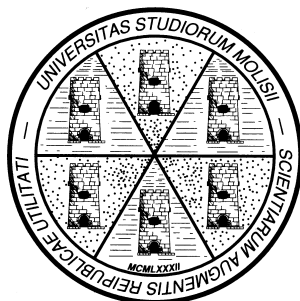


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**The European Union preferential trade with developing countries.**  
**Total trade restrictiveness and the case of sugar**

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# The European Union preferential trade with developing countries. Total trade restrictiveness and the case of sugar

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## Abstract

*Preferential trade agreements are a central issue in the multilateral trade liberalization process. The extent to which such agreements are effective in improving market access for developing and developed countries is important because trade liberalization results in eroding their value to the beneficiary countries, expressed as export revenue. This paper focuses on the estimation of a theoretically founded bilateral aggregated measure of trade restrictiveness, the Mercantilistic Trade Restrictiveness Index, by means of a general equilibrium model, in order to measure the effectiveness of preferences granted by the European Union. We also develop an empirical model structure, comprising a partial equilibrium model for the sugar market and a gravity model, in order to replicate least developed countries bilateral trade with Europe, and to estimate the erosion in the value of preferences granted to African, Caribbean and Pacific countries and to least developed countries brought about by changes in the Common Market Organization for sugar and the Everything but Arms initiative. The results highlight the importance of sugar in determining the degree of trade restrictiveness faced by developing countries. Sugar sector policy reform in Europe is expected to result in a significant reduction in the African Caribbean and Pacific countries' export revenue, whilst the initial impact on least developed countries may be limited, but increasing in the medium run.*

**JEL Classification:** Q18, C23, C53, C68

**Keywords:** preferential trade, sugar, policy reform

## 1. Introduction

Preferential trade agreements are thought of as an important instrument for integrating the developing (DCs) and least developed countries (LDCs) into the world trading system, thus promoting their development. These agreements are discriminatory policies, entailing trade liberalization with respect to only a subset of trading partners. Hence they tend to interfere with multilateral trade liberalization processes, such as the General Agreement on Tariffs and Trade (GATT) negotiations and the subsequent World Trade Organisation (WTO) rounds. The world trading system is characterized by a wide variety of preferential trade agreements, whose compatibility with the principle of non-discrimination, the cornerstone of the multilateral trading system, is ensured by a set of exemptions to the Most Favoured Nation rule. In particular, an Enabling Clause<sup>1</sup> has created a permanent legal basis for trade

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<sup>1</sup> Decision on Differential and More Favourable Treatment, Reciprocity, and Fuller Participation of Developing Countries, GATT Document L/4903, 28 November 1979, BISD 26S/203

preferences, both generally for all developing countries under General System of Preferences (GSP) regimes, and also for more specific preferential treatment of the LDCs. Individual developed countries sometimes grant specific preferences for limited groups of developing countries which include non-LDCs, such as those the EU extends to African Caribbean and Pacific (ACP) countries.

Non reciprocal preferential market access for developing countries emerged as an element of special and differential treatment for these countries under the Uruguay Round of the GATT. These unilateral trade concessions to developing countries have developed into a key issue in the efforts to negotiate further multilateral trade liberalization in the Doha Development Agenda. The July 2004 Framework Agreement of the WTO states that “the importance of long-standing preferences is fully recognized” (paragraph 44). Despite this declaration and the recent re-affirmation in the Hong Kong Ministerial declaration (paragraph 9), the debate continues on the maintaining of the effect preferences have on beneficiary countries, amidst the search for options that would lead to more liberalized trade regimes. Meanwhile, preferences are losing their value, being undermined by policy changes at the multilateral, bilateral and national levels. LDCs are concerned about the erosion of the value of their current preferential access, which may be further deepened by the Most Favoured Nation (MFN) based liberalization process, whilst countries which do not benefit from preferences appear concerned about the discrimination that they face in OECD markets. Developing countries that benefit from non-reciprocal preferential trade account for a very small proportion of global trade. This trade is limited and concentrated on few products that are often subject to restrictive policies in preference granting countries that have been challenged in the WTO. A comprehensive survey of studies on the benefits of preference regimes undertaken by the Organisation of Economic Cooperation and Development (OECD) (2003), indicates that despite the different methodologies, different data sets and different assumptions, the overall impact of preferential trade arrangements on welfare and trade is non-negligible and generally positive, but also relatively small.

The LDCs, for whom as a category of countries preferences are most accepted, have been the focus of two major preference programs introduced in 2000 to facilitate the expansion of their trade and promote their development: the Everything but Arms (EBA) initiative of the European Union (EU), and the United States (US) African Growth and Opportunity Act (AGOA). With the AGOA, the US extended preferences to 37 African countries, providing duty free access to agricultural commodities, some subject to tariff rate quotas and quota free access, including among others a range of textile and petroleum products. Rules of origin require that a product be grown, produced or manufactured in a beneficiary African country. In addition there are various conditions related to national security, liberalisation and human rights, reviewed on an annual basis. AGOA was extended in 2004 to continue until 2015. The EU's Everything but Arms (EBA) initiative, that was introduced in 2001, is discussed in detail in the following section.

This paper is aimed at assessing the degree of effectiveness of trade preferences extended to DCs and LDCs by the EU in improving market access. The EU is currently in the middle of a number of potentially conflicting preferential trade agreements, arising from historical relations developed over the colonial period, as in the case of the Cotonou Agreement, and the promotion of the development of the LDCs, as in the case of the EBA initiative. The extent to which developing countries do effectively enjoy a preferential treatment in the EU market is measured by means of the Mercantilistic Trade Restrictiveness Index (MTRI) (Anderson and Neary, 1996), a theoretically founded bilateral aggregate measure of trade restrictiveness. The

MTRI is estimated on the basis of trade flows within a general equilibrium model framework. Given the effectiveness of the EU preferential trade agreements in improving market access, we also estimate the erosion in the value of preferences to sugar producing beneficiary countries due to trade and domestic policy reform of the EU sugar sector, by means of a model structure comprised of a partial equilibrium model and a representation of bilateral trade flows based on the notion of gravity.

The paper is organised as follows. The next section provides a brief review of the most important preferential trade agreements implemented between the EU, the DCs and the LDCs. Section 3 is devoted to the theoretical basis and the estimation of the MTRI. Section 4 focuses on the sugar sector, an important sector in the present preferential trade of the EU, in which the erosion of the existing preferences is likely to produce significant consequences. The final section concludes by providing a perspective on the possible strategies available to countries which are likely to suffer such consequences, with special reference to developments in the sugar producing countries.

## **2. The European Union preferential trade with developing countries**

Preferential trade agreements have formed an integral part of the EU's policy toward the developing countries, since its inception. Since the 1960s, a significant number of non-reciprocal trade preferences have been granted by the EU to a number of African Caribbean and Pacific (ACP) countries, based mainly on former colonial ties, within the Yaounde and the Lomé Conventions, and currently within the Cotonou Agreement. Other initiatives in which the EU is involved include the bilateral free trade areas with Mexico, South Africa and Chile, the negotiations with Mercosur, and the Generalized System of Preferences (GSP), which is extended to all developing countries. However, the two most important specific initiatives aimed at the developing countries, are the Cotonou process and the GSP framework, within which the EBA initiative took place.

The EU-ACP Cotonou Agreement include preferences and linkages between trade and financial assistance to over 70 ACP countries. The agreements follow a series of Lomé Convention arrangements which provide non-reciprocal trade benefits in 99 percent of the industrial goods and some agricultural products of significant importance to these countries. Under the Cotonou Agreement current non-reciprocal "Lomé" preferences will be maintained temporarily up to 2008, when new reciprocal Economic Partnership Agreements are to be negotiated and implemented in a gradual manner.

The GSP scheme was created in 1968, following the recommendation of UNCTAD and extended in 1971. It provides non-reciprocal preferences with lower tariffs or duty-free market access for imports from 178 developing countries and territories into the EU market. Under the GSP, industrialized countries would grant autonomous trade preferences to all developing countries. The framework is an exception to the MFN principle that since 1971 allows WTO members to grant unilateral concessions to products originating in more than 100 developing countries. The EU's extended GSP, implemented since April 2005, includes three categories of benefits:

- (i) the General Scheme for all developing countries (with 40 percent of products receiving duty-free access, but with ceilings and graduation criteria that eliminate largest exporters);
- (ii) the EBA initiative for Least Developed Countries grants them duty-free access on all products, with the exception of arms and munitions; and,

- (iii) the ‘GSP plus’, which provides duty-free access for all products from ‘countries with special development needs’ that implement international conventions on the environment, as well as on human and labour rights.

