



The EU-CARIFORUM Economic Partnership Agreement (EPA)

An assessment of the static welfare impacts on Guyana

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Abstract

Purpose – The entry into force of the EU-CARIFORUM Economic Partnership Agreement (EPA) marks the beginning of a new era of trade relations, from preferential treatment to reciprocity, between the member states of the European Union (EU) and the Caribbean Forum (CARIFORUM) of African, Caribbean and Pacific (ACP) states. In light of the controversy regarding the impact of the agreement, an assessment is made on the static welfare impact it is likely to generate on consumers in Guyana.

Design/methodology/approach – The assessment is done through the application of a partial equilibrium model to the 2008 import and tariff data of Guyana. The model captures the static welfare effect that will be occasioned by a change in tariff on imports.

Findings – The study finds that there will be a static net welfare loss to the tune of US\$31.01 million or 2.2 percent of Guyana's GDP obtained for 2008. The loss is due to a large trade diversion effect which is the product of the fact that over the years Guyana imported little from the EU relative to the rest of the world minus CARIFORUM sources.

Originality/value – Unlike its forerunner, the import data used in this study is for the year immediately before the entering into force of the EU-CARIFORUM EPA and reflects the exact amount of imports that will be liberalized by Guyana. In addition, the study is broader in scope as it focusses on the EU-27, which is the exact number of EU member states with whom Guyana has signed the aforementioned agreement. Subject to its exactness, the study is better positioned in having its findings be used as a yardstick, given the periodic mandatory review of the EU-CARIFORUM EPA.

Keywords European Union, CARIFORUM, Economic Partnership Agreement, Static welfare, Trade creation, Trade diversion

Paper type Research paper

1. Introduction

The October 2008 signing of an Economic Partnership Agreement (EPA) marked the beginning of a new era of trade relations between the member states of the European Union (EU)[1] and the Caribbean Forum (CARIFORUM) of African, Caribbean and Pacific (ACP) states. Unlike its predecessors [Lomé I (1975-1980), Lomé II (1980-1985), Lomé III (1985-1990), Lomé IV (1990-2000)], which saw the EU according to the ACP group of states, discriminatory non-reciprocal access to its market, the EU-CARIFORUM EPA mandates the granting of market access in a reciprocal manner. The departure is said to have resulted from the 1996/97[2] successful challenge by the USA to the World Trade Organization (WTO) that the preferences offered for the exporting of bananas under the Lomé Convention are incompatible with the rules of the WTO, and the view that obtaining a waiver from the WTO for the renewal of the Lomé Convention, which was up for renewal in 2000, was uncertain (EU, 1996). Thus, the Lomé Convention was succeeded by the Cotonou Agreement (2000-2020), which obtained a waiver that temporarily extended the provisions of the Lomé Convention up until December 31, 2007,



and committed the EU and the ACP group of states to negotiate by no later than December 31, 2007, WTO-compatible EPAs that “shall enter into force by January 1, 2008.”

As indicated above, however, it was not until in October 2008 that the EU-CARIFORUM EPA was signed and then entered into force through provisional application on December 29, 2008 (Caribbean Regional Negotiating Machinery (CRNM), 2009). It means therefore, that as of the beginning of 2009, Guyana, which is a member of CARIFORUM, has entered into a new era of trade relations with the EU. In all likelihood, the EU-CARIFORUM EPA will impact Guyana in many ways, static as well as dynamic. And in accordance with Article 246, the impact is subject to a review every five years – the first of which is scheduled for October 2013.

In line with the available data, therefore, this study focusses on the static welfare impact, which the liberalization of imports in goods from the EU by Guyana will generate on consumers in Guyana. The outcome, which is a projection, provides a basis against which the actual static welfare impact can be compared. The remainder of the paper is organized as follows. Section 2 contextualizes the trade in goods component of the EU-CARIFORUM EPA within the framework of the WTO. Section 3 provides a review of relevant literature. Section 4 outlines the theoretical and empirical frameworks. Section 5 presents the empirical results and Section 6 is the focus of the conclusion.

2. Contextualizing the EU-CARIFORUM EPA

The EU-CARIFORUM EPA agreement is one that essentially establishes a free trade area (FTA)[3], between the two parties as provided for under the rules of the WTO. In terms of the trade in goods it complies with Article XXIV of the General Agreement on Tariffs and Trade (GATT), which provides the framework for a WTO-compliant FTA. Article XXIV: 8(b) stipulates that an FTA is WTO compliant when “the duties and other restrictive regulations [...] are eliminated on substantially all the trade” between the members thereof. The article also provides for a transitional application of the liberalization that is required under an FTA, providing that the transition does not exceed “a reasonable” period of time (Article XXIV: 5(c)).

