The Impact of EU Bilateral Trade Agreements with Third Countries on the Caribbean Rum Sector

Report for the Commonwealth Secretariat

Prepared by

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While the technical analysis and results presented here are finalised, this version of the report has not been copyedited.

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Abbreviations

ACP	African, Caribbean and Pacific
AfT	Aid for Trade
AVE	*Ad Valorem* Equivalent
CIF	Cost, Insurance and Freight
CN	Combined Nomenclature
EDF	European Development Fund
EU	European Union
FTA	Free Trade Agreements
GDP	Gross Domestic Product
HL	Hectolitre
ILO	International Labour Organization
MFN	Most-Favoured-Nation
US	United States
WDI	World Development Indicators
WIRSPA	West Indies Rum and Spirits Producers' Association

Executive summary

Caribbean countries and some other rum producers currently enjoy tariff preferences in the EU. However, a number of planned or concluded FTAs between the European Union (EU) and third countries threatens to erode such preferences. If these third countries do not face duties in the EU, EU importers will face an increase in the relative prices of Caribbean rum which will affect Caribbean rum exports. This paper examines the quantitative effects of EU free trade agreements (FTAs) on the Caribbean rum sector. It suggests that if the EU agrees an FTA with Central America, Peru, Colombia and Mercosur, Caribbean rum exports would decline by 3% equivalent to € ¾ million each year, affecting individual Caribbean countries such as Guyana particularly badly. Full trade liberalisation would lead to losses of 5.5% or €1.3 million. The effects would be greater if third countries fulfil their quota under which they can export duty free, which is increasingly likely. Aid for Trade (AfT) is intended precisely to address such instances of trade preference erosion. It can help the Caribbean to adjust, either by making Caribbean producers more productive or by encouraging diversification.

Broadly speaking, there are four factors that determine the extent to which individual Caribbean countries are vulnerable to preference erosion: (i) the extent of the trade shock; (ii) the behavioural response in terms of trade patterns; (iii) the exposure of individual countries to the changes in trade patterns; and (iv) the resilience of individual countries to respond to the changes in trade patterns. We show this in table ES1.

Table ES 1 What factors increase the vulnerability of Caribbean countries to preference erosion in the market for rum following EU FTAs with third countries?

Vulnerability area		**Which countries**
Broad area	**Specific area**	
The extent of the trade shock	The more "third" countries are included in FTAs with the EU	All Caribbean (but some compete more with some third countries than others)
	The greater the quota awarded to the third countries and the greater their tariff decrease. Quota set by EU may be more important than FTAs in determining the extent of the trade shock	All Caribbean (but some compete more with some third countries than others)
The magnitude of the behavioural response	The higher the price sensitivity of rum imports by source and between rum and other categories. Estimate is -0.36. A 10% increase of Caribbean relative prices decreases 3.6% Caribbean relative quantities.	All Caribbean
The exposure to the change in terms of trade	1) The greater the country rum exports in total Caribbean exports 2) The greater the loss in that rum category in the Caribbean country's export structure. 3) With full quota utilisation, exposure to the categories 22084051 and 22084099 in particular is important.	Highly vulnerable: Barbados and Guyana. Intermediate vulnerability: Jamaica, Trinidad and Tobago, and Dominican Republic (see text and Tables 12-15 for details)
The resilience to respond to the shock	The lower the GDP per capita The weaker the institutional capacity to respond	Amongst the most vulnerable countries, Guyana is the least resilient because of the lower level of GDP per capita.
	The fewer finances (incl. Aid for Trade) to respond	Depends on which countries receive aid for trade.

Individual Caribbean countries are therefore more vulnerable: the more “third” countries are included in FTAs with the EU; the greater the market share of those countries in rum categories exported by Caribbean countries; the greater the quota awarded to the third countries and the greater their tariff decrease; the higher the price sensitivity of rum imports by source and between rum and other categories; the greater the country exports in total Caribbean exports in a specific rum category; the greater that rum category in the Caribbean country’s export structure; the lower the GDP per capita; the weaker the institutional capacity to respond; and the fewer finances (incl. Aid for Trade) to respond.

This paper examines these issues in some detail. At the heart of the analysis lies new econometric evidence suggesting that rum imports (in four rum categories covering 100% of protected rum imports into the EU) are sensitive to price changes across sources of supply. We estimate a statistically significant price elasticity of -0.36. This means that a 10% increase of the relative price of Caribbean rum would lead to a 3.6% decrease in the relative volume from the Caribbean. In other words, if the preferences faced by third countries change, Caribbean exporters will be affected. In addition to new econometric evidence, we analyse detailed trade data.

We estimate the relative Caribbean price change and corresponding expected relative quantity change due to FTAs (see table ES2 for a summary). The greater the number of countries receiving zero tariffs in the EU, the greater the effects on CARIFORUM. CARIFORUM exports around € 25 million to EU in four rum categories (trade codes: 22084011, 22084039, 22084051 and 22084099). Using detailed trade data analysis, we estimate that a full liberalisation scenario, where the EU grants duty-free access for rum imports to all countries in the world, would decrease CARIFORUM exports by up to 5.5%, corresponding to €1.3 million per year. If the EU agrees an FTA with a limited number of countries such as Central America, Peru, Colombia and Mercosur countries (Argentina, Brazil, Venezuela, Paraguay and Uruguay), exports would decrease by up to 3%, corresponding to €715,000 per year.

If FTAs were restricted to Central America, Peru and Colombia only, we calculate that rum exports could decrease of up to 0.15%, corresponding to €38,000 per year. This is based on the currently low share of these countries in the EU market; however, the share is increasing fast with large potential. Moreover, the quotas granted to Central America, Peru and Colombia in the bulk rum categories 22084051 and 22084099 are large. For example, if we assume that these quotas are fully utilised, these countries would expand their market share from 0% to up to 47% in the category 22084051 and from 1.7% to up to 7% in the category 20084099. The scenario where Central America, Peru and Colombia are increasingly able to fill their quota is quite plausible, given the recent substantial increase of Central America rum exports from € 5 to 25 million over the period 20006 – 2011 in the CN rum category 220840.

If Central America, Peru and Colombia fill the quotas granted by the EU at the expense of CARIFORUM countries, the result would be a reduction of up to 14% in CARIFORUM exports, corresponding to about €3.4 million per year. If quotas were granted to Central American countries, Peru and Colombia and duty-free access to Mercosur, the loss for CARIFORUM countries would be up to 16.5% of exports, corresponding to about €4 million.

As suggested in the framework in table ES1, different Caribbean countries face different vulnerabilities. The Caribbean countries most vulnerable to FTAs with full quota utilisation include Guyana and Barbados, as they are the most exposed to EU exports in rum categories subject to quota (CN 22084051 and 22084099). Further, rum exports is a particularly important category in merchandise exports in Antigua and Barbuda, and Barbados, of medium importance for Guyana, Jamaica, and St Kitts and Nevis, and less important for Belize, Dominican Republic, Dominica, St

Lucia, St Vincent, Trinidad and Tobago. In terms of resilience, Guyana is amongst the least resilient to such trade shocks given its low levels of GDP per capita.

CARIFORUM producers knew when the 'zero-for-zero' agreement on white spirits was concluded in the 1990s that they would face preference erosion, as their production costs increased with inflation and their products exceeded the price point and were graduated out of the protected rum categories. However, with the new bilateral trade agreements being pursued by the EU, Caribbean producers are now faced with additional preference erosion, which will affect individual countries such as Guyana, Dominican Republic, Barbados, and Jamaica. Aid for Trade (AfT) can help the Caribbean to adjust, either by making Caribbean producers more productive or by encouraging diversification.

Table ES2 Estimated costs of liberalisation for Caribbean rum exporters, by type of liberalisation

EU FTA / liberalisation scenario	Annual estimated losses for Caribbean	Estimated declines in Caribbean rum exports
Full trade liberalisation	€1.3 million	5.5%
FTA with Central America, Peru, Colombia and Mercosur	€715,000	3.3%
FTA with Central America, Peru and Colombia	€38,000	0.15%
FTA with Central America, Peru and Colombia and full utilisation of quotas (ie increased market access)	€3.4 million	14%
FTA with Central America, Peru, Colombia and Mercosur and full utilisation of quotas (i.e. increased market access)	€4 million	16.5%

1 Introduction

The rum industry is important for the Caribbean region, providing valuable foreign exchange earnings, government revenues and quality jobs, often in rural areas where there is little or no other industrial activity. As an export-focused industry, changes in access arrangements in key markets such as the EU can have a potentially large impact. In the light of the EU's Association Agreements with Central America, Peru and Columbia, and the arrangements currently under negotiation such as those with India and Mercosur, this paper undertakes an impact assessment study in order to examine the effects of evolving trade policy changes on CARIFORUM rum producers and exporters.

The rum industry in the Caribbean (and in some other countries) benefits from preferences in the EU. This study will examine the potential economic impact on the CARIFORUM (Caribbean and Dominican Republic) rum sector of the concessions granted in trade agreements with Central America, Colombia and Peru and of similar concessions that would affect the CARIFORUM rum sector if granted under newly negotiated FTAs with Mercosur. A trade agreement between the EU and third countries will make the price of non-CARIFORUM rum cheaper *vis à vis* the CARIFORUM price. The relative deterioration in the CARIFORUM price will lead to a decrease in the region's share of the EU market, and an increase in the market shares of non-CARIFORUM competitors.

The structure of the paper is as follows. Section 2 provides background information on the rum sector, especially for CARIFORUM countries. Section 3 describes the methodology that we use to analyse the potential impact for CARIFORUM countries of EU concessions to third countries. Section 4 discusses the empirical results. Section 5 concludes and provides policy implications.

2 Background information on the rum sector in CARIFORUM countries

Hunte (2012) finds that the rum market is an important pillar of the Caribbean economy. The Caribbean rum industry provides employment for over 10,000 people and indirectly supports the livelihoods of many more. According to WIRSPA the total number of employees, including direct and indirect effects, in the rum industry is 100,000 (WIRSPA, 2012), suggesting that one employee in the rum sector generates nine indirect employees.

As the total employment in a sample of Caribbean countries excluding Haiti, St Kitts and Nevis and St Vincent and the Grenadines[1] is 6.5 million, and as WIRSPA reports that rum employees in these countries total some 10,000, we estimate that the rum sector including direct and indirect employment effects accounts for about 1–1.5% of total employment in the Caribbean countries. But the sector is more important for some countries, such as Guyana and Barbados, with employment in the rum market as a percent of total employment of 4.6% and 2.7% respectively. Productivity in the rum sector can be expressed as litres of pure alcohol produced per employee. Table 1 suggests that Trinidad and Tobago, Barbados and Dominican Republic are the most productive countries in the region.

Table 1. Employment, production and productivity for the rum market in the Caribbean region

	Total employment	Direct employment in the rum market	% of the rum market (direct and indirect effects) in total employment	Rum production (litres of pure alcohol)	Productivity (litres of pure alcohol/ employment in the rum market)
Antigua and Barbuda	38,870	51	1.31	314,300	6,163
Bahamas	176,330				
Barbados	143,700	331	2.30	15,712,294	47,469
Belize	122,520	75	0.61	258,705	3,449
Dominican Republic	3,653,946	1,624	0.44	31,800,000	19,581
Dominica	24,811	30	1.21		2,733
Grenada	41,880	112	2.67	380,450	3,397
Guyana	279,100	1,283	4.60	17,027,541	13,272
Haiti		340		2,123,248	6,245
Jamaica	1,261,300	1,373	1.09	22,652,706	16,499
St Kitts and Nevis					
St Lucia	80,590	138	1.71	600,319	4,350
St Vincent and the Grenadines		29		450,977	15,551
Suriname	133,300	91	0.68	568,300	6,245
Trinidad and Tobago	622,400	466	0.75	27,000,000	57,940

Source: LABORSTA ILO statistics for total employment, WIRSPA for employment and production in the rum industry. Cells are empty for missing data.

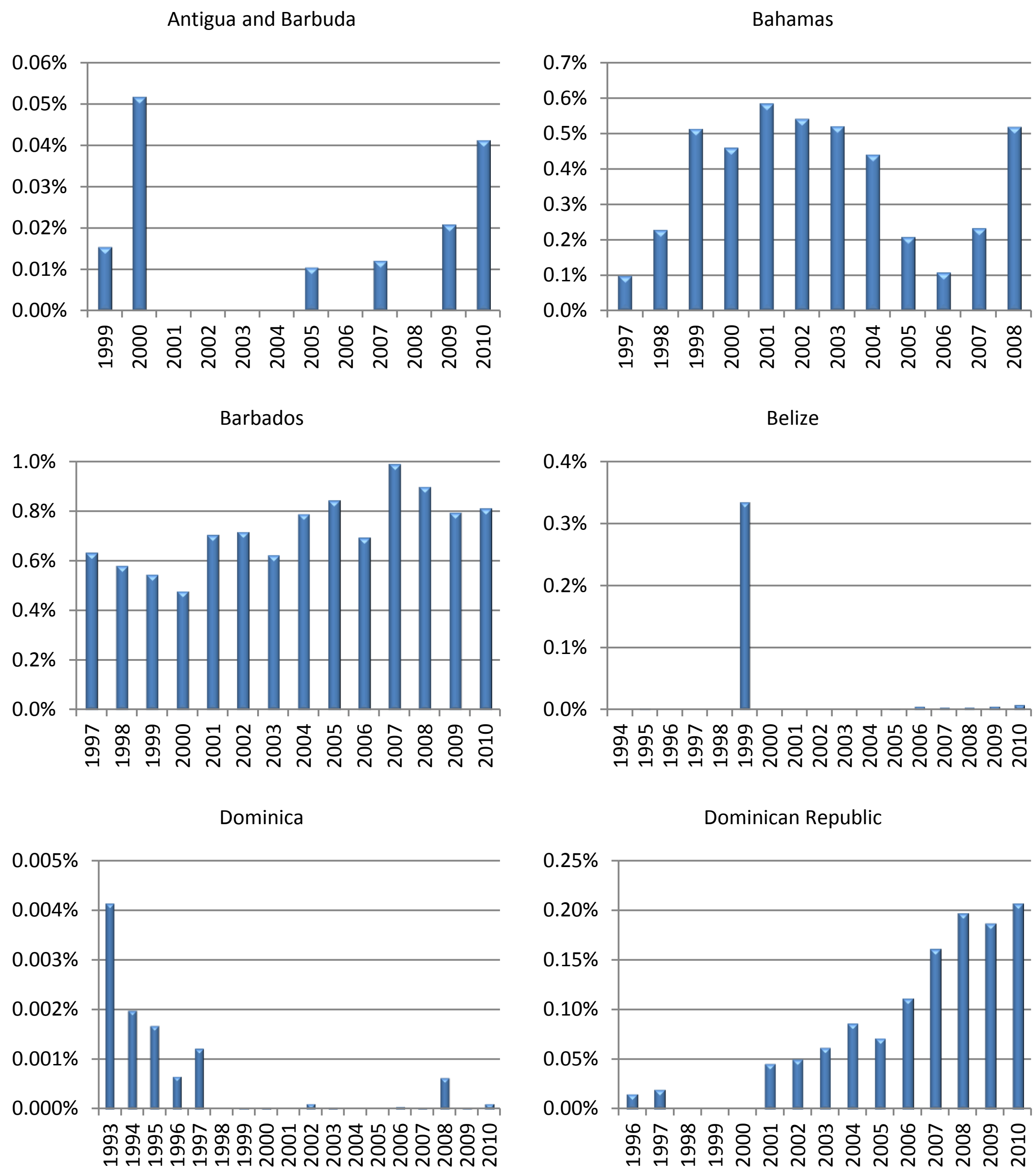
At a regional level, the alcoholic beverages industry in the Caribbean is the fourth largest non-service-sector earner of foreign exchange after sugar, bauxite and bananas. The rum sector plays an important role in agriculture and manufacturing; according to WIRSPA it provided US$ 500 million in foreign exchange in 2008.

WIRSPA estimates that the domestic (i.e. Caribbean) market represents about 40% of exports in quantities. If we assume that in values the domestic market could lie in the range 20% - 60%, we estimate that the

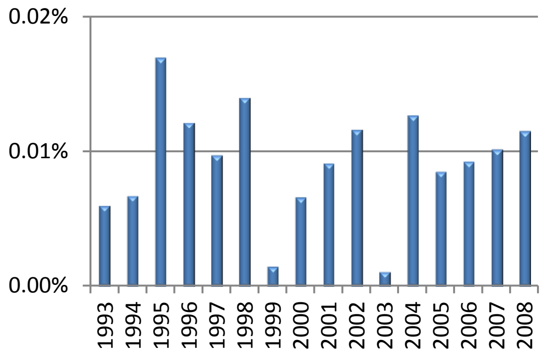
1. These countries are not included in the LABORSTA ILO database list of countries.

domestic market value lies in the range US$ 100 - 300 million, and that therefore the overall Caribbean rum market is worth about US$ 600 - 1000 million. This would correspond to about 0.5 - 1% of the Caribbean Gross Domestic Product (GDP) – US$ 117 billion in 2008 according to the World Bank's World Development Indicators (WDI) – and 1.50 – 2.50% of the CARIFORUM industrial sector (equivalent to about 35% of the Caribbean economy according to WDI). For some CARIFORUM countries the rum market is more important than the Caribbean average. The most striking case is Guyana, where rum exports represent about 1.5% of GDP and the overall rum market including domestic and foreign exchanges about 2.3% of GDP (Figure 1).

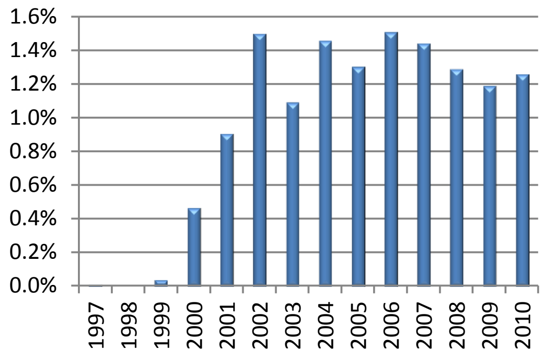
Figure 1. Total rum exports as a percentage of GDP



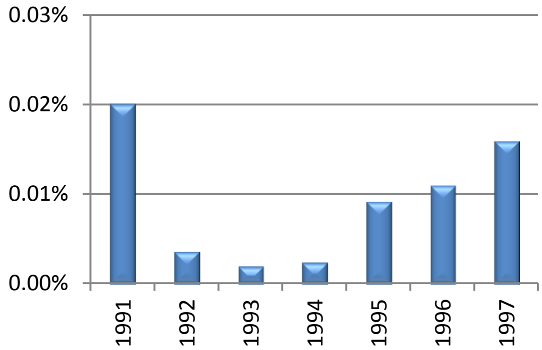
Grenada



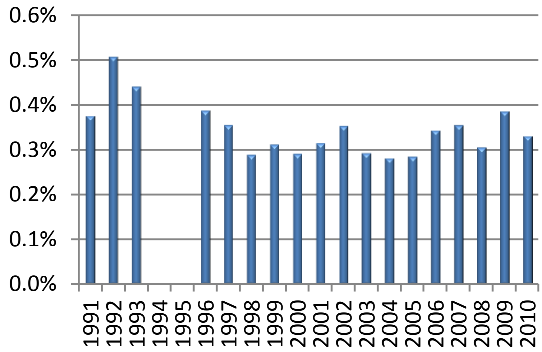
Guyana



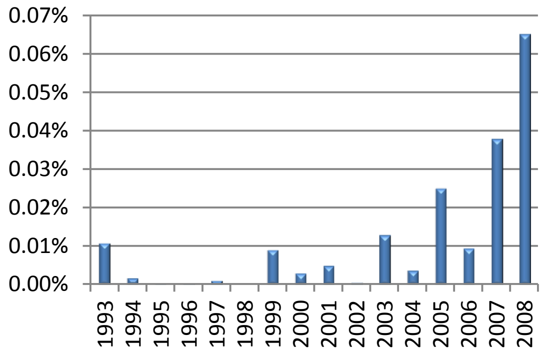
Haiti



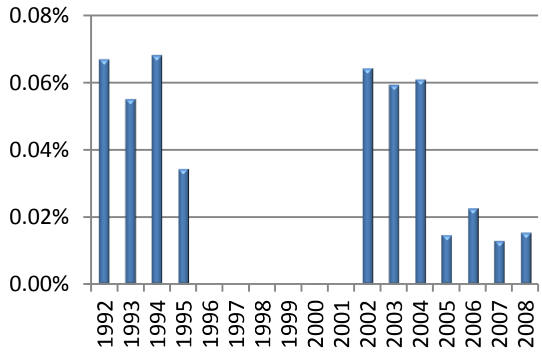
Jamaica



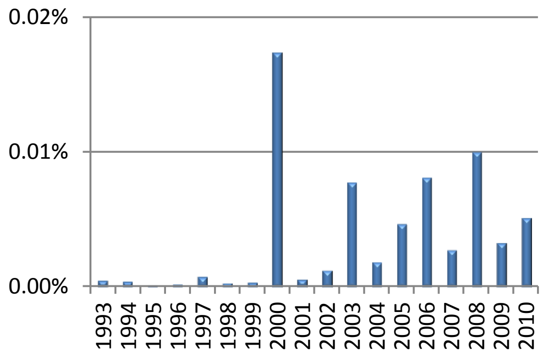
St Kitts and Nevis



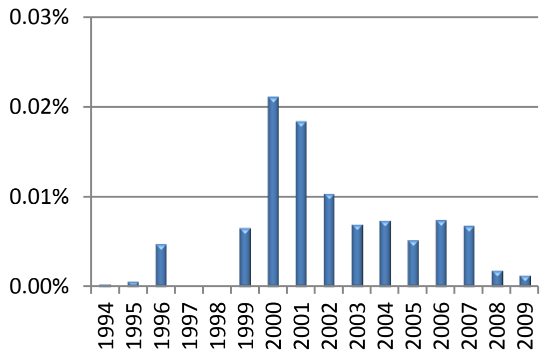
St Lucia

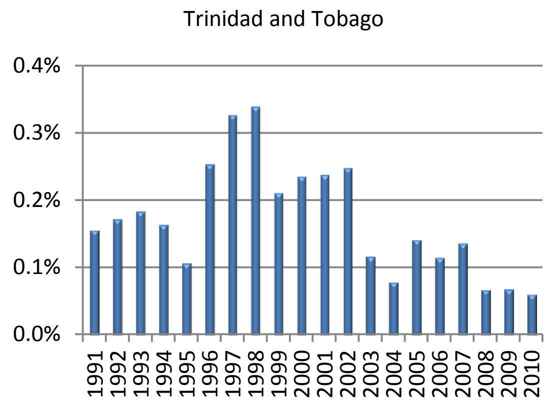


St Vincent and the Grenadines



Suriname





Sources: World Bank, World Development Indicators database; UN COMTRADE database.