The Everything but Arms (EBA) initiative came into effect in 2001, aiming at discriminating in favour of the LDCs by granting duty free access to imports of all products that originate in these countries with the exception of arms and munitions. Total access to EU markets was immediate except for fresh bananas, rice and sugar where imports are subject to tariff rate quotas, with duty-free in-quota imports and a gradually reduced tariff for out-of-the-quota imports until 2009. An important difference between the EBA initiative and other EU schemes is that EBA preferences are granted to the LDCs for an unlimited period and are not subject to periodic review. This results in a reduction in the risk to which investors and exporters are exposed, thus enhancing the possibilities to increase efficiency and diversify the production base.<sup>2</sup>

For specific ACP countries, the importance of EU preferences is undeniable. Small sugar and banana producers earn a substantial proportion of their foreign exchange from these single commodities (Fiji and Guyana earn as much as 20 percent of the foreign exchange from sugar), whilst in many cases these commodities are a major contributor to GDP (bananas contribute as much as 5 percent of GDP in St. Lucia and St. Vincent ). Proponents of preferences identify the market access and the higher prices received by producers as one of the reasons for the relatively high levels of human development achieved in the beneficiary countries (e.g. Barbados and Mauritius through sugar; St. Lucia through bananas). The case is often made for Mauritius that preferences have played a part in explaining relatively strong economic performance and economic diversification.<sup>3</sup>

If ACP preferences are important, the same appears not to apply to the recent EBA initiative, at least at this initial stage, as access for the majority of products was complete under the Generalised System of Preferences (GSP) and the Cotonou Agreement. On average, the evidence suggests that the initial impact of EBA on LDCs total exports to the EU is small, whilst the limited export success is not uniform across countries due to a number of reasons. First, rules of origin and cumulation are thought to result in under-utilisation of preferences (Brenton, 2003) and an increase in trade costs. Secondly, a number of LDCs are unable to take advantage of EBA due to the current composition of their exports.

In fact, the effectiveness of such preferences depends upon the way in which trade reacts to a complex set of rules, arising not only from the different existing regimes, but also from the heterogeneous tariffs implemented for different commodity specifications, and from a number of exceptions. In the case of bilateral protection indices, trade restrictiveness is the product of the structure of protection and the product specialization of trade flows. Even if the EU applied MFN bound tariffs to all exporters, the impact would be differentiated: trade would be more restricted in the case of countries exporting products facing the highest tariffs. In order to take into account the trade impact of protection, one could think of using a bilateral trade-weighted average. As a consequence, the determinants of the extent to which specific preferences are effective can be summarized as follows: (i) composition of exports of the beneficiary country (e.g. primary versus processed); (ii) elements that are common to other trade schemes (e.g. EBA and GSP); (iii) tariff profile of the importing country; and, (iv) exceptions for specific commodities.

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<sup>2</sup> however, the EU has the possibility of introducing duties on imports if there is a substantial increase in imports, and if imports lead to serious market imbalances.

<sup>3</sup> See Subramanian (2003)

### 3. Did developing countries really get a preferential treatment in the EU?

There is an extensive literature on measures of trade restrictiveness. Some studies rely on trade intensity measures, e.g. estimating the volume of trade in the distorted equilibrium relative to that in free trade (Leamer, 1988). The rationale is that such a ratio summarizes the impact of all trade policy instruments. The problem is that import volumes could be much lower than in free trade, either because tariffs are high on supply-inelastic goods, or because though low, they are imposed on highly supply-elastic goods.

In order to measure the protection granted by a country's trade policy regime, two important aggregation hurdles need to be overcome: aggregation of different forms of trade policies and aggregation across goods with very different economic importance. Regarding the first aggregation problem, all types of trade policy instruments need to be brought into a common metric, in most cases an *ad valorem* equivalent. In order to solve the second problem, using theoretically sound aggregation procedures, it is necessary to specify the type of information to be maintained, so that the final number is *equivalent* to the original multiple data in the dimension of interest. According to Anderson and Neary (1996), a general definition of a policy index is as follows: depending on a pre-determined reference concept, any aggregate measure is a function mapping from a vector of independent variables – defined according to the policy coverage – into a scalar aggregate. The greatest advantage of this approach is its theoretical consistency, since the equivalence is determined according to a fundamental economic structure. Secondly, it provides unequivocal interpretation of the results, since the definition and properties of these “equivalence-based” indicators are predetermined. Finally, it solves the problem of the so-called “endogeneity bias”, since the weights are not inversely related with the absolute value of the import demand elasticity.

#### 3.1 The Mercantilistic Trade Restrictiveness Index (MTRI)

The MTRI relies on the idea of evaluating trade policy using trade volume as the reference standard. The interest is in the extent to which trade distortions limit imports from the rest of the world, so that the aggregation procedure answers the following question: *what is the equivalent uniform tariff that if imposed would leave aggregate imports unchanged?*

The MTRI is defined in terms of the uniform tariff  $\tau^\mu$  that yields the same volume (at world prices) of tariff-restricted imports as the initial vector of (non-uniform) tariffs. This can be expressed with import demand functions  $M$ , while holding constant the balance of trade function at level  $B^0$ :

$$(1) \quad \tau^\mu : M[p^\mu, p^0, B^0] = M^0(p^0, p^*, B^0), \text{ with } p^\mu \equiv p^*(1 + \tau^\mu).$$

where  $p^*$  denotes the international prices ( $p_k^*$ ) vector of the  $N$  goods  $k = (1, \dots, N)$ ,  $M^0$  is the value of aggregate imports (at world prices) in the reference period, and  $p^0$  is the initially distorted price vector.

Define the scalar import demand as

$$(2) \quad M(p, p^*, B) \equiv \sum_{c=1}^r \sum_{k=1}^N p_{c,k}^* I_{c,k}^m(p, B)$$

where  $I_{c,k}^m$  denotes the uncompensated (Marshallian) import demand function of good  $k$  from country  $c$ . Accordingly, the MTRI uniform tariff  $\tau^\mu$  would lead to the same volume of imports

(at world prices) as the one resulting from the uneven tariff structure, denoted by the  $N \times r$  bilateral tariffs matrix  $T$  whose elements are  $t_{c,k}$ :

$$(3) \quad \sum_{c=1}^r \sum_{k=1}^N p_{c,k}^* I_{c,k}^m [p^\mu, B^0] = \sum_{c=1}^r \sum_{k=1}^N p_{c,k}^* I_{c,k}^m [p^0, B^0]$$

The previous definition focuses on the overall distortions imposed by a country's trade policies on its import bundle. In our application, though, we are interested in calculating the MTRI uniform tariff bilaterally, to obtain the level of trade restrictiveness that the EU imposes on exports of each country  $c$ . Accordingly, in equation (3), instead of summing over  $k$  and  $c$ , one would only sum over  $k$  to obtain a bilateral uniform tariff MTRI ( $\tau_c^\mu$ ) defined as follows:

$$(4) \quad \tau_c^\mu : M_c [p^* (1 + \tau_c^\mu), B^0] = M_c^0,$$

where  $M_c^0$  is the value of aggregate imports (at world prices) from country  $c$  in the reference period.

In the standard definition, prices are assumed fixed on world markets<sup>4</sup>. However, since our indexes are going to be computed in a model with endogenous world prices, we redefine the uniform tariff equivalent relaxing the small country assumption, i.e., the vector of world prices  $p^*$  is a function of tariffs  $T$ . To accommodate this, the definition of the MTRI [equation (4)] is modified as follows

$$(5) \quad \tau_c^w : M_c [(1 + \tau_c^w) p^*(T), B^0] = M_c^0,$$

where ( $\tau_c^w$ ) is the bilateral MTRI uniform tariff with endogenous world prices (Antimiani and Salvatici, 2005). The same computation will be performed both for the overall protection, and for the protection faced by each exporter in different sectors. To this end, we partition the total number of goods ( $N$ ) in 3 groups: agriculture, manufacture, and services, and compute both the total and the three sector-specific MTRI indexes.