However, there is no legal or official interpretation of “substantially all trade,” and “a reasonable” period of time. The two concepts are, therefore, subjected to different interpretations. Under the EU-CARIFORUM EPA, the EU has agreed to liberalize 100 percent of the value of its imports from CARIFORUM, which has agreed to reciprocate with 86.9 percent (CRNM, 2009).

The liberalization of the EU’s 100 percent value of imports from CARIFORUM was scheduled to be fully liberalized when the agreement enters into force (effectively, December 29, 2008), excepting for rice, which was, and sugar which is, scheduled for full liberalization by 2010 and by 2015, respectively (CRNM, 2009). In its reciprocation, CARIFORUM has agreed to fully liberalize 56 percent of the value of its imports from the EU by 2013. This amount will increase to 61.1 percent by 2018, then to 82.7 percent by 2023, before reaching 84.6 percent by 2028, and finally to 86.9 percent by 2033; a total time period of 25 years (CRNM, 2009). It means, therefore, that by 2033 the pattern of Guyana’s imports of goods as indicated by Table I will change significantly as it is likely that imports will shift from CARIFORUM and the ROW to the EU. It is the impact of the likely change that this study seeks to make an assessment of.

3. Literature review

The literature on the welfare impacts, occasioned by trade creation and diversion effects, of preferential trade arrangements (PTAs)[4] is, like many other areas of study,

twofold: theoretical and empirical. The theoretical literature has its genesis in the work of Viner (1950) and among the most recent pieces of contribution are those of Panagariya (1998), Greenaway and Milner (2003), and McKay *et al.* (2005). However, whether or not a PTA is welfare improving or diminishing is a matter for empirical analysis. Therefore, rather than dwelling on theoretical intuitions, this study focusses on the growing body of empirical literature on the likely welfare impacts of EPAs between the EU and the various ACP states. Greenaway and Milner (2003) estimated the welfare effects, which an EPA between the EU-15 and nine member states of the Caribbean Community (CARICOM), will have on the latter group of states. They applied a partial equilibrium model (PEM) to the 1997 import data, at the two-digit level of the Standard International Trade Classification (SITC), for Dominica, St Kitts and Nevis, and to the 1998 import data, at the same level and classification, for Barbados, Belize, Grenada, Jamaica, St Lucia, Trinidad and Tobago, and St Vincent and the Grenadines. Using import demand and substitution elasticities widely used in similar studies, the authors estimated a net welfare loss of EC\$14.96 million, EC\$20.39 million, EC\$131.71 million, EC\$43.5 million, EC\$21.83 million, EC\$550.31 million, EC\$42.64 million, EC\$292.9 million, and EC\$16.36 million for Dominica, St Kitts and Nevis, Barbados, Belize, Grenada, Jamaica, St Lucia, Trinidad and Tobago, and St Vincent and the Grenadines, respectively. Gasiorek *et al.* (2006) estimated the welfare impacts, which an EPA between the EU-15 and the member states of CARIFORUM, will have on the latter group of states excepting Haiti. They applied a PEM to the import data of a particular year for some of the member states and to the average of a few years for the other member states at the six-digit level of the HS classification. Using the mid-range value of an adopted three-range set of import demand and substitution elasticities, which were also differentiated for agricultural goods (01-24), raw materials (25-27), and manufactured goods (28-97), the authors estimated net welfare gains that range from US\$0.26 million (St Kitts and Nevis) to US\$0.77million (Guyana) to US\$4.03 million (Dominican Republic), with an overall simple average of US\$1.57million. Busse and Großmann (2007) assessed the potential impacts, which an EPA between the EU-15 and 13 countries of the Economic Community of West African States (ECOWAS), and Mauritania, will have on the latter group of countries, including Mauritania. In so doing, they applied a PEM to the import data of 2000 for Ghana and Nigeria, and of 2001 for the remaining countries at the four-digit of the Harmonized Commodity Description and Coding System (HS). Using the mid-range value of an assumed three-range set of import demand and substitution elasticities, which were also differentiated for agricultural goods (01-24), raw materials (25-27), and manufactured goods (28-97), the authors found that for all the countries trade creation exceeds trade diversion. However, there is a loss in welfare as a result of customs revenue losses, which range from 2.5 percent (Nigeria) to 21.9 percent

Table I.
Guyana's imports from
CARIFORUM, the EU, and
the ROW (US\$ (M))

HS Code	CARIFORUM			EU			ROW		
	2007	2008	Average	2007	2008	Average	2007	2008	Average
01-24	36.42	51.46	43.94	22.12	38.80	30.46	86.65	103.57	95.11
25-27	192.5	279.62	236.06	0.66	0.35	0.51	69.87	176.79	123.33
28-97	73.82	88.61	81.22	93.15	70.15	81.65	452.14	534.14	493.14
Total	302.74	419.69	361.22	115.93	109.30	112.62	608.66	814.50	711.58

Source: UN COMTRADE

(Gambia) of total government revenue, with an overall simple average of 8.3 percent. Vollmer *et al.* (2009) estimated the potential welfare effects, which an EPA between the EU-25 and nine Sub-Saharan African countries within the ACP grouping, will have on the latter group of countries. They applied a PEM to the 2005 import data, for the nine Sub-Saharan African countries, at the six-digit level of the HS classification. Using estimated import demand and substitution elasticities, the authors found that for most of the nine countries trade creation effects outweigh trade diversion effects (TDEs). When compared to their overall trade volume, only Côte d'Ivoire, Ghana, and Kenya experience relatively small welfare losses as a result of the trade effects. They noted also that with the exception of these three countries, the loss in customs revenue that will be experienced by all will be compensated by the welfare gains from the trade effects.