We estimate that the poverty incidence rate in CARIFORUM countries is about 19%, corresponding to about 5 million people, and that in the extreme hypothesis that the rum market in CARIFORUM disappeared, the drop in GDP *per capita* deriving from direct effects would increase the number of poor people by 40,000. We base our calculation on the estimates of Lenagala and Ram (2010) that the elasticity of poverty to income, representing the percentage decrease/increase of poverty levels deriving from a percentage increase/decrease of GDP *per capita* lies in the range 0.96–1.42. For our calculations we take a value of 1.20. If we assume that the indirect effects of the rum market on the overall economy are ten times higher than the direct effects, as WIRSPA estimates for employment, we arrive at the conclusion that the rum market saves up to 400,000 people from poverty in CARIFORUM countries.

Some estimates suggest that the rum industry in CARIFORUM generates US$ 250 million in tax revenues.[2] According to the Economic Commission for Latin America and the Caribbean (ECLAC),[3] tax revenues in Caribbean countries are about 15% of GDP, corresponding to about US$ 17 billion. This means that the rum market represents about 1.5% of the Government budget.

Total exports from the Caribbean (excluding Guyana and Suriname, for which data are not available in WDI) amount to US$ 50 billion. We estimate that the overall rum market (including all rum categories) accounts for around 1.4% of total CARIFORUM exports, including goods and services. The countries with the highest dependence on rum exports are Antigua and Barbuda, Barbados and Jamaica – in which the share of rum in total goods exports is 29.9%, 13.3%, and 3.8% respectively (Table 2). These countries will therefore also be the most vulnerable to external shocks to the rum market.

The EU is a crucial commercial partner for CARIFORUM countries. Table 3 suggests that for eight out of the 15 CARIFORUM countries it is a more important market than Canada and the United States (US) for all rum categories. Appendix 1 contains a detailed breakdown of markets for CARIFORUM rum.

EU trade statistics distinguish between six categories of rum. Four of them are of special interest to us, as they are categories to which positive most-favoured-nation (MFN) tariffs apply:

- EU Combined Nomenclature (CN) code 22084039 (Bottled rum under €7.9)
- CN 22084099 (Bulk rum under €2)
- CN 22084011 (Bottled heavy rum) and
- CN 22084051 (Bulk heavy rum).

2. http://www.caribbean360.com/index.php/business/576870.html#axzz21XB3gSRC
3. http://www.eclac.org/publicaciones/xml/4/41974/Chapter_2_-_Macroeconomic_Policy_eng_march_11.pdf

Table 2. The share of the rum sector in Caribbean goods exports

Caribbean country	Share	Year
Antigua and Barbuda	29.9%	2011
Barbados	13.3%	2011
Belize	0.04%	2010
Dominican Republic	0.7%	2011
Dominica	0.0%	2010
Grenada	0.3%	2008
Guyana	3.3%	2011
Jamaica	3.8%	2010
St Kitts and Nevis	1.1%	2008
St Lucia	0.3%	2008
St Vincent and the Grenadines	0.1%	2010
Trinidad and Tobago	0.1%	2010

Source: UN COMTRADE database. See Appendix 7 for time series data on the value of countries' rum exports and rum's share in total goods export values.

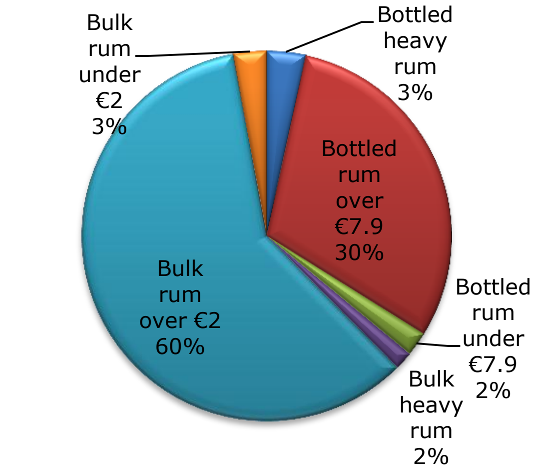
Table 3. Rum exports of CARIFORUM countries by destination (thousands of dollars)

	Year	Canada	EU27	USA
Antigua and Barbuda	2011	374	110	51
Bahamas	2008	0	28,194	6,729
Barbados	2010	5,282	8,170	17,212
Belize	2010	45	0	62
Dominica	2010	0	0	0
Dominican Republic	2010	355	81,252	6,997
Grenada	2008	16	56	4
Guyana	2010	7,169	11,462	4,627
Haiti	1997	74	122	154
Jamaica	2010	9,639	14,152	11,295
St Kitts and Nevis	2008	0	36	417
St Lucia	2008	0	131	0
St Vincent and the Grenadines	2010	0	16	1
Suriname	2010	0	49	0
Trinidad and Tobago	2010	81	2,089	3,701

Source: UN COMTRADE database.

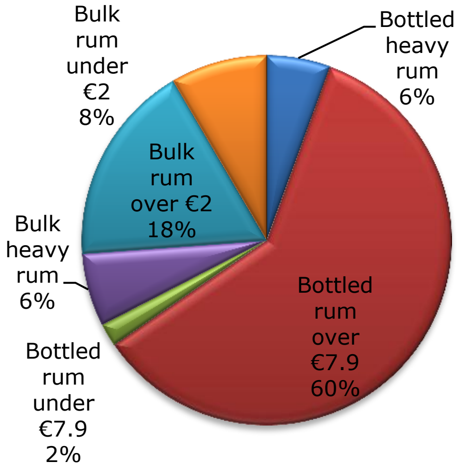
The two other rum categories (CN 22084031 and 22084091) have been duty free since 2003. Much of this report focuses on the categories with preferential tariffs, because it is these which are relevant for the analysis of the impact of the EU trade agreements with third countries on CARIFORUM rum exports. In terms of import value, the duty-free categories are the largest as they represent around 90% of EU imports and 80% of CARIFORUM exports (see Figures 2 and 3). However, if we consider only CARICOM countries, the share of the duty-free categories 22084031 and 22084091 is only about 22% (Figure 4).

Figure 2. Distribution between categories of EU rum imports, by value in 2011



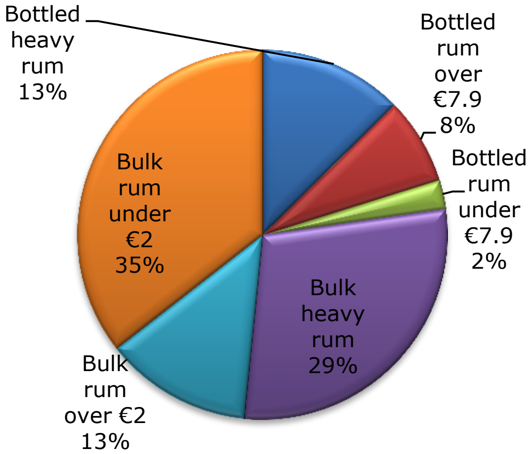
Source: Eurostat COMEXT database.

Figure 3. Distribution between categories of EU rum imports from CARIFORUM, by value in 2011



Source: Eurostat COMEXT database.

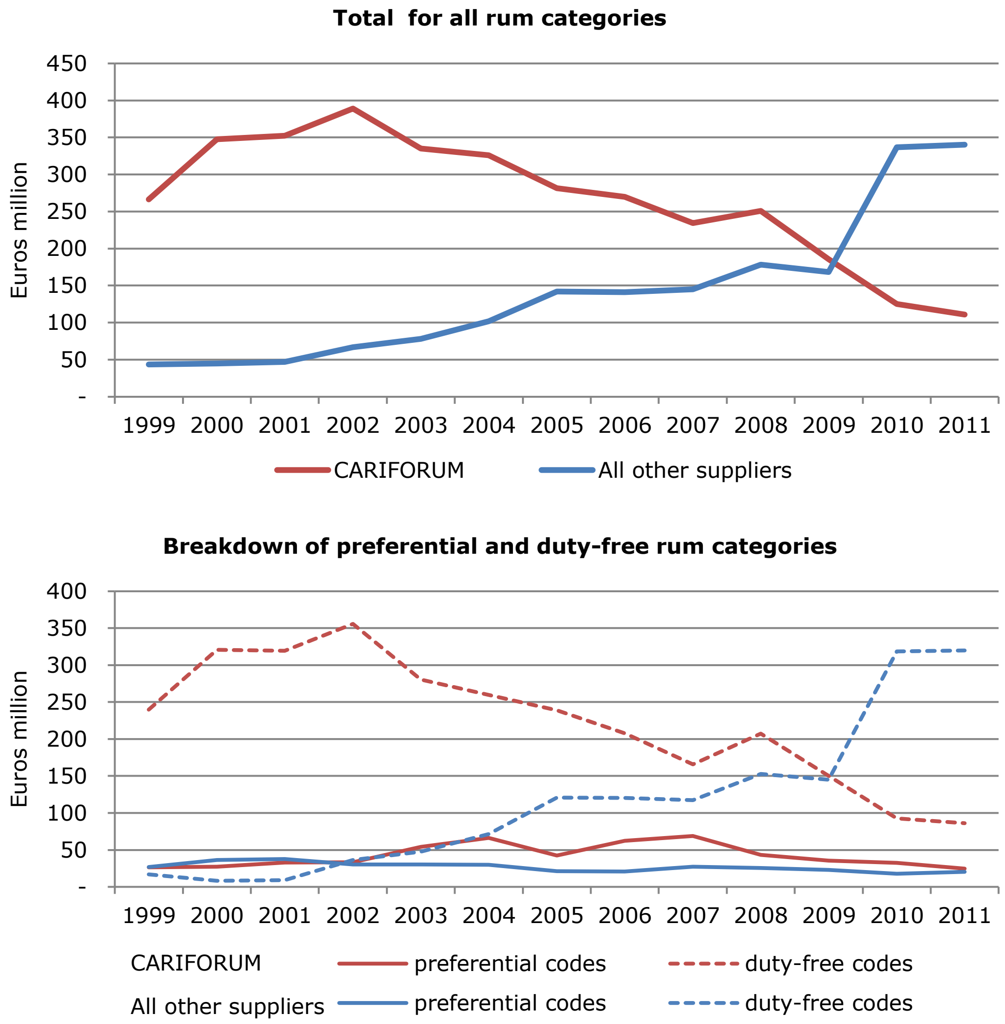
Figure 4. Distribution between categories of EU rum imports from CARICOM, by value in 2011



Source: Eurostat COMEXT database.

In Figure 5 we plot the value of EU rum imports from CARIFORUM and all other sources. It is notable how the value of CARIFORUM exports has declined, and that of its competitors' exports has increased. It is interesting to see from the second figure (in which preferential and duty-free codes are plotted separately) that the bulk of the decrease in CARIFORUM exports is in the two rum categories (CN 22084031 and 22084091), in which imports from CARIFORUM are no longer protected by import duties for non-CARIFORUM countries. CARIFORUM countries experience a reduction of exports especially from 2003 when the EU rum categories 22084031 and 22084091 markets were liberalized. It is also evident that the value of imports from CARIFORUM in the four preferential codes (CN 22084011, 22084039, 22084051 and 22084099) has been relatively stable over the period shown in the figure.

Figure 5. EU rum imports from CARIFORUM and all other sources, 1999-2011

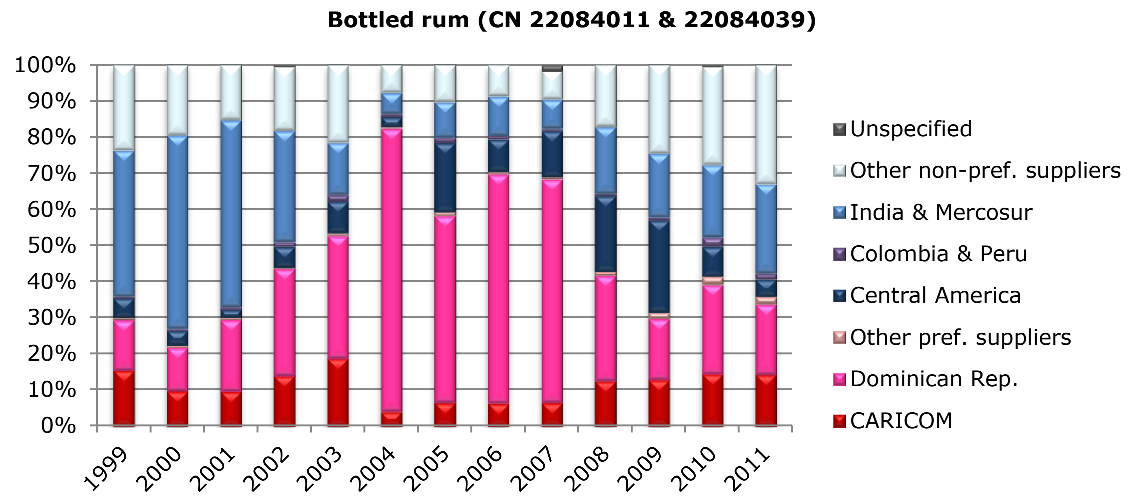


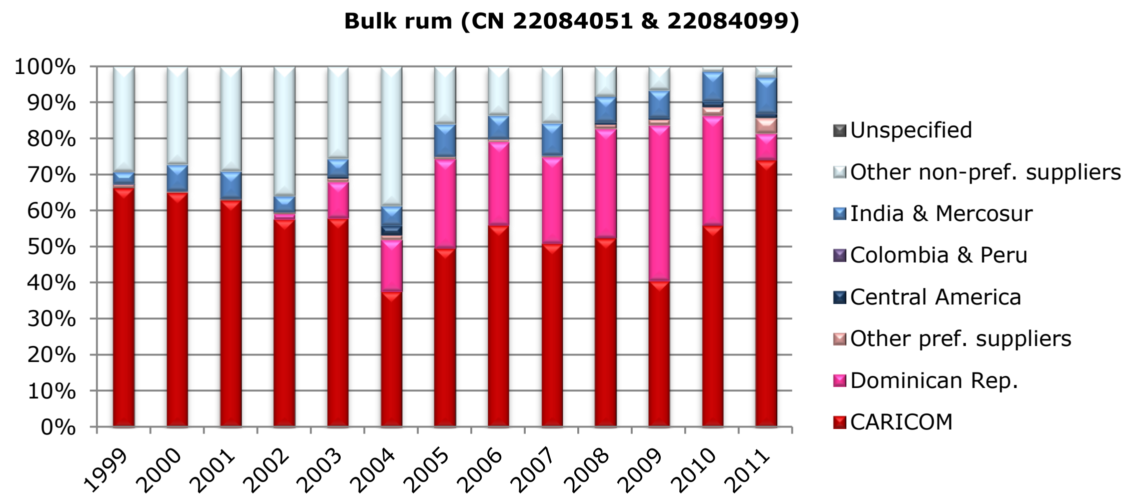
Source: Eurostat COMEXT database.

According to Eurostat statistics, CARIFORUM's market share (in value terms) in the two duty-free categories (CN 22084031 and 22084091), which account for the largest share of EU imports globally, decreased from 77% to 48% for CN 22084031 (bottled rum over €7.9) and from 94% to 7% for CN 22084091 (bulk rum over €2) over the period 1999–2011. This trend may be partially explained by the recent decision of Bacardi to relocate production from Bahamas to Puerto Rico. The production of rum was moved to Catano, Puerto Rico, which is six times larger than the Bahamian operation. According to Eurostat's COMEXT database, in the rum category 22084091, imports from Bahamas amounted to about €140 million in 2008 and only €0.3 million in 2011; over the same period, imports from the US grew from €0.3 million to about €200 million.

However, as Figure 6 shows, in the four rum categories to which EU import tariffs for most non-Caribbean countries still apply, CARIFORUM's market share is variable but almost identical in 1999 and 2011 for bottled rum and slightly increased for bulk rum.[4] In the duty-free categories CN 22084031 and 22084091, on the other hand, CARICOM almost disappears from the EU market whereas the Dominican Republic accounts for a healthy (about 20%) share of EU imports. CARICOM rum exports in the categories 22084031 and 22084091 began to decrease in 2003 as the consequence of the introduction of the duty free provisions.

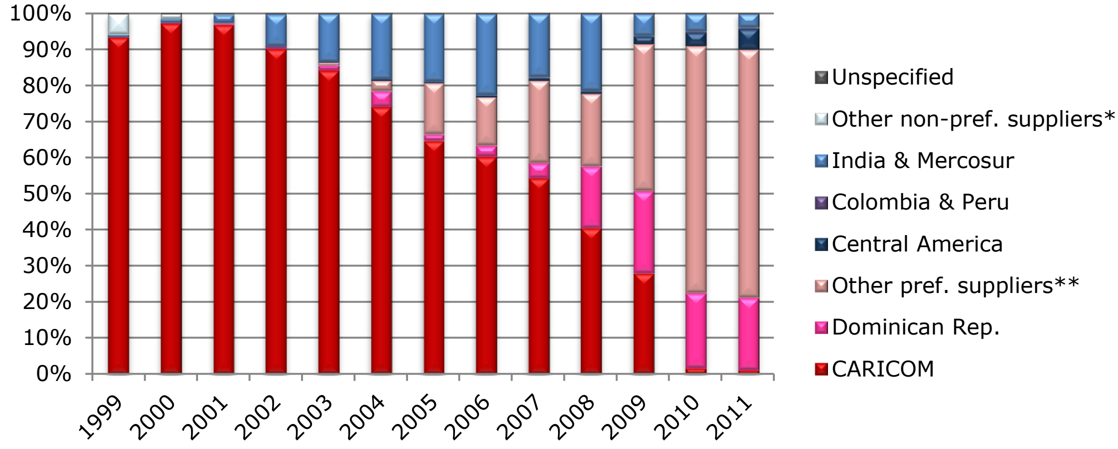
Figure 6. EU market shares (by value)





4. Further details on individual CARIFORUM countries' exports of bottled and bulk rum to the world are given in Appendix 2.

Duty-free rum (CN 22084031 & 22084091)



Notes:
* Included in 1999–2002 only; thereafter suppliers in this group are included in 'Other preferred suppliers'.
** In 1999–2002 includes only those suppliers not in any of the named groups which received a preference; from 2003 onwards includes all suppliers other than those in the named groups.

Source: Eurostat COMEXT database.

3 Assessing the impact of trade agreements and preference erosion - methodology

3.1 Trade policy developments

In the past, Caribbean countries benefitted from preferences for the bulk of their commodity exports to Europe – including bananas, rice, rum and sugar – as part of the Commodity Protocols contained in the preferential trade agreements between the EU and the African, Caribbean and Pacific (ACP) countries. Under the Rum Protocol, contained in all the Lomé Conventions since Lomé I was signed in 1975, Caribbean bulk rum exporters received duty-free access under quota to the European market. The quota system was strongly opposed by CARIFORUM countries (Atkins2009).

