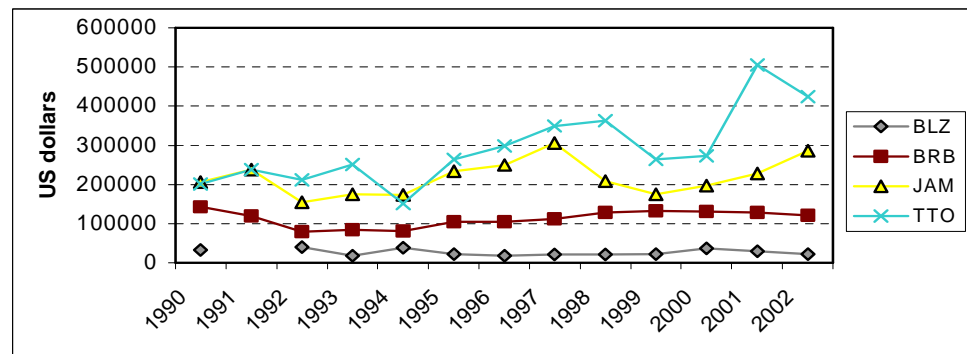


Figure 4.4b Change in Real Imports from the EU

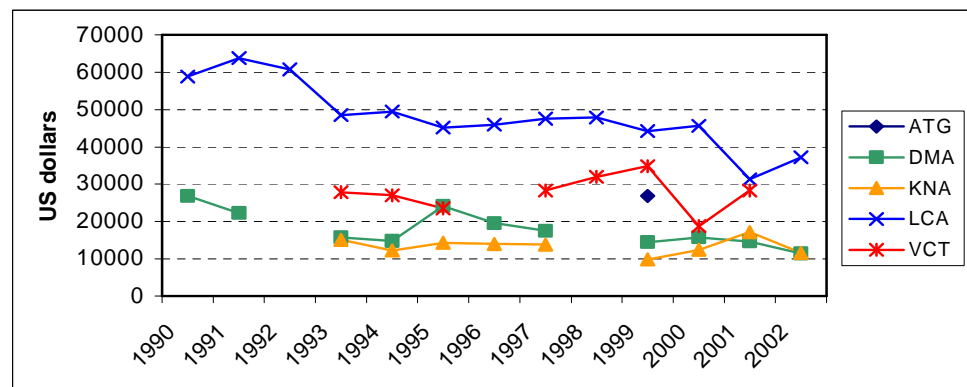


Figure 4.5a Change in Real Exports to NAFTA

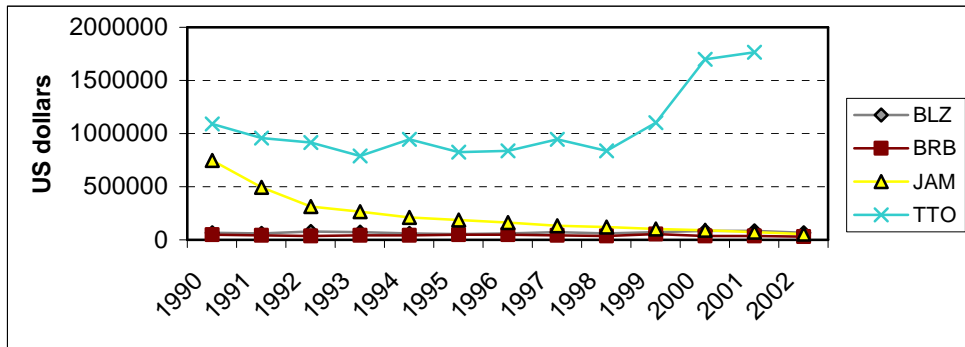


Figure 4.5b Change in Real Exports to NAFTA

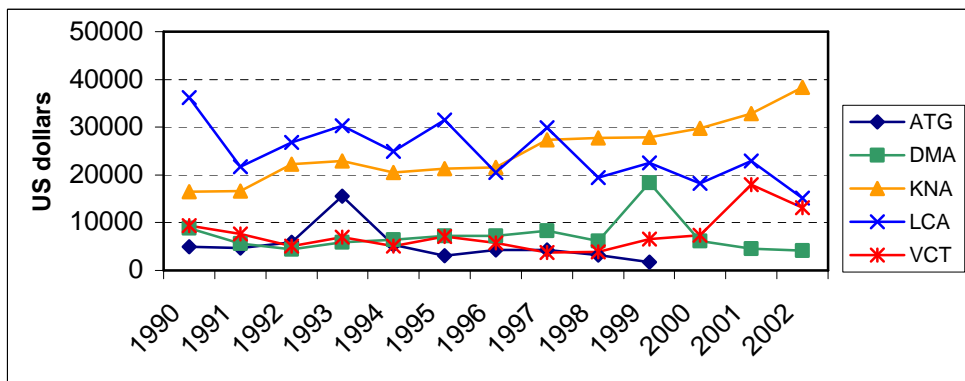


Figure 4.6a Change in Real Imports from NAFTA

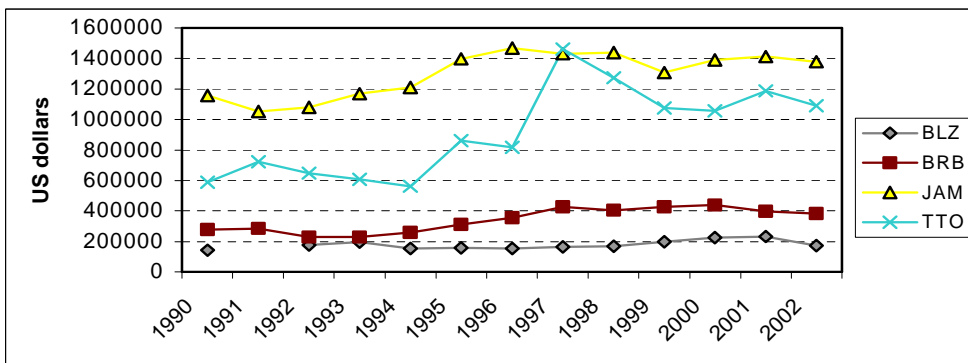
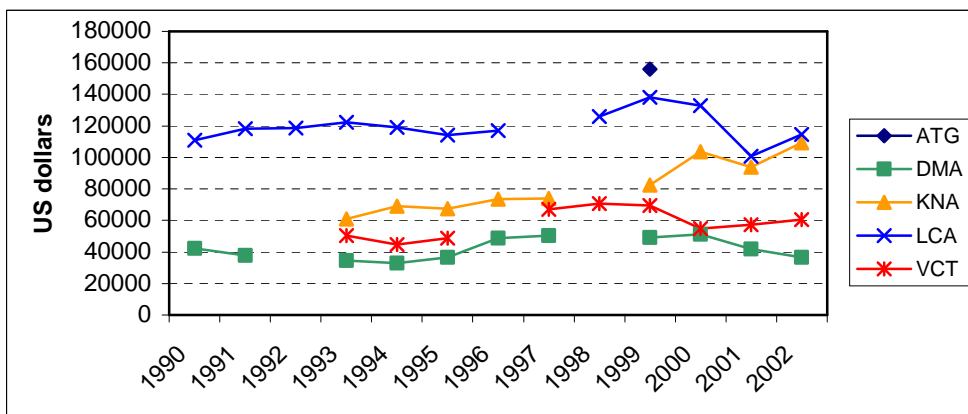


Figure 4.6b Change in Real Imports from NAFTA



What is particularly interesting is to look at the diverse experience of the OECS islands. If we take St.Lucia we see a decline in overall exports, which appears primarily driven by a decline in exports to the EU and to some extent with respect to NAFTA. The change in exports to the EU is no doubt driven by the changes in the banana regime over this time period, and similarly we see a decline in exports to the EU for Dominica, though not to the same extent. There is a smaller decline also in Dominica's exports to NAFTA (except for a solitary marked rise in 2000).

In contrast, the exports of St.Kitts and Nevis to the EU are fairly stable over this period – though of course it should be noted that with the changes in the sugar regime post 2002, it is likely that more recent data would indicate a decline in exports. Interestingly, there is a steady rise in the exports of St. Kitts and Nevis to the NAFTA region, and a small rise for St Vincent and the Grenadines towards the end of the period. The latter sees a decline in exports to the EU in the first part of the period followed by also a subsequent rise.

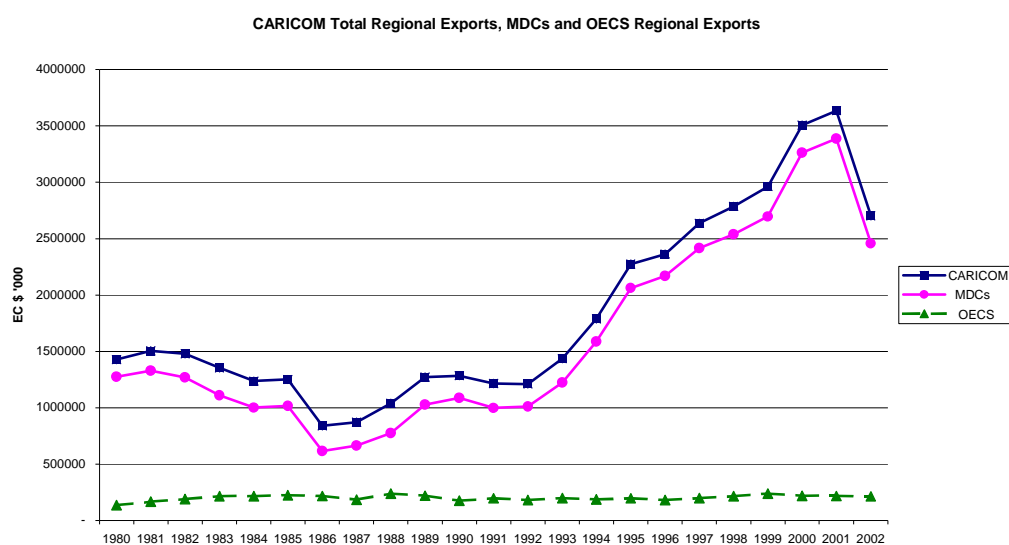
In comparison, the changes in import flow tend to be more stable over time, with imports from the EU declining most notably again for St Lucia, but also for Dominica, while remaining more or less constant for St Vincent and the Grenadines, and for St. Kitts. With regard to imports from NAFTA, St.Kitts and Nevis steadily increase the real value of their imports, while the remaining countries real trade flows remain fairly constant over this period.

Overall then a key conclusion to be drawn from this analysis is that the experience of the Caribbean region is highly diverse. Clearly the economy which appears to have been most successfully increasing its' import and export flows is Trinidad and Tobago. However, it is not generally the case that the non-OECS Caricom countries' experience differs substantially to that of the OECS. The distinction is perhaps more between Trinidad and Tobago and the remaining economies. With regard to the remaining economies, the biggest declines in exports appear to have occurred for Jamaica and for St.Lucia. For each of these that decline is with respect to both their principal export markets - NAFTA and the EU.

4.2.3 Changes in intra-regional trade flows

We now turn to considering the changing pattern of intra-regional trade flows. Figures 4.7 and 4.8 below are based on data provided by the CARICOM Secretariat, and give the changes in intra-regional trade in current prices over the 1980-2002 time-period. The figures show that there was decline in nominal intra-regional trade in the early 1980s followed by a steady rise in intra-regional imports and exports since the mid 1980s. There was also a sharp decline in intra-regional trade in 2002. It is worth noting however, that despite this steady increase in intra-regional trade, intra-regional imports have accounted for only between 8% and 11% of total regional imports since 1990.⁶ In contrast in aggregate regional exports however have accounted for 20% or more of total exports since 1998, having grown from about 12% of total exports in 1990.⁷

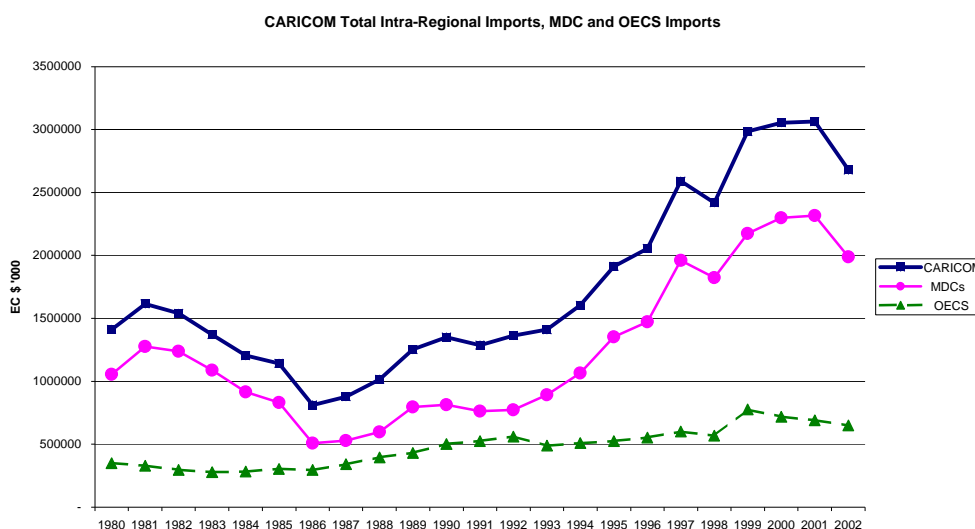
Figure 4.7a: Caricom total regional exports



⁶ Caribbean Trade and Investment Report 2000 at www.caricom.org.archives and Caribbean Economic Performance report 2003, Chapter IV at www.caribank.org

⁷ Ibid.