This study is in many ways similar and different to those that are reviewed. Like each of them, it applies a PEM as it seeks to assess the welfare impact of an EPA, in an imperfect product substitution world, between the EU and various countries (in this case, CARIFORUM) of the ACP group. It is similar also in that, like the studies reviewed, it assumes that no domestic production exists in relation to the imports of the country (countries) under study. Thus, like each of them, welfare is defined by reference only to the change in consumer surplus. Further, it uses the import demand and substitution elasticities that were used in Gasiorek *et al.* (2006). It differs, in that, the import data is for the year immediately before the entering into force of the agreement and it is based on the exact amount that will be liberalized. In addition, it focusses on the EU-27 rather than on the EU-15 or the EU-25.

4. Theoretical and empirical frameworks

4.1 Theoretical framework

The pioneering work by Viner (1950) has become the basis for the theoretical frameworks that are used to assess the trade creation, trade diversion, and revenue effects that determine the welfare impacts of trading preferentially. Among the most recent of such theoretical frameworks are those of Greenaway and Milner (2003). In Greenaway and Milner (2003), the authors outlined two distinct theoretical frameworks. The first pertains to a PTA in a perfect substitution world, whereby there exists perfect substitutability between products regardless of where they are produced. The second pertains to a PTA in an imperfect world, whereby products are distinguished by their source of production; the so called Armington (1969) assumption. For this study, the latter is preferred over the former because Guyana's imports are predominantly manufacturing goods and therefore, unlike agricultural products, the Armington (1969) assumption of is more appropriate.

The framework also assumes that the members of the PTA face increasing costs internally and constant costs externally[5] along with iso-elastic import-demand functions. In addition, it is assumed that suppliers compete against each other to supply the market of the members of the PTA[6]. Although the framework is based on Viner (1950), however, it needs slight modification. This is because, with the EU-CARIFORUM EPA, Guyana, which is a member of a PTA (CARIFORUM)[7], has an agreement to remove tariffs on its imports from the members of another PTA (the EU). Therefore, while in standard PTA analysis, "trade creation usually describes the displacement of less efficient home production by globally efficient extra-regional production" (Greenaway and Milner, 2003, p. 3), the EU-CARIFORUM EPA will entail the replacement of Guyana's imports from the rest of CARIFORUM "by more (but not

necessarily globally) efficient [...] imports" from the EU (Greenaway and Milner, 2003). This is referred to as the displacement-induced trade creation effect (DITCE). Similarly, while in standard analysis "trade diversion relates to diverting trade from more efficient extra-regional to less efficient intra-regional suppliers" (Greenaway and Milner, 2003), the EU-CARIFORUM EPA will divert "between extra-regional suppliers" (Greenaway and Milner, 2003), whereby Guyana's imports from more efficient non-EU and non-CARIFORUM sources (the rest of the world (ROW)) will be diverted in preference for EU sources that are less efficient, but whose prices are lower because of the preferential treatment. This is referred to as the TDE. It will trigger a loss in customs revenue that Guyana levies on imports from the ROW. However, the preferential treatment given to imports from the EU under the agreement will occasion an increase in the quantity demanded by consumers in Guyana prior to the time when the agreement was not in force. This is referred to as the consumption-induced trade creation effect (CITCE). Greenaway and Milner (2003) graphically illustrate this and the other points mentioned before.

In Figure 1, the authors, for analytical simplicity, assumed that all regions (in this case CARIFORUM, the EU, and the ROW) are constant [8] and equal cost [9] suppliers to market *H* (in this case Guyana) and that there is no domestic production capability [10]. The import prices in market *H* prior to the entry into force of the CARIFORUM-EU EPA are $P_B P_{ROW} (1 + t)$ and $P_{EU} (1 + t)$. The corresponding import volumes are OM_1 , OM_2 , and OM_3 , with the subscripts 1, 2, and 3, representing CARIFORUM, the ROW, and the EU, respectively. Following the entry into force of the agreement the new equilibrium for imports of EU varieties by Guyana will shift to a price-quantity combination of P_{EU} and OM_3' . This increase in imports from the EU represents the CITCE, with the associated consumer welfare gain represented by the triangle *e*. In the other segments of market *H*, the fall in price for EU imports to Guyana implies an increase in relative prices of imports from other sources (that is, from CARIFORUM, and the ROW). Therefore, D_H^P and D_H^{ROW} will shift inwards to $D_H^{P'}$ and $D_H^{ROW'}$, respectively. The volume of imports from the ROW contracts from OM_2 to OM_2' and this captures the TDE. It results in a fall in customs revenue, represented by the area *b*. Finally, Guyana's imports from the rest of CARIFORUM will shift toward EU sources, falling from OM_1 to OM_1' , with $M_1'M_1$ capturing the DITCE.

