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THE AGRICULTURAL DIMENSION OF THE EU ECONOMIC PARTNERSHIP AGREEMENTS IN A REFORMED SUGAR TRADE REGIME. A GENERAL EQUILIBRIUM ANALYSIS ON DEVELOPMENT

"Ex Africa Semper Aliquid Novi"
"Out of Africa, there is always something new"
Pliny the Elder (Caius Plinius Secundus), *Historia Naturalis* [8, 6]

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1. Introduction

In June 2000, the European Union (EU) and the African, Caribbean and Pacific (ACP) countries met in Cotonou (Benin) to sign an agreement with the intention of laying the basis for a new partnership and bringing to an end their old relationship that was based on the Lomè Conventions (European Commission, 2000). The prospective new relationship will be based on the guiding principles addressed in the Cotonou Agreement.

The main objective of the Cotonou Agreement is the reduction and eventual eradication of poverty and the gradual integration of ACP States into the global economy, while paying due regard to the principle of sustainable development. The end result is expected to be a number of Economic Partnership Agreements (EPAs) between the EU and various economic groupings in the ACP regions. The negotiated EPAs are expected to enter into force in 2008 and have to be based on a reciprocal and WTO-compatible trade framework. The EU sugar trade relationship with the ACP, as captured in both the reformed Sugar Protocol for ACP non Least Developed Countries (LDCs) and by the Everything But Arms (EBA) initiative for ACP-LDCs, will also be included in the EPAs. .

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Any non-LDC ACP State that fails to be a party to an EPA would lose its current Cotonou-based access arrangements with the EU, but would benefit from the EU's Generalized System of Preferences (GSP), and would not have to open-up its markets to EU exports. Any LDC ACP State that fails to be a party to an EPA could still benefit from the EBA initiative, which might offer better preferences than the EPA, and would not have to open-up its markets to EU exports.

This paper will analyze the effects on development of import tariff reductions within the EU EPAs. The analysis will be based on a multiregional, applied general equilibrium (AGE) model and the focus will be on African economies. The baseline will be a reformed EU sugar trade scenario in order to offset the EPA impact within one of the major areas of EU policy change, the reform of the Sugar Protocol.

Our analysis will be based on a modified Applied General Equilibrium (AGE) GTAP framework (Hertel and Tsigas 1997; and Dimaranan and McDougal, 2006). The AGE approach is based on assumptions that are common in the literature: perfect competition and constant returns to scale. The analysis is of a comparative static nature. Each regional economy consists of several economic agents. First, a household maximizes utility to determine demands for commodities and savings. Second, cost minimizing sectors employ primary factor services and intermediate inputs to produce commodities. Regional household income consists of returns to primary factors, and net taxes. Interregional economic linkages are based on the assumption that demanders treat commodity imports from different sources as imperfect substitutes.

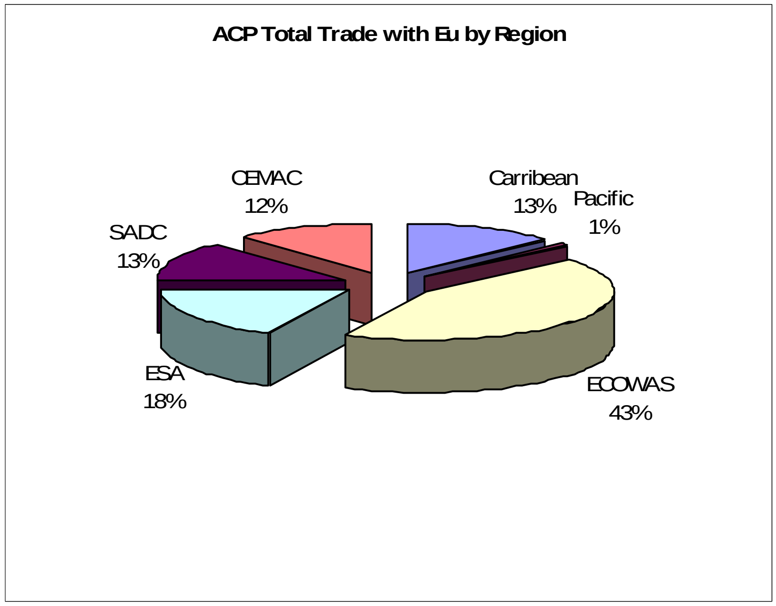
We will aggregate GTAP regions reflecting the ACP geographical distribution. Regarding African economies, a distinction will be made between SADC countries and countries belonging to the Economic Community of West African States (ECOWAS), the Central African Economic and Monetary Community (CAEMC) and the Eastern and Southern Africa (ESA).