In early 1996, imports of ACP light rum into Europe were fully liberalised with the removal of all quotas on ACP rum. At the end of the 1990s, the EU and the US concluded an agreement on distilled spirits tariffs: the 'zero-for-zero' agreement. The agreement contained a special annex with respect to rum. This annex provided for the progressive liberalisation of MFN duties and quotas on most bulk and bottled rums entering the EU and the US. It put in place specific new tariff headings, which were designed to slowly erode preferences with inflation over a period of years, over which time the ACP rum industry could take the necessary steps to become globally competitive. Following parallel negotiations with Caribbean Governments the EU put in place a major AfT development programme to assist the industry to become more competitive.

Currently, rum entering the EU is categorised under one of six different tariff headings. These relate to the size of the container (bulk – over 2 litres; or bottled – 2 litres or less), and the value of the rum in those containers. There are also two separate tariff headings for 'heavy rums'. Countries benefitting from preferences (including CARIFORUM) face zero tariffs in all of these categories, but countries that do not have preferences face the duties shown in Table 4.

Table 4. EU non-preferential rum tariffs

Tariff heading	Duty applied
22084039 (Bottled rum under €7.9)	€0.60 /%vol/hl +€3.20/hl (equiv. to €0.632 per litre of pure alcohol)
22084099 (Bulk rum under €2)	€0.60 /%vol/hl (equivalent to €0.6 per litre of pure alcohol)
22084011 (Bottled heavy rum)	€0.60 /%vol/hl +€3.20/hl (equivalent to €0.632 per litre of pure alcohol)
22084051 (Bulk heavy rum)	€0.60 /%vol/hl (equivalent to €0.6 per litre of pure alcohol)
22084031 (Bottled rum over €7.9)	Duty free
22084091 (Bulk rum over €2)	Duty free

Two of the preferential tariffs are controlled by a 'price point,' which is designed to ensure that only the lower-value products are given a measure of preferential treatment. For example, bottled rums from non-preferred suppliers valued at €7.9 or less (cost, insurance and freight – CIF), are subject to a tariff, as are bulk rums valued at €2 or less. The two other categories that face tariffs are bulk and bottled rum defined as Heavy Rum (the definition relates to the properties of the rum). These tariffs do not have a 'price-point' control. Appendix 4 provides for each rum category a summary of which current suppliers pay what tariff.

3.2 Value of preferences

A key question for this paper is to determine the value of the preferences to CARIFORUM producers. This section examines the value of preferences in a static way, i.e. assuming that there are no behavioural responses as a result of the preferences. There are essentially two ways of doing this.

- The first, and most direct, way is to estimate the amount of duty that CARIFORUM producers would pay if they did not have preferences. This involves applying the tariffs shown in Table 4 to the CIF value of EU rum imports from each CARIFORUM country, and then presenting this as a percentage of the CIF value of imports from each CARIFORUM country (i.e. as an *ad valorem* equivalent – AVE) of each rum category.

- The second way is to estimate the amount of duty paid by those countries that currently do not benefit from preferences. For example, India does not have any preferences, but we can estimate the amount of duty that would be saved if it did not have to pay the tariffs. We present this as a value and as a percentage of aggregate imports from non-CARIFORUM countries.

In Section 4 we estimate the value of preferences in each of the above ways.

3.1 Estimating price elasticities

The calculation of the value of preferences described in the previous sub-section assumes that there are no changes in import patterns due to the preferences. However, in practice, changes in preferences can also affect import patterns. To understand this, consider the following. The EU offers duty-free access to rum from CARIFORUM countries, but not yet to countries such as Brazil. If the EU FTA with Brazil affects the tariffs applied to imports of rum from Brazil, this will mean a change in the prices faced by EU importers. In particular, a lowering of duties on imported Brazilian rum would decrease the relative price paid by EU consumers (other things being equal). Assuming that EU consumers and importers are price sensitive, this would encourage an increase in the relative demand for Brazilian rum. Or, conversely, if CARIFORUM's competitors also receive preferences, this will increase the relative price of rum from the Caribbean – which will in turn lower the relative demand for Caribbean rum.

The extent to which changes in the relative price affect relative demand is determined by the price elasticity, i.e. the percentage change by which demand is affected by a 1% price change. The price elasticity can be determined by econometric regressions using standard import demand models. For example, a standard Armington import demand model (Armington, 1969) assumes that EU imports of rum (expressed as quantity Q) are allocated by source depending on the import price from each source. We distinguish between two import sources: CARIFORUM (car) and other (oth).

$$Q\ car = f\ (Pcar, Poth, Qtot)$$
$$Q\ other = f\ (Pcar, Poth, Qtot)$$

Where P is the price (through estimating the value of imports plus duties divided by volumes) of rum (from either CARIFORUM or other). Imposing the same own and cross price elasticity and the same elasticity on the total imports (Qtot) variable, and expressing variables in *ln* (natural logarithm), and taking the ratio of the above equation, we obtain the following equation:

$$ln\ (Q\ car\ /\ Q\ oth) = f\ (\ ln\ (\ Pcar\ /\ Poth)\ )$$

Section 4 provides estimates of this equation for each rum category (separately and panel) for the period 1999–2011. In practice, there might be many different import demand equations, different empirical specifications and different/additional explanatory variables. This will require further research.

We can now combine the above elements. We first estimate the expected change in import prices due to a change in preferential status, Δ. We then summarise the price elasticity as β. Then the effect of a change in preferential status of CARIFORUM competitors will lead to a change of import volumes from CARIFORUM equal to Δ * β. Finally, we will estimate the value lost as Δ * β * Q2011 * UV2011, or the percentage volumes lost times the quantity in 2011 times the unit value of that rum in 2011. For example, if the import price change for rum from Central America, when they cease to face tariffs, were 5%, and if the price elasticity is -0.36, then the imports from CARIFORUM would drop by 1.7%. This is a standard methodology in line with what has been proposed by the trade economic fields of research. For example Bourdon-

Huchet and Pishbahar (2009) calculate Armington elasticities for the rice market and estimate the impact of preference erosion on poor countries in different scenarios.

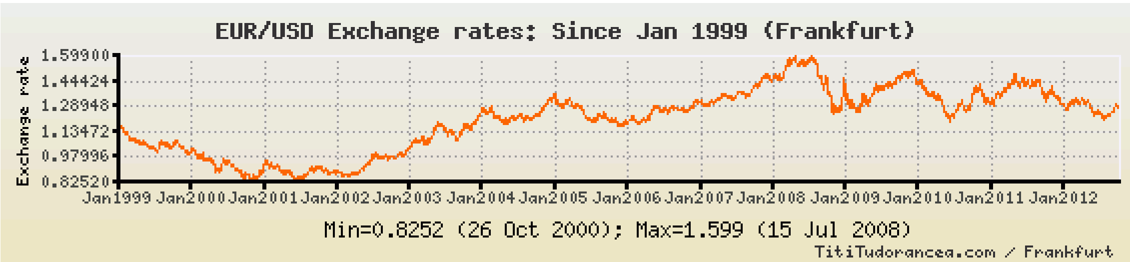
3.2 Price point graduation

Two of the rum categories detailed in Section 3.1 contain a price point. As explained, this formed part of the ‘zero-for-zero’ agreement on rum because it allowed a measure of protection for lower-cost producers in ACP countries with preferences. Such protection could, however, be regarded as finite, in that as the costs of producers around the world increase with inflation the CIF value of their goods will eventually lift above the price point. Producer costs will tend to increase as the costs of molasses, energy, transport, labour and capital increase, although this is not necessarily so, given that changes in productivity might simultaneously reduce production costs. A key question will be to monitor production costs.

With detailed data on rum industry production costs, it would be possible to estimate the effects of price point graduation by assuming a certain percentage increase in production costs in addition to testing whether they would still be eligible to receive preferences, or would be graduated out.

One further element to consider when looking at the price points is that they are expressed in euros, which means that the changing euro/dollar exchange rate also has an impact on the final export price. However, given that it is unlikely that the euro/dollar exchange rate can continue either a downward or an upward trend, it is unlikely that this issue will have a systematic and substantial long-term effect. In practice, the relevant exchange rate does not show a clear long-term trend (figure 7).

Figure 7. US dollar/euro exchange rate



Source: Bloomberg, http://www.tititudorancea.com/z/euro_to_usd_exchange_rates_dollars.htm.

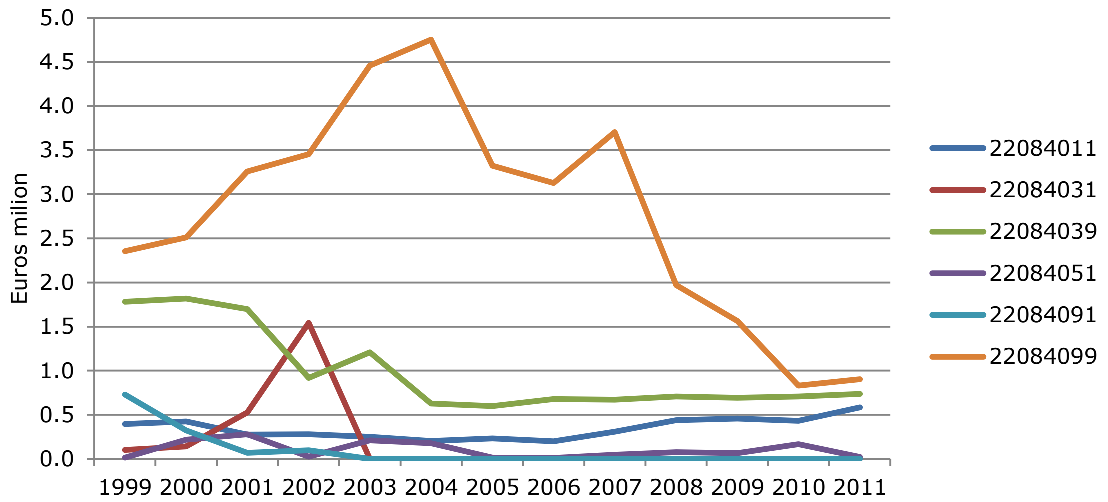
Whilst the price point issue is important for Caribbean rum producers, we should not confuse it with the effect of preference erosion due to FTAs between the EU and third countries.

4 Estimating the possible impact of trade agreements and preference erosion

4.1 The value of preferences to CARIFORUM

We first calculate the total amount of duty (for all six rum categories) that non-CARIFORUM countries have paid over the period 1999–2011 (see Figure 8). CN 22084031 and 22084091 became duty free in 2003, and the amount of duty therefore falls to zero that year. The category on which non-CARIFORUM countries are still paying the highest amount of duty is CN 22084099 (bulk rum under €2), even though the value is decreasing.

Figure 8. Amount of duty payable by non-CARIFORUM suppliers



Source: Authors' elaboration of data from Eurostat COMEXT database.

In Table 5 we show the total duty payable by non-CARIFORUM suppliers as an AVE of the total CIF value of imports from non-CARIFORUM. The table suggests that the AVE of the duty payable is declining for all categories except 22084099, where it is stable. Moreover bulk heavy rum categories 22084051 and 22084091 remain those with the highest tariffs protection for CARIFORUM countries.

Table 5. Duty payable by non-CARIFORUM suppliers as an AVE of the CIF value of their exports to EU

%	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
22084011	8.33	7.13	6.98	5.44	5.08	7.01	6.77	6.91	5.85	4.13	4.62	5.60	6.38
22084031	4.63	3.73	6.07	4.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22084039	14.47	9.15	8.34	8.42	22.69	9.79	6.59	7.81	6.11	8.15	9.06	10.84	10.14
22084051	30.62	31.54	55.38	28.13	15.70	15.26	41.93	37.44	21.09	18.15	16.21	21.78	19.06
22084091	5.00	6.91	14.78	17.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22084099	24.08	25.13	25.03	24.24	23.81	24.32	38.80	33.48	33.57	34.10	30.81	28.00	24.91

Source: Authors' elaboration of data from Eurostat COMEXT database.

If the EU implements duty-free treatment as part of the bilateral agreements with Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama), Mercosur (Argentina, Brazil, Paraguay, Uruguay and Venezuela), Peru, Colombia and India, the two countries which will benefit most would be Brazil (in all four categories still subject to a tariff) and India (in the categories 22084011 and 22084039) – see Table 6.

Table 6. Duty payable by Central America, Mercosur, India, Peru and Colombia as a percentage of the CIF value of their exports to EU, 2011

CN code	Description	Supplier (in order of magnitude of exports to EU)	Duty as AVE of CIF value of exports to EU
22084011	Bottled heavy rum	Colombia	2.3%
		Peru	8.4%
		Panama	3.6%
		Guatemala	1.7%
		Costa Rica	2.5%
		Nicaragua	4.2%
		El Salvador	0.7%
		India	17.6%
		Venezuela	3.6%
		Brazil	11.3%
22084039	Bottled rum under €7.9	Peru	11.1%
		Colombia	8.4%
		Panama	3.0%
		Nicaragua	4.0%
		Costa Rica	2.6%
		Guatemala	2.2%
		Honduras	10.0%
		India	20.6%
		Brazil	13.7%
		Venezuela	6.3%
		Argentina	1.6%
		Paraguay	6.7%
22084051	Bulk heavy rum	Colombia	0.6%
		Brazil	22.6%
22084099	Bulk rum under €2	Colombia	33.8%
		Guatemala	17.5%
		Panama	8.6%
		Brazil	35.8%
		Venezuela	4.6%
		Paraguay	14.5%
		Colombia	33.8%

Source: Authors' elaboration of data from Eurostat COMEXT database.

If the EU offered duty-free access to all countries, this would lead to an erosion of preferences for CARIFORUM exporters, which have enjoyed a significant value of tariff preferences over the period 1999–2011. For rum categories CN 22084011, 22084039, 22084051 and 22084099, the value of the preferential treatment of EU imports from CARIFORUM countries can be expressed as the value of what they would have paid if they had been subject to MFN tariffs. In Table 7 we present the AVE of the duty which would have been payable on EU imports of these rum codes from these CARIFORUM countries had they not had duty-free access (i.e. the amount of the duty as a percentage of the CIF value of rum imports as declared on arrival in European ports).

There are significant preferences for Dominican Republic in the bulk heavy rum category 22084051 and Jamaica (about 41% in 2011) and Trinidad and Tobago (about 72% in 2011) in the category of bottled rum below €2 (22084099). Therefore, in the market for low-cost rum, such as in the category 22084099, the preference erosion could be particularly harmful for CARIFORUM countries as even small reductions in the tariffs paid by non-CARIFORUM countries may generate a reduction of the market share in CARIFORUM countries. This could be true especially for those CARIFORUM countries where the selling price is towards the upper end of the price point.

Table 7. Value of preferences for CARIFORUM countries (duty saved/value of CIF imports,%)

Country/ code	Description	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Antigua and Barbuda														
22084011	Bottled heavy rum					4.3		2.9	7.3	2.0	2.2			
22084039	Bottled rum < €7.9		5.3	5.6	3.5	4.4	6.1		4.1	2.9				
22084099	Bulk rum < €2					101.2				41.5				
Bahamas														
22084011	Bottled heavy rum	8.1	8.6	9.3	10.0	10.4	6.4	4.1	3.6	3.5	2.8	3.7	2.6	2.4
22084099	Bulk rum under €2	4.4	4.0					8.8	2.8					
22084039	Bottled rum < €7.9	7.2	4.7	5.2	4.3	4.2	54.9	39.5	5.4	3.8	4.0	4.3	3.6	3.5
22084051	Bulk heavy rum	7.0	5.7	4.8	5.7	6.3	6.3	5.9	6.0	6.7				
Barbados														
22084011	Bottled heavy rum	9.3	2.4	3.5	3.7	6.3	6.4	55.3	50.2	5.3	17.0	15.6	40.4	1.5
22084099	Bulk rum under €2	66.0	53.9	50.4	46.9	61.3	69.5	60.6	56.9	53.8	58.5	38.8	39.6	35.2
22084039	Bottled rum < €7.9	10.5	11.4	2.9	1.5	16.0	10.2	12.2		9.3	5.5	3.7	6.4	3.8
22084051	Bulk heavy rum	51.3	28.0	24.9	11.0	35.3	11.4	11.1	20.0	21.0	18.8	19.5	13.5	14.4
Belize														
22084039	Bottled rum < €7.9										5.3			
Dominica														
22084011	Bottled heavy rum						17.3					2.8		
22084039	Bottled rum < €7.9						8.4		2.2	2.9	3.9	4.7		
22084051	Bulk heavy rum	12.1												
Dominican Republic														
22084011	Bottled heavy rum	9.5	7.4	31.0	5.1	9.7	8.7	6.8	5.5	5.8	5.4	4.3	4.5	4.4
22084099	Bulk rum under €2		25.4		7.5	8.5	9.5	9.9	10.0	11.6	12.3	12.2	12.6	30.3
22084039	Bottled rum < €7.9	8.1	6.6	6.5	6.9	10.1	2.5	10.0	7.2	6.6	6.0	5.8	8.3	5.7
22084051	Bulk heavy rum					15.0	22.9	23.9	24.2	43.7	35.1	36.4	39.9	40.9
Grenada														
22084011	Bottled heavy rum									2.1				
22084099	Bulk rum under €2													8.7
22084039	Bottled rum < €7.9									12.6		1.5		3.4
22084051	Bulk heavy rum								8.9	9.3		8.0	0.7	
Guyana														
22084011	Bottled heavy rum	5.7	19.3	4.9	14.1	8.7	24.2	9.5	2.1	5.0	2.9	6.7	6.1	6.0
22084099	Bulk rum under €2	135.6	102.4	104.3	102.5	99.8	85.2	96.1	83.9	81.2	80.3	84.3	87.4	79.5
22084039	Bottled rum < €7.9	5.6	8.2	16.9	9.9	46.7	12.4	18.0	15.0	2.5		10.5	0.4	0.8
22084051	Bulk heavy rum	14.1	17.9	15.3	18.5	33.1	35.7	42.2	41.4	35.4	31.4	17.1	15.1	15.4
Haiti														
22084011	Bottled heavy rum	8.0	6.3	5.7		14.9								
22084039	Bottled rum < €7.9	7.8			2.8	4.0	5.1	4.1		9.1	5.5			4.3
22084099	Bulk rum < €2				6.9			15.6						
Jamaica														
22084011	Bottled heavy rum	9.4	8.0	7.7	10.1	9.4	9.2	7.8	9.8	6.9	8.9	9.8	8.9	9.2
22084039	Bottled rum < €7.9	10.2	10.3	14.1	6.8	9.6	8.3	10.5	14.0	8.4	11.7	5.4	11.5	8.6
22084051	Bulk heavy rum	15.1	14.2	16.1	18.7	32.7	22.9	23.7	24.9	19.0	21.1	19.0	19.0	23.4
22084099	Bulk rum < €2	65.9	58.9	39.9	38.9	52.9	63.5	52.1	44.9	45.1	45.8	40.9	44.4	41.3
St Kitts and Nevis														
22084011	Bottled heavy rum	25.0	24.1				5.0	24.3						
22084039	Bottled rum < €7.9	5.7		14.1	4.0	5.6	6.1	6.2	8.1	0.5	8.8	11.6	12.8	12.6
22084099	Bulk rum < €2													16.4
St Lucia														
22084011	Bottled heavy rum	22.0	18.8	4.9					3.1		2.2	5.0	1.8	2.7
22084099	Bulk rum under €2	70.1	51.8	56.4	57.8	71.9	77.9	70.9		52.4	38.3	16.5	6.9	4.1
22084039	Bottled rum < €7.9	13.2	4.1		12.3				58.8		8.3		2.6	5.7
22084051	Bulk heavy rum					18.5				7.6				
St Vincent and the Grenadines														
22084011	Bottled heavy rum		9.0											
22084039	Bottled rum < €7.9												4.4	11.2
Suriname														
22084011	Bottled heavy rum	8.6	1.8	2.3	50.6	10.2	8.1	1.1	1.9		16.0	4.5	1.2	
22084039	Bottled rum < €7.9	15.6	6.6		6.2	10.0	9.0	9.5	9.0		8.7	14.9	13.0	13.7
22084099	Bulk rum < €2	42.9		36.1						1.0	2.9	2.5	11.3	
Trinidad and Tobago														
22084011	Bottled heavy rum	16.7	5.4	9.2	4.7	4.8	4.0	3.2	3.3	3.6	2.9	2.7	2.2	1.0
22084039	Bottled rum < €7.9	11.8	*	1.1		2.7	2.6	8.6	4.3	7.3	6.6	5.9	1.6	3.5
22084051	Bulk heavy rum	29.4	27.8	22.2	24.1	20.6	24.8	18.4	20.0	22.7	26.8	24.4	19.9	19.5
22084099	Bulk rum < €2	70.8	*	19.0	19.5	58.0	104.3	99.5	93.9	76.0	71.7	70.0	65.6	72.4

Source: Authors' elaboration of data from Eurostat COMEXT database.