Figure 4.7b: Caricom total regional imports



What is also interesting about these figures is the comparison between the changes in OECS trade flows with those of Caricom in aggregate, or with those of the MDCs. The pattern of trade of the MDCs follows very closely the pattern for the Caricom aggregate. Given the size of the MDCs relative to the OECS this is perhaps unsurprising. In contrast, if we look at the changes in the OECS trade flows, we see that in nominal terms OECS regional exports have remained constant since the early 1980s, and that intra-regional imports have seen a more modest rise, with a slight tailing off towards the end of the period. One has to be careful, however, in drawing too strong and immediate conclusions about the diverse performance of the OECS, or the LDCs vis-a-vis the rest of Caricom here. Figure 4.8 below, breaks down the changes in nominal MDC regional exports by country over the entire time period.

While over 90% of regional exports since 1995 come from the MDCs, from this figure it is clear that this dominance and rise in MDC exports is almost entirely accounted for by the experience of Trinidad and Tobago. Here too it is important to point out that an important part of these changes in trade flows is the performance of a single sector - petroleum, which accounts for more than 1/3 of the regional traded goods. This can be seen in figure 4.9 which distinguishes between petroleum and non-petroleum exports for Trinidad and Tobago. While this clearly emerges from the figure below, it is also apparent that Trinidad and Tobago has also been extremely successful in increasing its' exports of non-petroleum products over the time period.

Figure 4.8: Non-OECS Caricom Regional Exports

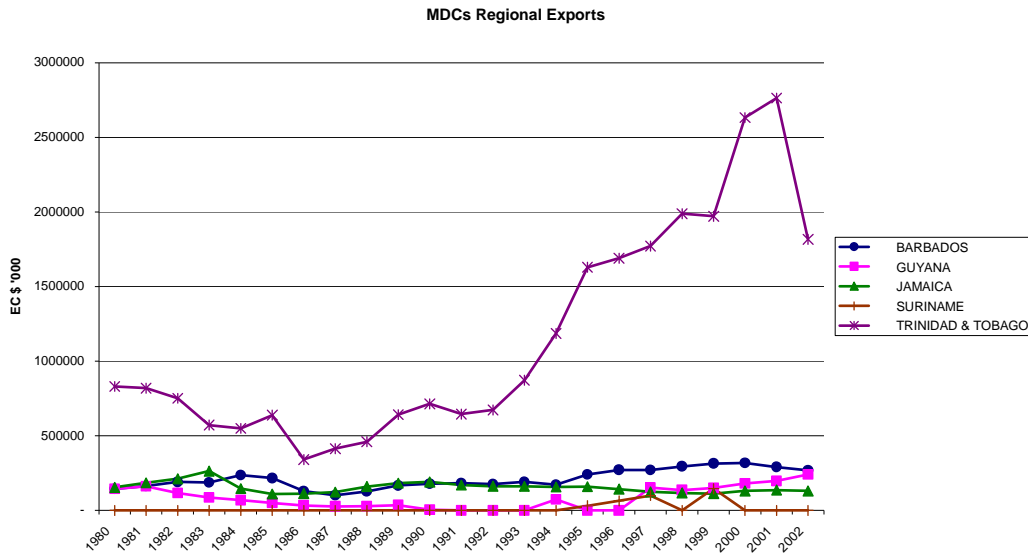
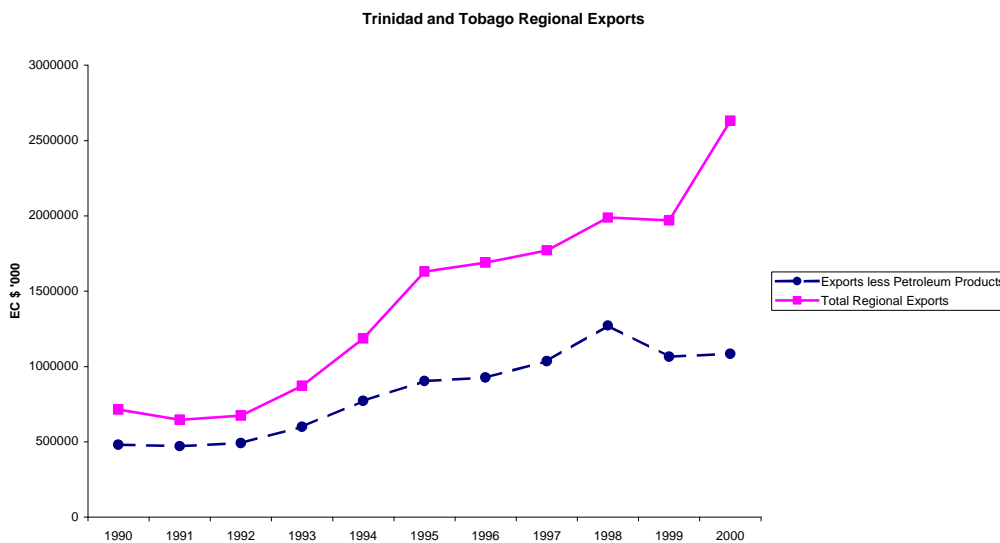


Figure 4.9: Trinidad and Tobago Regional Exports



Where the preceding figures considered the changes in nominal trade flows since 1980 we now turn to looking at the changes in regional trade flows in constant prices, since the early 1990s, and where as before we break this down by country. In terms of looking at the regional trade flows, we distinguish between flows with the non-OECS Caricom countries, and flows with the OECS. We saw earlier in Table 4.3 that the region is an extremely important destination market for a number of the

economies. In particular, this was the case for Antigua and Barbuda, Barbados, Dominica, Montserrat, St. Lucia, and St. Vincent and the Grenadines. What is clear from this list is the importance of the regional market for most of the OECS economies. For example, since 1996, close to 50% of Dominica's total exports have gone to the CARICOM market, and in 1998 that figure was 78.3%. St. Vincent and the Grenadines has also sold more than 50% of its exports to other CARICOM markets since 1994.⁸ Similarly the ECLAC reports states that,

‘...as a sub-regional grouping, the OECS exhibit the highest degree of dependency on intra-regional trade flows. For 1985-2000, the average export and import share for the OECS equaled 30% and 22% whereas for the LDC's and MDC's these reached 18% and 13% and 12% and 9% respectively.’

It is then the decline in the regional share from 2.4% to 1.4% of total trade between 1980-2003 which the ECLAC reports suggests is an indicator of the regional difficulties facing the OECS.

As discussed earlier in considering these issues it is important not only to consider shares, but also to consider changes in the real value of imports and exports. For shares can decline in a context of rising or falling growth. It is also worth pointing out that the extent of intra-regional trade is addressed more formally in Part 5 of this report in the context of a gravity modelling framework. For the remainder of this section, therefore, we turn to a discussion of the changes in the real value of intra regional trade by country. These changes can be seen in figures 4.10-4.14.

If we turn first to Figures 4.10 and 4.11, we see a number of features. First, the rise in the exports of Trinidad and Tobago, which we saw earlier with respect to NAFTA and the EU, is also present with regard to the non-OECS Caricom countries, and with regard to the OECS economies. The intra-regional exports of the other MDCs remain fairly constant over the time period, with perhaps again some evidence of a small decline towards the end of the period for Barbados. The overall picture for the MDCs is therefore very similar to the changes in aggregate exports described earlier.

⁸ Caribbean Trade and Investment Report 2000.

Figure 4.10a Change in Real Exports to (non-OECS) CARICOM

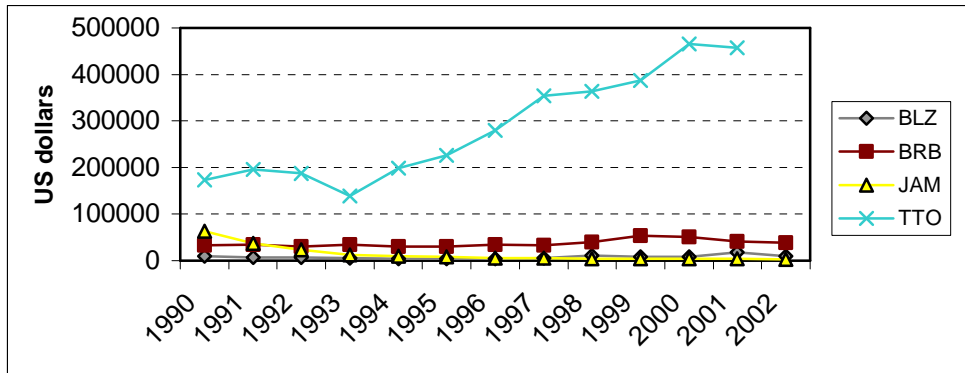


Figure 4.10b Change in Real Exports to (non-OECS) Caricom

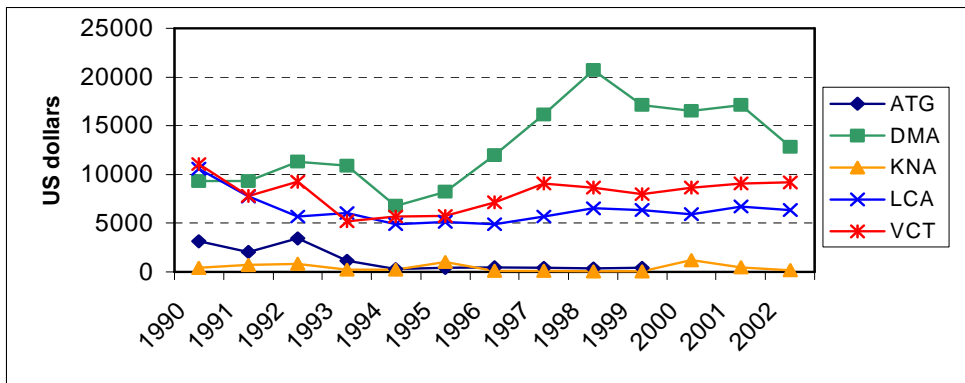


Figure 4.11a Change in Real Exports to the OECS

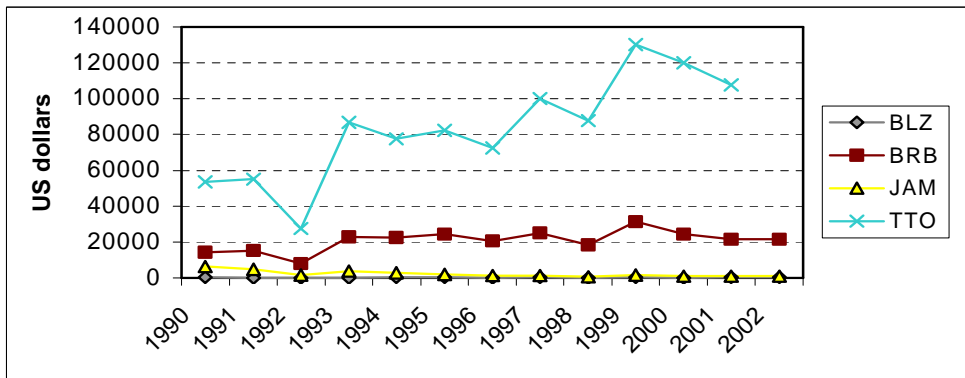
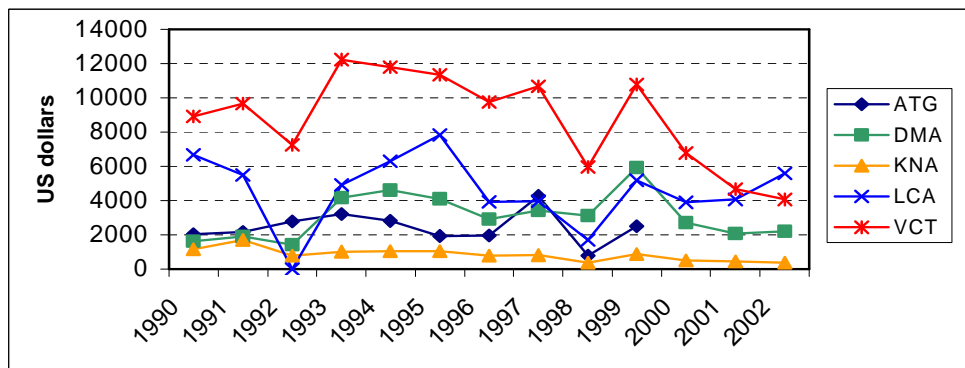


Figure 4.12b Change in Real Exports to the OECS



In contrast, for the OECS economies, there are some differences, which emerge. Notably for Dominica, we see a fairly substantial rise in exports to the non-OECS Caricom economies in the first part of the period followed by a decline. The exports of St. Lucia decline initially but then remain constant for the remainder of the period. This is interesting as it is quite different to the pattern of St. Lucian exports to NAFTA and the EU identified earlier, which were steadily declining. The pattern of exports of St Vincent and the Grenadines is very similar to that of St. Lucia. With regard to intra-regional OECS trade, not surprisingly we see that the levels are much lower, and that the movement over time is more erratic. For most of the OECS economies, the real value of trade over the time period changes little, except for St Vincent and the Grenadines where there is steady decline over the period. For the MDCs we also see some evidence of a small increase in the exports of Barbados to the OECS islands. In terms of exports, therefore, what these figures suggest, is that the fall in the intra-regional OECS share of exports, cannot be attributed to declining real levels of their exports to the region, but is instead a result of the substantial increase in the exports of Trinidad and Tobago.