Our paper will be focused on the effects of EPAs on development for a sample of countries belonging to SADC, such as Botswana, Mozambique and Tanzania and a sample of countries belonging to ESA such as Madagascar Uganda, Malawi, Zambia and Zimbabwe. In particular, we will analyze implications for primary factors and investment in capital and human resources.

2. *The EU and ACP countries: a long term relationship.*

More than 30 years ago, the EU became the first major market for ACP country exports.

Figure 1: ACP total Trade with EU 25 by Region



Source: EU Commission

Trade relationships spanned from reciprocal to non-reciprocal with the objective always being sustainable development and eradication of poverty in those developing countries related to certain EU countries because of historical reasons[3]. The historical roots of this feature can be traced to 1957 when the six European countries signatories of the Treaty of Rome committed themselves to keep special trade preferences with colonies and Overseas Countries and Territories (OCT)[4].

In order to sustain these development commitments, a European Development Fund (EDF) was also set up alongside the conclusion of the Treaty of Rome. The aim of the EDF was to grant technical and financial assistance to countries that were still colonised at that time and with which certain EU countries had historical links. The

[3] The European Union was established in 1992 by the Treaty of The European Union signed in Maastricht. From 1957 to 1992 it would be more appropriate to refer to the European Community, but for editing reasons we cite the European Unions both with references to the European Community and to the European Union.

[4] The development of the African Counties has always been one of the main features of the EU policy. Already in 1950, during the well knew Schumann Declaration, the statesman stresses: "*Europe would, with increased resources, be able to pursue one if his essential task; the development of the African continent*".

EDF was the main instrument for development cooperation with the colonies in ACP Countries and in the OCT. The aid was given in the form of grants, risk capital and loans to private sector under advantageous terms.

The scenario changed when in the 1960s, former colonies gained independence and self-determination. The EU therefore had to design a new trade relationship both with the former colonies and the OCT[5]. The new challenge was to continue granting preferential market access to countries with which Europe had historical commitments while implementing the Common Agricultural Policy (CAP). The only way to match the interests of both the EU agricultural producers and ACP countries was to negotiate *ad hoc* protocols guaranteeing fixed prices to agreed quantities of products imported, but that were also produced in the EU market (such as Banana, Rice and Sugar).

Hence, the Yaoundé Convention, signed on 20 July 1963 was based on and consistent with the Treaty of Rome. About one year later it entered into force for a period of five years. It was the first formal convention between the EU and a group of developing countries. It was largely driven by France's interest in strengthening the trade relationship with African francophone countries through the creation of a free trade zone. The members involved were the six EU counties and 18 African Associated States and Madagascar (AASM).

A second Yaoundé Convention was signed in July 1969. The two Yaoundé conventions have interesting features and are analogous with the current Cotonou Agreement. Through the two conventions all goods from the AASM had duty-free access to the EU's Common Market, but with certain exceptions of agricultural goods. In return the AASM had to harmonise their tariff schedules. The most important feature of this trade relationship was the principle of reciprocity and non discrimination, and that derives from the Treaty of Rome.

It is thus interesting to note that the idea of a free trade zone between Europe and Africa, reincarnated in the EU's proposal for ACP-EU EPAs, is not new (Solignac Lecomte 2001). As a matter of fact an EU-Africa free trade zone did not find place through Yaoundé and its successor Yaoundé II. Solignac Lecomte (2001) argued that the main cause for this failure may be attributed to excessive

[5] In 1960 the principle of self-determination was stressed in the Declaration *on the Granting of Independence to Colonial Countries and People* and the so called decolonization period started. By 1963 many of the OTC and others ACP countries had acquired independence. It was necessary then to organize and settle on new frameworks trade relationships

protectionism. On one hand French international firms, which had been benefiting from traditional preferential positions in former French colonies, were keen to protect themselves from other potential European competitors. On the other hand, newly independent African countries embarked on self-centred development strategies which relied, *inter alia*, on autarchic and protectionist trade policies. They were not ready to provide trade preferences to their European partners.