4.2 Elasticities

This section presents the preliminary results of the econometric equations we presented in Section 3. Thus, we estimate the Armington price elasticity of imports based on

$$ln\ (Q\ car\ /\ Q\ oth) = f\ (\ ln\ (\ Pcar\ /\ Poth)\ )$$

In the estimation, we also use variations that include time lags and/or time dummies. We would use lagged prices if the effects of prices in the previous period influence current import patterns. We can also include dummies for different periods. Time-specific dummies pick up other factors affecting the demand for rum imports. The most important coefficient of the regression relates to relative prices. We expect a negative coefficient on the ratio of CARIFORUM to non-CARIFORUM prices, such that a decrease in the CARIFORUM price or an increase in the non-CARIFORUM price should lead to an increase in the relative quantities imported from CARIFORUM and non-CARIFORUM countries. We first estimate the equation for each rum category. Table 8 reports for each of the rum categories: the share in the four rums affected and the share of CARIFORUM in EU imports of that rum; the coefficient (and t-statistic) on the price term, and a comment on the nature of the challenges faced when estimating these equations (apart from the fact that we only have 13 observations over time over the period 1999–2011). The results are intuitive for rums CN 22084011 and 22084039 because an increase in CARIFORUM's relative price would reduce their relative quantities. However, there are challenges estimating elasticities for rums CN 22084051 and 22084099, where there is an unexplained increase in the relative prices as well as quantities. This may be explained by factors affecting the rum market beyond price effects, such as the capacity to strengthen the brand (as it seems is the case for Guyana in rum category CN 22084099, in which exports increased even though relative prices worsened), or the Bacardi production relocation policy from Bahamas to Puerto Rico.

Table 8. Initial regression results for individual rums

Rum	Share of rum in the four rums, 2011 Share CARIFORUM in that rum	Coefficient (t- stats) on relative price Rel quan = f(rel price, constant)
22084099 – Bulk rum under €2	0.29 0.67	0.57 (3.55)**
22084039 – Bottled rum under €7.9	0.22 0.22	-1.00 (-1.24)
22084051 – Bulk heavy rum	0.15 0.98	0.08 (0.11)
22084011 – Bottled heavy rum	0.34 0.39	-0.93 (-2.67)**

Source: Estimations (t-stats between parentheses), ** is 5% significance level

We then pool the rums to estimate a panel regression. One of the advantages is that we can use 48 observations (12 years over the period 2000–11 for 4 rum categories[5]), which can help us to obtain estimates with more precision.

The results suggest that the best model performance is obtained by pooling four out of the four protected rum categories (CN 22084011, 22084039, 22084051 and 22084099). The estimated elasticity (at a 5% significance level) is –0.36 (Table 9). This means that a 1% increase in the relative price of CARIFORUM exports leads to a 0.36% reduction in relative quantities imported from CARIFORUM.

The relevant literature does not offer other studies estimating the Armington elasticity for rum when we consider CARIFORUM/non-CARIFORUM prices. One of the most similar studies is the one from Gallaway et al. (2003), finding that US imports are quite insensitive to relative prices for the Standard Industrial

5. As we use lagged values we have to eliminate 1999 data.

Classification category 2085 (distilled liquor). Gallaway et al. (2003) find that the Armington elasticity is only -0.005, meaning a 1% increase in US prices would lead to a 0.005% increase in US imports.

On the basis of the information above, we are able to answer how an agreement that grants duty-free access to Central America and Mercosur (and other countries) might affect exports from CARIFORUM.

Table 9. Estimating the price sensitivity of the relative demand for rum

Variable	Coefficient (t-stat) (I)
Relative price	-0.36 (0.17)**
Relative price lagged	yes
Time trends	Yes
Time dummies	No
Period	1999-2011
No obs	48

Notes: Random effects model for rum categories 11, 39 51 and 99 pooled over 1999-2011
Robust standard errors.
*, **, *** is 10, 5, or 1% significance levels.
In each case (quantity and price), relative implies imports from CARIFORUM as a ratio of imports from OTHER sources.

Let us first consider a set of possible scenarios. In the *AGREEMENTS* scenario we assume that the EU grants duty-free access to imports from Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), Peru and Colombia for bottled and bulk rum. On the basis of the tariff elimination, we calculate the reduced non-CARIFORUM price, hence the change in relative prices and the resulting change in relative quantity, and finally the reduction in CARIFORUM exports assuming that all the relative CARIFORUM/non-CARIFORUM quantity reduction derives from a reduction of exports from CARIFORUM countries. We use 2011 as the reference year, which is the most recent for which export values, quantities and prices are available.

In the *AGREEMENTS + MERCOSUR* scenario, we assume that the EU grants duty-free access to imports from Central America, Peru, Colombia and full Mercosur members (Argentina, Brazil, Paraguay, Uruguay and Venezuela) for bottled and bulk rum.

In the *LIBERALISATION* scenario, we assume the elimination of tariffs for all non-CARIFORUM countries on bottled and bulk rum categories. This would be the situation that CARIFORUM countries would have to face if the EU extended duty-free treatment to all other countries or if price points were not binding any more. The EU is already planning to extend duty-free agreements to countries such as India and duty free quotas to Mercosur.

In the *AGREEMENTS + QUOTA* scenario, the EU grants duty-free access to imports from Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), Peru and Colombia, within quotas as specified in Appendix 6. We assume that these quotas are completely filled, and that this is at the expense of CARIFORUM exports. As shown in Appendix 6, the quotas are for 'bulk rum', without any indication whether this refers specifically to category CN 22084051 or CN 22084099. For this reason we implement two distinct scenarios:

1) *In AGREEMENTS + QUOTA I* quotas are completely filled by Central America, Peru and Colombia exporters with CN 22084099 rum exports ;
2) *In AGREEMENTS + QUOTA II* quotas are completely filled by Central America, Peru and Colombia exporters with CN 22084051 rum exports.

In the *AGREEMENTS + QUOTA + MERCOSUR* (I) scenario, the EU grants duty-free access within quota to imports from Central America, Peru and Colombia in the category CN 22084099. Moreover, it grants duty-free access to imports from MERCOSUR countries.

In the *AGREEMENTS + QUOTA + MERCOSUR* (II) scenario, the EU grants duty-free access within quota to imports from to Central America, Peru and Colombia in the category CN 22084051. Moreover, it grants duty-free access to imports from Mercosur countries.

Table 10. Scenario descriptions

AGREEMENTS	AGREEMENTS + MERCOSUR	LIBERALISATION	AGREEMENTS + QUOTA (I)	AGREEMENTS + QUOTA (II)	AGREEMENTS + QUOTA + MERCOSUR (I)	AGREEMENTS + QUOTA + MERCOSUR (II)
Duty free access to Central America, Peru and Colombia	Duty free access to Central America, Peru, Colombia and Mercosur	Duty free access to all non-CARIFORUM countries	Duty free access to Central America, Peru and Colombia. Quota absorbed by the 22084099 category	Duty free access to Central America, Peru and Colombia. Quota absorbed by the 22084051 category	Duty free access to Central America, Peru, Colombia and Mercosur. Quota absorbed by the 22084099 category	Duty free access to Central America, Peru, Colombia and Mercosur. Quota absorbed by the 22084051 category

The results are shown in Table 11.

Table 11. Loss of CARIFORUM rum export quantities due to preference erosion - *AGREEMENTS* and *LIBERALISATION* scenarios

Code	AGREEMENTS			AGREEMENTS + MERCOSUR		
	LOSS (litres of pure alcohol) (change in prices * elasticity)	Loss in value (€)	Loss in %	LOSS (litres of pure alcohol) (change in prices * elasticity)	Loss in value (€)	Loss in %
22084011	692	7,326	0.12%	2,749	29,071	0.47%
22084039	217	2,256	0.10%	4,859	50,405	2.28%
22084051	10	33	0.00%	25,783	81,718	1.15%
22084099	29,794	28,827	0.31%	572,444	553,871	5.91%
Sum	**30,715**	**€38,444**		**605,837**	**€715,066**	
Code	**LIBERALISATION**			**AGREEMENTS + QUOTA (I)**		
	LOSS (litres of pure alcohol) (change in prices * elasticity)	**Loss in value (€)**	**Loss in %**	**LOSS (litres of pure alcohol) (change in prices * elasticity)**	**Loss in value (€)**	**Loss in %**
22084011	12,594	133,157	2.16%	692	7,326	0.12%
22084039	7,066	73,294	3.31%	217	2,256	0.10%
22084051	128,993	408,827	5.76%	10	33	0.00%
22084099	695,005	672,456	7.18%	985,353	953,383	10.18%
Sum	**843,661**	**€1,287,735**		**986,274**	**€963,000**	
Code	**AGREEMENTS + QUOTA (II)**			**AGREEMENTS + QUOTA + MERCOSUR (I)**		
	LOSS (litres of pure alcohol) (change in prices * elasticity)	**Loss in value (€)**	**Loss in %**	**LOSS (litres of pure alcohol) (change in prices * elasticity)**	**Loss in value (€)**	**Loss in %**
22084011	692	7,326	0.12%	2,749	29,071	0.47
22084039	217	2,256	0.10%	4,859	50,405	2.28
22084051	1,050,000	3,327,824	46.91%	25,783	81,718	1.15
22084099	29,794	28,827	0.31%	1,528,002	1,478,427	15.78
Sum	**1,080,705**	**€3,366,235**		**1,561,396**	**€1,639,622**	

Code	AGREEMENTS + QUOTA + MERCOSUR (II)		
	LOSS (litres of pure alcohol) (change in prices * elasticity)	Loss in value (€)	Loss in %
22084011	2,749	29,071	0.47%
22084039	4,859	50,405	2.28%
22084051	1,075,773	3,409,509	48.06%
22084099	572,444	553,871	5.91%
Sum	**1,655,827**	**€4,042,857**	

Notes:

- estimated change in relative prices (which includes any tariffs due) calculated through setting duties to zero for Central/Latin American countries (Agreements) and all countries (liberalisation), compared to current situation
- loss in litres of pure alcohol estimated as change in relative prices * elasticity * volumes exported in 2011

The LIBERALISATION scenario generates higher losses for CARIFORUM than the AGREEMENTS scenarios. This is simply because in the LIBERALISATION scenario the total tariffs and price reduction for non-CARIFORUM countries is larger as the market becomes duty free for all non-CARIFORUM countries.

A reduction of tariffs for non – CARIFORUM countries reduces non CARIFORUM prices. The higher the number of countries enjoying a EU import tariffs elimination, the bigger the non CARIFORUM EU imports tariffs and price reductions. When non-CARIFORUM prices reduce, the relative price increases and relative quantities decrease for CARIFORUM countries.

The simple AGREEMENTS scenario (without quota) does not provide a big loss for CARIFORUM countries. Duty-free access for Central America, Peru and Colombia generates only a €38,000 loss for CARIFORUM countries. This is because Central America, Peru and Colombia currently only represent 4% of EU imports in the categories CN 22084011, 22084039, 22084051 and 22084099. In addition, an import tariffs elimination applied to these countries would generate a small non CARIFORUM price reduction and a small CARIFORUM exports loss. The loss for CARIFORUM countries is almost twenty times as high (€715,000) if Mercosur countries are also granted duty-free access in the scenario AGREEMENT + MERCOSUR. In the LIBERALISATION scenario, the tariff reduction for non-CARIFORUM countries and the relative price increase for CARIFORUM countries are higher than in the AGREEMENTS and AGREEMENTS + MERCOSUR scenarios and generate a €1.3 million loss. The current total EU rum imports amount to about 47 million € in the categories CN 22084011, 22084039, 22084051 and 22084099. Non – CARIFORUM countries currently represent about 47% of the EU imports and a full LIBERALIZATION scenario would significantly drop the non – CARIFORUM price and increase CARIFORUM losses.

If we compare the *AGREEMENTS* and *LIBERALISATION* scenarios, the percentage of loss is bigger in the category CN 22084099, where the tariff reduction is bigger (as shown in Table 5).

Results are different if we consider scenarios incorporating a quota; the quota dramatically increases CARIFORUM losses. If we assume that quotas are absorbed by the category CN 22084099 at the expense of CARIFORUM exports, quotas jointly with duty-free access for Central America, Peru and Colombia generate a €1 million loss for CARIFORUM countries (AGREEMENT + QUOTA (I)). The loss increases to €1.6 million when Mercosur countries are granted duty-free access (AGREEMENT + QUOTA + MERCOSUR (I)).

If the quotas are entirely filled by rum export in the category CN 22084051, the losses for CARIFORUM countries are €3.4 million without duty-free access (AGREEMENT + QUOTA (II)) for Mercosur and about €4 million with duty-free access for Mercosur countries (AGREEMENT + QUOTA + MERCOSUR (II)). As the current CARIFORUM exports to EU amount to about 25 million € in the rum categories CN 22084011, 22084039, 22084051 and 22084099, we estimate that the AGREEMENT + QUOTA + MERCOSUR (II) scenario would generate a reduction of up to 16.5% of CARIFORUM exports. These findings can be summarised in two main conclusions:

1) Quotas may potentially damage CARIFORUM countries more than the abolition of import tariffs for non-CARIFORUM countries if non CARIFORUM countries expand their exports to the EU up to the

quota threshold at the expense of CARIFORUM countries. This hypothesis that Central America, Peru and Colombia will be able to fill the quota is quite plausible, as the staggering increase of Central America exports to EU over the period 2006 – 2011 (from 5 to 25 million € over the period 2006 – 2011 in the CN rum category 220840) and the direct competition between Central America and CARIFORUM countries. If Central America, Peru and Colombia fully filled their quota they would expand their market share from 0% to up to 47% in the CN category 22084051 and from 1.7% to up to 7% in the CN category 20084099.

2) In terms of quantity losses, quotas are more damaging if they are filled in the CN 22084051 category than in the CN 22084099 category. Central America, Peru and Colombia do not currently have significant exports to the EU in the former category, and a duty-free quota would represent an opportunity to expand their exports significantly. In the CN 22084099 category, Central America, Peru and Colombia already export about 65,000 litres of pure alcohol to the EU. Moreover, the export value loss is higher in the CN 22084051 category than in the CN 22084099 category because the CARIFORUM price for the former is higher than that for the latter (€3.17 vs €0.97 per litre of pure alcohol). Finally, the size of the quota (1050000 litres of pure alcohol to Central America, Peru and Colombia) has a bigger incidence on the EU total imports in the CN category 22084051 (amounting to about 2.3 million of litres of pure alcohol) than in the CN category 22084099, where total EU imports amount to about 12.2 million litres of pure alcohol.

The current FTAs and quota granted by EU to Peru, Colombia and Central America are likely to affect many CARIFORUM countries. The exposure of individual CARIFORUM countries to EU trade policy depends on the market share of each country in total Caribbean rum exports to EU and on the losses in total goods exports in a specific country. Because quota in the categories 22084051 and 22084099 are particularly harmful for CARIFORUM countries, the market share in these categories will be particularly relevant in explaining vulnerability of CARIFORUM countries to current EU trade policy in the rum market.

If we consider the damages of CARIFORUM countries in pessimistic scenarios AGREEMENT + QUOTA (II) (where quota are filled by rum exports in the category CN 22084051) and AGREEMENT QUOTA (I) (where quota are filled by rum exports in the category CN 22084099) and we share damages across CARIFORUM countries on the basis of current market shares in 2011 for each rum category, we see that Barbados and Guyana are the countries which will suffer most from the FTAs and quota. Barbados and Guyana lose respectively € 0.2 million and € 0.5 million in the scenario AGREEMENT QUOTA (II), whereas in the scenario AGREEMENT QUOTA (I) they lose respectively € 1.3 million and € 0.5 million (table 12), representing the highest levels of losses in CARIFORUM countries.

If expressed in terms of percentage of goods exports, these losses are 0.9% and 0.6% of goods exports in AGREEMENT + QUOTA (II) (representing the first and the third biggest loss in this scenario) and 0.03 and 0.05% in AGREEMENT + QUOTA (I) (representing the first and the second biggest loss of this scenario). Barbados shows the highest losses in the scenario AGREEMENT + QUOTA (II) and Guyana in AGREEMENT QUOTA (I) because they are the countries with the highest market share of EU imports respectively in the rum category CN 22084051 (38% in Barbados from Table 15) and the rum category 22084099 (55% in Guyana) subject to quota. Losses in the categories 22084011 and 22084039 are not very significant for Barbados and Guyana.

However, as suggested in table 13, Guyana is likely to be less resilient than Barbados in responding to shocks, as the low level of GDP per capita (the second lowest level of GDP per capita after Haiti) affects the capability of the country to counteract the EU trade policy with a strong institutional and economic framework.

Jamaica, Trinidad and Tobago show intermediate levels of vulnerability to FTAs and quotas. Jamaica is as vulnerable as Guyana in terms of losses expressed as % of goods exports in the Agreement + Quota (II) (0.06% of exports of goods) because Jamaica currently has a big share of EU imports in the CN category 22084051 (24% vs 17% in Guyana as in the table 12). However, the exposure to the 22084099 category is much lower (only about 5% vs 55% in Guyana). The Dominican Republic is very strong in the rum categories not subject to quota (52% in the rum category 22084011 and 73% in 22084039), but much less exposed to the other categories subject to quota (5% in 22084051 and 11% in 20084099 as in Table 15). Trinidad and Tobago are as highly exposed as Guyana in the CN category 22084051 (15% of market share), but the loss from FTAs and quota expressed as percentage of exports is much lower than Guyana, as exports of Trinidad and Tobago are about ten times higher (about 10 billion € vs 1 billion €).

Table 12. Losses of specific CARIFORUM countries from quota and FTAs

	AGREEMENT + QUOTA (I)		AGREEMENT + QUOTA (II)	
Country	Losses in €	Losses as % of goods exports	Losses in €	Losses as % of goods exports
DOMINICAN REPUBLIC	117,789	0.002	193,472	0.003
JAMAICA	57,407	0.004	784,043	0.059
TRINIDAD AND TOBAGO	73,176	0.001	515,136	0.005
BARBADOS	182,180	0.036	1,287,613	0.253
SURINAME	68	0.000	68	0.000
HAITI	39	0.000	39	0.000
ST KITTS AND NEVIS	408	0.001	47	0.000
ST LUCIA	5,580	0.003	515	0.000
BAHAMAS	24	0.000	24	0.000
GRENADA	238	0.001	9	0.000
ST VINCENT AND THE	2	0.000	2	0.000
GUYANA	526,088	0.050	585,266	0.056
Total	962,998		3,366,233	

Source: our estimate and UNComtrade Statistics

Table 13. GDP per capita as a measure of resilience

Country	GDP per capita (US$ per capita)
DOMINICAN REPUBLIC	5,530
JAMAICA	5,562
TRINIDAD AND TOBAGO	16,699
BARBADOS	13,453
SURINAME	8,292
HAITI	726
ST KITTS AND NEVIS	13,364
ST LUCIA	7,001
BAHAMAS	22,431
GRENADA	7,780
ST VINCENT AND THE GRENADINES	6,291
GUYANA	2,994
Average	5,530

Source: World Development Indicators 2012

Table 14. Losses of CARIFORUM countries from quota and FTAs for specific rum sectors (€)

	AGREEMENT + QUOTA (I)				AGREEMENT + QUOTA (II)			
Country	**22084011**	**22084039**	**22084051**	**22084099**	**22084011**	**22084039**	**22084051**	**22084099**
DOMINICAN REPUBLIC	3844	1654	2	112289	3844	1654	184578	3395
JAMAICA	2372	207	8	54820	2372	207	779806	1658
TRINIDAD AND TOBAGO	115	116	5	72939	115	116	512699	2205
BARBADOS	15	83	13	182069	15	83	1282009	5505
SURINAME	-	68	-	-	-	68	-	-
HAITI	-	39	-	-	-	39	-	-
ST KITTS AND NEVIS	-	35	-	372	-	35	-	11

ST LUCIA	324	33	-	5223	324	33	-	158
BAHAMAS	8	16	-	-	8	16	-	-
GRENADA	-	2	-	236	-	2	-	7
ST VINCENT AND THE GRENADINES	-	2	-	-	-	2	-	-
GUYANA	647	1	6	525435	647	1	568731	15887
Total	7,326	2,256	33	953,383	7,326	2,256	3,327,824	28,827

Source: UN Comtrade Statistics

Table 15. Market shares of CARIFORUM countries in different rum categories (%).