The computation is based on a modified version of the model of the Global Trade Analysis Project (GTAP). This is a static, multi-region, general equilibrium model, which includes an explicit treatment of international trade and transport margins, a "global" bank designed to mediate between world savings and investment, and a consumer demand system designed to capture differential price and income responsiveness across countries (Hertel, 1997). The model employs the simplistic, but robust assumptions of perfect competition and constant returns to scale in production activities. Bilateral international trade flows are handled using the Armington assumption by which products are exogenously differentiated by origin (Armington, 1969). In the standard closure case, global investment adjusts to global saving, so that national balances of payments are endogenous.

The calculation is based on the latest version of GTAP database, version 6, which provides a baseline for year 2001. Trade policy is set at the tariff line level, but this implies a level of detail that is not consistent with the GTAP (or any other existing) model: the EU tariff schedule, for example, includes more than 10000 tariff lines. To reach consistency between trade distortions and model aggregation, a-theoretic trade weighted average tariffs are used, losing considerable information. On the other hand, it should be noted that the quality of the

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<sup>4</sup> Anderson and Neary (2003), argue (footnote 8) that "there is a rationale for a ceteris paribus trade restrictiveness index that fixes world prices even when these prices are in fact endogenous". Such a rationale may be represented by the fact that, by keeping world prices constant, we focus on the component of protection explained by national policies, and not by the degree of market power of the country.

trade distortion data included in version 6 of the GTAP database is much better than in the previous release due to the use of the MacMap-HS6 (version 1), a database at the HS-6 level intended to provide a set of consistent and exhaustive *ad valorem* equivalents (AVEs) of applied border protection across the world.<sup>5</sup> This resulted in considering applied/preferential tariffs rather than bound ones, and in a more accurate computation of the AVE for each trade instrument (Bouët *et al.*, 2005).

Specific tariffs were converted in AVE terms by dividing the duty by a unit value. The problem lies in the choice of this unit value, a rather sensitive issue both from a theoretical and from a political point of view (as the recent evolution of WTO negotiations shows). This has led to AVE calculations being based on the median unit value of worldwide exports originating from a reference group to which the exporter belongs.<sup>6</sup> In the case of mixed tariffs, i.e. tariffs involving a choice (a maximum or a minimum operator) between various terms, the choice is made as follows:

- when the tariff is defined as an *ad valorem* base tariff, the base tariff is retained. If the base tariff is in specific terms and the cap and the floor are *ad valorem*, a simple average of the two bounds is retained;
- when the tariff involves choosing between two terms, priority is given to *ad valorem* tariffs.

Regarding tariff rate quotas (TRQs), three market regimes are considered, depending on the level of the fill rate:

- if the fill rate is less than 90 percent (quota not binding), the inside quota tariff rate is chosen as the applied rate;
- in the 90–99 percent range (quota assumed to be binding), a simple arithmetic average is used;
- if it is higher than 99 percent (quota binding), the applied rate is equal to the outside quota tariff rate.

The presence of prohibitive tariffs is problematic when calculating AVEs. Therefore, an upper limit to the AVE is established starting at the HS6 level: the limit is set to 1,000 percent for the sum of all instruments. Finally, since the database does not provide information about protection for services, we integrate the protection data with estimates of *ad valorem* tariff equivalents for these sectors (Park, 2002).

In terms of regional aggregation, we singled out 20 regions as EU trading partners. Although the database cannot take into account the 2004 EU enlargement, we consider an enlarged EU (EU25) building a counterfactual baseline where the enlargement would have taken place in 2001 (Antimiani, Conforti, Salvatici, 2003). Accordingly, we eliminated all trade barriers and export subsidies between EU members and we extended the EU trade policy to the new members.

Table 1. Countries, regions, products and endowments

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<sup>5</sup> MACMap-HS6 is regularly improved and updated, and the corresponding information is available on the CEPII's website ([www.cepii.fr](http://www.cepii.fr)).

<sup>6</sup> These groups are defined on the basis of a hierarchical clustering analysis based on GDP per capita (in terms of PPP) and trade openness.



As far as regional aggregation is concerned, our choice was driven by the geographical focus of the EU trade policies presented in Section 2, given the limitations of the GTAP database<sup>7</sup>. It is worth recalling that many regional and preferential agreements allow for long implementation periods, and were not in place in 2001. This is the case of the EBA initiative.

In the model, the computation of  $\tau_c^w$  is performed by defining a variable  $tr(r,s)$ , which is a product-generic tariff levied on imports from region  $r$  into region  $s$  (EU25 in this case). Then we run the model starting from the counterfactual baseline, assuming that all EU trade policies (i.e., tariffs and export subsidies) with respect to a specific region  $s$  are removed. In other words, we ask the model to compute the uniform tariff that would eliminate any incentive to increase or decrease the volume of imports from the region/country under consideration.

### 3.2. Results

Total MTRI values, reported in the first column of Table 2, show some expected results, such as the low value of protection faced by the LDCs, even before the implementation of the EBA initiative. However, it is striking to observe that a number of developing countries appear among those which are most constrained in their trade with the EU. This is the case of Brazil, India, and Argentina, and even of a group, the ACP-non LDC, enjoying a long tradition of (supposedly) preferential access into the EU market. On the other hand, countries still awaiting WTO membership, such as Russia, appear not to be significantly discriminated against: on the contrary, they seem to be facing the lowest trade barriers<sup>8</sup>.

Table 2. MTRI bilateral uniform tariffs and trade weighted

To shed some light on these apparently puzzling results, we computed the MTRI uniform tariffs at the sectoral level: results are reported in the second, the fourth and fifth columns of Table 2. As expected, the protection for services, which were introduced into the model through the estimate of the *ad valorem* equivalents, appear quite high. In terms of the most traditional tariff policies, agriculture appears to be way above manufactures and other secondary activities. As a matter of fact, liberalization in these activities has come a long way

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<sup>7</sup> Several countries are not available as individual entities in the GTAP database version 6; therefore the LDCs and the ACP groups employed in the analysis are in fact only the best possible approximation of the real country composition. Particularly, the proxy for the LDC group includes Bangladesh, Malawi, Mozambique, Tanzania, Zambia, Madagascar, Uganda, and three residual entities: the “Rest of Southeast Asia”, which includes among other countries Cambodia, Laos and Myanmar; the “Rest of South Asia”, which includes Afghanistan, Nepal and Bhutan, and the “Rest of Sub-Saharan Africa”, which includes Benin, Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, Togo. The proxy for ACPs, was designed to be mutually exclusive with respect to the LDCs, and thus only includes those countries which are not classified as LDCs; Botswana, South Africa Zimbabwe and four residual groups: the “Rest of Oceania” which includes Fiji, the “Rest of FTAA”, which includes Antigua & Barbuda, Barbados, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago; the “Rest of South African Custom Union”, which includes Swaziland and Namibia, and the “Rest of Southern African Development Community”, which includes Angola, Congo DR, Mauritius and Seychelles.

<sup>8</sup> This finding may cast some doubts about the (real) reasons for joining the club: there is some evidence, indeed, that countries belonging to the GATT/WTO do not show very different trade patterns than outsiders (Rose, 2004).

starting with the first GATT Round in 1947, while agriculture only started the process in the last Round closed in 1994. Since the EU tariff profile is heavily biased against agricultural imports, notwithstanding the many preferential schemes, developing countries still face an overall level of protection higher than MFN-countries such as the USA or Canada. Focusing on the assessment of agricultural protection, both Brazil and India rank quite high, with uniform tariffs above 45 percent. These countries are among the founder members of the so-called *G-20 group*, one of the main actors in the present agricultural WTO negotiations, which has requested a substantial revision of EU agricultural policy. It should also be noted that the LDCs do not seem to enjoy a large degree of preference in the agricultural sector: their MTRI uniform tariff is higher than those faced by Chile and even by Canada. In principle, this implies that agricultural exports are going to reap the most benefit from the EBA initiative, once this is fully implemented.

The second and the third columns of Table 2 allow comparison of the results for the MTRI index and the more traditional import-weighted average tariff in the case of agricultural products. The two indexes appear to move together on average - the correlation is 0.72. This result is in line with the findings of Anderson and Neary (2003) and Bach and Martin (2001), who show that the trade-weighted average tariff is a linear approximation to the tariff aggregator based on the expenditure function. Anderson and Neary (2003) also prove that the MTRI uniform tariff is more likely to be higher than the trade-weighted average the more elastic is the demand for the tariff-constrained imports. Indeed, the trade-weighted average tariff under-predicts the MTRI uniform tariff in all but two of the twenty cases. However, it is worth noting that the ranking provided by the two indexes are quite different, since the rank correlation coefficient is only equal to 0.24.<sup>9</sup> Moreover, the difference between the two measures is significant and large in some cases: it exceeds 100 percent on average, reaching over 500 percent in the case of Turkey.