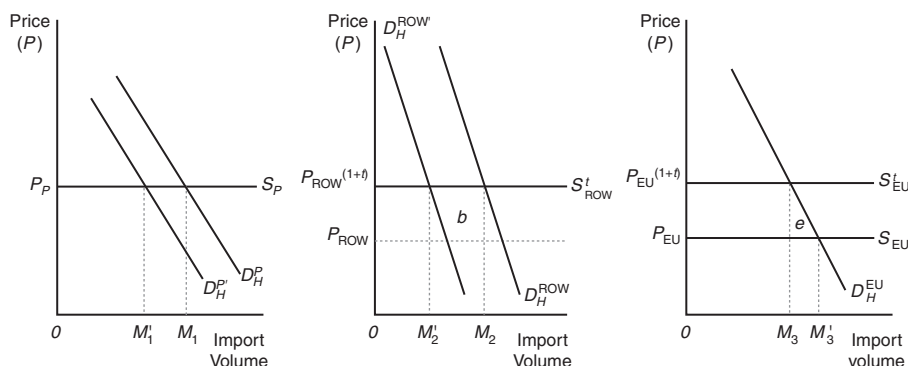


Figure 1.
Effects of an EPA between
the EU and CARIFORUM
on Guyana in an imperfect
substitution world

Note: D_H^{EU} is constructed to represent only the direct consumption induced, trade creation effect of the fall in price of EU imports.

4.2 Empirical framework and data

The EU-CARIFORUM EPA will bear both static and dynamic effects within and between the countries involved. Thus, the appropriate empirical framework for this purpose is the general equilibrium models (GEMs). The popular approach in the literature has been the use of the global trade analysis project (GTAP) model (see e.g. Karingi *et al.*, 2005; Keck and Piermartini, 2005), which is a multi-product and multi-country computable general equilibrium (CGE) model.

However, GEMs are data-intensive frameworks, as they require the use of input-output tables. This level of data is not available for Guyana. Moreover, as acknowledged by Karingi *et al.* (2005), Milner *et al.* (2002) correctly point out that the GTAP database for GEMs lacks the commodity detail to take account of the specific sensitive and special products that will be of special interest to members of a PTA. The level of commodity detail (HS six-digit level) that this study deals with, therefore, clearly renders the use of a GEM inappropriate. In light of such problems, this study adopts a partial equilibrium framework model that was developed by Greenaway and Milner (2003). PEMs are less data-intensive and can capture trade creation, trade diversion, and revenue effects of a PTA at the product level. Consequently, the results are quite useful for policymakers and negotiators, as trade negotiations are done at a much disaggregated product level. The major shortcoming of PEMs, however, is that they do not capture dynamic or second-round effects such as interactions between sectors.

The Greenaway and Milner (2003) technique was developed to identify the welfare impact of reciprocal trade liberalization in the context of a potential PTA. Fundamentally, the instrument models imports to a member of an established PTA (in this case Guyana in CARIFORUM) from other members thereof, and from its different external suppliers (in this case, the EU and the ROW). Thus, in line with Figure 1, ΔM_1 and ΔM_2 capture the substitution of import source from supplier 1 (CARIFORUM) and 2 (the ROW) to supplier 3 (the EU). Strictly this should be included in ΔM_3 , but for presentational simplicity, ΔM_3 is restricted to the CITCE. Thus:

$$\Delta M_3 = \frac{\Delta t}{1+t} e_M^D M_3 UV_3 \quad (1)$$

where Δt is the change in the *ad valorem* tariff as a result of the EU-CARIFORUM EPA; t the *ad valorem* tariff levied by Guyana on imports for any selected year from the EU prior to the EU-CARIFORUM EPA; e_M^D the elasticity of import demand (EID) for imports from the EU by Guyana; M_3 the volume of Guyana's imports from the EU for any selected year prior to the EU-CARIFORUM EPA; and UV_3 the average unit value of Guyana's imports from the EU for any selected year prior to the EU-CARIFORUM EPA.