	22084011	22084039	22084051	22084099
DOMINICAN REPUBLIC	52.48	73.33	5.55	11.78
JAMAICA	32.37	9.19	23.43	5.75
TRINIDAD AND	1.57	5.15	15.41	7.65
BARBADOS	0.21	3.70	38.52	19.10
SURINAME		3.00		
HAITI		1.72		
ST KITTS AND NEVIS		1.57		0.04
ST LUCIA	4.43	1.45		0.55
BAHAMAS	0.11	0.71		
GRENADA		0.08		0.02
ST VINCENT AND THE		0.07		
GUYANA	8.83	0.04	17.09	55.11
Total	100	100	100	100

Other findings of our analysis are:

1) For the bottled rum categories CN 22084011 and 22084039, tariffs will be eliminated over three years in equal stages for Central America and over four years in Peru and Colombia (Appendix 6). We estimate that in the transition period when the tariff elimination is not yet fully implemented, the losses for CARIFORUM exporters will only be slightly lower (up to €5,000) than those presented in Table 11.
2) As shown in Appendix 6, quotas will increase over time (by about 55,000 litres of pure alcohol per year for Central America, Peru and Colombia combined). If the quotas are absorbed by category CN 22084051, we estimate a €174,000 annual increase in losses for CARIFORUM countries and a €53,000 annual increase in losses absorbed by the CN 22084099 category.
3) The percentage of loss is the same for export quantities and values. This is because the CARIFORUM rum prices do not change in the alternative scenarios, which affect import tariffs and prices for non–CARIFORUM countries only.

Overall, the losses for CARIFORUM exporters are estimated to be up to €4 million per year, and could increase in the coming years by up to €174,000 per year.

4.3 The impact of inflationary pressures

The granting of duty-free access to more non-CARIFORUM countries by the EU is not the only threat to the CARIFORUM rum industry. Inflationary pressures and the euro/dollar exchange rate will at some point oblige CARIFORUM producers to export their products at a price above €2 for the category 22084099 and above €7.9 for the category 22084039. When this happens, CARIFORUM producers will be obliged to compete in the duty-free categories CN 22084031 and 22084091, where all other suppliers are also not subject to tariffs (see Table 4).

The loss for CARIFORUM countries, deriving from increase of their prices above the €2 and €7.9 thresholds in categories CN 22084039 and 22084099, is to some extent captured by the results of the *LIBERALISATION* scenario. If we assume percentage increases in non-CARIFORUM prices identical to those which lift CARIFORUM prices above the €2 and €7.9 price points in CN 22084039 and 22084099 respectively, the relative percentage losses in CARIFORUM/non-CARIFORUM export quantities and values would be the same as those we have described in the *LIBERALISATION* scenario. This is because:

1) CARIFORUM producers of rum in categories CN 22084039 and 22084099 would, as a consequence of the price increase, start competing in the duty-free categories CN 22084031 and 22084091, and the main assumption of the *LIBERALISATION* scenario is that the EU market is duty free.
2) an identical percentage increase of CARIFORUM and non-CARIFORUM prices applied to duty-free access CARIFORUM and non-CARIFORUM prices would not change relative prices.

But CARIFORUM price increases in rum categories CN 22084039 and 22084099 which do not necessarily exceed the €2 and €7.9 thresholds may have an impact on the relative quantities if non-CARIFORUM prices do not change. With the scenario *INPUTS,* we have assumed that the production costs in CARIFORUM countries increase and that this is translated into a 10% price increase for all four rum categories that we used to calculate the elasticity of relative quantities to relative prices (CN 22084011, 22084039, 22084051 and 22084099).

As shown in Table 12, a 10% price increase for CARIFORUM countries, deriving from a rise in input costs, would lead to a €894,000 loss, especially concentrated in the CN 22084099 category. An increase in input costs would make CARIFORUM rum industries less competitive, would increase CARIFORUM relative prices and would reduce the quantities exported by CARIFORUM. The percentage of loss is the same across categories. For each rum category, a 10% increase in CARIFORUM prices is translated into a 10% increase in relative prices, which generates a 3.6% reduction in relative quantities as the Armington elasticity estimated value in Table 9.

Table 16. Loss of CARIFORUM rum export quantities due to preference erosion - *INPUTS* scenario

Code	LOSS (litres of pure alcohol) (change in prices * elasticity)	Loss in value (€)	% of loss
22084011	19,102	222,161	3.60%
22084039	6,979	79,633	3.60%
22084051	73,257	255,669	3.60%
22084099	316,815	337,190	3.60%
Sum	**416,156**	**€894,654**	

Notes:

- estimated change in relative prices (which includes any tariffs due) calculated through setting duties to zero for Central/Latin American countries (Agreements) and all countries (liberalisation), compared to current situation
- loss in litres of pure alcohol estimated as change in relative prices * elasticity * volumes exported in 2011

5 Policy implications

CARIFORUM and a range of other rum producers (including least developed countries and countries that have signed an Economic Partnership Agreement with the EU) currently enjoy tariff preferences in four rum categories. However, a range of FTAs between the EU and third countries threatens to erode these preferences. If these other countries do not have to pay duties, this will mean that EU importers will face an increase in the relative price of Caribbean rum (and a decrease in the relative price of rum imports from other sources).

We provide new provisional econometric evidence that rum imports (in three rum categories covering three-quarters of protected rum imports) respond to price changes across sources of supply with a price elasticity of -0.36, implying that a 10% relative price increase leads to a 3.6% reduction in the relative quantities.

Aggregated over the four rums, we estimate there could be decrease in annual rum export values of up to €4 million per year (i.e. a decrease up to 16.5%), if quota are completely absorbed by non – CARIFORUM countries. The annual loss could increase by up to €174,000 per year. This is likely to have strong negative consequences for the rum industry in CARIFORUM countries.

The ‘zero-for-zero’ agreement set in motion a slow erosion of the Caribbean’s preferential rum tariffs which, because of the 8th European Development Fund’s (EDF) Rum AfT programme, the rum industry was able to accept.

AfT is intended precisely for such instances of trade preference erosion. It can help the Caribbean to adjust to preference erosion, either by making Caribbean producers more productive or by encouraging diversification.

The EDF programme was a four-year package of transitional support, referred to as the Integrated Development Programme for the Caribbean Rum Sector (IDPR). Its objective was to support:

- the upgrading and modernisation of rum production;
- the improvement of waste management and environmental protection;
- the advancement of management skills;
- the marketing and distribution of value-added rums;
- the creation of a Caribbean Rum Marque; and the strengthening and deepening of the industry association.

It had a budget of €70 million from the EU, originally over a four-year period to end in 2007 but subsequently extended to June 2010. Caribbean rum producers themselves contributed €65 million to the programme. The programme is now being taken forward in a secondary phase by a €7.7 million grant from the 10th EDF.

Munzinger and Goodison (2010) report that the funds in the original programme, according to the different targets, were distributed as shown in Table 13.

Table 17. Integrated Development Programme for the Caribbean Rum Sector

Programme element	Allocation €
Support to Caribbean rum producers	46,600,000
WIRSPA	3,450,000
Caribbean rum marque programme	16,900,000
Technical assistance	2,100,000
On-going monitoring	950,000

Source: Munzinger and Goodison (2010)

Munzinger and Goodison emphasise that the support to business plans proved to be one of the most valuable long-term benefits of the programme, as highlighted by various stakeholders interviewed, since it contributed to raising the general standards of business management within the industry. It also helped individual enterprises operationalise the long-term industry vision in ways which were directly relevant to the day-to-day operation of the enterprise. While business plan development support was probably the most useful contribution under the business development services window, it was by no means the only contribution. Funding was also used to provide company-specific technical training, capacity building support and technical assistance support.

Now, in addition to the original liberalisation, CARIFORUM producers face further preference erosion as the EU enters into new free trade and quota agreements with third countries, which will affect vulnerable Caribbean countries such as Guyana, Dominican Republic, Barbados, and Jamaica.[6]

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6. http://www.just-drinks.com/news/caribbean-rum-producers-get-eu-subsidy_id106887.aspx

CARIFORUM countries are particularly vulnerable in the bulk rum categories CN 22084051 and 22084099, for which the EU is introducing a duty-free quota for third countries. We find that category CN 22084051 is more exposed to preference erosion from quotas than category CN 22084099, however, category CN 22084099 is also exposed to the graduation point erosion.

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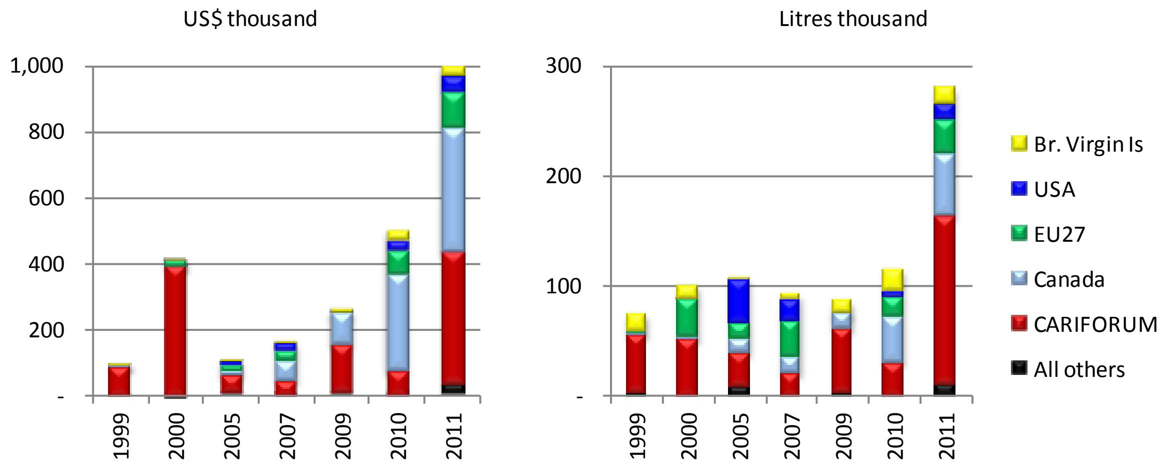
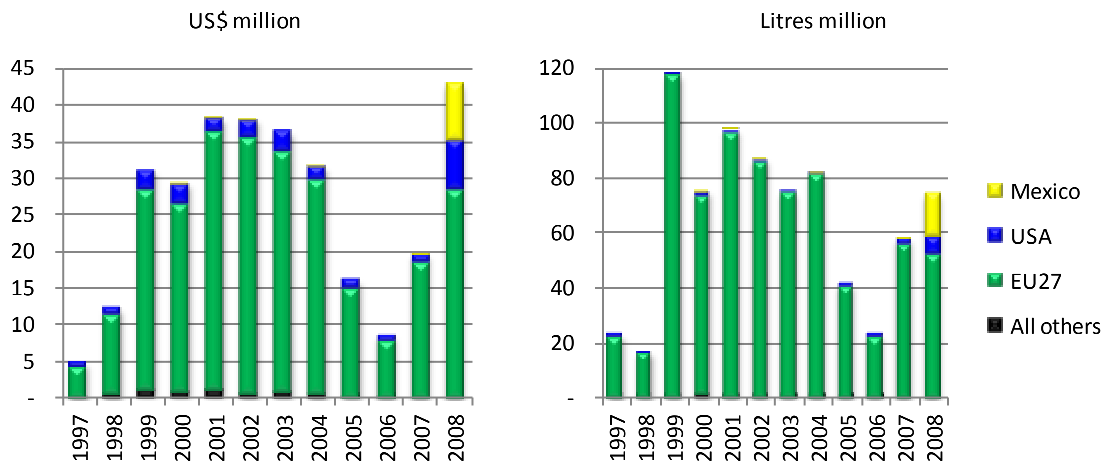
Appendix 1. CARIFORUM rum exports by destination

In all of the following figures, the years shown are the only ones since 1988 for which data are available (unless stated otherwise). The values/quantities shown relate to exports in HS 220840 (rum and tafia).

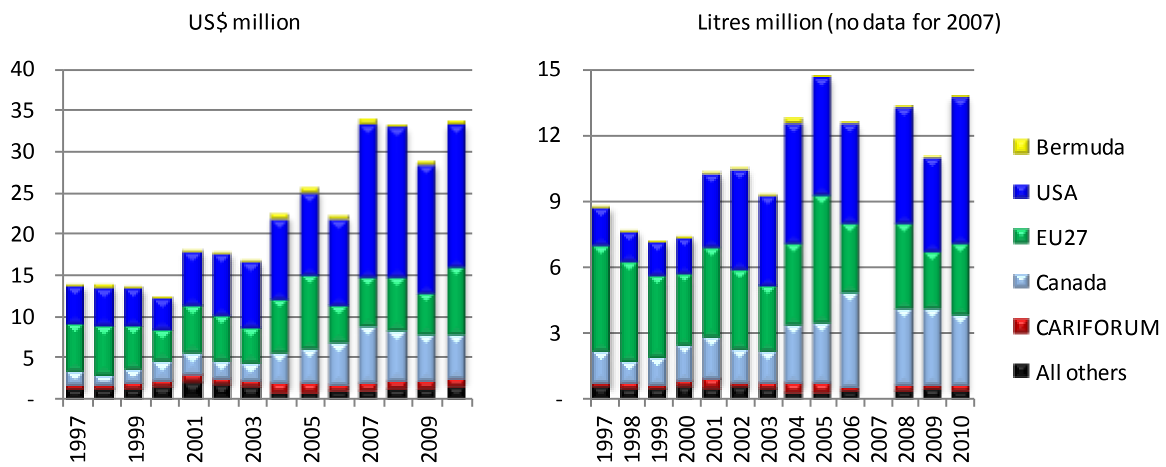
Antigua and Barbuda



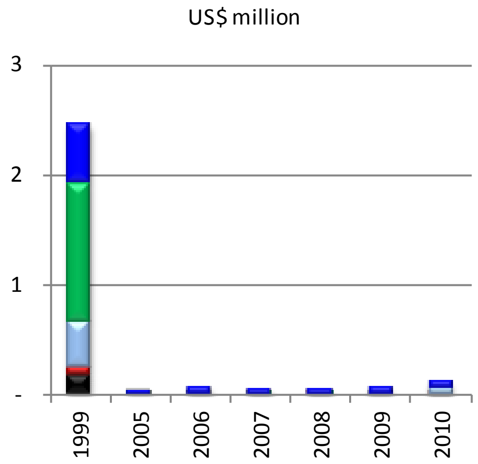
Bahamas

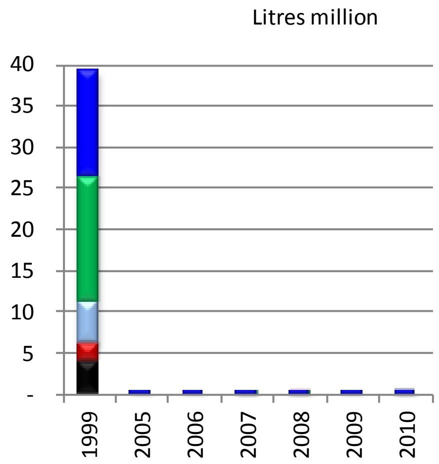


Barbados



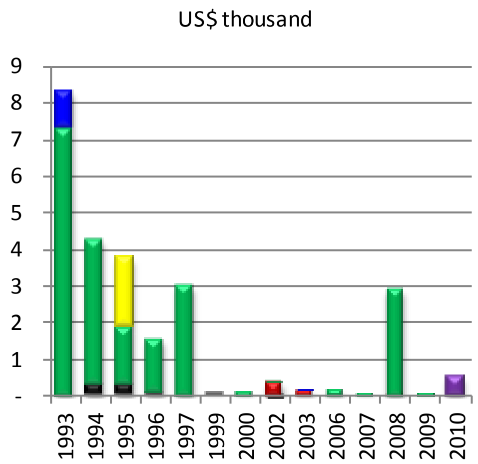
Belize

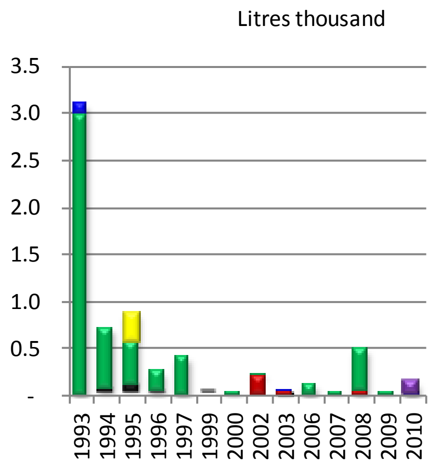




Note: Exports were also reported in 1992–4, 1996–8 and 2000–4, but in all years to a total value of US$ 5,000 or less (usually considerably less). The volumes reported in the years shown other than 1999 were too small to register when plotted.

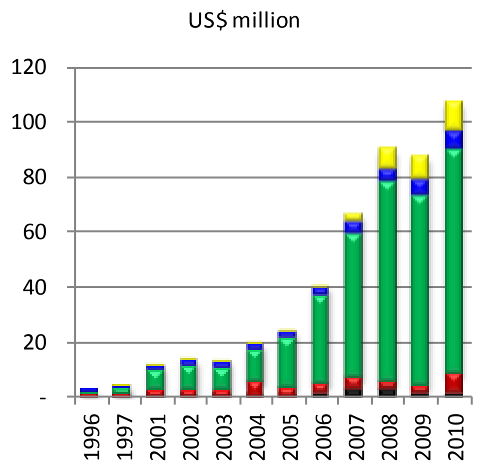
Dominica

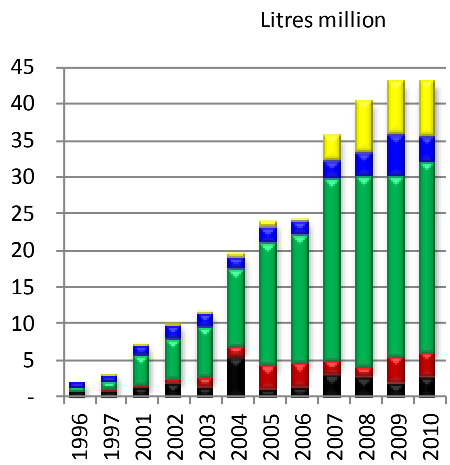




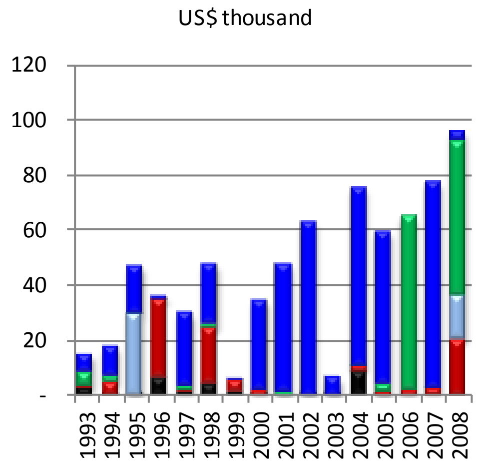
Note: Exports reported in 1999, 2007 and 2009 are too small to show when plotted.