The most unexpected result reported in Table 2 is the figure shown by the ACP countries which are not classified as LDCs (49 percent). As seen in the previous section, ACPs benefit from one of the most generous preferential schemes granted by the EU; but despite a number of beneficiaries increasing over time, the share of EU imports from the ACP in total EU imports decreased from 6.7 percent in 1976 to 3.11 percent in 2002 (Manchin, 2005). The European Commission itself expressed serious doubts as to the benefits of the ACP preferential regime during the design of the Cotonou agreement (Bureau and Matthews, 2005). More insights on the reasons why these countries have been unsuccessful in taking advantage of their preferential status, can be gained by considering the contributions of individual agricultural products to the aggregated MTRI (Table 3).

Table 3. Percentage contribution of each primary product to the agricultural MTRI

Table 3 points to the “usual suspects” in the European agricultural protection. In the case of Brazil, most of the restrictiveness lies in the meat sector; while dairy is responsible for most of the protection imposed on New Zealand and Australia agricultural exports (“Oceania”), and “vegetable oils & fats” (particularly olive oil) raises the highest barriers for the Middle East and North Africa region. As far as developing countries are concerned, the most restricted

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<sup>9</sup> The *Rank* coefficient is calculated as follows:  $Rank = 1 - 6 \frac{\sum_{i=1}^n (Rank_{MTRI}^i - Rank_{Average}^i)^2}{n(n^2 - 1)}$ , with  $n$  equal to the number of countries considered (20 in our case).

sector is certainly sugar, which accounts for roughly two thirds of the EU protection both for least developed and ACP countries. These countries are subject to tariff rate quotas granting a preferential access up to a given volume of imports. However, as recalled in the previous section, when a quota is binding, the level of protection reported in the database is the out-of-quota tariff rate. Accordingly, the high level of protection calculated by the MTRI indicates that sugar regime “at the margin” is constraining the ACP exporters which are not LDCs, and that these countries may benefit from further liberalization in this sector.

This result, which may be credible for the aggregated country group included in this analysis, needs to be detailed further by (i) considering individual ACP countries, whose situation varies considerably depending on the production costs and production scale, (ii) by considering the overlapping between the ACPs and the LDCs which are going to be involved in the EBA initiative, and (iii) by modelling more explicitly the Tariff Rate Quotas available to each country. This will form the topic of next section, which is entirely focused on the case of sugar, and on the effects of preferential trade in the context of the EBA initiative and of the EU domestic policy reform.

#### **4. Preferences and their erosion: the case of sugar**

The recent reform of the EU’s sugar Common Market Organisation (CMO) includes, among other measures, the abolition of the intervention mechanism and its substitution with a private storage scheme, to be triggered when the domestic price reaches the “reference price”, an administered price to be gradually set to a level 36 percent lower than the current intervention price within two years, starting in 2006 (EU Commission, 2005). Due to preferential trade conditions established by the Cotonou framework, the reduction in the EU sugar support price directly affects the price paid for the exports of the sugar producing ACP countries. Therefore, the domestic reform of the EU is expected to erode the value of trade preferences, measured as export revenue, granted to these countries in a sector which is of high relative importance. In addition, the EBA initiative implies further preference value erosion with the gradual abolition of the Special Preferential Sugar (SPS), whilst at the same time the value of preferences to the LDCs themselves is eroded due to the EU sugar policy reform.

The analysis in the previous section, highlighted the importance of sugar in determining the degree of trade restrictiveness faced by developing countries, the position of the ACPs as a group, and the need for more detailed investigation on individual countries, on the overlapping among ACPs and LDCs, and on the functioning of the various Tariff Rate Quotas available for exporting to the EU. This section is aimed at addressing these issues, and at resolving the apparent inconsistency between the high trade restrictiveness shown by the ACPs as a group, which arises in the data from the presence of a quota restriction, and the unquestionable importance of the preferential agreement for these countries.

A number of studies have focused on the potential impact of EBA on both the EU, and the beneficiary countries’ sugar sectors (Stevens and Kennan, 2001; Witzke and Kuhn, 2003; UNCTAD, 2005; van Berkum *et al*, 2005). More specifically, Witzke and Kuhn (2003) consider a policy scenario which is analogous to the reform agreed by the Council of Ministers. Their result indicate that imports from the LDCs may reach 2 million tonnes by 2011, however, they do not formally analyse the erosion of preferences for the SP signatories and the LDCs themselves brought about by the reform. van Berkum *et al*, (2005) utilise a general equilibrium model to investigate the impact of the EU sugar policy reform on the world prices and conduct case studies on the impact of the reform on the SP signatories (Mauritius), the LDCs (Ethiopia) and the DCs (Brazil). Although informative, these studies do not formally cover important issues, such as the erosion of preferences, or the impact of

differences in technology across countries, or the role played by infrastructure in influencing trade costs that in turn will determine, in conjunction with the relative prices, the volume of imports from the LDCs to the EU under the EBA initiative.

#### 4.1. Modelling approach

We assess the impact of EU sugar policy reform, as well as that of the EBA initiative on the ACP countries that enjoy preferential access in the EU market and on selected LDCs utilising a model structure based on Conforti and Rapsomanikis (forthcoming). The structure consists of a global partial equilibrium model for the sugar market and a gravity model to replicate LDCs' bilateral trade with Europe. The sugar partial equilibrium model is a standard non-spatial model with rich policy specification, where the EU sugar policy reform can be effectively modelled, as compared to the skeletal policy specifications included in CGEs. The gravity model is used to quantify the maximum potential export flows from LDCs to the EU under the EBA initiative on the basis of both tariff and natural barriers, such as trade costs that arise from distance and infrastructure. The rationale behind gravity is intuitive: decreasing tariffs and decreasing transport costs lead to higher trade flows between two countries.<sup>10</sup> Transport costs determined by infrastructure, in general, may restrict LDCs' ability to export to the EU in spite of the progressive reduction in import tariffs and the gradual increase in the EBA TRQ starting from 2005 and the complete removal of border restrictions from the year 2009 onwards.

We utilise the COSIMO-AGLINK model, a partial equilibrium recursive dynamic model for the sugar market, developed by the Organisation for Economic Cooperation and Development (OECD) and the Food and Agriculture Organization (FAO). In addition to OECD Member States and main developing producing countries, 22 ACP countries and LDCs are included in the model, amounting to a total of 56 countries and regions<sup>11</sup>. Two types of traded sugars are considered, refined and raw, and two sugar inputs, cane and beet<sup>12</sup>. The model is calibrated on the year 2003 and is utilised to generate a set of recursive dynamic solutions up to 2013. Both trade and domestic policies are included explicitly in most of the countries. World and domestic prices are determined endogenously by clearing the world market, as well as domestic markets of countries, such as the EU 25, Mexico, the United States and China, which are insulated in terms of world market price effects

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<sup>10</sup> Recent years have experienced a surge in the use of the gravity model in analysing bilateral trade, the impact of regional trade agreements, as well as in estimating trade costs (for a review see Piermartini and Teh, 2005). For recent surveys on the theories behind gravity see Harrigan (2002) and Feenstra (2002, 2003). Although initially applied in an *ad hoc* manner, Anderson (1979) provided a theoretical foundation for gravity on the basis of products that are differentiated by country of origin and preferences determined by constant elasticity of substitution. Subsequent research derived gravity equations from a variety of different theories. Bergstrand (1989, 1990) and Baier and Bergstrand (2001) based gravity on monopolistic competition, whilst Deardoff (1998) derived gravity equations on the basis of a standard Heckscher-Ohlin trade model with complete specialisation in production. Eaton and Kortum (2002) also derived gravity equations from a Ricardian trade model assuming homogeneous products.

<sup>11</sup> Argentina, Australia, Austria, Bangladesh, Barbados, Belgium, Belize, Brazil, Burkina Faso, Canada, China, Cuba, Czech Republic, Denmark, Dominican Republic, Ethiopia, EU 6 (including Malta, Cyprus, Slovenia, Estonia, Latvia and Lithuania), Fiji, Finland, France, Germany, Greece, Guyana, Hungary, India, Indonesia, Ireland, Italy, Cote d'Ivoire, Jamaica, Kenya, Madagascar, Malawi, Mauritius, Mexico, Mozambique, Netherlands, other LDCs, Poland, Portugal, Russian Federation, Slovakia, South Africa, South Korea, Spain, Sudan, Swaziland, Sweden, Tanzania, Trinidad and Tobago, United Kingdom, USA, Vietnam, Zambia, Zimbabwe, and Rest of the World.