The scenario changed when Great Britain, Ireland and Denmark eventually signed the Act of Accession to Treaty of Rome in 1972. With the UK accession, the EU had to agree to new agreements which outlined both economic and political policies to former UK colonies and Commonwealth Countries all over the world. The main issue became finding the lowest common denominator in order to group similar economies and agree upon new trade agreements. The leading reason of this was to preserve the Commonwealth Preferential System (e.g. preferential trade treatment for sugar) in developing economies, without excessively raising up the EDF budget. Hence, soon after Britain joined the Community, negotiations began at various levels among African and Caribbean Commonwealth countries.

3. From Lomè to Cotonou

In 1973 the first Lomè Convention was signed in Togo by the nine EU members and 46 ACP countries, including 20 “Commonwealth Countries”. The EU granted unilateral preferences to ACP countries. Accordingly, they were allowed to export to the EU without duty, an unlimited quantity of products not covered by the EU agricultural policy, but they themselves were not required to grant the same duty free access to EU producers. A number of *ad hoc* Protocols were agreed upon for specific commodities, such as sugar, bananas and rice. The non-reciprocity and non-discrimination principles were not adhered to in the subsequent rounds of conventions. Following EU enlargement, countries not linked to the ACP did not want to run the risk of reciprocals agreements.

Figure 2: Geographical distribution of ACP counties

Source: Web searching (http://commons.wikimedia.org/wiki/ACP_countries. Visited 16/03/2007)

The Lomè Convention with its non-reciprocal tariffs was to be reviewed at 5-year intervals. Table 2 gives a more detailed overview about the agreement. The most important change was the signature of the Sugar Protocol. Since 1975, ACP countries could export to the EU 1.3 million tonnes of white raw sugar annually, at zero duty and a guaranteed price. This was the so called sugar intervention price. Roughly half of the sugar quota is allocated to SADC producers. As per the Sugar Protocol, if a country was not able to deliver the quantity or quality to fill its quota, it could be delivered in the following year or transferred to another country.

In 1975 ACP states signed the Georgetown Agreement, which formally set out the organizing legal framework for their relationship with the EU. Although the legal basis for relations with the ACP had changed over the years, the spirit and the objectives were been maintained to a large extent in the agreement. The resulting organization, composed of a group of 79 Member States of which 48 countries are from Sub-Saharan Africa, 16 from Caribbean and 15 from pacific, have the objective of sustainable development among Member States and their gradual integration into the global economy, which entails making poverty reduction a matter of priority.

The last Lomè Convention was then signed in 1989. It was to be in force for decade. The number of members increased to 15 for the EU and 70 for the ACP[6]. The EU has remained the most important export market for most of the ACP countries.

In June 2000, the EU and the ACP countries met in Cotonou, and signed an agreement laying a basis for a new partnership and bringing to an end their old relationship that was based on the Lomè Conventions. One of the principal reasons for the phasing out of the Lomè Convention and signature of the Cotonou Agreement was the perception that the generous access to the EU market offered to developing countries was not beneficial to the majority of EU countries and it had failed to transform ACP economies (Holland 2003). The prospective new relationship is based on the guiding principles spelt out in the Cotonou Agreement. The end result is expected to be a number of EPAs between the EU and various economic groupings in the ACP regions. The negotiated EPAs will enter into force in 2008 and will be based on a reciprocal and WTO-compatible trade framework.

The main objective of the Cotonou Agreement is the reduction and eventual eradication of poverty and the gradual integration of ACP States into the global economy, while paying due regard to the principle of sustainable development. The Sugar Protocol, integrated also into the Cotonou agreement, aims at harmonizing sugar trade in the ACP EU trade relationship. The Cotonou Agreement comprises of a series of formal arrangements, outlining political cooperation and preferential trade agreements between the EU and the ACP group and sets the framework for future negotiations, aiming on the integration of the ACP countries into the world economy and reduces and eventually eradicates poverty. (Article 1)

The WTO compatibility of the Sugar Protocol is one of the hottest topics within the whole ACP-EU arrangement and especially in the negotiations for EPAs. Sugar has been under a protected regime since the first Lomè convention signed in 1975. There is an indefinite duration of this protected status which is stated and reaffirmed not only in the 1975 convention but also in the 2000 Cotonou Agreement.