Finally, in figures 4.13 and 4.14 we turn to the changes in regional import flows. If we consider first the MDCs we see that the biggest increase in regional imports is being driven by Jamaica. Up until 1999-2000, there was also an increase in imports by Barbados, and Trinidad and Tobago, but in the more recent period, there has been a decline. For the latter half of the 1990s there is also evidence of increased imports from the OECS islands for Jamaica, and Trinidad and Tobago but again with a tailing off in recent years. For the OECS islands, their imports from the remaining Caricom countries have tended to steadily rise over the time period, while conversely their imports from the other OECS islands have seen a steady fall, most notably for St. Lucia and for Dominica.

Figure 4.13a Change in Real Imports from (non-OECS) CARICOM

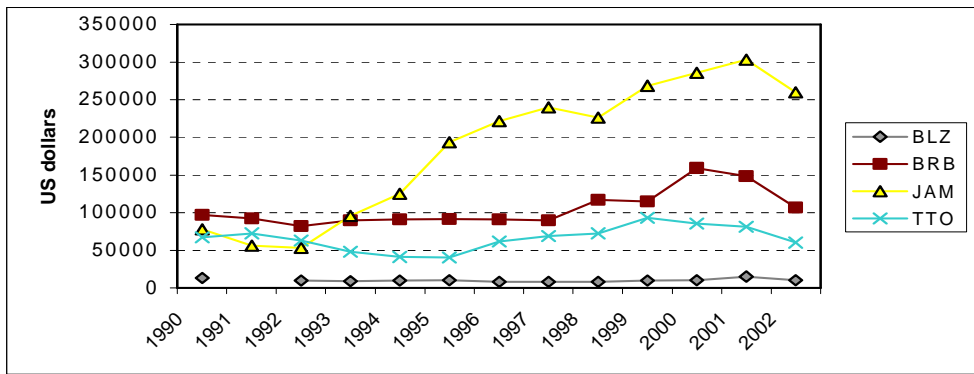


Figure 4.13b Change in Real Imports from (non-OECS) CARICOM

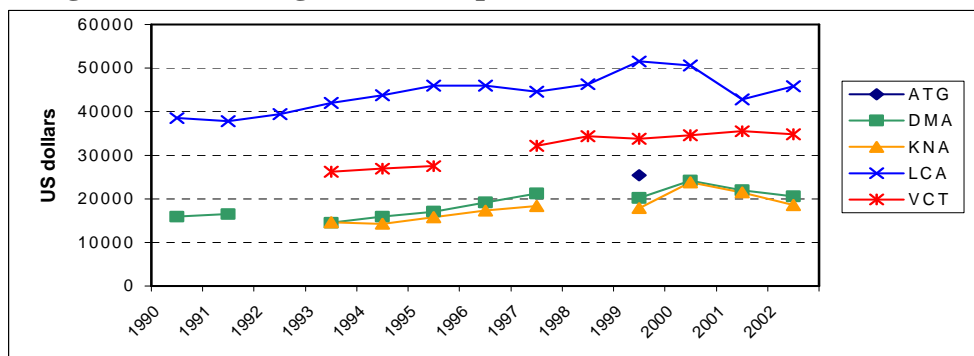


Figure 4.14a Change in Real Imports from the OECS

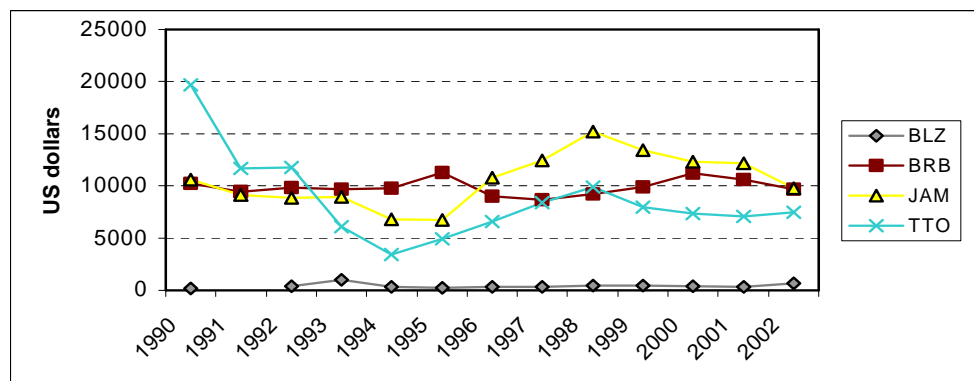
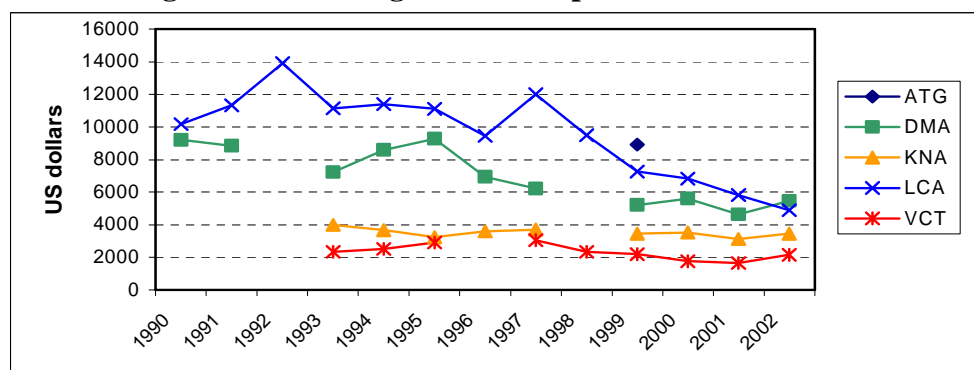


Figure 4.14b Change in Real Imports from the OECS



In summary then we see that examination of aggregate trade statistics for the Caribbean region is likely then to be dominated by the experience of Trinidad and Tobago, and partly, in turn, by the role of the petroleum sector in this economy. In particular, the declining intra-regional share of trade can be attributed to the growth of the trade of Trinidad and Tobago more than to declining export and import performance of individual island. This is important for the discussion about the distribution of the benefits from regional integration across countries. It is clear that Trinidad and Tobago have been more successful than other Caribbean economies in increasing their imports and exports. However, this is not simply an intra-regional phenomenon and it is hard to attribute this to the process of Caribbean regional integration. The increase in trade is also true with regard to their internal and external trading partners. There are two economies, which have experienced a relatively significant decline in the real value of their exports over the period in question and these are Jamaica, and St. Lucia. What is interesting is that this decline in overall exports is partly matched by a decline in intra-regional exports for Jamaica but not for St. Lucia.

The overall picture that emerges from this analysis is then one, which indicates considerable diversity in the evolution of trade flows by both reporting (source) country and by partner country. From the point of view of the EPAs a further significant feature of the above analysis is that the Caribbean and the OECS economies tend to import comparatively little from the EU. To some extent, this is also true with regard to their export flows. For certain countries it is clear that the EU remains an important market, but that is being impacted upon by a number of factors. This includes the gradual erosion of preferences in the EU market for the Caribbean region, the on-going changes in the banana and sugar protocols, and also in the expansion of trade agreements, which the Caribbean region is engaged in with other countries. As an export destination then, the EU is clearly important for certain product categories (bananas, sugar), and thus also for certain countries. As a supplier of imports, the EU is typically less important. This has important implications in considering the possible impact of an EPA. In particular the importance of third country markets as suppliers, suggests that a regional agreement with the EU may well contain considerable scope for trade diversion, which would then serve to

mitigate against substantial positive welfare improvements. This issue is taken up in more detail below.

4.3 Changes in the structure of trade

In the preceding section, we examined in some detail the evolution of aggregate trade over time and by source. This gives us important information with regard to key import and export markets and the direction in which these are changing. The evidence also suggested that there may be considerable scope for trade diversion arising from a future EPA. The preceding analysis, however gives us little information on the underlying composition of that trade. Nor does it give us information on the underlying competitiveness of the region. These are issues to which we now turn, where we consider several relevant descriptive statistics. The indicators we consider include the Balassa index of revealed comparative advantage, a decile analysis of the composition of trade over time, and the Hirschmann-Herfindahl index of export and import concentration.

4.3.1 Revealed Comparative Advantage

A commonly used statistical indicator is the Balassa index of revealed comparative advantage. This index helps to indicate at the level of an individual product whether a given country has a *revealed* comparative advantage in that product. This can be seen by an examination of the trade data. The index calculates the share of a given product in a given country's export bundle, and compares it to the share of that product in another "country's" export bundle. The comparator country is typically is the rest of the world. Hence, if the share of exports for a given country is greater than the share of exports for the product for the rest of the world, then the index is greater than 1, and the country is said to have a revealed comparative advantage in that product. There are two features about this index, which it is important to highlight. The first is that the index can be calculated at different levels of aggregation and direct use of the index sheds light on the degree of revealed comparative advantage for individual products or sectors. The index does not, in and of itself provide a summary measure of the degree of competitiveness of a given

economy. Secondly, trade flows are of course influenced by trade policy and trade agreements. Hence, to the extent that tariffs, regional agreements distort trade, than this will also be reflected in the index. For example, if a given country is artificially supporting a given industry via export subsidies, than the data may well “reveal” that the country has a comparative advantage in that product. However, in reality it may be the case that without the subsidy the country would not be competitive in that given product.

Table 4.4 provides some summary information arising from the detailed calculation of revealed comparative advantage indices at the 2-digit SITC level of aggregation. Here we have calculated the index for Caribbean country exports both for 1985, and for 2002. In each case, also we have calculated the index for two “comparator” countries – the world and the EU. For each of these comparator countries we have then examined the degree of correlation in the index over time. Here we are interested in seeing the extent to which there have been changes over time. The OECS countries are shaded in grey.

Table 4.4: Revealed Comparative Advantage Correlation Coefficients

	World	EU
	1985-2002	1985-2002
CARICOM	0.898	0.757
Barbados	0.682	0.800
Dominica	0.930	0.853
Grenada	0.777	0.896
Jamaica	0.919	0.971
St Kitts	0.075	0.078
St Lucia	0.886	0.930
T&T	0.776	0.472
St Vincent	0.997	0.997

Source: UN Comtrade, calculated at the 2-digit SITC level.

Note: For St.Kitts and Nevis, and for St. Vincent the base year was 1995.

If we look at the Caricom in aggregate we see that with respect to the World there is quite a high correlation over 1985-2002, whereas somewhat less with respect to the EU. This indicates a greater degree of change with regard to the EU than with regard to the world, and clearly, this can occur either because of changes taking place

within the Caribbean or because of changes taking place in the EU. Turning to individual countries, we see that the highest degree of correlation with respect to both the world and the EU is for St. Vincent and the Grenadines where the correlation coefficient is close to 1. However, note that due to data constraints the base year here is 1995, so we are looking at changes over a much shorter time period. There is also a higher degree of correlation for Jamaica at over 90% in both cases, and this time over the entire time period. Staying with the remaining MDCs we see that there have been quite substantial changes for Trinidad and Tobago. The correlation coefficient with regard to the world is 0.776, whereas with respect to the EU it is only 0.472. This clearly indicates that overtime the degree of “competitiveness” at the individual product level between the EU and Trinidad and Tobago has changed quite significantly. Conversely, for Barbados, the coefficient is lower with respect to the world (0.682), than it with respect to the EU (0.8).

For the OECS islands, the picture is also somewhat mixed. The biggest change is clearly for St. Kitts, where the correlation coefficient with respect to both the world and the EU is extremely low (0.078). A closer examination of the data reveals, not surprisingly, that this is being very much driven by the changing pattern of trade in sugar. It is worth also pointing out here, that for St. Kitts, as for St. Vincent the base year is 1995, hence the change is taking place over a very short time span. St. Lucia has a high correlation over the time period (principally driven by importance of banana exports), in particular with regard to the EU. For Dominica, the degree of correlation with the EU (0.853) is lower than with respect to the rest of the world (0.93).

Tables 4.5 and 4.6, then provide more detailed information for each of the islands. In Table 4.5 we focus on the Caricom average, and also for individual MDCs. For each island, we give the index of revealed comparative advantage for those cases where the index is greater than 1, and we do this for the base year, 1985 and for 2002. The bottom row of the table gives the number of industries for which the index is greater than 1 for each year. Both tables include the entire list of industries for which any of the Caricom islands were seen to have a revealed comparative advantage in either of the two years. The purpose of including all the industries is that it facilitates comparison across the tables, and across the islands.