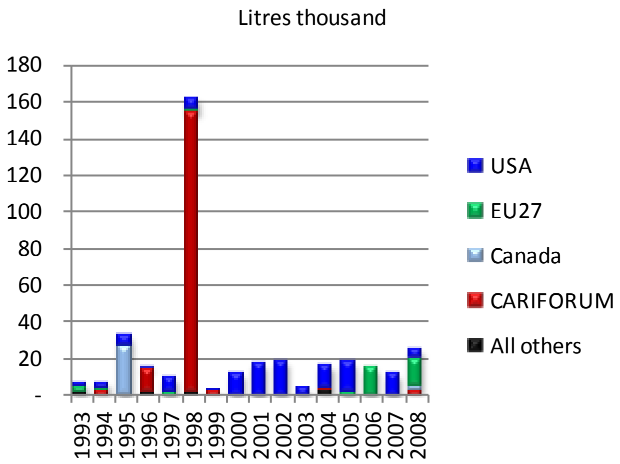
Dominican Republic





Granada





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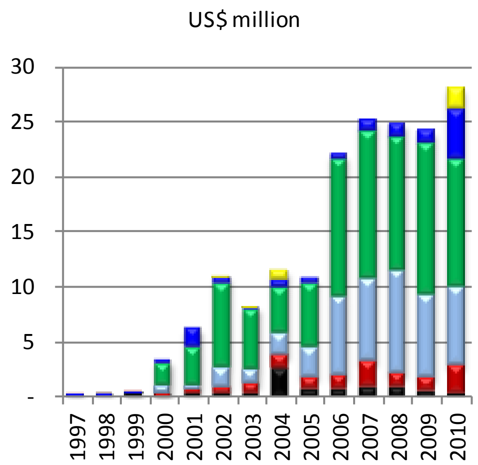
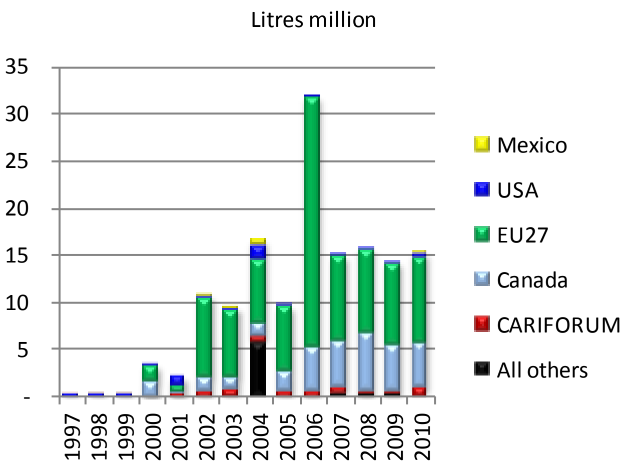
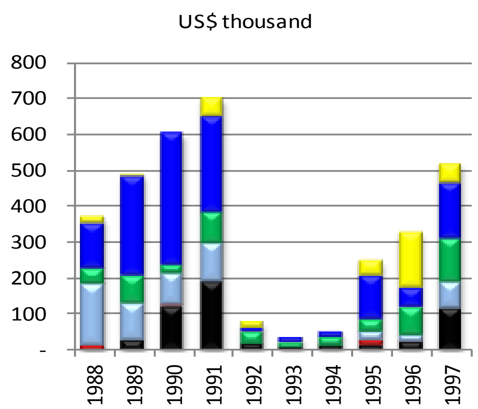
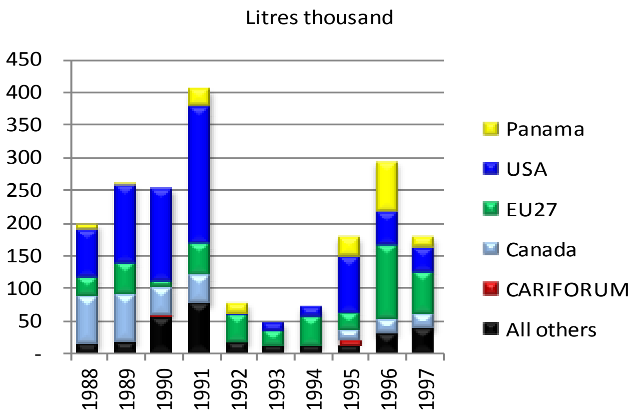




Haiti





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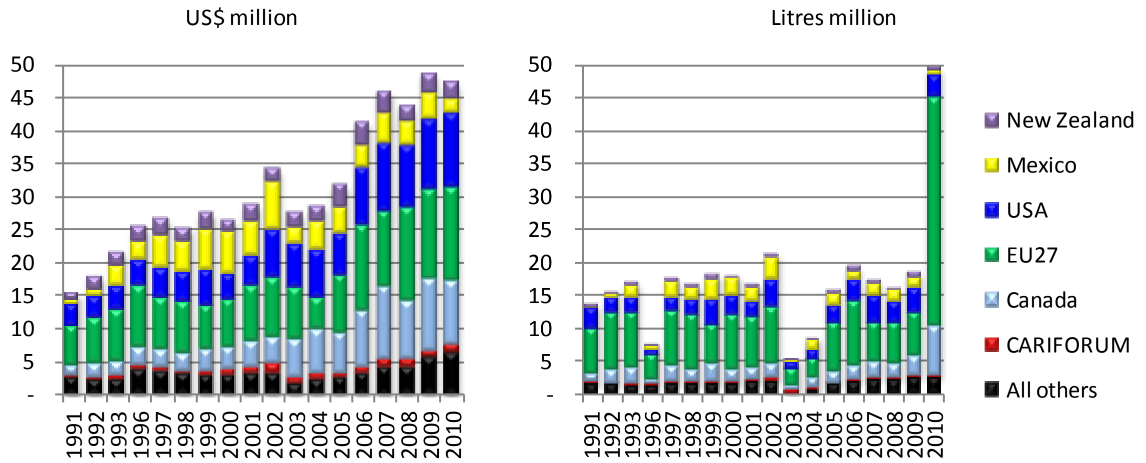
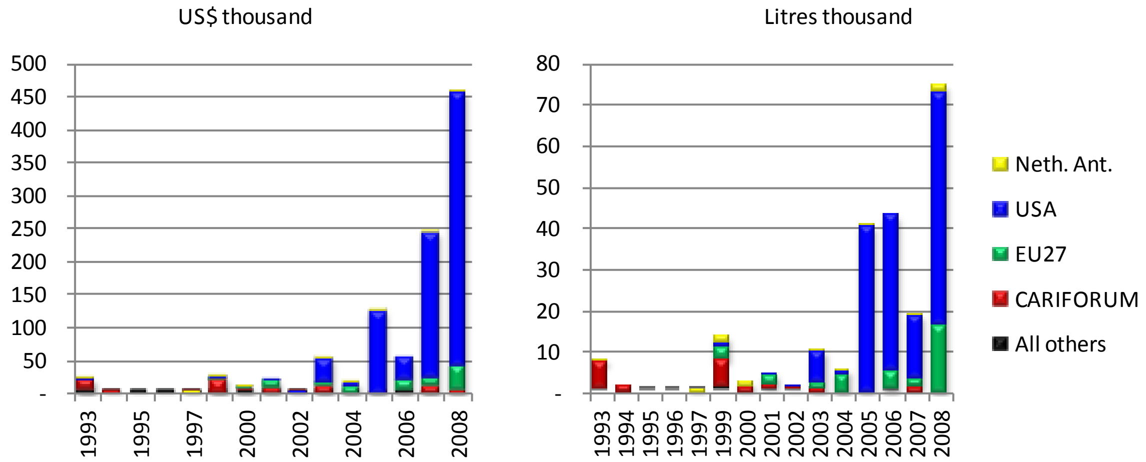
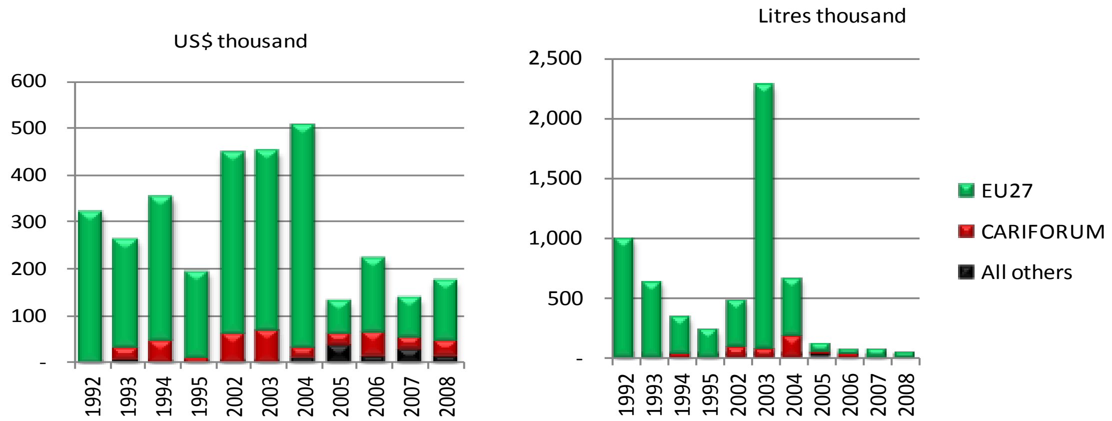


St Kitts

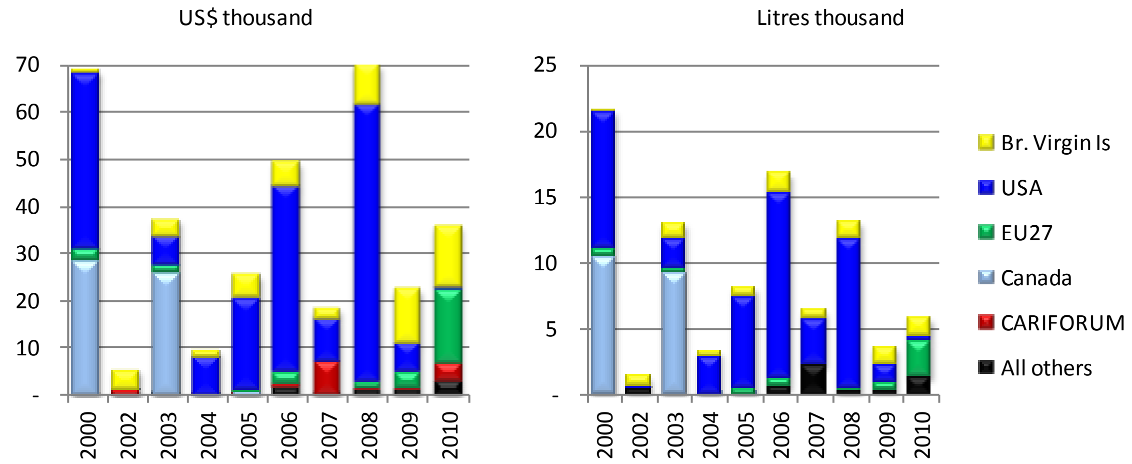


St Lucia



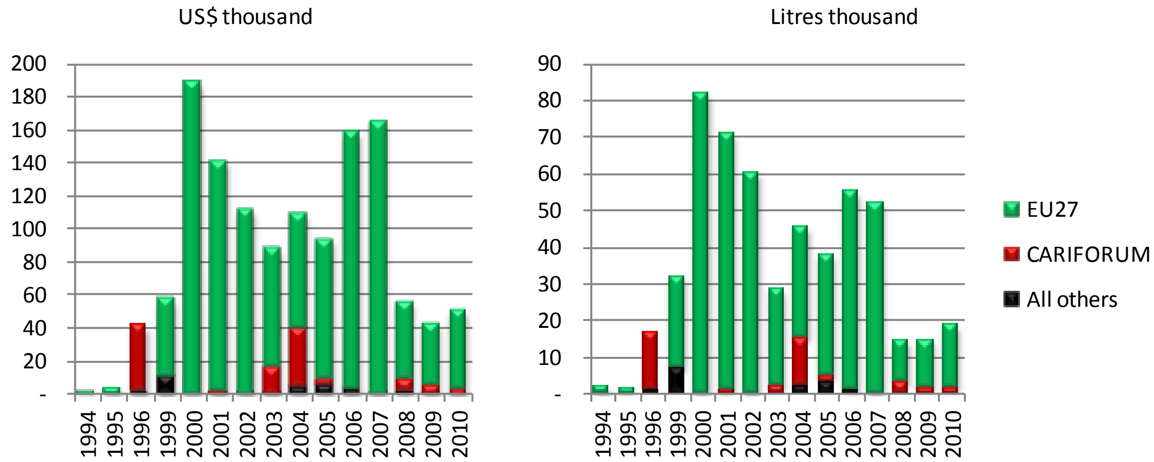
Note: Exports were also reported in 1997–2001, but in all years to a total value of US$ 2,000 or less.

St Vincent and the Grenadines

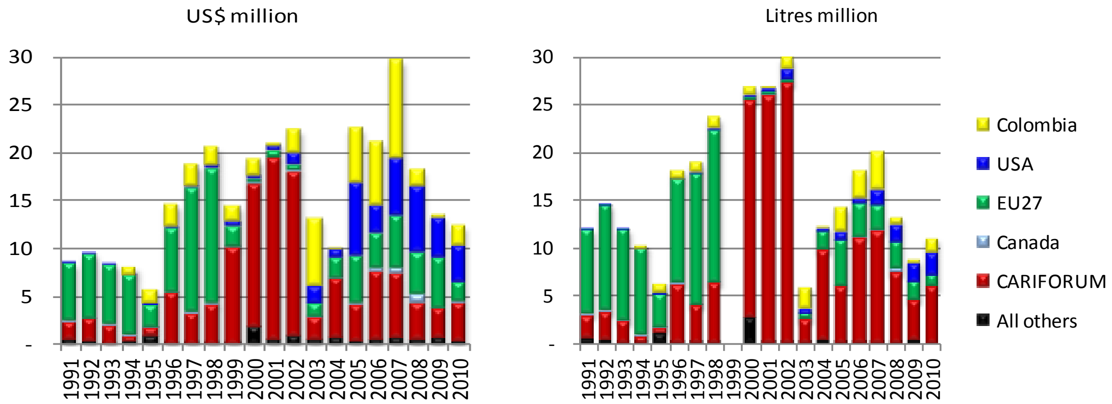


Note: Exports were also reported in 1993–9 and 2001, but in all years to a total value of US$ 3,000 or less.

Suriname



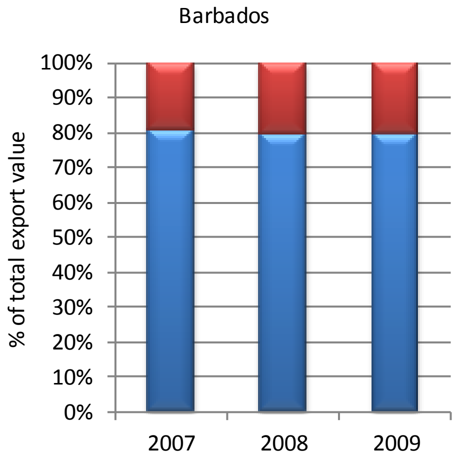
Trinidad and Tobago

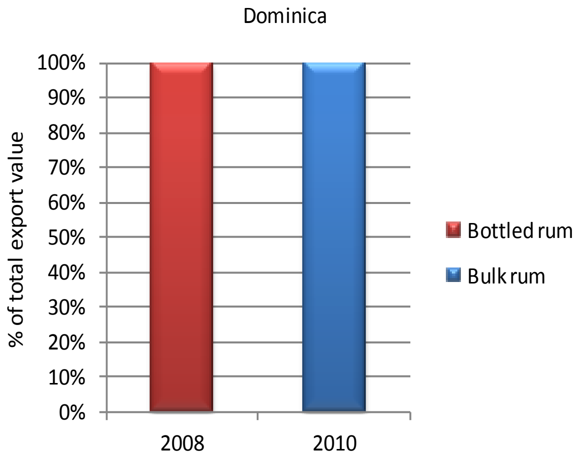


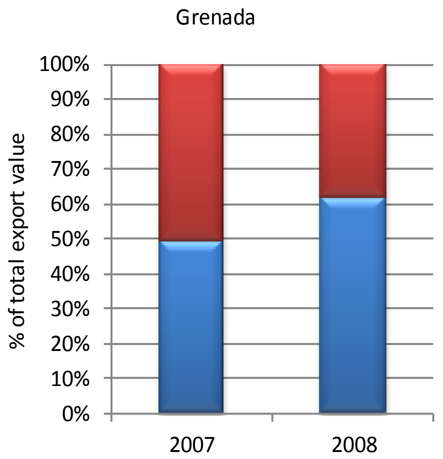
Source: UN COMTRADE database.

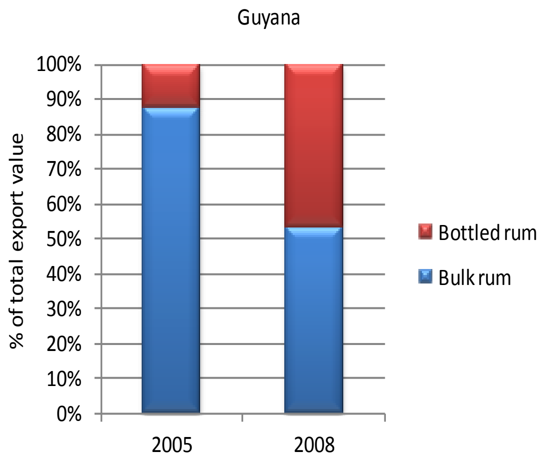
Appendix 2. Breakdown of CARIFORUM rum exports by bottled and bulk rum

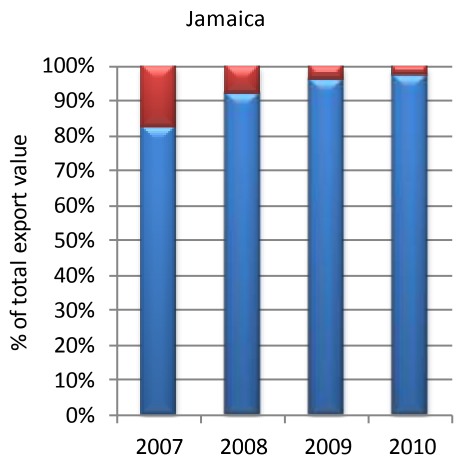
All of the following figures are based on the value of exports to all partners. The countries/years shown are the only ones for which national tariff line data with descriptions which make it possible to distinguish between bulk and bottled rum are available. In all cases, any descriptions not specifically mentioning 'in bottles' have been assumed to refer to bulk rum.

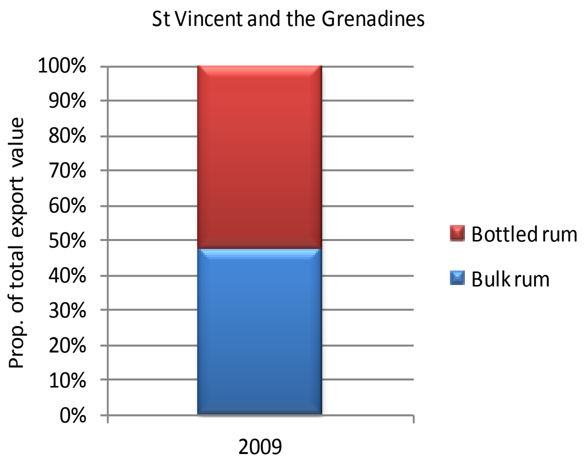


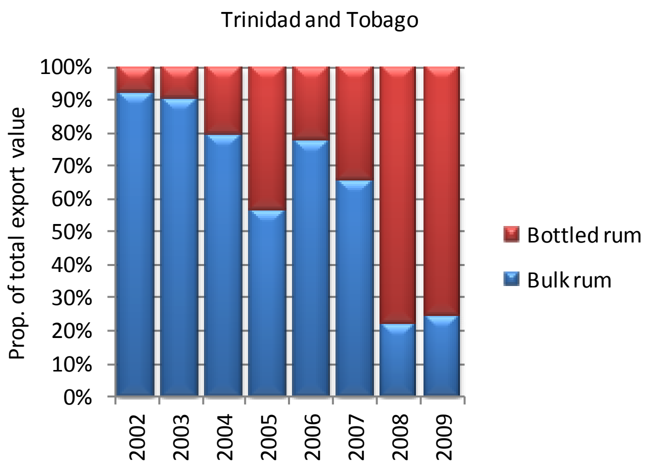










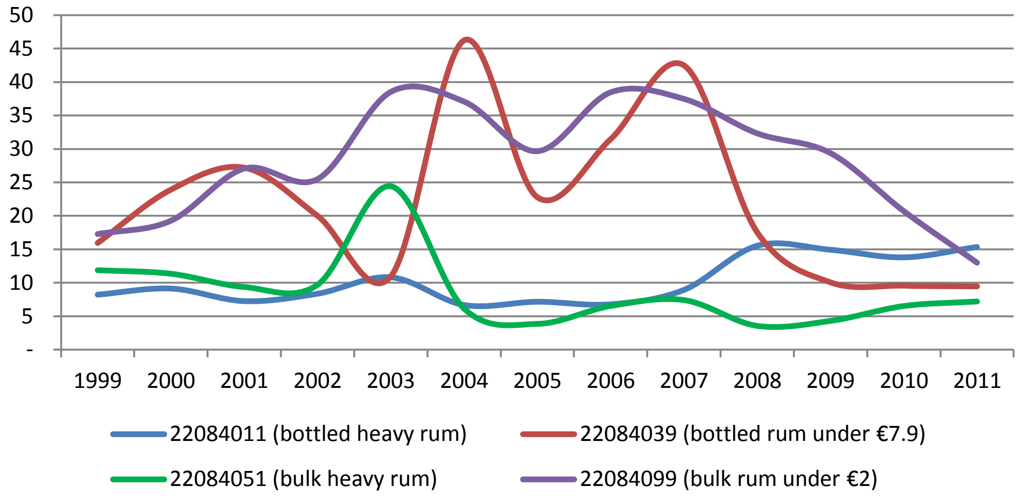


Source: ITC Trade Map.