The ACP-EU trade relation is governed not just by the Cotonou Agreement, but is also subject to the wider framework of legal obligations negotiated during the

[6] The 12 EC countries were joined by Austria, Sweden and Finland and changed their name to European Union.

Uruguay Round. The EPAs currently under negotiated will be strictly the WTO agreement. This is a radical departure from prior trade relations, between the ACP and EU.

Table 2 ACP-EU Agreements

Year	Legal Instrument	Agreements	No. of Countries		EDF Amount in € Millions
			ACP	EU	
1957	Association of OCT			6	569.4
1963	Yaoundé I	Agreement between the EEC and 18 former, francophone African Colonies, providing the colonies with commercial advantages and financial aid.	18	6	730.4
1969	Yaoundé II	Renewal of Yaoundé I, including Kenya, Tanzania, and Uganda (Arusha agreement), introducing preferential trade arrangements for developing countries and access to row materials for the EEC.	18	6	887.3
1975	Lomè I	Convention Including preferential trade agreements on most ACP products and the STABEX system for stabilisation in agricultural export earnings as well as direct development aid.	46	9	3053.3
1980	Lomè II	SYSMIN system providing stabilization aid to mining industries in ACP countries.	58	9	4207.0
1985	Lomè III	Attention Shift from industrial development towards food security and self-reliance.	65	10	7882.6
1990	Lomè IV	Focus on structural adjustment and crosscutting themes as a response to debt crises and famines.	68	12	11583.0
1995	Lomè IV*bis*	Underlining the importance of human rights, democracy and good governance and regional cooperation.	70	15	13151.1
2000	Cotonou Agreement	Removal of most tariffs on imports from the ACP group with sugar, beef and veal to be covered by EPAs and a new tariff only banana regime to be phased in Shift towards participatory development paradigm.	77	15	14300.0

An analysis on ACP-EU sugar trade liberalization cannot be properly done without due regard to the EU's EBA initiative. In March 2001 the EU signed this initiative with 48 of the world's Least Developed Countries (LDCs). This initiative involves most of LDCs which are also ACP countries benefiting from the Sugar Protocol. Under this arrangement, from the 1 July 2006 to the 1July 2009, the EU will reduce to zero sugar import tariffs from LDCs, while at the same time retaining the provisions in the ACP-EU protocol on sugar.

One of the principal reasons for the phasing out of the Lomè Convention to Cotonou Agreement was the perception that the generous access to the EU market offered to developing countries was not beneficial to the majority of EU countries and it had failed to transform ACP economies (Holland 2003).

4. Forming EPAs: five principles as a framework

The Cotonou Agreement was concluded for a twenty-year period from March 2000 to February 2020. It defines the approach to relations between the EU and the ACP in a number of areas including politics, trade and development. It is based on five interdependent pillars:

- a comprehensive political dimension,
- participatory approaches,
- a strengthened focus on poverty reduction,
- a new framework for economic and trade cooperation,
- a reform of financial cooperation.

The intention of the parties was to establish mutual trade cooperation and development aid. According to the Cotonou Agreement, the overall objective of the EPA is to be the promotion of smooth and gradual integration of ACP economies into the world economy while paying due regard to the creation of new trade dynamic, as well as to foster investment enhancing production, supply and trading capacities. (European Commission 2002). Domestic and foreign investments are expected to grow and more know-how and technology will be transferred - all of which should boost ACP countries' competitiveness and ease their smooth and gradual integration into the world economy. (Overview of the Cotonou Agreement, 2000).

When the EPA negotiations begun in September 2002 it was agreed that the first phase in negotiations will be at an all-ACP-EU level. This phase will address horizontal issues of interest to all parties. A second phase, "*at the level of ACP countries and regions*, will address specific commitments."[7] Since the launch of the second phase in October 2003, five regions (Central Africa, West Africa, Eastern and Southern Africa, the Caribbean and SADC) commenced negotiations while the Pacific region started in September 2004. Clearly, a single EPA between all the ACP

[7] See *First Joint Report*, para. 1.

countries on the one hand and the EU on the other is no longer an option. Rather, there will be a series of region-specific EPAs.