In an imperfect substitution world, where products are distinguished by their source of production, the EU-CARIFORUM EPA will not see Guyana completely shifting all its imports from CARIFORUM and the ROW to the EU. Therefore, in terms of the DITCE (ΔM_1) and the TDE (ΔM_2), the magnitude of import source substitution can be estimated[11] by means of the elasticity of import substitution between imports from the different sources (in this case, suppliers 1, 2, and 3). Thus:

$$\Delta M_i = \frac{\Delta t}{1+t} \sigma_{i3} M_i UV_i \quad (i = 1, 2) \quad (2)$$

where σ_{i3} is the elasticity of import substitution (EIS) between Guyana's imports from i and the EU; M_i the volume of Guyana's imports from i for any selected year prior to the EU-CARIFORUM EPA; and UV_i the average unit value of Guyana's imports from i for any selected year prior to the EU-CARIFORUM EPA.

Given that the members of CARIFORUM have been trading preferentially [12] prior to the EU-CARIFORUM EPA, the displacement of Guyana's imports from CARIFORUM by imports from the EU will generate no effects on customs revenue. However, the displacement of Guyana's imports from the ROW by imports from the EU (trade diversion) will generate an effect on customs revenue. Therefore, the total customs revenue effect (TCRE), ΔR , can be estimated as the sum of customs revenue losses due to the change in the *ad valorem* tariff applied to the value of imports from the EU prior to the EU-CARIFORUM EPA, and customs revenue lost on imports shifted from the tariff-paying ROW to the EU as a result of the EU-CARIFORUM EPA. This can be represented as:

$$\Delta R = \Delta t M_3 UV_3 + t \Delta M_2 \quad (3)$$

where Δt , M_3 , UV_3 , and t are the same as they are for Equation (1); and ΔM_2 the change in volume of Guyana's imports from the ROW due to the EU-CARIFORUM EPA.

It should be noted, however, that there is a tendency for the model to record all losses in customs revenue as losses in welfare. This occurs because it remains uncertain as to whether the consumers of imports from the EU before and after the EU-CARIFORUM EPA will turn out to be the same persons whose public consumption is likely to be negatively affected by the loss in customs revenue. Moreover, the DITCE (ΔM_1) will tend to redistribute from CARIFORUM's producers to consumers in Guyana, the difference between the prices for imports from CARIFORUM and the EU. However, there may be a tendency for the model to understate the value of the redistribution in the event of rising rather than constant cost [13] on the part of CARIFORUM. This study, therefore, like many others (see e.g. Zgovu and Kweka, 2007; Greenaway and Milner, 2003), excludes any quantitative welfare assessment pertaining to the size of the redistribution.

Subject to the foregoing caveats, the net welfare effect (NWE) [14] of the EU-CARIFORUM EPA can be estimated as:

$$\Delta W = 0.5 \Delta t (\Delta M_3) + \Delta R \quad (4)$$

where the coefficient 0.5 captures the average between the *ad valorem* tariff levied by Guyana on imports from the EU prior to and after the EU-CARIFORUM EPA; and Δt is the same as it is for Equation (1), ΔM_3 is given by Equation (1), and ΔR is given by Equation (3).

The data for Equations (1)-(4) was obtained from various sources. Import data for 86.9 percent of the value of Guyana's imports for 2008 at the six-digit level of the HS 2007 classification, differentiated between agricultural goods (01-24), raw materials (25-27), and manufactured goods (28-97), was extracted from the UN COMTRADE database, through the World Integrated Trade Solution (WITS).

The year 2008 was selected as the base year from which to estimate the welfare impacts of the EU-CARIFORUM EPA because it was the year after the EU became EU-27 and it was also the year that immediately preceded the entering into force of the agreement. The data on the simple average applied most-favored-nation (MFN)

ad valorem tariff (for each of the three differentiations) was obtained from the 2009 WTO's Trade Policy Review report on Guyana.

In the absence of the required data, it was impossible to calculate the import demand and substitution elasticities for Guyana at the level of disaggregation required for this study. Therefore, like many other studies that have used import demand and substitution elasticities that were used elsewhere, this study applies the import demand and substitution elasticities that were applied by Gasiorek *et al.* (2006) in a study titled, "The Impact of the EPAs of the Cotonou Agreement on Trade, Production and Poverty alleviation in the Caribbean Region," which captures Guyana among other member states of CARICOM, but nevertheless remains different to this study because of its focus on the EU-15 instead of the EU-27 and on Guyana's total imports from the EU-15 instead of the actual amount that will be liberalized coming from the EU-27 (Table II).

The elasticities are in line with the six-digit level of the HS classification and are usually higher than those at a more aggregated level. This is because there is a higher degree of competition among more similar goods. For example, HS 7215 (other bars and rods of iron or non-alloy steel) and HS 7216 (angles, shapes, and sections of iron or non-alloy steel) fall under HS 72 (iron and steel). However, the degree of competition between HS 7215 and HS 7216 will be less than that of HS 7216.32 (I Sections) and HS 7216.33 (H Sections). The difference is also noted by Kee *et al.* (2008) who in their estimates found that elasticities at the six-digit level of the HS classification "are 39 percent higher than those estimated at the three digit level" of the International Standard Industrial Classification (ISIC). Moreover, the values for the elasticity of substitution are the same irrespective of the supplier but they may vary by products depending on the level of similarity.