<sup>12</sup> In some major producing regions, such as Brazil and the USA, the model also includes sweetener substitutes on the demand side, ethanol and the joint product aspect of sugar and molasses.

In the ACP countries, the marginal economic incentive is calculated as a weighted pool (or blend) price of the price received for sugar exported under the Sugar Protocol (SP) and the Special Preferential Sugar (SPS), the price received for exports within the US tariff rate quota (TRQ) and of the world price for production exported to the world market. Thus, ACP countries are modelled as price-takers, with an imperfect transmission of world price signals. For those ACP countries which are also classified as LDCs, where the EBA initiative implies a TRQ that increases by 15 percent per year between 2002 and 2008 and duty free unlimited access after year 2009, the price determination described above is applied until 2008 on the basis of the corresponding EBA TRQ. From 2009 onwards, it is assumed that ACP LDCs will be able to benefit from the EU reference price without any restrictions on their exports. LDCs' total exports are determined within the partial equilibrium model. However, the maximum amount of exports of the individual LDCs to the EU are determined by the gravity equations, that is by both tariff and natural barriers, after controlling for size. Export flows to the EU receive the EU reference price and in turn determine the domestic price in the exporting LDCs, thus affecting the incentive to produce sugar.

The empirical gravity model applied is the following:

$$(8) \quad x_{ie,t} = c + \alpha x_{ie,t-1} + \beta \left( \frac{y_i}{y_e} \right)_t + \sum_0^n \delta_n tar_{ie,t-n} + \sum_k \zeta_k z_{ie,t}^k + (\eta_{ie} + \varepsilon_{ie,t})$$

where  $x_{ie,t}$ ,  $y_{i,t}$  and  $y_{e,t}$  denote exports from country  $i$  to the EU in year  $t$  and the GDP of the exporting country and the EU respectively in the same year. The variable  $tar_{ie,t}$  denotes the level of the *ad valorem* tariff faced by the exporting country in time  $t$ , whilst the  $k$  variables  $z_{ij}$  refer to several variables relating to natural tariff barriers.  $\varepsilon_{ie,t}$  is a error term, whilst  $\eta_{ie}$  is an unobserved country-specific and time-invariant effect that can be thought of as an additional determinant of exports on the basis of characteristics that are idiosyncratic to each country. The lagged dependent variable and the lagged tariff terms capture the adjustment process to the new environment.

We apply the gravity model utilising a panel data set for food and tobacco exports to the EU from 47 LDCs during the period 1988-2004. Data on the value of food and tobacco exports to the EU and the relevant weighted tariff levels is collected from COMTRADE. We use food and tobacco exports instead of sugar exports because sugar exports data are limited, as few LDCs exported sugar to the EU during the period 1988-2004, and because data on food and tobacco exports contains information on the impact of the initiative on trade. There are some advantages in applying gravity to panel data, as they allow the estimation of dynamic models and the investigation of the adjustment process, which may imply significant costs both for increasing production and to administer exports under the EBA. Moreover, panel data allow more variation in the sample.

We estimate the gravity equation using the Generalised Method of Moments (GMM), a standard procedure for dynamic panel data models. GMM developed by Hansen (1982) and extended for first-differenced dynamic panel models by Arellano and Bond (1991) consists of an asymptotically efficient estimator in this context.<sup>13</sup> The estimated parameters are presented in Table 4.

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<sup>13</sup> A detailed description of the estimation method is beyond the scope of this paper. For details on GMM and its application on panel data see Arellano and Bond (1991). Surveys on GMM are provided by Blundell, Bond and Windmeijer (2000) and Arellano and Honore (2001). An intuitive review is provided by Bond (2002). The method is robust to correlated country specific effects and endogeneity. It is a standard procedure for dynamic

Table 4: Dynamic gravity equation estimates\*

We experimented with different natural barrier variables, such as the length of paved roads, the number of telephone lines per thousand inhabitants, but estimates were not statistically significant due to the lack of variation of the series, thus resulting in a parsimonious final specification. The parameter estimates are statistically significant and highlight the importance of tariff barriers in determining trade flows in the medium run. The estimated parameter for transport costs also confirms the importance of well functioning and efficient transport infrastructure.

#### 4.2. Results

We simulate a policy scenario based on the reform agreed by the European Union agricultural ministers in late November 2005, which includes the abolition of the intervention mechanism and its substitution with a private storage scheme, to be triggered at a level 36 percent lower than the current intervention price; the merging of the present A and B quotas and the establishment of an additional quota of one million tonnes. The model does not allow meaningful simulation of the other changes brought about by the EU reform.

The results of the simulation exercise suggest that the reform of the EU sugar CMO has a significant impact in the European market and a relatively more limited impact on the rest of the world. Concerning the EU's trade partners, which are our focus here, the exercise suggests that trade is diverted away from countries which currently enjoy preferential access to the EU market. In particular, higher cost ACP producing countries that export within the Sugar Protocol are expected to be displaced by more efficient LDCs, some of which are also ACP and enjoy duty-free unlimited-quota access to the EU market within the EBA initiative.

Total sugar imports in the EU are simulated to increase following the policy reform, albeit by a lower rate than that indicated by the baseline, particularly after 2009 (see Figure 1). In general, under both the baseline and the reform scenario, the EBA initiative results in an increase in imports by almost 700 thousand tonnes in three years. Towards the end of the simulation horizon, the effect of the EU reform causes imports to slow down due to the reduction in the price paid to ACP countries under the Sugar Protocol, and in the price that imports originating in LDCs receive under the EBA initiative.

Figure 1: Sugar imports in the EU 25 (,000 tonnes)

In addition to the impact on aggregate imports to the EU, policy reform is expected to alter their composition, as LDCs' exports to the EU are diverted towards the EU due to the EBA initiative, whilst imports under the Sugar Protocol, in the case of high-cost ACP countries,

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panel data models to transform the variables to their first differences in order to eliminate the country specific effects  $\eta_{ie}$  from the model. This transformation introduces correlation between the differenced lagged dependent variable and the differenced error term, rendering the OLS estimator inconsistent. Instrumental variables estimators, such as 2SLS are consistent but not asymptotically efficient due to identification problems. In the context of dynamic panel data models, under the assumption that the error term  $\varepsilon_{ie,t}$  is not serially correlated GMM estimators are asymptotically efficient. In this paper, we adhere to the Arellano and Bond (1991) two-step GMM estimator, correcting for heteroscedasticity in a manner similar to the White period covariance estimation. We utilise the Sargan test for overidentifying restrictions to test the validity of the identifying assumption that there is no serial correlation in the residuals.

decrease. In more detail, three country groups can be identified among those enjoying preferential access to the EU market. First, ACP (non-LDC) countries, which currently enjoy preferential access under the SP and the SPS are expected to be affected by both the abolition of the SPS, as well as by the reduction in the EU price. The latter will have a significant impact on high cost producers, such as Barbados, where both total exports and exports to the EU are falling dramatically (see Table 5), whilst the elimination of SPS will affect ACP low-cost producing countries such as Trinidad, Swaziland, Mauritius, Jamaica, Guyana, Fiji and the Cote d'Ivoire, which may be crowded out of the EU market by LDCs exports.

Table 5: Raw sugar exports of ACP countries and LDC

Secondly, for least developed ACP countries that export to the EU under the SP and SPS, the EBA initiative leads to unlimited duty-free access to the EU market. Malawi and Tanzania are simulated to increase their exports to the EU significantly. Trade costs are assumed not to pose significant barriers to exports, as these countries have been exporting to the EU for long period of time.

Finally, a third group comprises those LDCs which are not SP and SPS signatories and, therefore, will obtain significant benefits from the EBA initiative. Some of these LDCs are important sugar producers, such as Ethiopia, Mozambique and Sudan. Exports from Ethiopia to the EU (see Figure 2) are simulated to reach 113 thousand tonnes by 2013, whilst those from Mozambique increase from 10 to 55 thousand tonnes during the same period. In a like manner Sudan is simulated to increase its exports to the EU about fivefold. EU policy reform is not expected to alter these export trends that are predominantly determined by the EBA initiative.