EPA negotiations are supposed to be completed by the end of 2007. However in many regions talks are seriously behind schedule. The African Union and a number of NGOs have been asking for more time for negotiations in order to address fully the development dimension of EPAs.

The major point of difference between the ACP and EU is on to realize the development dimension of the EPAs. In this regard, during the ACP-EU Joint Council and Ministerial Trade Committee meetings held on June 2nd and 29th in Brussels, ACP ministers called on, among other things, the EU to make a binding commitment for additional resources beyond the 10th EDF (with a duration to 2013). The aim of this was to cover EPAs related costs and support reforms, capacity building, improving competitiveness and implementation of the agreement.

Table 3: EPAs Phases

Phase	**Tasks**
Phase 1: March-August 2004	Compiled progress reports on the activities of the National Development and Trade Policy Forum (NDTPFs)*
	Phase I RNF Work Programme and budget
	Regional Preparatory Task Force (RPTF) terms of reference
	Negotiating briefs on topics defined in the RNF** Work Programme
	A framework for the negotiations with the EC and a tentative list of priorities for the negotiations and a preliminary phasing.
Phase II: September 2004 – December 2005	An outline EPA will have been agreed on
Phase III: January 2006 – December 2007	Substantive negotiations will continue if necessary
	Areas of disagreement revisited and compromise reached
	EPA agreement finalised and ratified
	Enact necessary legislation
JANUARY 2008 EPAS COME INTO FORCE	

*The National Development and Trade Policy Forum (NDTPF) is cross-sectoral representation of both the public sector and Non State Actors. It is responsible for formulating a national position in each country that is then presented to the RNF.

**The Regional Negotiating Forum is composed by three representatives of each NDTPF the six lead spokespersons for each of the negotiating sectors at the ambassadorial level from Brussels , one representative from the ACP secretariat, and the Commonwealth Secretariat, up to 2 representatives from the secretariats of the East African Community , the Indian Ocean Commission, the Inter– Governmental Authority on Development and SEATINI, a representative from COMESA (secretariat) , other participants and resource persons to be authorised by the chairperson.

5. *Model Specification*

The main objective of this study is to explore several viable alternatives to EPAs, taking into consideration the heterogeneity of products covering different shares in terms of export earnings for ACP countries that also are substantially different from each other, spanning from Small Island States, to LDCs and LLDCs.

Earlier works on the EU EPAs analyze various policy options for ACP countries or EU-ACP economic relations in general rather than assess the effects of the EPAs. Bussolo (1999) analysed the welfare impact for and policy options of the Southern African Development Community (SADC) within a general equilibrium framework. His results indicate that a unilateral trade liberalisation by SADC would be better by far in terms of real GDP growth rates than a regional EPA with the EU. Keck and Piermartini (2005) in their CGE analysis of EU EPAs on SADC countries estimated a welfare-enhancing for SADC, showing itself also in an increase of real GDP. The study extend standard GTAP including the elimination of textile quotas, EU enlargement to 25 members as well as tax revenue sharing and a common external tariff among SADC countries. Busse and Grossmann (2004) assessed the impact of the EPAs on trade flows and government revenue for 14 West African countries through a CGE approach. Their results indicate that the decline in import duties due to the preferential tariff elimination might be some cause for concern and that complementary fiscal and economic policies would have to be implemented before or at the time the EPAs come into force. For Eastern Africa, using a partial equilibrium model, Milner *et al.* (2005) estimated the (static) welfare impact of a regional EPA with the EU. The core conclusion of their analysis is that one cannot assume that the welfare effects on ACP countries will be positive; it is very possible that the static effects will be negative, even ignoring revenue losses. This finding should fashion the trade negotiating position of the ACP both with the EU and with other bilateral trading partners. In general due to the small size of ACP countries, results have to be interpreted with caution, as severe data restrictions limit the choice of the model used and the reliability of the estimated effects.