5. Empirical results and discussion

As pointed out above, the trade liberalization that will result from the EU-CARIFORUM EPA will occur in several phases rather than in a single occurrence. Therefore, its impact will be realized periodically. However, rather than focussing on the likely impact of each of the phases, this study focusses on the impact that is likely to be realized when the process would have completed. In light of this, Table III presents the estimates for the various trade effects that will be generated by the EU-CARIFORUM EPA. The table shows that the value of the total trade effect amounts to US\$692.89 million or an increase of 633.9 percent in the value of imports for 2008 from the EU. The main contributor to that amount will be the importation of raw materials (HS25-27) to the tune of US\$349.22 million or 50.4 percent, most of which will be displaced and diverted from CARIFORUM (US\$213.91 M) and the ROW (US\$135.24 M), respectively. As noted above, the methodology employed for this study does not facilitate any analysis of dynamic effects. Suffice it to say, however, that the significant

HS Code	EID	EIS
1-24 (agricultural products)	-1.75	-4.2
25-27 (raw materials)	-2.25	-9.0
28-97 (manufactured goods)	-2.75	-6.0

Source: Gasiorek *et al.* (2006)

Table II.
Trade elasticities
(six-digit HS level)

Table III.

HS code	CITCE		DITCE		TDE		Total trade effect		
	US \$ (M)	% of total	% of imp. from the EU (2008)	US \$ (M)	% of total	% of imp. from CARIFORUM (2008)	US \$ (M)	% of total	% of imp. from the EU (2008)
1-24	6.95	30.1	17.9	3.14	1.3	6.1	31.50	7.5	30.4
25-27	0.07	0.3	20	213.91	86.0	76.5	135.24	32.1	76.5
28-97	16.04	69.6	22.9	31.58	12.7	35.6	254.46	60.4	47.6
Total	23.06	100	21.1	248.63	100	59.2	421.20	100	51.7
							692.89	100	633.9

Source: Author's own calculations

increase in imports of raw materials from the EU is likely to have a positive impact for Guyana, as it represents cheaper inputs for the productive sector.

The table shows also that, the value of the CITCE sums up to US\$23.06 million or an increase of 21.1 percent in the value of imports for 2008 from the EU. The key driver behind that sum will be the importation of manufactured goods (HS27-97) to the value of US\$16.04 million or 69.6 percent. This along with the amounts that will be displaced from CARIFORUM (US\$31.58 M) and the ROW (US\$254.46 M) perhaps does not speak well for any future manufacturing undertaking which by Guyana might think of, especially within the context of the infant industry framework. The table further shows that the value of the DITCE adds up to US\$248.63 million or 59.2 percent of the value of Guyana's imports for 2008 from CARIFORUM. To that sum, the importation of raw materials (HS25-27) will contribute US\$213.91 million or 86 percent. And as indicated above, this should be good for Guyana. However, it is important to note that such a sum is an indication of the size of a potential negative impact on Caribbean regional integration in so far as it has to do with intraregional trade and its associated effects.

Notably, also from the table is that the value of TDE (US\$421.2 M) is greater than the sum of the CITCE (US\$23.06 M) and the DITCE (US\$248.63 M). This should not be surprising since as shown by Table I, the value of Guyana's imports from the EU for 2008 sums up to US\$109.3 million as compared to US\$814.5 million from the ROW.

In addition to the trade effects, the EU-CARIFORUM EPA will, as indicated above, generate an effect on customs revenue as well as on consumers' welfare. Table IV presents the estimates for the TCRE and the NWE. It shows that the TCRE amounts to a loss of US\$32.62 million or an equivalent of 88.7 and 8 percent of customs and current revenues collected for 2008, respectively. Moreover, it can be seen that most of the losses in customs revenue is due to the liberalization in imports of raw materials (HS25-27) and manufactured goods (HS28-97) as compared to imports of agricultural products (HS01-24), which accounted largely for the 13.1 percent of the value of Guyana's imports from the EU that will not be liberalized. This position is not surprising since the agricultural sector contributed 21.4 percent of Guyana's gross domestic product (GDP) for 2008, as compared to 6.9 percent by the manufacturing sector. However, while the size of the agricultural sector's contribution to Guyana's GDP implies that the liberalization of agricultural imports from the EU have the potential to be disruptive to the welfare of many, and therefore the priority of protection was given to it over the manufacturing sector, it is likely that, as noted above, any future manufacturing undertaking, especially within the context of the infant industry framework, might be difficult.