Other LDCs that are not significant sugar exporters, but have been exporting small amounts of sugar regularly to the EU in the recent years are Mali, Mauritania, Chad and Sierra Leone, that are included in the simulation as 'other LDCs', and Bangladesh. For these countries, the baseline indicates that exports may increase due to the EBA (Table 5), but to a moderate level mainly due to the constraints imposed by transport costs, while the reform of the EU policy does not imply significant changes.

Figure 2: Ethiopia – Exports to the EU (000 tonnes)

Figure 3: Mozambique – Exports to the EU (000 tonnes)

In total, sugar exports of the ACP countries to the EU are projected to increase to 1.7 million tonnes in 2011-13; while those of the LDCs would increase threefold, reaching 498 thousand tonnes. Export of the ACPs toward non-EU destinations are projected to decrease by some 15 percent in the same period, while those of the LDCs would be reduced by over 50 percent. For these items the reform of the EU regime only implies marginal changes.

Finally, it is worth considering the effect on the developing ACP countries that are signatories of the SP and SPS and the LDCs in terms of export revenues, given that significant changes take place both in terms of the price received and in the volumes traded. The EU sugar policy reform will without doubt worsen export revenues due to a reduction in the price these countries receive. However, for the LDCs, reform still leaves the group with a total export revenue that is almost 150 percent higher than that of the 2001-03 period. ACP countries-

signatories to the SP would still gain as a group, but solely due to countries that are classified as Least Developed and will export to the EU under the EBA initiative. Other ACP countries will experience substantial losses, such as Barbados, Zimbabwe and Cote d'Ivoire. In the same vein, wide potential gains arise for some of the LDCs, particularly Sudan, Tanzania, Malawi, Zambia and the "other LDCs". The exceptional results of Ethiopia and Mozambique derive from their very low starting points, as shown in Figures 2 and 3.

## 5. Concluding remarks

Large exporting developing countries appear to be substantially restricted in their trade with the EU, including for agricultural products, to a greater degree than countries which are treated on a purely MFN basis, like the US, or Australia and New Zealand. For countries like Brazil, India, and Argentina this overall result in terms of the MTRI, a theoretically-consistent protection index based on the bilateral volumes of imports, is mostly explained by the EU agricultural tariff structure. LDCs do not seem to enjoy a large degree of market access due to the preferences granted in the agricultural sector. Extending unlimited duty free access to these countries, as the EBA initiative should do, may not therefore be a particularly significant event.

Sugar appears important in shaping the degree of trade restrictiveness in agriculture for most developing countries. More paradoxically, the existence of a quantitative limitation on the total amount of duty-free sugar that ACP countries can export to the EU appears to undermine the value of this preferential trade flow in terms of the MTRI, which is otherwise consistent with expectations. This was explored by considering individual ACPs and LDCs in the perspective of the EU domestic policy reform and of the implementation of EBA.

The results of the detailed assessment on the sugar sector based on the COSIMO-AGLINK model and the gravity equations indicate that the change in the volume of sugar imports to the EU from the SP signatories and from the LDCs under the EBA initiative would be limited to about 500 thousand tonnes, based on the combined effect of the natural trade costs and the price changes. At the same time, the reform of the EU domestic regime does not seem to make a particularly significant difference in terms of export volumes from the LDCs and for most of the ACP countries. However, their export revenues are significantly affected, since although the effect of reform on the world price is too small to determine any significant trade creation and diversion outside the administered SP quotas and the EBA preferences, the EU domestic price, even though reduced, still remains far higher than the world market price. In turn, this implies that preferences remain valuable to exporters.

The expected policy developments will affect significantly a number of ACP developing countries, both the high cost producers, such as Barbados and a number of Caribbean Island States, mainly due to the reduction in the EU price, and the relatively low cost producers which are not in the LDC group, such as Trinidad, Swaziland, Mauritius, Jamaica, Guyana, Fiji and the Cote d'Ivoire, mainly due to both the price decrease and the abolition of the SPS. Therefore, if it is true that the ACPs as a group have been facing a constraint in the volume of their sugar exports to the EU arising from the presence of individual quotas, as captured by the calculation of the MTRI, it is also true that within the ACPs there is a number of countries which are going to be seriously displaced both by the price reduction in the EU, and by the abolition of the SPS quota, brought about by the implementation of the EBA initiative.

Looking beyond these results, there are at least two critical questions which must be addressed. First, what might be better and more useful alternatives to preferences to achieve the goals of increased development and greater participation in global trade? The response to



this question might be labelled the “Beyond Preferences Option”. Secondly, how might preferential schemes be modified to increase the value of preferences to beneficiary developing countries, and to reduce the negative impacts that the existence of preferences might have on the goals of realizing increased trade liberalization. The response to this second group of questions might be labelled the “Within Preferences Option”.

In both cases, investment for increased efficiency and competitiveness is at the core of the response. Resources should be devoted to promote such efforts, consistent with the losses suffered from the erosion of preferences arising from the reform in the EU.

On alternatives to preferences, two possible options are export promotion and diversification. Both are rooted in the policy response of “Aid for Trade” as opposed to “Trade as Aid”. In both options investment for increased efficiency and competitiveness is at the core, but in the context of the promotion option the emphasis is much more on the demand side in the initial stages than is the case under the diversification option. Obviously these options are not mutually exclusive, and the response of the representatives of the small banana countries in the light of the outcome of the Hong Kong Ministerial and EU’s change to its banana regime from the current tariff rate quota (TRQ) to a tariff only system is instructive. Concerning promotion, the idea is to enact a set of policy measures and to devote resources to enable production, processing and marketing activities which have been so far focused on the products currently traded under preferences, to continue trading their output and to expand it in non-preferential markets. This could take the form of vertical or horizontal alliances among producers and traders, aimed at increasing market penetration of traditional markets. Investment in the production of higher-valued products and more sustainable branding targeted at specific market segments, such as the health, fair trade, and ethnic based markets. The spokesman on bananas for the Windward Islands of the Caribbean indicated in January 2006 that henceforth the intention is to move toward having all their bananas sold under the Fairtrade label.<sup>14</sup>

Concerning diversification, the idea is to devise a set of policies and devote resources to support, over a transition period, the production, processing and marketing of products which are currently not traded, but for which there is a potential national, regional and/or international market. The point of departure of this approach is moving out of what may be inefficient and uncompetitive product areas to different products that have greater potential for competitiveness. This approach combines the “Trade not Aid” approach with the “Aid for Trade” approach. It recognizes the need for policy changes in both developed and developing countries in the establishment of new sustainable trading processes. It links policy changes in developed countries such as reduced domestic subsidies and reduced tariff escalation to availability of resource assistance to enable the formation of strategic alliances for the production and trading of new crops. In this vein, another component of the plan announced by the Windward Islands banana dependent countries is to explore the production of mangoes given the changes in the banana trade regime.

Concerning what we labelled “Within Preferences Option”, the EU is presently negotiating the Economic Partnership Arrangements with the ACP countries, having learnt what it terms the lessons of the past Lomé regime. Among the most important of these lessons are that unilateral preferences are not enough, that the trade relationship should go beyond market access, that synergies should be promoted between trade and aid, that trade should be mainstreamed in development support, that domestic reforms are needed, and perhaps most importantly and running through all of these lessons, that the domestic supply capacities must

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<sup>14</sup> [www.bbc.co.uk/Caribbean/news/story/2006/01/060110](http://www.bbc.co.uk/Caribbean/news/story/2006/01/060110)

be greatly increased.<sup>15</sup> The USA on the basis of a conclusion that AGOA is helpful to the 37 countries in Africa, has recently extended these preferences to 2015. Yet, there remains considerable uncertainty in the sugar marketing arrangements, and particularly on what will be the final form of the EPAs and whether the sugar protocol will or will not be included in such agreements; how the LDC status will be affected by the EPAs. All these issues may have considerable implications for the sugar market prospects.

Against this backdrop, a number of options for improving the benefits of preferences should be explored. Setting more transparent trading regulations, facilitating the meeting of standards, and longer transition periods would be useful means to enhance the value of preferences. At the same time, actions aimed at improving the domestic supply-side capacity, and at building commodity institutions would increase the benefits from the actual preferences.