Table 4.5: RCA indices greater than 1 - MDCs

	Caricom		Barbados		Jamaica		T&T	
	1985	2002	1985	2002	1985	2002	1985	2002
LIVE ANIMALS				2.4				
MEAT, MEAT PREPARATIONS				1.6				
DAIRY PRODUCTS,BIRD EGGS						1.1		
FISH,CRUSTACEANS,MOLLUSC		1.8						
CEREALS,CEREAL PREPRTNS.		2.0		3.9		1.2		1.0
VEGETABLES AND FRUIT	2.1	2.2			4.0	4.1		
SUGAR,SUGR.PREPTNS,HONEY	11.2	15.4	44.4	46.6	31.2	19.4	3.4	3.0
COFFEE,TEA,COCOA,SPICES	1.2	2.4			3.7	7.8		
ANIMAL FEED STUFF								
MISC.EDIBLE PRODUCTS ETC		2.6		33.8	2.7	4.1		1.2
BEVERAGES	1.9	4.8	3.2	18.4	5.7	7.5		3.5
TOBACCO,TOBACCO MANUFACT					4.2			
PULP AND WASTE PAPER								
TEXTILE FIBRES				1.1				
CRUDE FERTILIZER,MINERAL						1.2		
METALLIFEROUS ORE,SCRAP	7.8	15.9			43.7	81.2		
CRUDE ANIMAL,VEG.MATERL.					1.0			
PETROLEUM,PETROL.PRODUCT	5.6	4.4					7.6	6.4
GAS,NATURAL,MANUFACTURED		7.4						11.1
FIXED VEG. FATS AND OILS				1.7				
ORGANIC CHEMICALS		1.6				1.4		2.0
INORGANIC CHEMICALS	5.4	10.3					7.5	15.3
DYES,COLOURING MATERIALS				4.9				
MEDICINAL,PHARM.PRODUCTS				1.1				
ESSENTL.OILS,PERFUME,ETC	1.4	1.1			3.0			
FERTILIZER,EXCEPT GRP272	4.3	5.1					6.0	7.7
PLASTIC,NON-PRIMARY FORM								
CHEMICAL MATERIALS NES				5.5				
RUBBER MANUFACTURES, NES								
CORK, WOOD MANUFACTURES								
PAPER,PAPERBOARD,ETC.				1.6				
NON-METAL.MINERAL MANFCT				3.7				
IRON AND STEEL		2.3						3.4
METALS MANUFACTURES,NES				3.0				
POWER GENERATNG.MACHINES								
TELECOMM.SOUND EQUIP ETC								
ELEC MCH APPAR,PARTS,NES	1.1		15.0	1.0				
TRAVEL GOODS,HANDBGS ETC								
CLOTHING AND ACCESSORIES			3.5		2.5			
PHOTO.APPARAT.NES;CLOCKS				1.9				
MISC MANUFCTRD GOODS NES				1.3				
Animals	1.4	5.9	19.5	90.9				
GOLD,NONMONTRY EXCL ORES		5.4						
Total	11	17	5	18	10	10	4	10

There are a number of interesting features, which emerge from these tables. First the tables identify those industries, which the data suggest the Caribbean has a “revealed” comparative advantage. However, here it is important to stress the point made earlier, that preferential trading arrangements distort trade flows, and to the extent that they do so are likely to incorrectly identify true comparative advantage. Secondly, we see, that the number of industries for which the index is greater than 1 is relatively small. For the Caricom average, there are 17 industries in 2002, and for the individual countries, the highest number of industries is 18, which is for Barbados. Thirdly, for the three MDCs included in Table 4.5 there is comparatively wide spread of industries. This indicates considerable diversity across the three islands.

The fourth feature emerges in considering each island separately. If we take Barbados, we see that in 1985 there were only 5 industries/sectors with a revealed comparative advantage, with a rise to 18 by 2002. Of the five 1985 industries, two of them had seen a decline in the degree of revealed comparative advantage. These are Electrical Machinery, and Clothing and Accessories. The remaining industries have experienced an increase in the index, which in certain cases (Beverages, and animals) is quite substantial. For Jamaica, the number of industries is the same in both years, although the composition has slightly changed with a change from a revealed comparative advantage, to a comparative disadvantage in Tobacco, Crude Animal and Vegetable materials, Essential Oils, and Clothing and accessories. The industry experiencing the biggest increase in the index is metalliferous ores. Finally, we see quite a substantial change in the composition of the industries for Trinidad and Tobago with a number of new industries emerging over the time period in question.

Table 4.6 gives the same information - this time for the OECS economies. Here we see that the number of industries for which the index is greater than 1 is typically smaller with the highest number being for St. Vincent & the Grenadines for 2002. For each country, there are less than 10 industries with a positive index of revealed comparative advantage. This highlights the degree of export concentration generally in the Caribbean, but particularly for the OECS economies. This issue of export concentration is dealt with in more detail below. The table also shows a degree of commonality across the OECS islands in the importance of fruit and vegetable, processed foodstuffs, and beverages – though precise sectors differ across countries.

Table 4.6: RCA indices greater than 1 - OECS

	Dominica		Granada		St.Kitts		St. Lucia		St Vincent	
	1985	2002	1985	2002	1995	2002	1985	2002	1995	2002
LIVE ANIMALS			1.3							
MEAT, MEAT PREPARATIONS										
DAIRY PRODUCTS,BIRD EGGS										
FISH,CRUSTACEANS,MOLLUSC				14.3					2.0	2.4
CEREALS,CEREAL PREPRTNS.				12.6	1.3				21.4	24.7
VEGETABLES AND FRUIT	41.1	28.5	31.7				46.0	41.0	34.8	44.1
SUGAR,SUGR.PREPTNS,HONEY					119.4					
COFFEE,TEA,COCOA,SPICES		1.9	45.9	96.3				2.3		2.1
ANIMAL FEED STUFF			1.1	9.0					7.4	8.7
MISC.EDIBLE PRODUCTS ETC	2.5	11.3			14.4	3.1	4.0	2.4		
BEVERAGES	1.4			1.1	6.7	1.9	8.1	29.6	2.5	5.3
TOBACCO,TOBACCO MANUFACT		1.2								
PULP AND WASTE PAPER							1.1			
TEXTILE FIBRES										
CRUDE FERTILIZER,MINERAL		16.1								
METALLIFEROUS ORE,SCRAP										
CRUDE ANIMAL,VEG.MATERL.										
PETROLEUM,PETROL.PRODUCT										
GAS,NATURAL,MANUFACTURED										
FIXED VEG. FATS AND OILS	8.4						4.4			
ORGANIC CHEMICALS										
INORGANIC CHEMICALS										
DYES,COLOURING MATERIALS	3.2	5.0		1.8						
MEDICINAL,PHARM.PRODUCTS										
ESSENTL.OILS,PERFUME,ETC	56.8	51.3	2.0	8.8						
FERTILIZER,EXCEPT GRP272										
PLASTIC,NON-PRIMARY FORM										
CHEMICAL MATERIALS NES		3.6								
RUBBER MANUFACTURES, NES						1.7				
CORK, WOOD MANUFACTURES										1.0
PAPER,PAPERBOARD,ETC.				3.3			6.4			1.2
NON-METAL.MINERAL MANFCT								5.0		
IRON AND STEEL										1.0
METALS MANUFACTURES,NES										
POWER GENERATNG.MACHINES					6.0					
TELECOMM.SOUND EQUIP ETC						1.1				
ELEC MCH APPAR,PARTS,NES					1.9	9.6				
TRAVEL GOODS,HANDBGS ETC			1.5					1.5		
CLOTHING AND ACCESSORIES			1.1				3.7	1.8	1.4	
PHOTO.APPARAT.NES;CLOCKS						1.2				
MISC MANUFCTRD GOODS NES										
Animals					12.4	16.6				
GOLD,NONMONTRY EXCL ORES										
Total	6	8	7	8	7	7	7	7	6	9

As earlier, the table is interesting in the degree of information it gives for individual islands. For example, for Dominica we see a strong revealed comparative advantage in Essential Oils, Perfumes etc, a strong but declining revealed comparative advantage in vegetables and fruit, as well as a number of new products emerging – Coffee, tea and spices, Crude Fertilisers, and Chemical Materials. For St. Lucia the sector with the biggest revealed comparative advantage is that Vegetables and Fruit. This is of course dominated by the banana industry, and we can see the decline in this index as the changes in preferences start to impact upon trade and the extent of specialisation.

Finally, it is important to emphasise again that for many Caribbean countries their access to EU markets arises from the EU's preferential trade regime, which may not bear much resemblance to underlying comparative advantage. For example, if you take the share of each product out of total exports being exported to the EU, and correlate this with the share of each product being exported to the US, the correlation coefficients for St. Lucia, St. Kitts and Dominica respectively are: -0.001, 0.008, and 0.038. Hence the pattern of exports to the EU is substantially different to that with respect to the US. The differences in preferences granted is likely to be playing an extremely important role here.

4.3.2 Decile Analysis

Tables 4.7 and 4.8 then provide further complementary information on the changing structure of trade. Table 4.7 is for selected MDCs as well as for the Dominican Republic, while Table 4.8 provides the same information for the OECS economies. For these tables we have taken each countries' trade at the 4-digit level of aggregation for a given year, and calculated the share of each 4-digit category in total trade. For a given base year we have then divided up the data into deciles. Hence, each decile contains approximately 10% of the value of trade. However, because certain product groups form a significant part of total trade certain decile groupings get dropped. Take the first panel of Table 4.7 which considers Barbados. Here we see that the base year is 1990 and the 10th "decile" accounts for 15.2% of trade. This is entirely accounted for by SITC category 0611 (Sugars, beet etc). Similarly, "decile" 8

is accounted for by the exports of SITC category 3342 (Kerosene and other medium oils).

For the years preceding and after the base year we then calculate the share of trade accounted for by the same product groups that formed the base year deciles. Hence if again look along the 10th decile row for Barbados, we see that where Sugars, beet etc, accounted for just over 15% of trade in 1990 the corresponding share of trade in 1986 was 21.7% and their share of trade in 2003 was 12.7%. Hence, here we see clear evidence of structural changes in the Barbadian economy with a marked decline in the share of the 10th decile industries. Looking along each row then gives an indication of the degree of structural change across the different deciles. For example, Take the first decile row for Barbados. The industries included here in the base are all the small export industries, which together accounted for 9.8% of exports in 1990. By 2003 these industries had increased their share of trade to 16.8% of total exports. The other big change is in decile 8 where the product or products, which formed just over 15% of trade in 1990, appear to be no longer exported in 2003.

It is also possible that in there are products, which are not exported at all in the base year, but are exported in any of the other years. The extent to which this is the case is captured in the last row of the panel for each country, entitled “new products”. This is, for example particularly important for Barbados where we see that by 2003 10% of Barbadian exports are in products, which were not exported at all in the year 1990. This suggests a fair degree of change and possibly diversification over time. If we compare this to the other countries in this table we see that for the Dominican Republic over 1997-2001 there was just 1% of trade covered in new products, for Jamaica over the 1990-2001 period less than 1% of trade, and similarly for Trinidad and Tobago.

All the economies show some evidence of structural change over the period in question. For example if we take the Dominican Republic and consider the 8th and 10th deciles together we see that in the base year (1997) the relevant industries accounted for over 40% of total trade, yet a few years later, by 2001, they only accounted for approximately 25% of trade. The big increase here appears to have occurred in the first decile. Similarly, if we look at Trinidad and Tobago, the industries in the 10th decile accounted for over 36% of trade in 1990, and by 2001, the corresponding figure is 8.7%.

Table 4.7: Decile analysis for selected MDCs

Barbados		1990 base			
Decile	1986	1990	1999	2003	
1	0.186	0.098	0.137	0.164	
2	0.129	0.099	0.101	0.099	
3	0.157	0.090	0.164	0.082	
4	0.123	0.106	0.072	0.067	
5	0.078	0.099	0.082	0.111	
6	0.069	0.070	0.121	0.135	
7	0.040	0.135	0.129	0.111	
8	0.000	0.152	0.000	0.000	
10	0.217	0.152	0.143	0.127	
New Products	0.001	0.000	0.051	0.105	
Dominica Rep.		1997 base			
Decile	1993	1997	1999	2001	
1	0.667	0.100	0.377	0.361	
2	0.036	0.093	0.115	0.129	
3	0.037	0.098	0.127	0.140	
4	0.040	0.082	0.032	0.014	
5	0.068	0.093	0.026	0.027	
6	0.034	0.132	0.057	0.064	
8	0.000	0.171	0.086	0.076	
10	0.072	0.232	0.176	0.178	
New Products	0.045	0.000	0.004	0.010	
Jamaica		1990 base			
Decile	1986	1990	1999	2002	
1	0.153	0.099	0.094	0.114	
2	0.141	0.097	0.189	0.107	
3	0.072	0.081	0.065	0.066	
4	0.110	0.066	0.073	0.050	
10	0.521	0.657	0.568	0.654	
New Products	0.003	0.000	0.011	0.009	
Trinidad & Tobago		1990 base			
Decile	1986	1990	1999	2003	
1	0.070	0.099	0.273	0.370	
2	0.066	0.079	0.098	0.099	
3	0.100	0.113	0.109	0.078	
4	0.048	0.053	0.077	0.072	
5	0.064	0.078	0.002	0.000	
6	0.091	0.082	0.105	0.089	
7	0.161	0.131	0.202	0.202	
10	0.399	0.365	0.130	0.087	
New Products	0.001	0.000	0.005	0.001	

Source: own calculations based on UN Comtrade data

Once again, the biggest positive changes appear to have taken place in the first decile where in 1990 the industries in this decile accounted for just under 10% of trade, and this had increased to 37% of trade by 2001. Again therefore, this suggests considerable structural change. Finally, if we look at Jamaica we see much more stability in the trade shares across all the decile categories.