HS Code	US\$ (M)	% of total	TCRE		US\$ (M)	NWE	
			% of CR ^a (2008)	% of CR ^b (2008)		% of total	% of GDP (2008)
1-24	2.79	8.5	7.6	0.7	-1.93	6.2	0.1
25-27	12.55	38.5	34.1	3.1	-12.54	40.5	0.9
28-97	17.28	53.0	47.0	4.2	-16.54	53.3	1.2
Total	32.62	100	88.7	8.0	-31.01	100	2.2

Notes: ^aCustoms revenue; ^bCurrent revenue

Source: Author's own calculations

Table IV.
Total customs revenue
and net welfare effects

The table shows also that the value of the NWE totaled a loss of US\$31.01 million or 2.2 percent of Guyana's GDP for 2008. The loss is as a result of the loss in customs revenue that is associated with the TDE, and should not be surprising given the nature of Guyana's trade relation with the EU relative to the ROW during the pre EU-CARIFORUM EPA era.

6. Conclusion

This study has considered the static welfare impact of the EU-CARIFORUM EPA on Guyana. It found that at the end-stage of the liberalization process, Guyana is likely to realize a net welfare lost to the tune of US\$31.01 million or 2.2 percent of its GDP for 2008. The loss is as a result of the loss in customs revenue associated with the TDE. The size of the loss should not be surprising given the nature of Guyana's trade relation with the EU relative to the ROW during the pre EU-CARIFORUM EPA era. However, given that the liberalization will be done in a phased manner, means that the impact will not be felt all at once and that there is time not only to adjust to the change, but to also devise and implement compensatory mechanisms. Including in the compensatory mechanisms can be measures that seek to improve the collection efficiency of non-customs revenue.

Notes

1. The member states of the EU became EU-27 as of January 1, 2007.
2. In 1996, the US Government, on behalf of the US Corporation Chiquita Brands International, challenged the EU at the WTO, claiming that the Lomé banana regime violated the EU's WTO obligations. The WTO agreed but the EU appealed the decision. However, in 1997, the WTO Appellate Body affirmed and clarified the original panel's ruling.
3. A free trade area is a preferential trade arrangement where tariffs are eliminated on most if not all goods that originated from member countries who continue to levy their respective tariffs on goods originating from nonmembers (Panagariya, 2000).
4. The term preferential trade arrangement (PTA) is used here to describe all arrangements (such as a free trade area, a custom union, or an economic union) that involve preferential trading (see Bhagwati, 1995; Panagariya, 1998).
5. This assumption is tenable when the import demand of an importing country or group of countries is small and therefore cannot affect the prices of foreign exporters. It is therefore appropriate for this study.
6. This means that there are no monopoly profits. In other words, there is full transmission of the price changes that resulted from the elimination of tariffs or non-tariff distortions (*ad valorem* equivalents).
7. The members of CARIFORUM trade preferentially under the Revised Treaty of Chaguaramas and the Agreement that establishes an FTA between the Caribbean Community and the Dominican Republic.
8. The assumption of constant costs is a more reasonable assumption for the EU and the ROW than for CARIFORUM. With increasing costs, the removal of tariff from EU imports will tend to reduce the quantity of imports to Guyana from CARIFORUM. The present framework therefore may tend to understate the scale of substitution from CARIFORUM to EU suppliers.
9. Notwithstanding their respective efficiencies, the pre EU-CARIFORUM tariff would have made the members of CARIFORUM, the EU, and the ROW appear to be (near) equal cost suppliers to Guyana.

10. The assumption that there is no domestic production capability for the products that are imported is consistent with the theory of specialization and is therefore plausible. Thus, Guyana is not included in the supplier CARIFORUM, and therefore its welfare in relation to the EU-CARIFORUM EPA is defined by reference to the change only in consumer surplus.
11. The assumption of constant costs in Figure 1 is also applied here. As stated there, it is a more reasonable assumption for the ROW than for CARIFORUM. The present methodology therefore may tend to understate in value terms the scale of substitution from CARIFORUM to EU suppliers.
12. Under the FTA between the member states of CARICOM and the Dominican Republic (CARIFORUM) a small proportion of the goods originating from the latter and entering into the markets of the more developed countries (for instance, Guyana) of former remain subject to MFN treatment as outlined in Attachment II to the FTA. However, this study excludes any quantitative welfare assessment pertaining to the size of the related custom revenue effect.
13. Recall that the assumption of constant costs in Figure 1 is a more reasonable assumption for the EU and the ROW rather than for CARIFORUM. Therefore, the present methodology may tend to understate in value terms the scale of substitution from CARIFORUM to EU suppliers.
14. The source substitution effects (ΔM_1 and ΔM_2) leave net trade unaltered and therefore no gains to consumers. However, for the consumption-induced trade creation effect (ΔM_3), which is an actual increase in imports, "there is a net welfare gain equal to the domestic consumers' valuation of the extra imports minus the cost of extra imports at supply price (excluding tariffs)" (Cline, 1978). Thus, the net welfare gain is normally estimated as the increase in import value times the average between the *ad valorem* incidence of the tariff barrier before and after reduction/elimination (Laird and Yeats, 1986) plus the change in customs revenue (Greenaway and Milner, 2003).