Appendix 3. Detailed data on EU rum imports

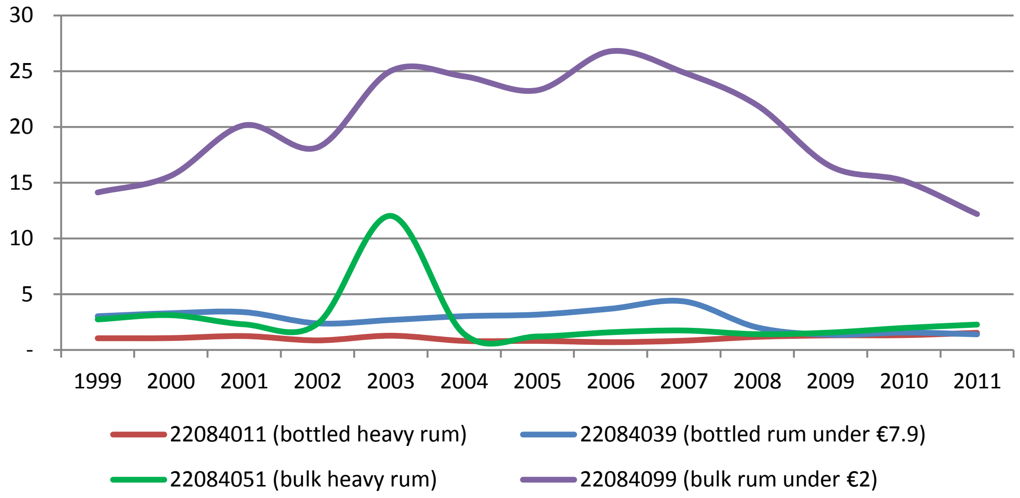
We have collected detailed trade flow data on EU imports from all sources, 1999–2011, for four rum categories, falling under EU CN codes 22084039 (bottled rum under €7.9), 22084099 (bulk rum under €2), 22084011 (bottled heavy rum) and 22084051 (bulk heavy rum). Figures A4.1 and A4.2 show aggregate EU imports by value and by volume respectively.

Figure A4.1. EU 27 imports 1999-2011 by value (€ millions)



Source: Eurostat COMEXT database.

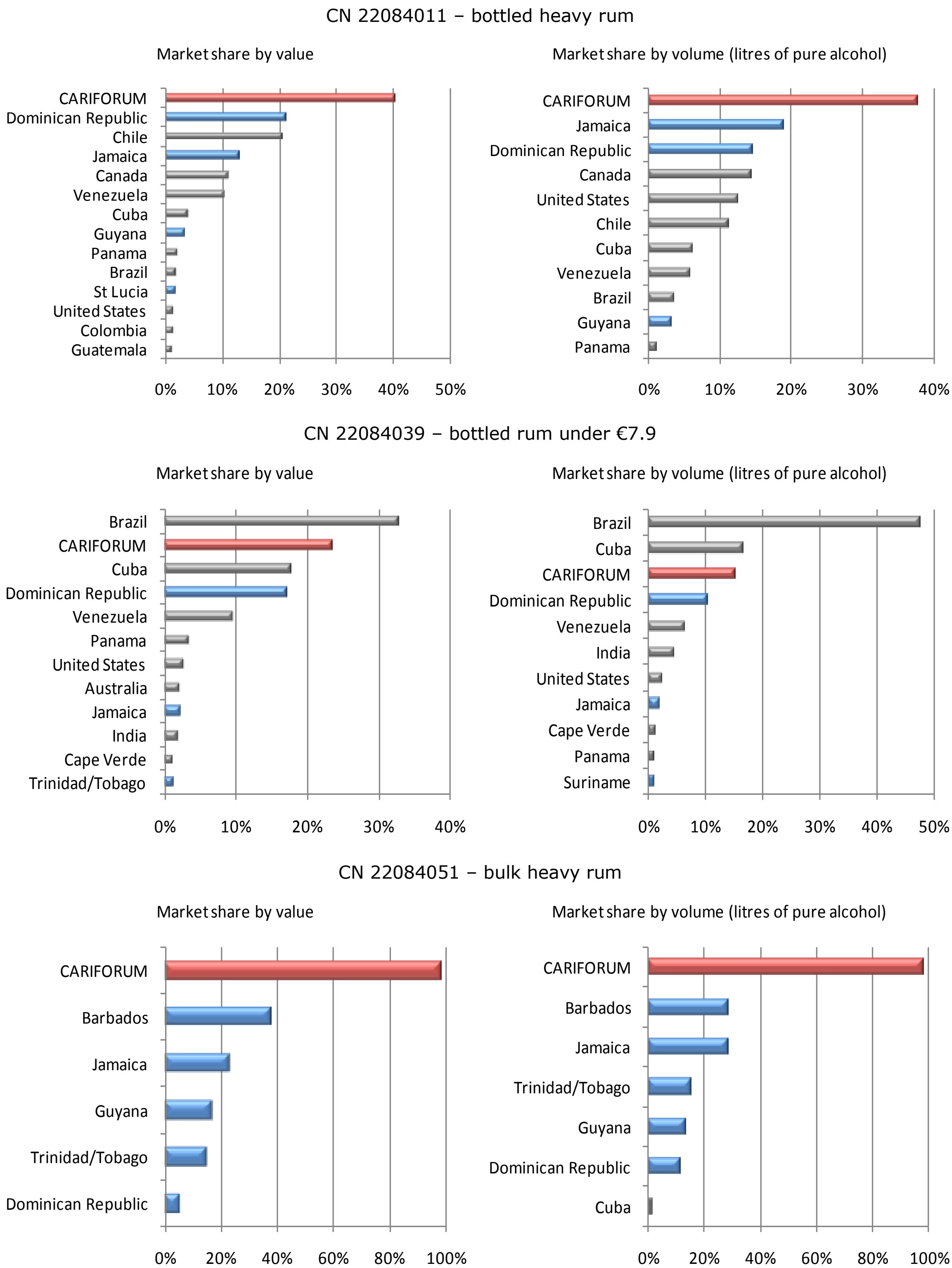
Figure A4.2. EU 27 imports by volume (millions of litres of pure alcohol)



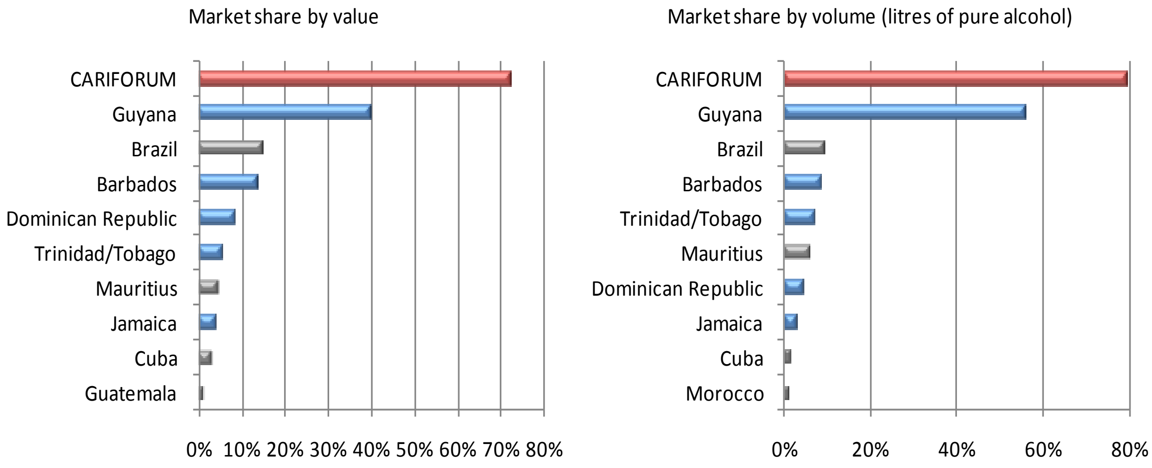
Source: Eurostat COMEXT database.

Figure A4.3 shows the share of CARIFORUM, and individual CARIFORUM countries, in total EU imports of the four categories. CARIFORUM accounts for 98% of the value of EU imports of bulk heavy rum (CN 22084051) and 72% in the case of bulk rum under €2 (CN 22084099). Its share in imports of bottled heavy rum (CN 22084011) and bottled rum under €7.9 (CN 22084039) is less, at 40% and 23% respectively.

Figure A4.3. Share of the EU market, 2011



CN 22084099 – bulk rum under €2



Source: calculated from data obtained from Eurostat COMEXT database.

Appendix 4. EU imports by supplier in 2011, and tariffs applicable

Suppliers in 2011	Value € 2011	Tariff 2012	Suppliers in 2011	Value € 2011	Tariff 2012
22084011: Bottled heavy rum					
CARIFORUM	6,171,141	0	Mauritius	17,136	0
Chile	3,134,576	0.60€/% vol/hl+3.2€/hl	Switzerland	15,592	0
Canada	1,720,821	0.60€/% vol/hl+3.2€/hl	India	15,214	0.60€/% vol/hl+3.2€/hl
Venezuela	1,604,285	0.60€/% vol/hl+3.2€/hl	Seychelles	9,879	0
Cuba	626,551	0.60€/% vol/hl+3.2€/hl	*Not specified*	*5,478*	*n/a*
Panama	356,779	0.60€/% vol/hl+3.2€/hl	Australia	2,973	0.60€/% vol/hl+3.2€/hl
Brazil	329,243	0.60€/% vol/hl+3.2€/hl	China	1,405	0.60€/% vol/hl+3.2€/hl
United States	261,858	0.60€/% vol/hl+3.2€/hl	South Africa	551	0.60€/% vol/hl+3.2€/hl
Colombia	254,696	0.60€/% vol/hl+3.2€/hl	*Stores and provisions*	*224*	*n/a*
Guatemala	206,777	0.60€/% vol/hl+3.2€/hl	El Salvador	186	0.60€/% vol/hl+3.2€/hl
Madagascar	109,856	0	United Arab Emirates	123	0.60€/% vol/hl+3.2€/hl
Costa Rica	94,628	0.60€/% vol/hl+3.2€/hl	Malaysia	79	0.60€/% vol/hl+3.2€/hl
Cape Verde	89,093	0.60€/% vol/hl+3.2€/hl	Thailand	77	0.60€/% vol/hl+3.2€/hl
Virgin Islands (US)	81,879	0.60€/% vol/hl+3.2€/hl	Netherlands Antilles	54	0
Peru	64,194	0.60€/% vol/hl+3.2€/hl	Israel	42	0
Nicaragua	54,680	0.60€/% vol/hl+3.2€/hl	Croatia	34	0
Bermuda	41,372	0.60€/% vol/hl+3.2€/hl	Gabon	20	0.60€/% vol/hl+3.2€/hl
Ecuador	31,291	0.60€/% vol/hl+3.2€/hl	Kenya	5	0
Mexico	29,224	0.60€/% vol/hl+3.2€/hl	Norway	5	0
French Polynesia	22,051	0			
22084039: Bottled rum under €7.9					
Brazil	3,109,785	0.60€/% vol/hl+3.2€/hl	Chile	5,471	0.60€/% vol/hl+3.2€/hl
CARIFORUM	2,212,031	0	Nepal	3,704	0
Cuba	1,664,957	0.60€/% vol/hl+3.2€/hl	Seychelles	3,673	0
Venezuela	910,263	0.60€/% vol/hl+3.2€/hl	Madagascar	2,878	0
Panama	332,162	0.60€/% vol/hl+3.2€/hl	Thailand	1,923	0.60€/% vol/hl+3.2€/hl
United States	266,910	0.60€/% vol/hl+3.2€/hl	French Polynesia	1,849	0
Australia	210,902	0.60€/% vol/hl+3.2€/hl	Netherlands Antilles	1,799	0
India	198,342	0.60€/% vol/hl+3.2€/hl	*Not specified*	*1,560*	*n/a*
Cape Verde	117,357	0.60€/% vol/hl+3.2€/hl	Cayman Islands	1,075	0
Nicaragua	71,863	0.60€/% vol/hl+3.2€/hl	Argentina	876	0.60€/% vol/hl+3.2€/hl
Norway	61,005	0	Pakistan	691	0.60€/% vol/hl+3.2€/hl
Peru	40,500	0.60€/% vol/hl+3.2€/hl	United Arab Emirates	494	0.60€/% vol/hl+3.2€/hl
Costa Rica	35,824	0.60€/% vol/hl+3.2€/hl	Croatia	379	0
Guatemala	34,244	0.60€/% vol/hl+3.2€/hl	Paraguay	358	0.60€/% vol/hl+3.2€/hl
Colombia	29,580	0.60€/% vol/hl+3.2€/hl	Hong Kong	281	0.60€/% vol/hl+3.2€/hl
Mauritius	28,278	0	Philippines	121	0.60€/% vol/hl+3.2€/hl
Switzerland	19,299	0	*Stores and provisions*	*110*	*n/a*
Virgin Islands (US)	18,117	0.60€/% vol/hl+3.2€/hl	New Zealand	87	0.60€/% vol/hl+3.2€/hl
Ecuador	16,418	0.60€/% vol/hl+3.2€/hl	Viet-Nam	78	0.60€/% vol/hl+3.2€/hl
Mexico	15,577	0.60€/% vol/hl+3.2€/hl	Malaysia	58	0.60€/% vol/hl+3.2€/hl
Ukraine	13,894	0.60€/% vol/hl+3.2€/hl	Taiwan	30	0.60€/% vol/hl+3.2€/hl
Honduras	12,381	0.60€/% vol/hl+3.2€/hl	Japan	7	0.60€/% vol/hl+3.2€/hl
Canada	9,109	0.60€/% vol/hl+3.2€/hl	South Africa	1	0.60€/% vol/hl+3.2€/hl
Bermuda	5,808	0.60€/% vol/hl+3.2€/hl			
22084051: Bulk heavy rum					
CARIFORUM	7,094,396	0	United States	1,339	0.60€/% vol/hl
Cuba	67,707	0.60€/% vol/hl	Colombia	280	0.60€/% vol/hl
Mauritius	24,880	0	Thailand	89	0.60€/% vol/hl
Brazil	19,479	0.60€/% vol/hl	Norway	59	0
Switzerland	1,642	0	Taiwan	22	0.60€/% vol/hl

Suppliers in 2011	Value € 2011	Tariff 2012	Suppliers in 2011	Value € 2011	Tariff 2012
22084099: Bulk rum under €2					
CARIFORUM	9,366,397	0	Panama	34,445	0.60€/% vol/hl
Brazil	1,961,244	0.60€/% vol/hl	Swaziland	25,937	0
Mauritius	626,488	0	Paraguay	9,944	0.60€/% vol/hl
Cuba	453,266	0.60€/% vol/hl	Norway	7,255	0
Guatemala	197,391	0.60€/% vol/hl	Colombia	3,705	0.60€/% vol/hl
Morocco	101,928	0	Cape Verde	3,035	0.60€/% vol/hl
United States	95,866	0.60€/% vol/hl	Chile	1,871	0.60€/% vol/hl
Fiji	66,682	0	Switzerland	740	0
Venezuela	42,354	0.60€/% vol/hl			
22084031: Bottled rum over €7.9					
CARIFORUM	66,424,338	0	Seychelles	12,232	0
Cuba	32,244,757	0	Australia	10,560	0
Guatemala	15,766,540	0	United Arab Emirates	9,514	0
Venezuela	4,738,978	0	Virgin Islands (US)	6,763	0
United States	4,587,381	0	Br. Indian Ocean Terr.	5,906	0
Chile	3,147,375	0	South Africa	5,023	0
Panama	2,977,131	0	Norway	2,499	0
Nicaragua	2,568,796	0	Paraguay	1,452	0
Brazil	1,021,065	0	Bermuda	1,193	0
Colombia	947,672	0	Thailand	716	0
Mexico	732,878	0	Japan	354	0
Canada	432,629	0	*Not specified*	*323*	*0*
Anguilla	420,571	0	China	256	0
Mauritius	389,249	0	Serbia	240	0
Peru	330,890	0	Madagascar	193	0
Costa Rica	165,567	0	India	143	0
Virgin Is (Br.)	124,822	0	Malaysia	132	0
Israel	124,267	0	Myanmar	34	0
Cape Verde	73,160	0	Croatia	31	0
Uruguay	43,175	0	Viet-Nam	22	0
Singapore	42,888	0	Russian Federation	14	0
New Zealand	32,317	0	Philippines	10	0
Switzerland	31,816	0	Namibia	8	0
Argentina	15,802	0			
22084091: Bulk rum over €2					
United States	196,478,895	0	Brazil	752,645	0
Mexico	26,418,876	0	Nicaragua	133,592	0
CARIFORUM	19,616,905	0	Paraguay	78,877	0
Cuba	13,721,717	0	Guatemala	29,320	0
Venezuela	9,484,309	0	Colombia	19,016	0
Panama	1,863,519	0	Canada	10,196	0

Sources: EU Taric Consultation, Eurostat COMEXT database.

Appendix 5. The evolution of EU rum preferences

Yellow shading shows when preferences were applicable or became applicable for the beneficiary in question (although new preferences may not have started on 1 January of the year shown).

The preference beneficiaries in any given year are the same for all four rum codes for which preferences currently exist.

The figures shown in the cells are an approximation of the value of imports from the preference beneficiary/ies in question (in € million). There is obviously a large amount of overlap (e.g. ACP, Everything But Arms, Economic Partnership Agreements, Eastern and Southern Africa, Papua New Guinea, etc.), and some uncertainty in a few cases as to what the EU considered the composition of a preferred group to be at any given time, so these values are indicative only.

Preferred supplier	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ACP	26.7	27.2	33.1	33.3	54.8	66.7	42.7	62.7	69.0					
Albania	-	0.0	-	-	-	-	-	-	-	-	-	-	-	
Algeria	-	-	-	-	-	-	-	-	-	-	-	-	-	
Andorra	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	-	-	
Bosnia and Herzegovina	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	-	
Ceuta	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
EBA (exc. Myanmar)	0.4	0.1	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.3	0.4	
EEA [a]	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Egypt	-	0.0	-	-	0.0	-	-	-	-	-	0.0	-	-	
EPA										43.8	36.2	33.5	25.8	
ESA [b]	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.7	0.8	
FYR Macedonia	-	-	-	-	-	-	-	-	-	-	-	-	-	
Israel	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	
Jordan	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kosovo	-	-	-	-	-	-	-	-	-	-	-	-	-	
Liechtenstein	-	-	-	0.0	-	-	-	-	-	-	-	-	-	
Melilla	-	-	-	-	-	-	-	-	-	-	-	-	-	
Moldova	-	-	-	-	-	-	-	0.0	-	-	-	-	-	
Montenegro	-	-	-	-	-	-	-	-	-	-	-	-	-	
Morocco	0.1	0.1	0.2	0.1	0.2	0.0	-	-	0.1	0.2	0.1	0.1	0.1	
Occ. Palestine Territory [c]	-	-	-	-	-	-	-	-	-	-	-	-	-	
OCTs	0.1	0.0	0.0	0.0	0.0	-	0.0	-	0.1	-	0.0	0.0	0.0	
Papua New Guinea	-	-	-	-	-	-	-	-	-	-	-	-	-	
San Marino	-	-	-	-	-	-	-	-	-	-	-	-	-	
Serbia	-	-	-	-	-	-	-	-	-	-	-	0.0	-	
South Korea	-	-	-	-	-	0.0	-	-	-	-	0.0	0.0	-	
Switzerland	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tunisia	-	-	-	-	0.0	-	-	-	-	-	-	-	-	
Turkey	0.0	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	-	

Notes:
(a) Iceland, Liechtenstein, Norway.
(b) Madagascar, Mauritius, Seychelles, Zimbabwe.
(c) West Bank and Gaza Strip 1999–2000.

Sources: EU Taric Consultation, Eurostat COMEXT database.

Appendix 6. Liberalisation of the EU's preferential rum tariffs in bilateral FTAs

The concessions which have been granted to date by the EU in FTAs with third countries are as follows:

Central America
(Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama)

Once ratified by the European Parliament, the following market access will apply:

- Bulk rum from Central America will be subject to a regional duty-free tariff quota of 7,000 hectolitres (HL)[7] per year, increasing by 300 HL per year.
- Panama will receive a separate quota of 1,000 HL per year, increasing by 50 HL per year. All figures being expressed in pure alcohol.
- Bottled rum tariffs will be eliminated over three years in equal stages 'beginning on the date of entry into force of this Agreement, and such goods shall be duty-free, effective January 1 of year three'.