If we then turn to table 4.7 here, we focus on the same analysis but for selected OECS countries. The first panel of the table considers Dominica, and the base year here is 1999. Once again, we see evidence of considerable change taking place. There is one industry in 1999, which accounted for 32% of exports, and that industry accounted for just over 50% of exports in 1995. By 2003, the share of that industry in exports had declined to 19%. As with the Dominican Republic, and Trinidad and Tobago, the largest increases in shares appear to have occurred in the first and second deciles who increased their shares from 9% to 13.7% and from 10.3% to 15.9% respectively. There are very few new products being exported.

There is also interesting non-monotonic evidence of change for St.Lucia. We see that 54.9% of trade is accounted for by the 10th decile (bananas) in the base year 1993. This increased to 62.6% in 1999 and then subsequently declined to 42.1% in 2003. Here it is largely the products in the 1st and 4th deciles who have seen their share of exports rise. There is also some evidence of new products being exported as these account for 5.5% of trade in 2003. St.Kitts is also interesting as we see reverse movement in the 8th and 10th deciles. Hence the 8th decile industry accounted for 55.6% of trade in 1995, this declined to 24.1% in 1999, and 16% in 2003. Conversely, the 10th decile industry accounted for 12.4% of trade in 1995, 45.3% in 1999 and 40.8% in 2003. Finally, for St.Vincent and the Grenadines we see much more stability in the decile shares with comparatively little change over time.

Table 4.7: Decile analysis for selected OECS economies

Dominica		1999 base		
Decile	1995	1999	2003	
1	0.089	0.090	0.137	
2	0.044	0.103	0.159	
3	0.048	0.069	0.071	
4	0.016	0.135	0.158	
7	0.280	0.282	0.284	
10	0.501	0.320	0.190	
New Products	0.021	0.000	0.001	
St Lucia		1993 base		
Decile	1986	1993	1999	2003
1	0.077	0.098	0.091	0.158
2	0.123	0.098	0.085	0.109
3	0.056	0.080	0.009	0.002
4	0.026	0.118	0.184	0.254
5	0.002	0.057	0.000	0.000
10	0.708	0.549	0.626	0.421
New Products	0.009	0.000	0.004	0.055
St Kitts		1999 base		
Decile	1995	1999	2003	
1	0.162	0.099	0.039	
2	0.000	0.035	0.372	
4	0.033	0.172	0.003	
6	0.556	0.241	0.160	
10	0.124	0.453	0.408	
New Products	0.125	0.000	0.018	
St Vincent		1998 base		
Decile	1994	1998	2003	
1	0.141	0.097	0.105	
2	0.078	0.101	0.148	
3	0.027	0.044	0.023	
4	0.137	0.156	0.158	
6	0.184	0.147	0.155	
10	0.367	0.453	0.409	
New Products	0.066	0.000	0.002	

Source: own calculations based on UN Comtrade data

4.3.3 The degree of export diversification in the Caribbean

In looking at the indices of revealed comparative advantage, the data indicated that the number of industries for which the region has a revealed comparative advantage is typically comparatively small. This would tend to suggest the high degree of concentration of economic activity in certain sectors. The decile analysis then provided information on the evolving structure of trade, which also indicated that in many cases there has been quite substantial change over time.

A key issue, which arises when considering the pattern of Caribbean trade, is the high degree of export specialisation. Hence, Table 4.8 shows that for the Caricom countries as a whole, for the year 2000, the top three export commodities comprise over 50% of their exports. In aggregate, these figures are of course dominated by the larger economies such as Trinidad and Tobago, and by the sectors important to the larger economies, such as Fuel and fuel products.

Table 4.8: CARICOM Top 20 Export Commodities

2000				
	Product Name	4-digit SITC code	Trade Value (\$ '000)	% share
	Total Trade	Total	4273447.168	
1	Fuel oils,n.e.s.	3344	1097420.928	25.7
2	Petrol.oils & crude oils obt.from b	3330	571364.736	13.4
3	Petroleum gases and other gaseous h	3413	554671.872	13.0
4	Oth.inorg.bases & metallic oxid.,hy	5225	359904.192	8.4
5	Motor spirit and other light oils	3341	343295.712	8.0
6	Acyclic alcohols & their halogenate	5121	267171.264	6.3
7	Kerosene and other medium oils	3342	198847.984	4.7
8	Wire rod of iron or steel	6731	154904.976	3.6
9	Iron or steel powders,shot or spong	6713	73274.136	1.7
10	Mineral or chemical fertilizers,nit	5621	60980.964	1.4
11	Non alcoholic beverages,n.e.s.	1110	42418.14	1.0
12	Sugars,beet and cane,raw,solid	0611	36112.496	0.8
13	Spirits;liqueurs, other spirituous	1124	24765.044	0.6
14	Art.of paper pulp,paper,paperboard,	6428	24403.176	0.6
15	Lubricating petrol.oils & other hea	3345	18728.48	0.4
16	Portland cement,ciment fondu,slag c	6612	16836.232	0.4
17	Edible products and preparations n.	0980	16770.323	0.4
18	Organic surface-active agents,n.e.s	5542	16664.218	0.4
19	Boxes,bags & oth.packing containers	6421	15887.418	0.4
20	Bakery products (e.g.,bread,biscuit	0484	15538.789	0.4

However the high degree of specialisation is true also of the smaller islands. For example if you look at the average over the four year period 2000-2004 for three of the OECS economies: over 90% of all exports by St.Lucia, and 63% of all Dominican exports to the EU were in bananas, and 93% of St Kitts exports were in raw sugars. Looking at the larger Caribbean economies over 2000-2003, 63% of Barbados exports to the EU were raw sugars and a further 14% in distilled alcoholic beverages (presumably rum); 66% of Jamaican exports are in “other organic bases and metallic oxides”, and a further 19% in raw sugars; 44% of Granadan exports are in spices, followed by 14% in each of “apparatus for electrical circuits”, “office machines n.e.s.”, and “electrical insulating equipment”; Trinidad and Tobago are more diversified with the biggest export category to the EU, “alcohols, phenols....” comprising only 21% of exports.

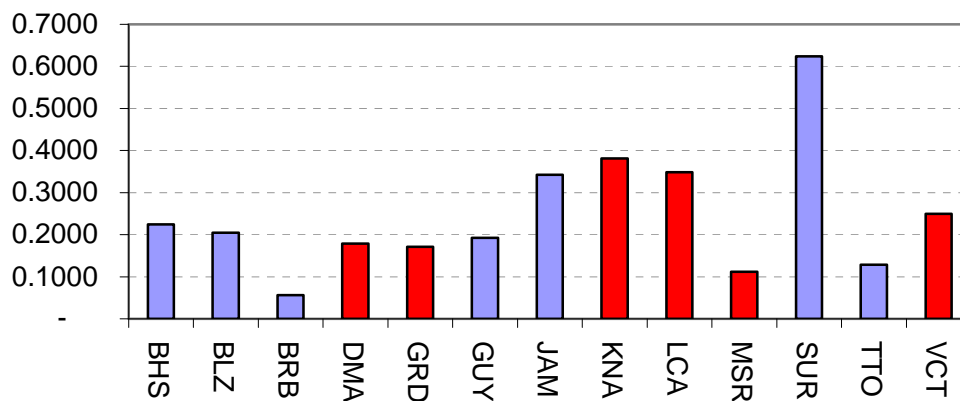
We now turn to another summary statistical indicator, which captures some of the above – the Hirschmann-Herfindahl index. This index focuses more directly on the degree of concentration of trade, and on the changes over time in the degree of concentration. Herfindahl indices have traditionally been used in economics as a measure of concentration in a particular industry. Formally, it is defined as the sum of the squares of the market shares of each firm i in an industry, and is calculated as $\sum_i s_i^2$.⁹ The Herfindahl index ranges from zero, indicating that there exist a large number of equally sized firms in the industry, to unity, indicating that there is only one firm in the industry.

This measure of concentration can also be used to compare the level of diversification of different countries’ trade regimes in two different dimensions. First, the index can be calculated using data on origin of imports and destination of exports to assess the changes in a country’s dependence on a particular market over time. For example, one might expect that countries in a customs union, or in bilateral free trade agreements to have less trading partners than countries that have multilaterally liberalised their trading regime. This was the form of the index used in Table 4.2 earlier.

⁹ Sawyer, M., *The Economics of Industries and Firms* 2nd Edition (1985) pp. 29

Secondly, the index can be used to consider the degree of product concentration of a given countries exports and/or its' imports. The change in the value of the index would indicate whether there has been any change in the in the proportional content of a country's imports and exports. In the discussion here, we focus on the export indices for the Caribbean. The reason for this is partly because our calculation show that the degree of diversification of imports is typically much higher and much more stable over time, and partly because the degree of diversification of exports gives important information on the degree of diversification of the underlying structure of production¹⁰. The Herfindahl indices have been calculated for the CARICOM countries based on both products traded and origin and destination of imports and exports respectively, using the available data from 1980-2002. Figure 4.15 below, gives the index, by product, for the Caricom countries for the year 2000. The data for the OECS countries is given in red, and for the rest of the Caribbean in blue.

Figure 4.15: Levels of export concentration in the Caribbean - 2000



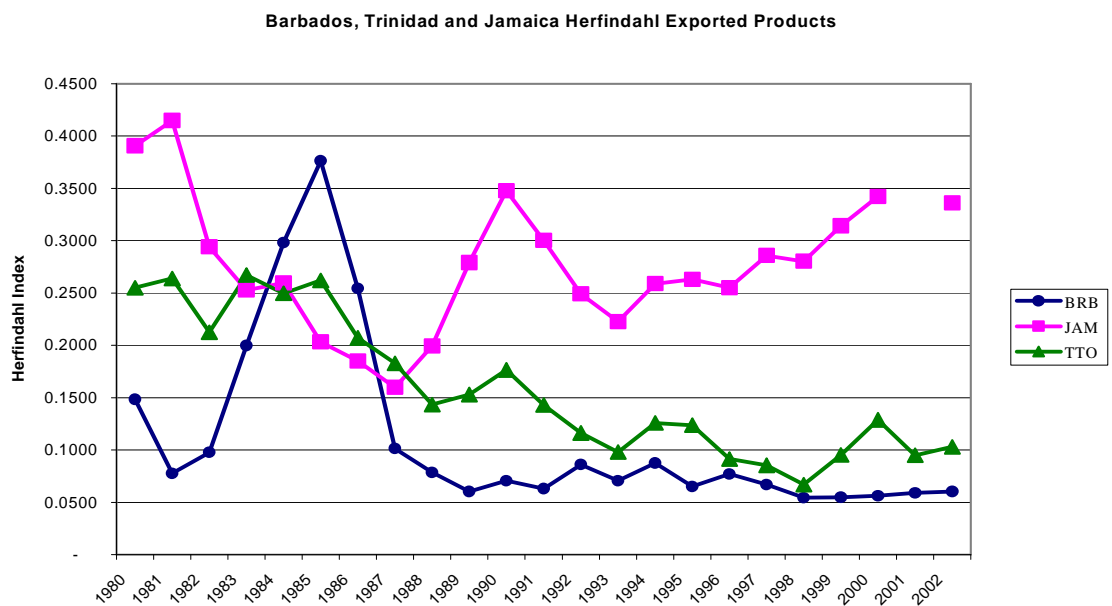
This figure indicates the high degree of export concentration of the Caribbean region. The index is highest for Suriname where the data suggests that there are less than two equivalent sized export industries, and the lowest is for Barbados which suggests just under 18 equivalent size industries. The unweighted average across all the economies represented here is less than 6 equivalent size export industries.

¹⁰ The tables of both export and import indices are given in the appendix to this chapter.

Overall then, this figure therefore serves to confirm that there is comparatively little export diversification in the Caribbean, and that most of the islands are highly dependent on a few export commodities. Interestingly, there is little evidence here that the degree of export concentration is more pronounced for the OECS islands in comparison to the other economies. St Kitts and Nevis and St. Lucia have a high degree of concentration, with less than three equivalent size export industries, while Dominica and Granada, have a level of export diversification approximately the same as the Caribbean average and Montserrat and St Vincent and the Grenadines being more diversified.