References

- Armington, P. (1969), "A theory of demand for products distinguished by place of production", *International Monetary Fund Staff Papers*, Vol. 16 No. 1, pp. 159-178.
- Bhagwati, J. (1995), "US trade policy: the infatuation with free trade areas", Discussion Paper Series No. 726, Columbia University, New York, NY.
- Busse, M. and Großmann, H. (2007), "The trade and fiscal impact of EU/ACP economic partnership agreements on West African countries", *Journal of Development Studies*, Vol. 43 No. 5, pp. 787-811.
- Caribbean Regional Negotiating Machinery (CRNM) (2009), "Overview of the Cariforum-EC economic partnership agreement (EPA)", *TRADEWINS*, Vol. 1 No. 1, pp. 1-12.
- Cline, W. (1978), *Trade Negotiations in the Tokyo Round: A Quantitative Assessment*, Brookings Institution, Washington, DC.
- EU (1996), "Green paper on relations between the European Union and the ACP countries on the Eve of the 21st century – challenges and options for a new partnership", COM (96) 570 final, available at: <http://aei.pitt.edu/id/eprint/1206> (accessed April 9, 2011).
- Gasiorek, M., Litchfield, J., Haynes-Prempeh, M., Chwiejczak, J., Varela, G. and Winters, L. (2006), "The impact of the EPAs of the Cotonou agreement on trade, production and poverty alleviation in the Caribbean region", final report submitted by the Poverty Research Unit, Sussex University, available at: www.dfid.gov.uk/r4d/PDF/Outputs/EC-PREP/EPACaribbeanFinalReport1.pdf (accessed April 9, 2011).
- Greenaway, D. and Milner, C (2003), "A grim REPA?", Research Paper No.2003/30, Leverhulme Centre on Globalization and Economic Policy, University of Nottingham, Nottingham.

- Karingi, S., Lang, R., Oulmane, N., Perez, R., Jallab, M. and Hammouda, H. (2005), "Economic and welfare impacts of the EU-Africa economic partnership agreements", Working Paper No. 10, Economic Commission for Africa, African Trade Policy Centre, Addis Ababa.
- Keck, A. and Piermartini, R. (2005), "The economic impact of EPAs in SADC countries", WTO Staff Working Paper No. ERSD-2005-04, World Trade Organization, Geneva.
- Kee, H., Nicita, A. and Olarreaga, M. (2008), "Import demand elasticities and trade distortions", *The Review of Economics and Statistics*, Vol. 90 No. 4, pp. 666-682.
- Laird, S. and Yeats, A. (1986), "The UNCTAD trade policy simulation model, a note on methodology, data and uses", UNCTAD Discussion Paper No. 19, available at: <http://vi.unctad.org/tda/background/Partial%20Equilibrium%20Models%20%20SMART/SMART.pdf> (accessed April 9, 2011).
- McKay, A., Milner, C. and Morrissey, O. (2005), "Some simple analytics of the welfare effects of EU-ACP economic partnership agreements", *Journal of African Economies*, Vol. 14 No. 3, pp. 327-358.
- Milner, C., Morrissey, O. and McKay, A. (2002), "Some simple analytics of the trade and welfare effects of economic partnership agreements: the case of the EU-EAC", mimeo, CREDIT, University of Nottingham, Nottingham.
- Panagariya, A. (1998), "Rethinking the new regionalism", in Nash, J. and Takacs, W. (Eds), *Trade Policy Reform: Lessons and Implications*, World Bank, Washington, DC, pp. 87-145.
- Panagariya, A. (2000), "Preferential trade liberalization: the traditional theory and new developments", *Journal of Economic Literature*, Vol. 38 No. 2, pp. 287-331.
- Viner, J. (1950), *The Customs Union Issue*, Carnegie Endowment for International Peace, New York, NY.
- Vollmer, S., Martinez-Zarzoso, I., Nowak-Lehmann, F. and Klann, N. (2009), "EU-ACP economic partnership agreements: empirical evidence for Sub-Saharan Africa", background paper for the World Development Report 2009: Reshaping Economic Geography, The World Bank, Washington, DC.
- Zgovu, K. and Kweka, J. (2007), "Empirical analysis of tariff line-level trade, tariff revenue and welfare effects of reciprocity under an economic partnership agreement with the EU: evidence from Malawi and Tanzania", *Proceedings of the African Economic Conference*, available at: www.afdb.org/fileadmin/uploads/afdb/Documents/Knowledge/Conference_2007_anglais_02-part-I-1.pdf (accessed April 9, 2011).

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