Moreover, a number of actions may be pursued with the aim of reducing the negative impact of the erosion of preferences. The sugar sector constitutes a pertinent example. For this product, the strategies of product differentiation and value addition appear to have a limited potential in the long run. While some consumers in developed countries' markets may be willing to pay price premiums for differentiated products such as unrefined sugar, or for labels which promise the respect of social and environmental standards in production, the potential size of these markets appears small, and overall consumption appears to be decreasing. At the same time, on the production costs side there a number of major producers, such as Brazil and Thailand, which are likely to remain the most competitive at any cost level. It is not by chance, therefore, that there is a lively debate upon compensatory measures and the transitional period.

LDCs have put forward a proposal envisaging the maintenance of a quota system up to the year 2019, and a far longer calendar for the tariff reductions (LDCs 2004), which has also been endorsed formally by the ACPs group. It has been noted that this approach appears totally opposite to the logic followed by the EU Commission in reforming its domestic market regime (Matthew and Chaplin, 2006). However, the compensating measures proposed by the Commission to the ACP countries, also appear inconsistent with the logic of the domestic reform. In this vein, compensating measures should be linked, in principle, to the compensations offered to the EU domestic producers which are expected to be forced out of the sector by the reform of the domestic regime. A simple calculation following this logic indicates that the amount of resource destined to restructuring aid should be more than tripled compared to what has been indicated so far, in order to compensate the same 60 percent of the likely loss provided to the European farmers, and provide a deficiency payment scheme, decreasing through time, as a complementary tool to provide a safety net (Matthews and Chaplin, 2006).

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<sup>15</sup> Claude Maerten, European Commission, Head of Unit TRADE C 2, TRALAC's Annual International Trade Law Conference, 11 November 2004.

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**Table 1. Countries, regions, products and endowments**

<b>country/regions</b>	<b>products</b>	<b>primary factors</b>
Brazil	paddy rice	land (sluggish)
ACPs	wheat	skilled labour (mobile)
Argentina	other cereals	unskilled labour (mobile)
ASEAN	oilseeds	capital (mobile)
Canada	vegetables and fruits	natural resources (sluggish)
EU candidates	cane and beet	
Chile	sugar	
India	raw milk	
Japan	vegetable oils and fats	
non-WTO members	livestock, cattle,sheep, goat and horses	
LDCs	plant based fibers	
Middle East and North Africa	other live animals	
China	other food products	
USA	wool, silk worms, cocoons	
Rest of America	forestry	
Mexico	fisheriy	
Turkey	meat, cattle,sheep, goat and horses	
Rest of South-Asia	othe rmeats	
Oceania	beverages and tobacco	
Rest of Europe	other foods	
	dairy products	
	processed rice	
	primary non food	
	water	
	constructions	
	trade	
	communication	
	financial services	
	transport	
	other services	
	garments	
	wood products	
	paper products, publishing	
	petroleum, coal products	
	chemical,rubber,plastic prods	
	mineral products nec	
	other mineral products	
	motor vehicles and parts	
	electronic equipment	

**Table 2. EU bilateral MTRI uniform tariffs and trade weighted**

	total MTRI	Agriculture	Trade-weighted average (agriculture)	Manufacture	Services
Brazil	22.36	47.93	17.16	1.1	26.08
ACPs (non LDCs)	8.85	49.41	22.78	0.28	19.29
Argentina	9.92	12.3	10.91	1.58	17.43
ASEAN	7.47	15.76	12.03	2.92	25.01
Canada	9.88	8.9	6.44	1.27	22.17
EU candidates	1.26	10.03	9.88	0.28	20.44
Chile	3.77	9.58	10.23	0.17	19.26
India	14.43	45.33	10.93	3.95	27.04
Japan	6.49	12.13	7.90	3.31	26.51
non-WTO members	3.03	7.1	11.00	0.99	22.15
LDCs	3.32	11.54	6.10	0.19	20.54
Middle East and North Africa	4.76	35.84	10.30	0.04	18.75
China	7.63	27.19	16.51	3.72	25.73
USA	7.29	13.31	9.38	1.78	21.97
Rest of America	15.58	42	23.56	0.02	17.21
Mexico	6.82	13.56	5.72	0.17	20.14
Turkey	3.85	23.14	3.80	0.5	20.59
Rest of South-Asia	9.76	9.89	4.52	7.66	22.72
Oceania	10.79	19.3	9.39	0.95	20.17
Rest of Europe	2.00	9.83	5.94	0.03	22.18

Source: simulation results.

**Table 3. Percentage contribution of each primary product to the agricultural MTRI**

	paddy rice	vegetables	sugar	oils&fats	meat	beverages & tobacco	other food	dairy	processd rice
Brazil	0	0	8	0	83	0	7	0	0
ACPs (non LDCs)	0	5	71	0	21	1	2	0	0
Argentina	0	15	3	0	32	1	41	1	0
ASEAN	10	1	2	5	36	1	19	0	23
Canada	2	1	0	0	15	1	34	37	0
Eu candidates	0	5	1	3	27	10	15	9	0
Chile	0	52	0	0	14	13	19	1	0
India	14	0	6	0	62	0	2	0	13
Japan	10	1	3	2	13	3	27	5	31
non-WTO members	12	8	11	2	12	1	22	19	4
LDCs	9	9	78	0	0	0	0	0	3
Middle East and North Africa	0	7	1	44	44	0	1	0	3
China	2	30	1	0	2	1	9	0	52
USA	10	3	1	1	18	4	26	5	13
Rest of America	1	37	52	0	8	0	1	0	1
Mexico	0	7	71	0	6	1	12	1	0
Turkey	0	2	8	20	56	0	1	11	1
Rest of Asia	53	2	1	0	0	1	7	0	12
Oceania	4	4	1	0	5	2	2	81	1
Rest of Europe	0	0	2	0	17	7	20	51	0

source: simulation results

**Table 4: Dynamic gravity equation estimates\***

$x_{ie,t-1}$	$tar_{ie,t-1}$	$tar_{ie,t-2}$	$\begin{pmatrix} y_i \\ y_e \end{pmatrix}_{ie,t-1}$	$z_{ie,t}^{transport}$
0.3643 (0.0052)	-0.0529 (0.0096)	-0.0796 (0.0068)	0.1283 (0.0472)	-0.0859 (0.0156)
<i>J</i> -Statistic	51.26			
Instrument rank	55			
Sargan test <i>p-value</i>	0.42			
Sample	1990-2004			
Number of observations	539			