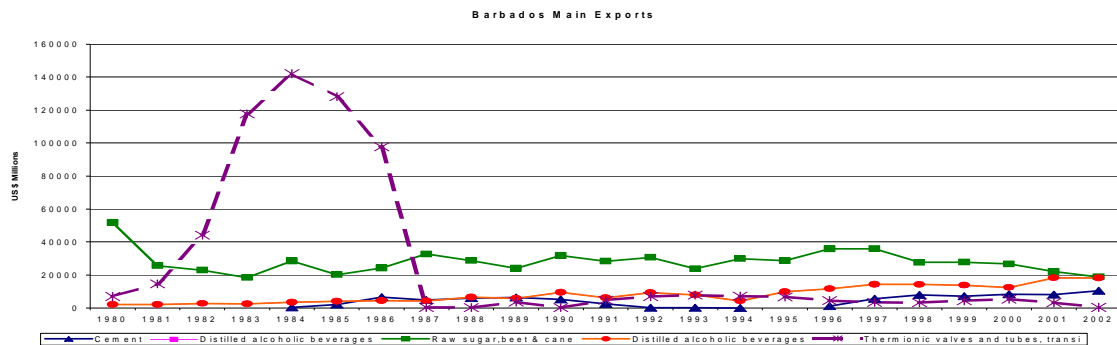
The subsequent figures indicate the changes in the Herfindahl export index over time. Figure 4.16 indicates that of the more developed CARICOM countries, Jamaica, Trinidad and Tobago, and Barbados have been able to export a larger variety of products by the end of the period under review than at the beginning. However, a closer inspection of the data does indicate that within recent years there has been little improvement in the diversification of these country's export bundles and in the cases of Jamaica and Trinidad, there has been a trend towards increasing concentration of exports since 1993 and 1998 respectively.

Figure 4.16: Herfindahl indices for Barbados, Trinidad and Jamaica



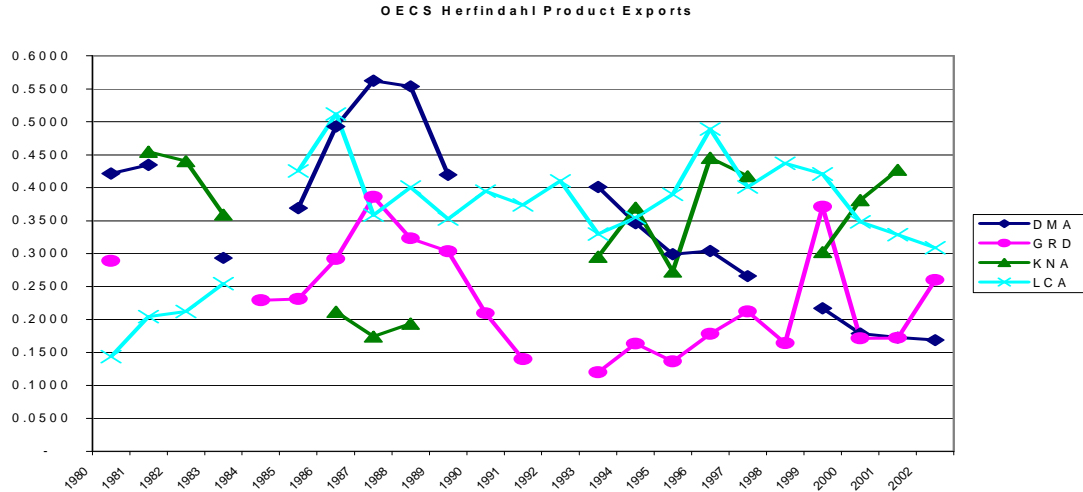
For Barbados, after a noticeable increase in the diversification of goods exported by Barbados between 1985 and 1987, there has been little change since then. The change in the Barbados export concentration can be explained primarily by a decrease in Barbados' main export product than by the increased diversification of exports. This can be seen from the graph below. The period corresponding to the rise and fall of the Herfindahl index for Barbados exports i.e. from 1982-1987 also matches the rise and fall of Barbados exports of thermionic valves and tubes which between 1982 and 1987 was Barbados main export revenue earner.

Figure 4.17 Main Exports for Barbados



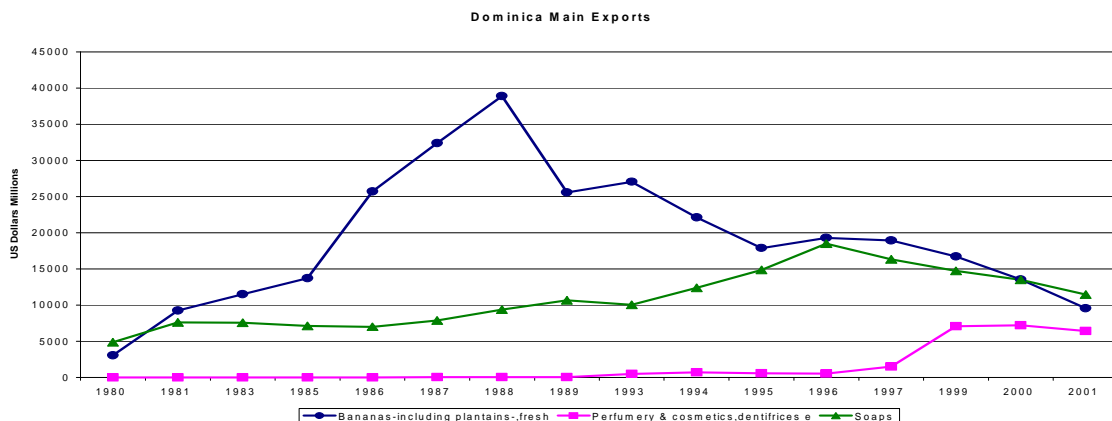
The less developed CARICOM countries are represented by 4 OECS countries for which data was available for most of the period studied. These calculations indicate that only Dominica was able to achieve a notable diversification in its export bundle at the end of the period compared to the beginning of the period. St. Kitts & Nevis and Grenada showed little change in concentration whereas the calculations for St. Lucia indicate increasing dependence on fewer exported products. For all four OECS states over the 22 year time period, the Herfindahl index of export products shows more variation than for the larger CARICOM countries.

Figure 4.18 OECS Herfindahl indices



The charts below focus in a little more detail on the OECS islands in order to provide a fuller picture for the changes over time. Figure 4.19, provides the underlying information for Dominica. Dominica has been a traditional exporter of bananas, but since 1993 when revenue from banana exports peaked, exports of perfume products have increased. Since 1997 there has also been an increase in the export of soaps and soap products, while revenue from banana exports continues to decline. Over the period then the share of banana products has fallen from about 75% of exports in 1987 to about 25% of exports in 2001.

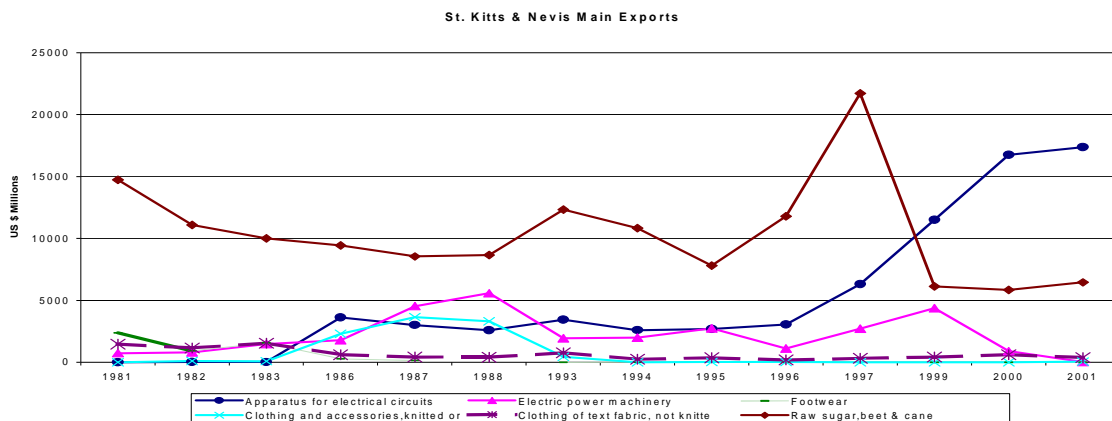
Figure 4.19 Dominica: Main export categories



This diversification of exports can be contrasted with case of St. Lucia, which actually increased the proportion of bananas exported relative to total exports. Revenue from banana exports accounted for just over 20% of exports in 1980, and

reached a maximum proportion of about 75% in 1986, but was still about 50% in 2002. St. Kitts is a special case because while the Herfindahl indices indicate that there is little change in the concentration of exports from 1980 to 2002; St. Kitts has actually managed to replace its tradition dominant export, raw sugar cane, with apparatus for electrical circuits as the graph below shows.

Figure 4.20 St Kitts and Nevis: principal exports



Sugar exports from St. Kitts have declined since the early 1980s at which time export revenue from electrical power machinery was on the rise. Although sugar exports recovered in the mid-1990s, exports of apparatus for electrical circuits also started to increase sharply by the late 1990s and they have outstripped sugar as the main export earner.

What is interesting from the preceding is that the export concentration is by no means in the same sectors across countries. Hence if one compares the top three export industries by country, there is little pattern to the industries, which emerge as being significant. This is also consistent with the discussion on the revealed comparative advantage indicators earlier.

4.4: Assessing the impact of integration

In this section of the report, we turn to analysing the extent to which it is likely that a future EPA will induce the Caribbean economies to switch their imports to more efficient suppliers and away from less efficient suppliers or viva versa. Here, the aim of the analysis is to look again at descriptive statistical indicators to see what the

evidence suggests in this regard. In Part 6 of this report we explore this more formally with the use of detailed partial equilibrium simulations.

Switching to more efficient sources of supply in principle leads to welfare gains. In the literature, this is typically referred to as *trade creation* or *trade reorientation*. Switching away from more efficient sources of supply towards less efficient sources is referred to as *trade diversion*, and typically leads to welfare losses. These terms are important in understanding the likely impact of the process of regional integration and hence are discussed in more detail below.

- **Trade creation:** this is where the change in tariffs results in an increase in net trade for one of two reasons. On the consumption or demand side, this can occur because the lower prices induce consumers to purchase more of the good at the lower price. On the supply side, trade creation occurs when the source of supply shifts from less efficient domestic producers, to more efficient importers who can now supply the market at a lower price because of the tariff reductions. Each of these effects can be seen as welfare increasing.
- **Trade diversion:** occurs when sources of supply shift away from a more efficient external supplier to the less efficient new partner country. For example, suppose that currently the US and the EU face the same tariffs for a given product in the Caribbean market, but that the Caribbean currently imports the good from the US, as their tariff inclusive price is lower. Of course if their tariff inclusive price is lower this suggests that they can supply the good more cheaply hence more efficiently than the EU. Now suppose the Caribbean signs an EPA with the EU in which tariffs on the EU export of the good are eliminated. It is now possible that the EU can supply the good more cheaply than the US which still has to pay the tariff. Hence, the source of supply will have switched away from the US (the more efficient supplier) to the EU (the less efficient) supplier. This is welfare reducing.
- **Trade reorientation:** This is analogous to trade diversion but essentially in reverse. Suppose the Caribbean countries regionally integrate, as indeed they have done. That process of regional integration is likely to generate some trade diversion. In other words that imports from (less efficient) partner Caribbean countries will have risen and substituted away from (more efficient) EU suppliers. Now, suppose that the Caribbean signs an EPA with the EU. That process of trade

diversion is likely to be reversed with trade being reoriented back to the more efficient supplier (the EU), and away from the less efficient supplier (the Caribbean). To the extent that this occurs this is likely to be welfare increasing.

In order to assess the likelihood of each of the above the analysis in this section is divided into three parts. First, we look at the structure of tariffs, as the level of tariffs is extremely important in assessing the likely impact of their subsequent removal. Secondly, we consider in great detail trade flows by source in order to build up a picture of the likelihood of trade creation, trade diversion and trade reorientation. Finally, we use Finger-Kreinin indices of trade similarity which also serve to shed light on this.

4.4.1 Tariffs

The CARICOM economies grant at least MFN treatment to all their trading partners including the EU and the US. The organization has signed preferential trade agreements with Colombia, Venezuela, Cuba and Dominican Republic, and is a participant in the Free Trade of the Americas negotiations. The CARICOM economies have made some progress in liberalising their trade regime in the 90's with the simple average tariff falling from 17.6% in 1991 to 12.25% in 2002 and by further 0.9 of a percent in the following year. Table 4.9 below gives more detailed information on tariffs by Caribbean economy, and in each a comparison is made over two years.

A number of features emerge from the table. First, it can be seen that almost all the economies have on average liberalised their tariff regime over the two comparator years. The only exception here is The Bahamas but it should be noted that the comparison (due to data availability) here is over a short time span, 1999-2002. Secondly, it is clear that the most protected sectors domestically are Food, Beverages and Tobacco, as well as consumer goods, and that these are also the sectors that have witnessed the most modest decreases in average tariffs. Thirdly, the least the protected sectors are typically Fuels and Lubricants, as well as Capital goods with the latter being the sectors which have seen the largest reductions in tariffs. Overall then levels of tariffs – and hence domestic distortions – are quite high for Food, Beverages and Tobacco products, as well as for Consumer goods, as well as to some extent for

Transport equipment. However clearly also there has been a move in recent years to attempt to liberalise the MFN trade regime.