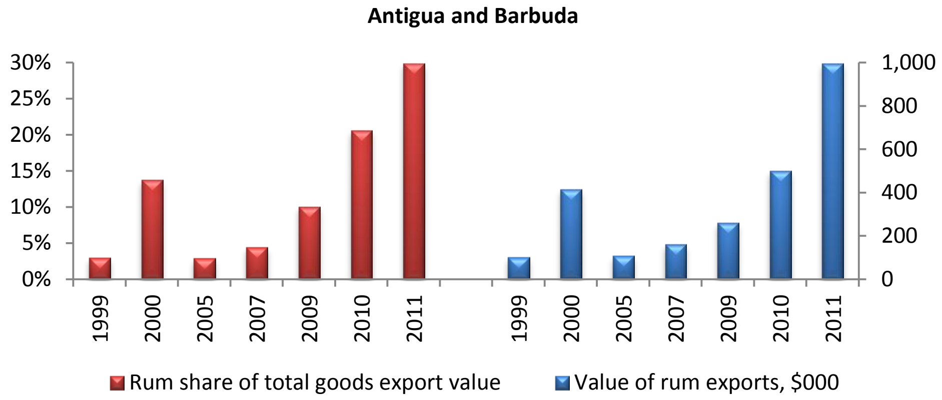
Peru and Colombia

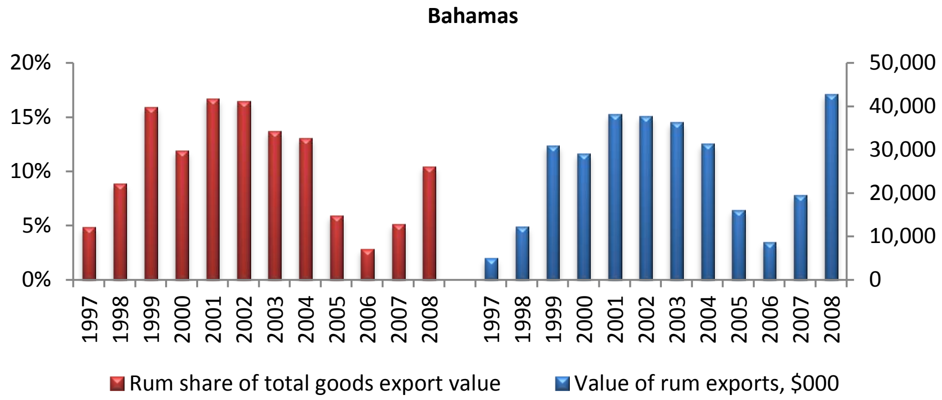
Once ratified by the European Parliament, the following market access will apply:

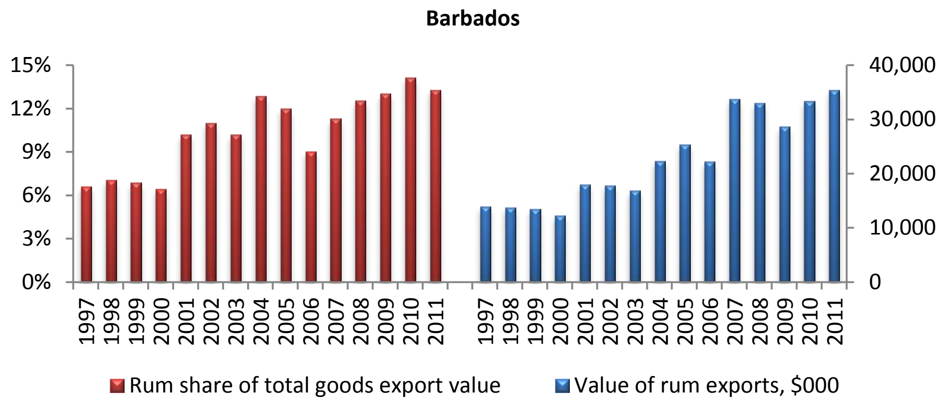
- Bulk rum from Peru will be subject to a duty-free quota of 1,000 HL, with an annual increase of 100 HL (pure alcohol).
- Bulk rum from Colombia will be subject to a duty-free quota of 1,500 HL with an annual increase of 100 HL (pure alcohol).
- Bottled rum from Peru and Colombia will have duties eliminated over four years in equal reductions beginning on the date the agreement enters into force and such goods will be duty free effective on 1st January of year four.

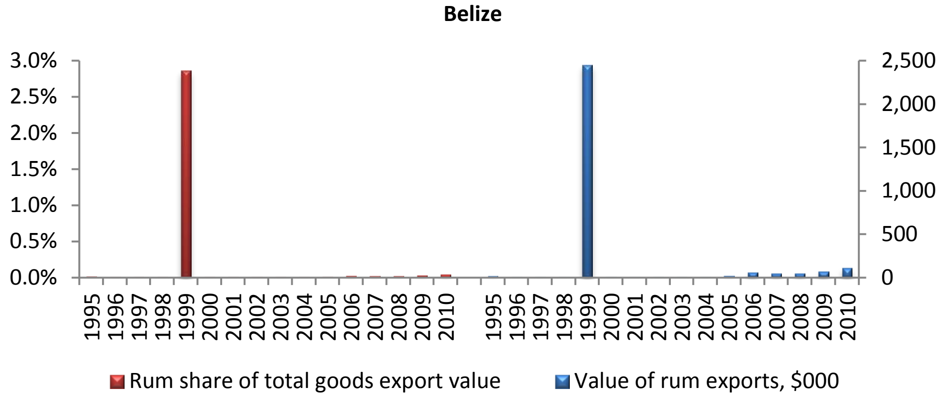
7. The European Commission expresses the tariff duties in hectolitres. A hectolitre is 100 litres.

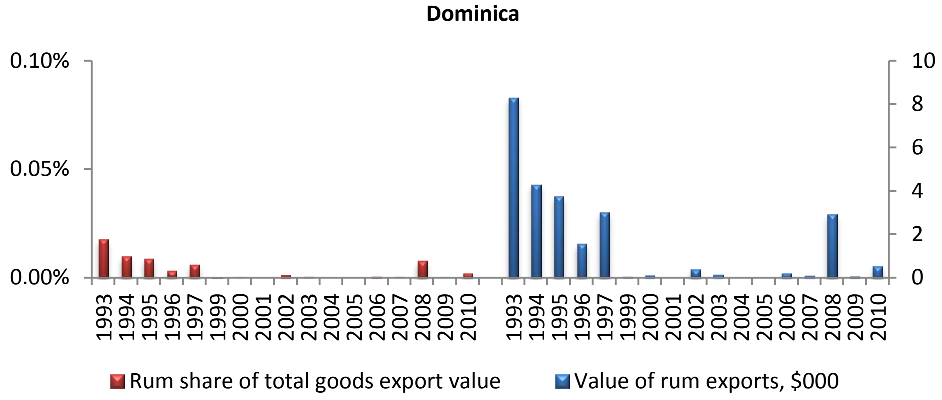
Appendix 7. The value of CARIFORUM countries' rum exports and their share in total goods exports

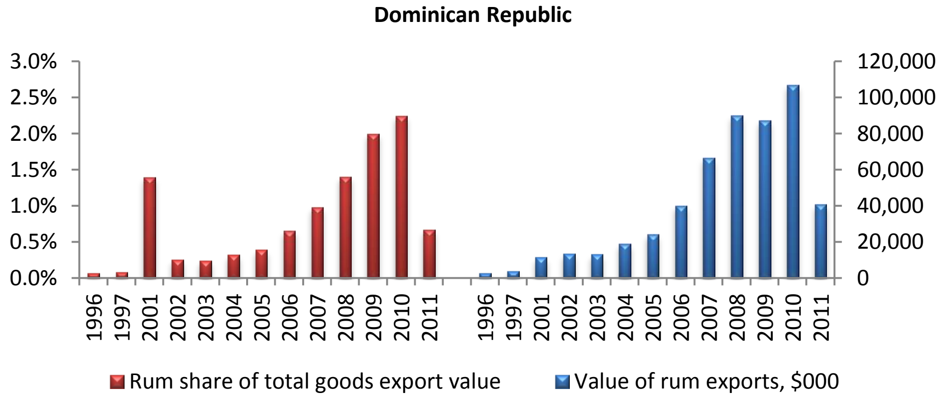


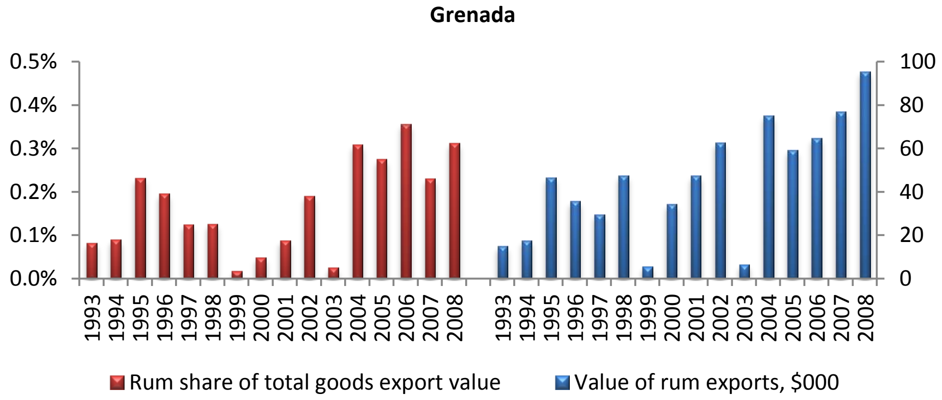


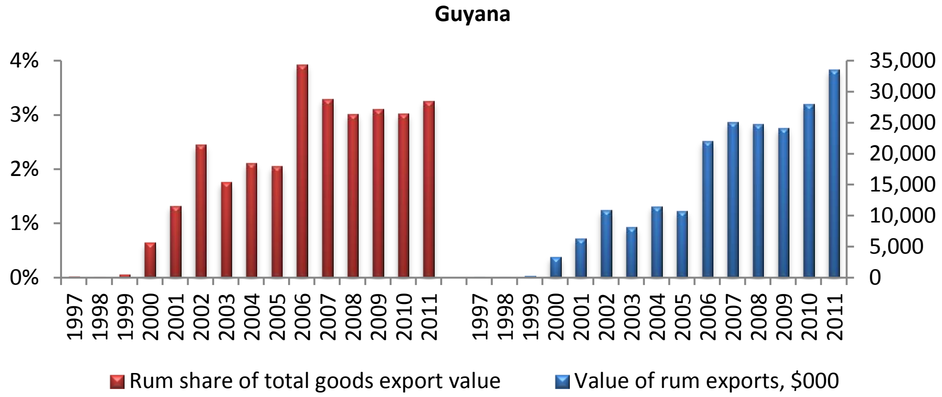


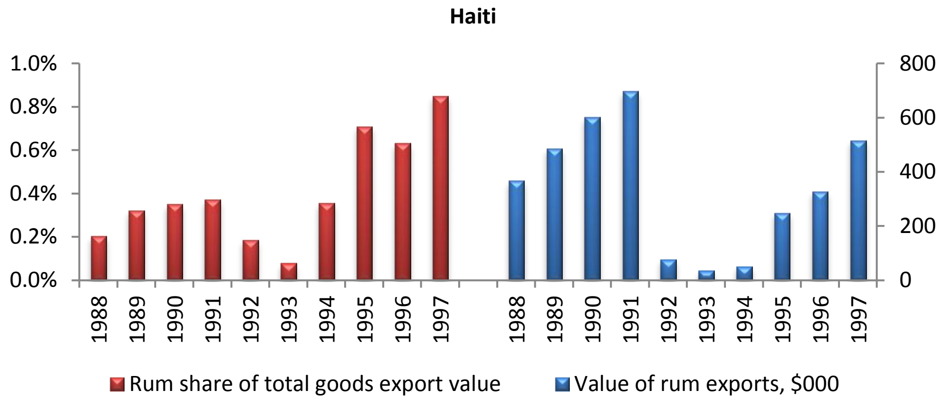

Belize
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
2,500
2,000
1,500
1,000
500
0
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Rum share of total goods export value
Value of rum exports, $000

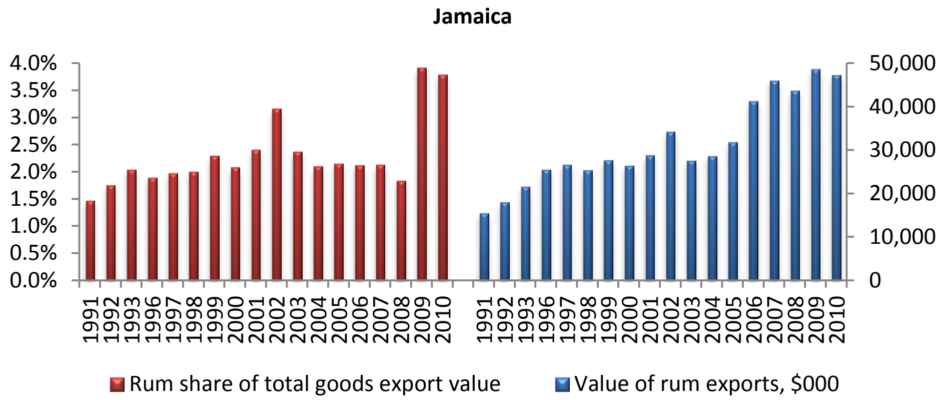

Dominica
0.10%
0.05%
0.00%
10
8
6
4
2
0
1993 1994 1995 1996 1997 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Rum share of total goods export value
Value of rum exports, $000

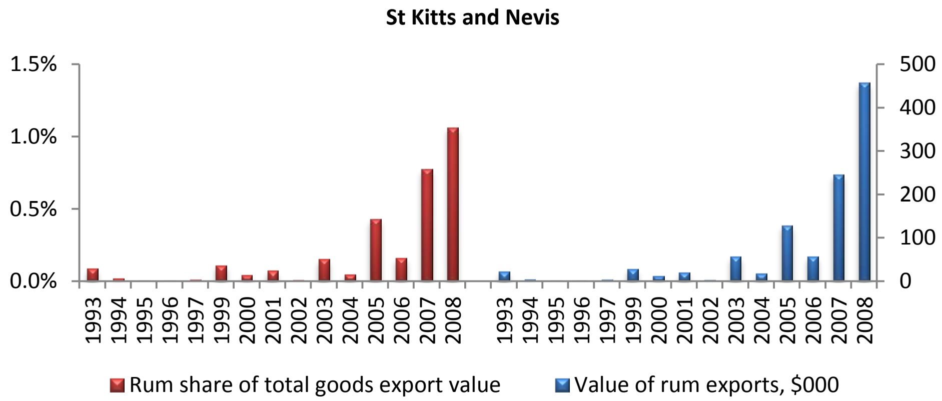

Dominican Republic
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
120,000
100,000
80,000
60,000
40,000
20,000
0
1996 1997 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Rum share of total goods export value
Value of rum exports, $000

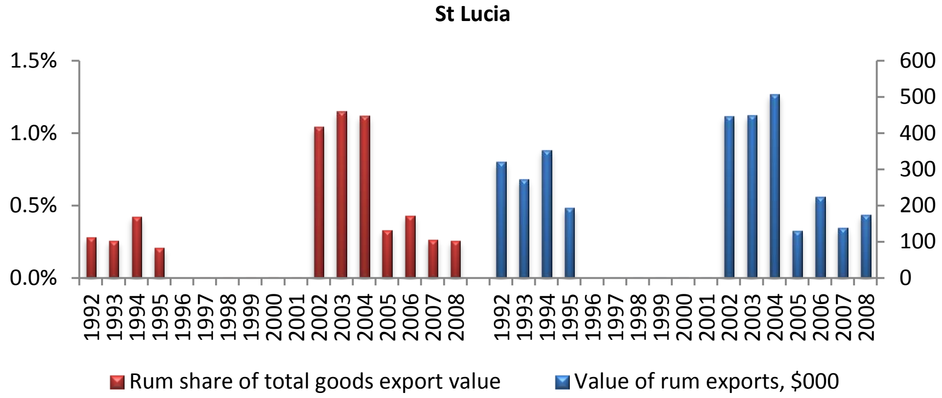

Grenada
0.5%
0.4%
0.3%
0.2%
0.1%
0.0%
100
80
60
40
20
0
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
Rum share of total goods export value
Value of rum exports, $000

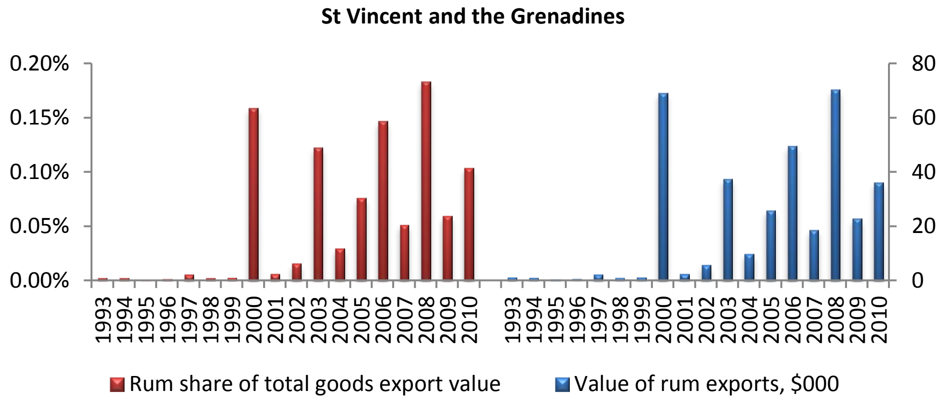

Guyana
4%
3%
2%
1%
0%
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Rum share of total goods export value
Value of rum exports, $000

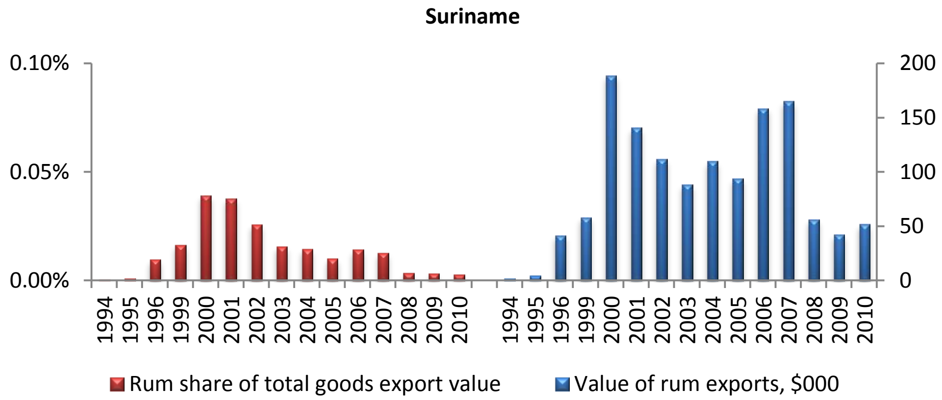

Haiti
1.0%
0.8%
0.6%
0.4%
0.2%
0.0%
800
600
400
200
0
1988 1989 1990 1991 1992 1993 1994 1995 1996 1997
1988 1989 1990 1991 1992 1993 1994 1995 1996 1997
Rum share of total goods export value
Value of rum exports, $000

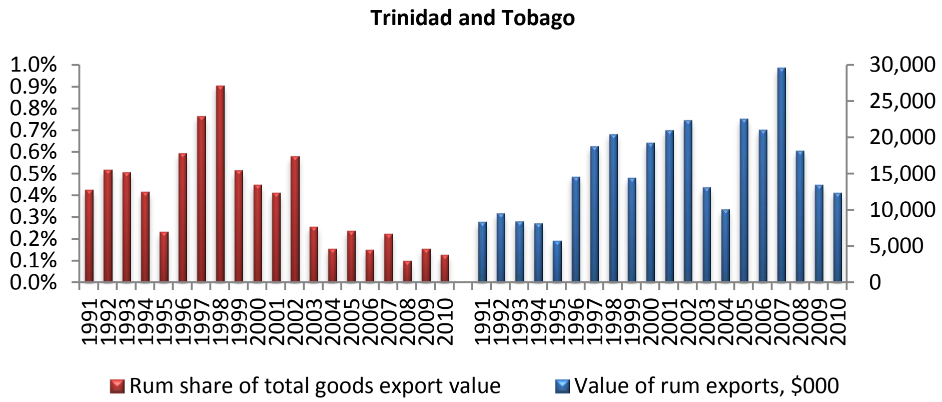

Jamaica
4.0%
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
50,000
40,000
30,000
20,000
10,000
0
1991 1992 1993 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
1991 1992 1993 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Rum share of total goods export value
Value of rum exports, $000


St Kitts and Nevis
1.5%
1.0%
0.5%
0.0%
500
400
300
200
100
0
1993 1994 1995 1996 1997 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
1993 1994 1995 1996 1997 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
Rum share of total goods export value
Value of rum exports, $000









Note: The years shown for each country are all those since 1991 for which data are available.
Source: UN COMTRADE database.

Appendix 8. Methodological Appendix

In economic models panel data analysis deals with time series of observations at individual rather than aggregate level. In a fixed effect model the regression line is lowered or raised by a fixed amount for each individual represented by the equation 1).

1) $y_{i,t} = \alpha + z_i + \beta X_{i,t} + \varepsilon_t$

Another approach is to consider individual differences as random disturbances drawn from some specified distributions:

2) $y_{i,t} = \alpha + v_i + \beta X_{i,t} + \varepsilon_t$

Where v is the random term representing individual differences. For our exercise we apply the random effects model where individuals are represented by rum categories. The random effects model is adopted to estimate the Armington elasticity representing the percentage variation of CARIFORUM/NON CARIFORUM relative quantities (y) deriving from a percentage change in CARIFORUM/NON CARIFORUM relative prices (x).

We stress that the results presented in this paper are preliminary and intended to foster a discussion. Specifically, we would like to stress the following:

- data for individual rum categories can be unreliable – there are large swings, possibly linked to reclassifications, relocation and graduation (in some cases unit values are outside the stipulated thresholds);
- regressions depend on 13 years of observations (though more in pooled regressions) and there will be many factors that influence the rum market beyond price;
- we are able to report on only the most general results; and
- we were not able to obtain reliable rum production cost data.