Table 5: Raw sugar exports of ACP countries and LDCs

Destination	EU under Sugar Protocol				EU under SPS protocol, then EBA				Rest of the World				Total			
	1995-97	2001-03	2011-13b	2011-13s	1995-97	2001-03	2011-13b	2011-13s	1995-97	2001-03	2011-13b	2011-13s	1995-97	2001-03	2011-13b	2011-13s
<b>Belize</b>	40.3	40.3	40.3	40.3	9.6	5.2	-	-	57.4	57.0	70.6	78.8	107.4	102.5	110.9	119.1
<b>Trinidad and Tobago</b>	45.7	45.7	45.0	45.7	10.4	5.5	-	-	3.4	0.6	-	-	59.5	51.7	45.0	45.7
<b>Swaziland</b>	123.0	123.0	123.0	123.0	56.8	32.4	-	-	215.4	282.9	353.0	434.7	395.1	438.3	476.0	557.7
<b>Mauritius</b>	512.4	512.4	493.5	499.7	39.2	27.0	-	-	76.0	22.2	0.0	0.0	627.6	561.6	493.5	499.7
<b>Jamaica</b>	123.9	123.9	123.9	123.9	28.5	17.4	-	-	21.0	0.0	21.1	12.6	173.3	141.3	145.0	136.5
<b>Guyana</b>	166.3	166.3	166.3	166.3	37.3	17.8	-	-	39.8	114.9	130.9	120.3	243.4	299.0	297.2	286.6
<b>Fiji</b>	172.5	172.5	172.5	172.5	35.1	19.3	-	-	153.1	83.0	84.1	76.4	360.8	274.9	256.6	248.9
<b>Dominican Rep.</b>	-	-	-	-	-	-	-	-	314.8	173.5	183.5	121.8	314.8	173.5	183.5	121.8
<b>Ivory Coast</b>	10.6	10.6	10.6	10.6	12.0	9.1	-	-	26.5	42.0	33.5	30.7	49.1	61.8	44.2	41.3
<b>Barbados</b>	52.5	41.3	6.1	5.4	2.4	-	-	-	0.1	-	-	-	55.0	41.3	6.1	5.4
<b>Kenya</b>	-	-	-	-	-	4.1	-	-	-	-	0.3	0.3	0.0	4.1	0.3	0.3
<b>Zimbabwe</b>	31.5	31.5	31.5	31.5	32.4	23.4	-	-	-	69.7	56.8	56.4	177.3	124.6	88.4	87.9
<b>Mozambique#</b>	-	-	-	-	-	0.8	53.7	54.7	-	107.5	93.6	92.7	73.8	108.3	147.4	147.4
<b>Ethiopia#</b>	-	-	-	-	-	15.0	113.6	113.6	-	74.2	-	-	43.7	89.2	113.6	113.6
<b>Burkina Faso#</b>	-	-	-	-	-	0.7	1.7	1.7	-	11.8	-	-	-	12.6	1.7	1.7
<b>Tanzania*</b>	3.1	10.6	10.6	10.6	1.5	2.2	39.6	39.6	-	7.1	-	-	4.6	19.9	50.2	50.2
<b>Sudan#</b>	-	-	-	-	-	18.4	97.8	93.6	81.5	223.3	118.5	125.7	81.5	241.7	216.3	219.3
<b>Malawi*</b>	21.7	21.7	21.7	21.7	13.9	9.3	88.7	83.0	23.4	58.8	-	-	59.0	89.8	110.4	104.7
<b>Zambia*</b>	-	-	-	-	11.6	12.0	39.7	43.7	-	27.2	-	-	11.6	39.2	39.7	43.7
<b>Madagascar*</b>	11.2	11.2	11.2	11.2	12.2	9.9	20.8	27.0	-	-	-	0.2	23.4	21.1	20.8	27.2
<b>Total ACPs</b>	1,314.8	1,311.2	1,245.2	1,251.3	302.9	229.6	455.6	456.9	1,243.1	1,355.8	1,146.0	1,150.6	2,860.8	2,896.5	2,846.8	2,858.8
<b>Bangladesh</b>	-	-	-	-	-	-	2.3	2.3	-	31.0	12.8	12.8	-	31.0	15.0	15.0
<b>Other LDCs</b>	-	-	-	-	-	2.4	6.0	6.0	30.2	39.2	49.9	50.9	30.2	41.6	55.9	56.9
<b>Total LDCs</b>	36.1	43.6	32.4	32.4	39.1	70.7	463.8	465.1	252.5	580.2	274.8	282.2	327.7	694.5	771.0	779.7

\* ACP sugar exporters classified also as LDCs

# EBA only

2011-13b denotes baseline, 2011-13s denotes reform

Table 6: Changes in export revenues of ACP countries and LDCs, 100=2001-03

	2011-13b	2011-13s
<b>Belize</b>	92	59
<b>Trinidad and Tobago</b>	92	60
<b>Swaziland</b>	82	53
<b>Mauritius</b>	95	62
<b>Jamaica</b>	91	58
<b>Guyana</b>	94	60
<b>Fiji</b>	94	60
<b>Dominican Republic</b>	n.a.	n.a.
<b>Ivory Coast</b>	56	36
<b>Barbados</b>	15	9
<b>Kenya</b>	0	0
<b>Zimbabwe</b>	60	38
<b>Mozambique#</b>	6,959	4,542
<b>Ethiopia#</b>	787	504
<b>Burkina Faso#</b>	245	157
<b>Tanzania*</b>	409	262
<b>Sudan#</b>	553	339
<b>Malawi*</b>	370	225
<b>Zambia*</b>	343	242
<b>Madagascar*</b>	102	85
<b>Total ACPs</b>	115	74
<b>Bangladesh **</b>	100	64
<b>Other LDCs</b>	265	170
<b>Total LDCs</b>	452	290

\* ACP sugar exporters classified also as LDCs;

# EBA only

\*\* 100 = 2011-13b

2011-13b denotes baseline, 2011-13s denotes reform

Figure 1. Sugar imports in the Eu-25 (000 tons)

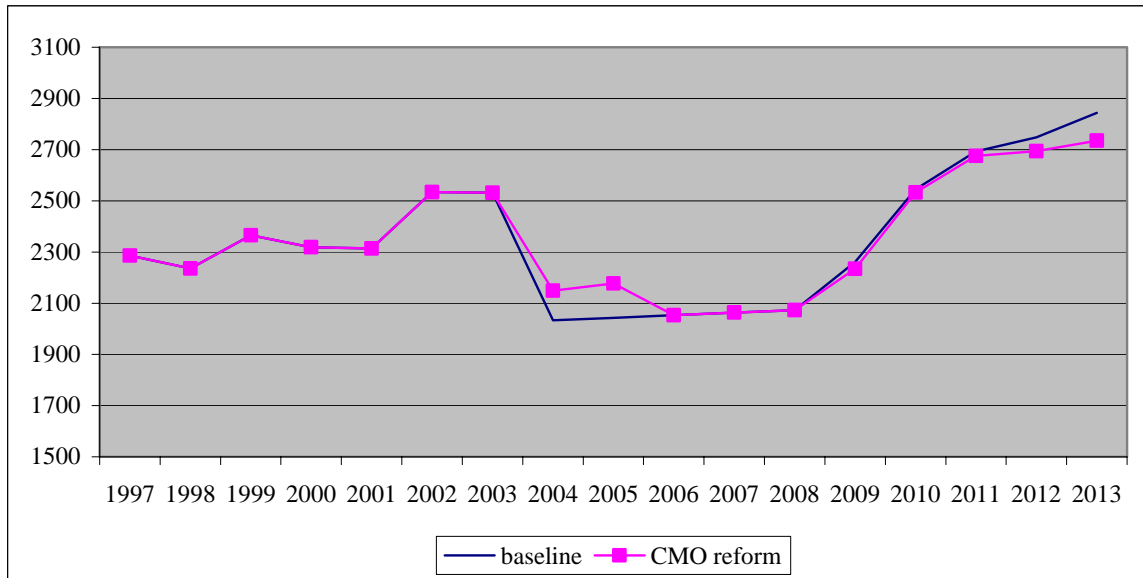


Figure 2. Ethiopia exports to the Eu-25 (000 tons)

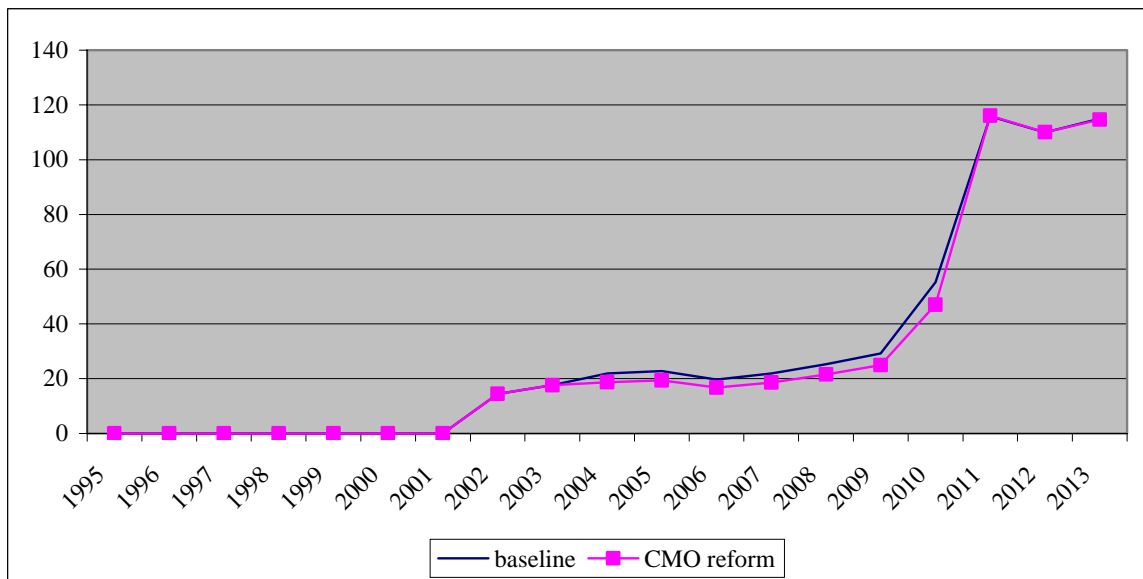


Figure 3. Mozambique exports to the Eu-25 (000 tons)