Table 4.9: Caribbean Tariff structure

		FBT	Industrial Supplies nes	Fuels & Lubricants	Capital Goods	Transport Equipment	Consumer goods	Goods nes
Antigua and Barbuda	1996	27.0	17.8	4.7	15.3	25.1	23.3	36.3
	2003	19.9	7.5	4.2	6.4	13.8	18.1	20.5
Bahamas, The	1999	22.8	31.8	32.8	35.4	37.9	27.6	54.2
	2002	22.0	31.4	32.7	34.2	36.9	27.4	45.8
Barbados	1996	25.3	16.2	5.1	12.1	19.8	23.2	31.7
	2003	41.7	7.7	6.0	6.4	12.6	20.3	28.2
Belize	1996	26.4	16.7	5.0	12.4	20.2	23.3	47.5
	2003	23.2	7.6	3.6	6.1	12.1	18.8	28.2
Dominica	1996	23.7	16.9	2.2	14.7	19.3	23.3	35.0
	2003	26.9	8.6	3.8	5.1	12.2	18.1	21.3
Dominican Republic	1997	23.2	12.4	8.3	9.6	11.2	23.8	22.5
	2004	17.3	5.9	4.1	3.8	9.3	17.8	17.6
Grenada	1996	25.9	17.3	7.8	14.3	21.1	23.1	27.5
	2003	21.8	7.9	5.0	6.3	13.6	17.9	27.5
Guyana	1996	28.2	18.0	4.6	13.6	22.4	24.1	37.9
	2003	25.2	7.2	4.5	6.2	11.8	18.8	23.3
Jamaica	1996	27.0	16.5	6.0	12.2	17.9	22.9	22.5
	2003	21.4	2.9	2.7	1.8	9.0	17.6	13.1
St. Kitts and Nevis	1996	24.5	17.6	4.3	14.8	29.7	23.0	34.0
	2003	17.3	7.9	4.4	6.3	15.7	21.2	27.0
St. Lucia	1996	23.7	17.4	2.2	14.2	24.8	23.1	47.5
	2003	19.6	6.4	2.0	2.3	18.8	19.8	48.8
St. Vinc. & the Grenadines	1996	23.1	17.9	5.7	13.4	18.7	23.0	30.0
	2003	20.1	7.7	4.8	6.1	11.2	18.1	18.3
Suriname	1996	26.3	16.9	3.7	12.3	16.4	23.0	18.8
	2000	25.2	12.2	7.3	6.2	13.5	16.0	25.0
Trinidad and Tobago	1991	31.4	13.2	8.6	10.8	14.5	33.2	52.5
	1996	21.4	6.1	3.9	4.4	10.9	21.1	16.1
	2003	21.7	3.9	2.3	2.9	11.2	17.8	14.7

There is some evidence then that the structure of CARICOM's Common External Tariff (CET) differs between competing and non – competing imports, as well as between input, intermediate and final goods, forming a hierarchy in which non-competing goods bear the lowest tariff, while competing final goods bear the highest tariff¹¹. In 2002, the agricultural and beverages and tobacco sectors remained most protected with average tariffs of 19.55% and 37.7% respectively. Crude

¹¹ See also, CARICOM Secretariat, 2001 for a discussion of this.

materials and mineral fuels had an average tariff of just above 5%, while the tariffs on manufactured goods and machinery were around 9%. The highest manufacturing tariffs were imposed on miscellaneous manufacturing goods under SITC rev. 2 classification, such as textiles and apparel or footwear which averaged around 20%.

Clearly then where tariffs are high there is more scope for trade creation, trade diversion or trade reorientation – any of these outcomes are possible. The extent of each will be largely determined by the existing patterns of trade, and to this, we now turn.

4.4.2 A detailed analysis of trade by source

Trade creation is more likely where the partner countries already trade substantially with each other, and hence in this context where the Caribbean economies already import a high proportion of their imports from the EU. Consider the hypothetical case where all Caribbean imports currently derive from the US where the US faces the same tariffs as the EU. Clearly then the US is the more efficient supplier, and any switch to EU imports following an EPA would thus be trade diverting. Hence, the first descriptive statistic to consider the extent to which the Caribbean economies trade (import) substantially with (from) the EU. Evidence on this was already presented earlier when we consider the evolution of trade by source over time.

Hence, if we take the Caricom countries as a group of their total imports only 14% came from the EU. In contrast, the US supplied more than 39% of imports, and the combined total for Venezuela, Japan, Brazil, Canada and Mexico was just under 19%. There are of course variations across countries but even Trinidad and Tobago, which has one of the lowest share of imports coming from the US, has a 1992 share of 33%, and the share of the EU is 16.6%. The highest EU share in 1992 is for Suriname at 26.2%, and the lowest is for the Bahamas at 2.1%. The trade pattern of Dominican Republic, the only non-CARICOM EPA negotiating country, broadly follows that of CARICOM states with only one exception - Venezuela is the second biggest importer after the US, closely followed by the EU.

These statistics are very telling and certainly suggest that there would appear to be considerable potential for trade diversion, ultimately the extent to which this is the case depends on how the marginal import price is determined. Welfare losses are more likely via trade diversion, revenue loss or terms of trade effects where the non-EU suppliers comprise the sole or principal supplier. Welfare losses are also more likely when the marginal import price is determined by an elastic ROW supply schedule but the EU has a larger share¹². We do not have direct information on this, however, we can explore in considerably more detail the share of imports by individual tariff lines and establish the extent to which these imports are supplied by a sole country supplier or not. This information is provided in Table 4.10, and builds upon the analysis in Gasiorek and Winters (2004).

From the preceding discussion, it is clear that on the import side the welfare effects of any proposed EPA will depend in good measure on who is supplying given goods to the market. For our six Caribbean economies and for the year 2002, we have calculated the share of imports for each HS 6-digit product from each of four sources – CARICOM, EU15, USA and the Rest of the World. In the table, we report the number of product categories for which each of the suppliers has a share of 20%-80%, 80%-90% and over 90%. We also give the percentage of imports falling in each category and, in column (1), the total number of 6-digit headings in which imports are recorded. We interpret 20%-80% shares as indicating a shared market and over 90% as being effectively a sole supply. Hence, the first row of table 5 shows that for Trinidad and Tobago, the US supplies between 20% and 80% of the market for 1256 products, which account for 10.8% of total imports. For 775 products, the US is virtually the sole supplier with over 90% of all imports, and flows of these goods account for 6.41% of Trinidad and Tobago's total imports.

There are several important messages, which emerge from this table. First, it is only for Antigua and Barbuda that the EU is a significant “sole” supplier, where for 27.21% of total imports the EU supplies more than 90% of the market. In fact, this figure is dominated by two import categories – motor-boats and sail-boats – which between them comprise 53% of all EU exports to Antigua and Barbuda. For the remaining economies the number of headings for which the EU is the “sole” supplier

¹² See Gasiorek and Winters, 2004 for a more detailed discussion of this issue.

ranges from 8 (covering 0.03% of the total trade) for the Bahamas to 196 (0.83%) for Trinidad and Tobago; the largest share of trade with the EU as sole supplier is 4.8% for St. Kitts and Nevis. These numbers suggest that there is little scope for pure trade creation.

Table 4.10: Share of CARICOM imports by supplier – 2002

Country	%	Detail	CARICOM	EEC15	USA	ROW
Trinidad & Tobago	20% - 80%	no of products	61	733	1256	1028
		% of total trade	<i>0.570</i>	<i>9.192</i>	<i>10.803</i>	<i>8.276</i>
	80%-90%	no of products	13	58	272	171
		% of total trade	<i>0.216</i>	<i>0.827</i>	<i>3.045</i>	<i>2.234</i>
	> 90%	no of products	37	196	775	801
		% of total trade	<i>0.110</i>	<i>0.830</i>	<i>6.410</i>	<i>52.320</i>
Bahamas	20% - 80%	no of products	11	82	198	93
		% of total trade	<i>0.606</i>	<i>0.800</i>	<i>14.859</i>	<i>12.031</i>
	80%-90%	no of products	1	5	160	3
		% of total trade	<i>0.000</i>	<i>0.003</i>	<i>5.440</i>	<i>0.004</i>
	> 90%	no of products	2	8	3743	12
		% of total trade	<i>0.000</i>	<i>0.030</i>	<i>62.150</i>	<i>0.650</i>
Jamaica	20% - 80%	no of products	128	498	1469	1048
		% of total trade	<i>9.220</i>	<i>5.516</i>	<i>24.998</i>	<i>14.327</i>
	80%-90%	no of products	5	34	376	109
		% of total trade	<i>0.079</i>	<i>0.438</i>	<i>6.276</i>	<i>5.544</i>
	> 90%	no of products	15	106	1445	218
		% of total trade	<i>0.300</i>	<i>2.480</i>	<i>10.120</i>	<i>11.930</i>
St. Kitts and Nevis	20% - 80%	no of products	227	308	814	394
		% of total trade	<i>7.378</i>	<i>4.388</i>	<i>21.787</i>	<i>7.714</i>
	80%-90%	no of products	18	26	283	40
		% of total trade	<i>0.221</i>	<i>0.880</i>	<i>8.480</i>	<i>5.875</i>
	> 90%	no of products	78	96	1368	97
		% of total trade	<i>8.600</i>	<i>4.800</i>	<i>18.450</i>	<i>2.250</i>
St. Lucia	20% - 80%	no of products	282	530	1090	495
		% of total trade	<i>13.805</i>	<i>11.900</i>	<i>27.519</i>	<i>10.124</i>
	80%-90%	no of products	28	55	215	37
		% of total trade	<i>2.500</i>	<i>1.075</i>	<i>4.281</i>	<i>0.657</i>
	> 90%	no of products	84	167	987	155
		% of total trade	<i>4.290</i>	<i>1.300</i>	<i>8.910</i>	<i>4.450</i>
Antigua & Barbuda	20% - 80%	no of products	204	279	297	188
		% of total trade	<i>2.009</i>	<i>10.131</i>	<i>5.309</i>	<i>27.033</i>
	80%-90%	no of products	34	48	79	25
		% of total trade	<i>1.270</i>	<i>0.805</i>	<i>3.097</i>	<i>0.689</i>
	> 90%	no of products	469	352	403	266
		% of total trade	<i>6.210</i>	<i>27.210</i>	<i>6.050</i>	<i>3.560</i>

The three small OECS economies report a significant proportion of total trade for which the CARICOM countries supply more than 90% of the imports: St. Kitts & Nevis, 8.6%; St. Lucia 4.29% and Antigua & Barbuda 6.21%. Thus, there may be a little more scope for trade reorientation. For the remaining CARICOM economies, however, the regional share is very low. It may be that in the OECS, we are observing the transshipment from a CARICOM location of small consignments from elsewhere, but it might be that in the absence of direct transport links to the EU and USA, CARICOM output looks competitive in these economies.

Perhaps more importantly, if we look at imports from either the USA or ROW we see much higher numbers of products where these are dominant suppliers. For the US, the figures for the share of total trade so covered range from 6.05% for Antigua and Barbuda to 62.15% for the Bahamas (and in this case there are no particular industries which dominate). Given the high proportion of headings, and the high share of trade covered by those headings this would suggest considerable scope for trade diversion arising from an EPA.

Table 4.11 cross-classifies some of the information in table 4.10. Classifying headings by reporting country share between 40%-80%, we ask what are the typical shares of other suppliers. Thus if we take the first row, the products for which the EU share lies between 40%-80% account for 12.41% of total imports by Trinidad and Tobago. Of this, the EU accounts for 7.29%, CARICOM 0.03%, the US 3.55% and the ROW 1.54%. That is, where the EU has a “material share” of Trinidad and Tobago’s markets, it is almost exclusively sharing with tariff-paying suppliers. The same applies to the other countries. Thus for these industries, trade diversion is more likely than trade creation, and, because of the small Caribbean share, there is little prospect for trade reorientation. Conversely, where the USA has a material share, the EU typically supplies a quarter or less of the US amount. In a differentiated good model based on the “Armington” assumption, in which substitution possibilities are proportional to market shares this would be taken as evidence that trade diversion was unlikely to be serious, but in our homogeneous goods model such a comforting conclusion would not be warranted. In fact, the data suggest that liberalising trade with the USA may be better than an EPA because the relative importance of local Caribbean supplies in the USA’s “material-share” products opens up the prospect of trade reorientation.

Table 4.11: Shares of trade for those industries where the reporting country share is between 40-80%

Country	Reporting country	CARICOM	EEC15	US	ROW	Total
Trinidad & Tobago	EU	0.03	7.29	3.55	1.54	12.41
	US	0.23	1.65	6.57	2.37	10.81
	CARICOM	0.30	0.03	0.07	0.09	0.49
Bahamas	EU	0.00	0.18	0.18	0.01	0.37
	US	0.63	1.23	9.10	2.42	13.38
	CARICOM	0.34	0.04	0.22	0.01	0.61
Jamaica	EU	0.02	1.97	1.05	0.49	3.53
	US	6.36	3.97	20.31	6.38	37.02
	CARICOM	0.23	0.23	1.16	0.49	2.11
St Kitts	EU	0.07	1.90	1.36	0.20	3.53
	US	3.46	3.61	18.62	4.29	29.98
	CARICOM	5.49	0.33	2.07	1.35	9.24
St Lucia	EU	0.40	5.33	2.05	1.35	9.13
	US	2.51	5.45	19.80	5.30	33.06
	CARICOM	11.98	1.05	5.24	0.79	19.06
Antigua & Barbuda	EU	0.38	2.97	0.80	0.83	4.98
	US	0.72	0.96	3.96	0.60	6.24
	CARICOM	1.56	0.33	0.49	0.30	2.68

4.4.3 Finger Kreinin Indices of trade similarity

Finally, another means of exploring this issue via the use of descriptive trade statistics is the use of Finger-Kreinin indices of export (import) similarity. The FK index provides a single measure, which summarises the extent to which countries export or import structures are similar. The index ranges from 0-1, and where the index is equal to 1 this means that the export (import) structures of the pair of economies being considered is identical, and where it is equal to zero the export (import) structure has no overlap whatsoever. The mathematical formula is as follows:-

$$FK = \sum_i \min \left(\left[\frac{X_{ia}}{\sum X_{ia}} \right], \left[\frac{X_{ib}}{\sum X_{ib}} \right] \right)$$

Where $\frac{X_{ia}}{\sum X_{ia}}$ is the share of product i in country's a total exports, $\frac{X_{ib}}{\sum X_{ib}}$ is the share of product i in country's b total exports.

Suppose the FK export index is equal to 0 and suppose that export structure can be taken as a reasonable proxy for a given country's production structure. An index equal to zero suggests no overlap in the countries production and export bundles which in turn suggest no possibility for trade creation on the production side.

There remains some possibility for trade creation on the consumption side. Equally, suppose the FK export index is equal to 1. This would mean that there is a very high degree of overlap in the two countries export and production bundles which in turn suggest a higher possibility for trade creation on both the production and consumption side. However, with regard to each of these extreme cases the possibilities for trade creation will depend on from whom the importing country is initially importing. If, initially the Caribbean is importing heavily from the EU, and the EU-Caribbean FK index is high this suggest considerable scope for trade creation. If however, the Caribbean is initially importing heavily from the US, and the EU-Caribbean FK index is high this suggests that there is likely to be considerable trade diversion. Where the FK index is low, then the only possibility for trade creation is on the consumption side, and again this will only occur where EU exports to the Caribbean are high.

Table 4.12 gives the FK export index for all our bilateral pairings for the year 2000, calculated at the 4-digit rev2 SITC level. Consider first the bottom right hand corner of the table where we see the FK index between the EU and the US. The index is 0.691 which suggests a high degree of overlap between the US and the EU, therefore considerable scope for gains from trade between this pair of countries. Note also that high index of similarity also suggests that these countries exports are likely to be substitutes and again suggests the possibility for trade diversion. The fifth column, along the bottom two rows of the table, then give the FK index between Caricom and the EU and the US respectively. We see that the index is now 0.286 with respect to the EU, and 0.266 with respect to the US. This is considerably lower and suggests less scope for trade creation on the production side.

However, this average figure masks considerable diversity among the Caribbean economies. If we consider the individual FK indices by country, we see that for the majority of the Caribbean economies there is extremely little overlap in export (and therefore probably production) bundles. For many of the economies the index is considerably below 0.1. If we couple this with the statistics earlier on imports by source we can see that there is very little evidence to suggest that for many of these economies there is much scope for trade creation either on the production or consumption side. This is not always the case. Trinidad and Tobago for example have a higher share of imports coming from the EU, and have an FK export index with the EU of 0.334. Similarly Barbados has one of the higher shares of imports accounted

for by the EU (17.4%), and has an FK index of 0.225. For these two economies, there is perhaps a greater likelihood of trade creation than for the other economies, but the figures nevertheless suggest that the extent of this is likely to be low.

As well as looking at the FK index at a given moment in time, it is instructive to consider its' evolution over time (not reported here). Looking at these, the analysis shows that the exports of the OECS countries are more similar with each other than with the other CARICOM members. For the period 1980-2002, the FK index for Dominica and St. Lucia has been consistently higher than that between Dominica and Barbados or St. Lucia and Barbados.

Looking at imports we find that, imports by the CARICOM islands have a much higher degree of similarity for all the island pairs than exports. Secondly, generally the OECS states share similar imports with each other than with the other CARICOM countries even though, St. Lucia's import bundle was as similar in content to Barbados's by the end of the period as it was with Dominica and Grenada, and the trend has been toward increasing similarity. Thirdly, while exports from OECS states are more similar with each other than with the other CARICOM states, there has been a trend towards increasing dissimilarity. Dominica's exports have become increasingly dissimilar to that of St. Lucia and St. Vincent, but more similar to Barbados, Jamaica and Trinidad and Tobago. Indicating that some OECS countries have been successful in reducing their dependence on traditional export products but others have not. Fourthly, the results for the MDCs indicate that Jamaican imports are more similar in content to Barbados than any other island, and have become more similar with the smaller OECS islands than with Trinidad. Jamaican exports are more similar in content with the other MDCs than with the LDCs. Although the trend has been increasing similarity with Trinidad for most of the period, and decreasing similarity with Barbados since about 1988.

2000	ATG	BHM	BLZ	BRB	CARICOM	DMA	DOM	GRD	GUY	JAM	KNA	LCA	MSR	SUR	TTO	VCT	EEC	USA
ATG	1	0.181	0.053	0.158	0.205	0.065	0.046	0.028	0.071	0.054	0.050	0.062	0.012	0.082	0.249	0.080	0.059	0.033
BHM	0.181	1	0.184	0.117	0.211	0.012	0.037	0.004	0.076	0.046	0.012	0.007	0.003	0.109	0.237	0.018	0.046	0.036
BLZ	0.053	0.184	1	0.197	0.249	0.144	0.159	0.011	0.290	0.113	0.220	0.131	0.003	0.127	0.236	0.124	0.034	0.022
BRB	0.158	0.117	0.197	1	0.340	0.135	0.213	0.086	0.232	0.187	0.245	0.138	0.123	0.085	0.352	0.109	0.225	0.202
CARICOM	0.205	0.211	0.249	0.340	1	0.200	0.297	0.185	0.407	0.464	0.223	0.194	0.158	0.362	0.740	0.218	0.286	0.266
DMA	0.065	0.012	0.144	0.135	0.200	1	0.113	0.027	0.016	0.074	0.005	0.305	0.003	0.049	0.246	0.330	0.053	0.036
DOM	0.046	0.037	0.159	0.213	0.297	0.113	1	0.051	0.123	0.214	0.102	0.096	0.035	0.058	0.293	0.096	0.159	0.121
GRD	0.028	0.004	0.011	0.086	0.185	0.027	0.051	1	0.045	0.029	0.201	0.017	0.004	0.039	0.237	0.133	0.068	0.069
GUY	0.071	0.076	0.290	0.232	0.407	0.016	0.123	0.045	1	0.259	0.235	0.016	0.009	0.400	0.256	0.124	0.072	0.056
JAM	0.054	0.046	0.113	0.187	0.464	0.074	0.214	0.029	0.259	1	0.088	0.061	0.008	0.639	0.312	0.064	0.082	0.058
KNA	0.050	0.012	0.220	0.245	0.223	0.005	0.102	0.201	0.235	0.088	1	0.043	0.015	0.040	0.253	0.059	0.067	0.055
LCA	0.062	0.007	0.131	0.138	0.194	0.305	0.096	0.017	0.016	0.061	0.043	1	0.009	0.048	0.249	0.507	0.058	0.051
MSR	0.012	0.003	0.003	0.123	0.158	0.003	0.035	0.004	0.009	0.008	0.015	0.009	1	0.032	0.238	0.007	0.236	0.201
SUR	0.082	0.109	0.127	0.085	0.362	0.049	0.058	0.039	0.400	0.639	0.040	0.048	0.032	1	0.257	0.085	0.062	0.062
TTO	0.249	0.237	0.236	0.352	0.740	0.246	0.293	0.237	0.256	0.312	0.253	0.249	0.238	0.257	1	0.260	0.334	0.305
VCT	0.080	0.018	0.124	0.109	0.218	0.330	0.096	0.133	0.124	0.064	0.059	0.507	0.007	0.085	0.260	1	0.067	0.048
EEC	0.059	0.046	0.034	0.225	0.286	0.053	0.159	0.068	0.072	0.082	0.067	0.058	0.236	0.062	0.334	0.067	1	0.691
USA	0.033	0.036	0.022	0.202	0.266	0.036	0.121	0.069	0.056	0.058	0.055	0.051	0.201	0.062	0.305	0.048	0.691	1

Table 4.12 Bilateral Finger-Kreinin Indices

Overall then, the results thus show that imports by countries in the region are more similar than exports and the LDCs, in particular, the OECS countries show a trend towards increasing similarity of imports with the MDCs in the region. While Dominica, St. Lucia and St. Vincent share strong similarities in the content of their imports and exports, the trade content of all the OECS states are not similar. In particular, exports from St. Kitts show a stronger similarity with that from Barbados and Jamaica than with the other OECS states.

In summary then in this section of the report we have looked at the structure of the Caribbean economies' trade in order to assess the likelihood of trade diversion, trade creation, and trade reorientation arising from the signing of an EPA. The conclusions, which emerge from this analysis, are that the removal of tariffs bilaterally with the EU is likely for many of the economies to result in considerable trade diversion, and is less likely to result in significant trade creation. This issue is taken up more formally in Part 6 of this report when we use a partial equilibrium modelling structure in order to simulate the possible changes in trade flows.

4.5 Summary and Conclusions

In this part of the report we have examined a number of features of Caribbean trade. The purpose of this analysis was three-fold. First to establish which are the key trading partners for the countries of the region, and to see the extent to which there is any change over time with respect to these partners. Here the analysis indicated that there is considerable diversity across the Caribbean islands with regard to their trade patterns. Nevertheless, what is clear is that in terms of exports to the Caribbean the EU is typically not the most important supplier. The most important supplier by far is the US, and in many intra-regional supplies are also important though this is largely accounted for by the importance of the exports of petroleum and other products by Trinidad and Tobago. This has important implications for the opening up of Caribbean markets on a preferential basis to EU suppliers as it strongly suggests the possibility of trade diversion. When looking at destination markets the analysis indicated that for a number of islands the EU was relatively more important. In looking at the pattern of changes over time we saw again that the pattern was mixed across the countries of the region, with the country experiencing the biggest increases

in exports and imports being Trinidad and Tobago. The experience of the OECS economies is typically varied both by partner and reporting country.

Secondly, this part of the report focussed on the structure of trade. Here the analysis indicated that for most of the countries in the region exports are heavily concentrated in a small number of sectors, and closely related to this that there is only a small number of sectors for which the countries appear to have a revealed comparative advantage. Concentration on a few sectors is perhaps not very surprising given the relatively small size of many of the Caribbean economies. Of relevance here however, is that for several of the economies, and in particular the OECS islands the dominance of particular export sectors has been driven by the preferential access given to the countries, for example by the EU. The erosion of those preferences with changes taking place in GSP regimes, changes in particular protocols such as for sugar and bananas, and the progressive liberalisation of trade barriers are likely to have significant implications for a number of islands. This can already be seen in the changes taking place with regard to exports and production in islands such as St. Lucia, Dominica, St. Kitts & Nevis, and St Vincent and the Grenadines. Where export production is highly concentrated and is subject to a changing and significantly more challenging external environment than this will result in structural change with a concomittant economic and social impact for these islands. As has therefore been widely recognised there is a need to carefully manage that change in terms of flanking policies, in terms of development assistance and aid, and in terms of the timing and transition periods allowed for in trade policy.

Much of the above is particularly relevant when considering the impact of the changes in trade policy currently taking place, for the Caribbean and OECS economies' export markets and hence production structures. The final section of this part of the report focussed on relevant descriptive statistics which shed light on the implications for the Caribbean economies of the preferential liberalisation of their import markets. The conclusions emerging from this analysis is that there is clearly considerable scope for trade diversion arising from preferential trade liberalisation with the EU. This is as a result of the height of the Caribbean tariffs, the relative importance of non-EU suppliers to the Caribbean market, and from the lack of overlap in export structures between the Caribbean countries and the EU, as well as across the Caribbean countries.

The overall picture that emerges therefore is that there is considerable diversity across the Caribbean region. Despite that diversity, changes in external trade relations are likely to impact significantly on the region in terms of exports and production and particularly for those economies heavily dependent on the existing preference structure. Preferential liberalisation with the EU, as is likely under an EPA, is unlikely to lead to significant welfare gains because of the consequences of trade diversion. What does this suggest in terms of policy options for the region? What is clear is that in many cases existing export and production structures are based on historical preferences granted and are unlikely to reflect true comparative advantage. There are therefore long run welfare gains, and reductions in poverty to be attained via a process of trade liberalisation, structural adjustment and integration into the world economy. The more widespread and multilateral is the process of trade liberalisation the more likely it is that the economies production structures will move towards those areas and sectors where they have a comparative advantage. This could of course be either in manufacturing or in services. Given the size and location of many of the economies, it is also more likely that there will be gains in efficiency and flexibility arising from the furthering of the process of Caribbean regional integration.

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