Our analysis will be based on the GTAP global trade, AGE framework (Hertel, 1997; and Dimaranan and McDougal, 2006). The AGE approach is based on assumptions that are common in literature: perfect competition and constant returns to scale. The analysis is of a comparative static nature. Each regional economy consists of several economic agents. First, a household maximizes utility to determine demands for commodities and savings. Second, cost minimizing sectors employ primary factor services and intermediate inputs to produce commodities. Regional household income consists of returns to primary factors, and net taxes. Interregional economic linkages are based on the assumption that demanders treat commodity imports from different sources as imperfect substitutes.

We aimed to depict the EU sugar trade reform and ACP sugar supply response to it and given this scenario we applied our EPAs viable alternatives.

6. The Benchmark adopted: the EU sugar trade regime reform

The baseline used in this paper has been generated on a modified version of Standard GTAP.

The EU sugar reform will affect some countries more that others and this is due to different production costs. A country with low production cost and high imports tariff might benefit from the reform much more that a country with high cost of production and low imports tariff (i.e. Brazil vs. Madagascar). The methodology used to measure production cost is well described in a report commissioned by DfID to LMC international (2004), therefore it will not be described herewith.

There are four types of behavioural parameters in GTAP (Hertel 1997): Elasticity of substitution in both consumption and production, transformation of elasticities that determinate the degree of mobility of primary factors across the flexibilities of regional investment allocation, and consumer demand elasticities.

The elasticity of transformation between alternative uses of the sluggish endowment commodities (ETREA) has been modified for land in order to be differentiated region by region.

In standard GTAP the default parameter is negative 1 for all countries aggregated. I disaggregated the countries in order to be able to give each country a different value of ETRAE according to their production cost. Therefore the default parameter (-1) has been left in place for countries with low production cost. If the elasticity is negative 1, the amount of land used would be higher if production costs decrease compared to the amount of land that would be used by countries with a smaller elasticity of land mobility transformation. Land mobility transformation equal to zero will be for those countries that due to high cost of production will not expand sugar land, and a land mobility transformation parameter near zero for those countries that will have a change of sugar land depending on the outcome of the sugar industry restructuring.

In the same simulation I also redouble the elasticity between domestic production and composite imports (ESUBD) to 5.4 (default parameter is 2.70) whereas the elasticity of substitution between different countries/ regions (ESUBM) to 10.8 (default parameter is 2.70). This decision, also adopted by Kerkela *at al* (2005) is based on the assumption that raw sugar imported from different region cannot be differentiated distinctively from each other. In reality slight differences in the processing of the sugar cane give different raw sugar. Therefore it is assumed that the difference between the sugar producing countries is a result of granted preferences regulated by tariff rate quotas (Kerkela *at al* (2005)).

As well demonstrated by van Meijl and Frank van Tongeren (2002) in a standard GTAP framework, the reduction of intervention prices is not fully transmitted into market price[8]. Therefore a reduction in tariff preferences equivalent to the 36% reduction in the intervention price is submitted to countries exporting sugar into the EU market, knowing that this reduction will not be fully transmitted in EU in market prices, but will definitely undermine quantities.

Once these simulations have been conducted, the new baseline is used for a new set of simulations. Thus the baseline is the new EU sugar regime (with a 36% reduction in the EU intervention price) and a full implementation of the EBAs initiative, including also the complete phasing out of arrangements engaged for protocol commodities.

The Cotonou agreement does not provide any article that binds the EU or the ACP countries to the conclusion of EPAs. Therefore what is still unclear yet is the procedure that will be undertaken in order to harmonize the new relationship to the global trade order. Few standing points will guide the negotiations. Any non-LDC ACP State that failed to join an EPA would lose its current (Cotonou) access arrangements to the EU, but would benefit from the EU's Generalized System of Preferences (GSP), and would not have to open-up its markets to EU exports. Any

[8] According to Van Meijl and van Tongeren a 15% reduction of the intervention price leads to a decrease of the market price by 13.2% for food grains and 12.3% for feed grains. A full price transmission is obtained for cattle. The high degree of price transmission for grains is the result of the positive net export position of the EU.

LDC ACP State that failed to join an EPA could still benefit from the EBA initiative, which might offer better preferences than the (yet to be negotiated) EPA, and would not have to open-up its markets to EU exports.

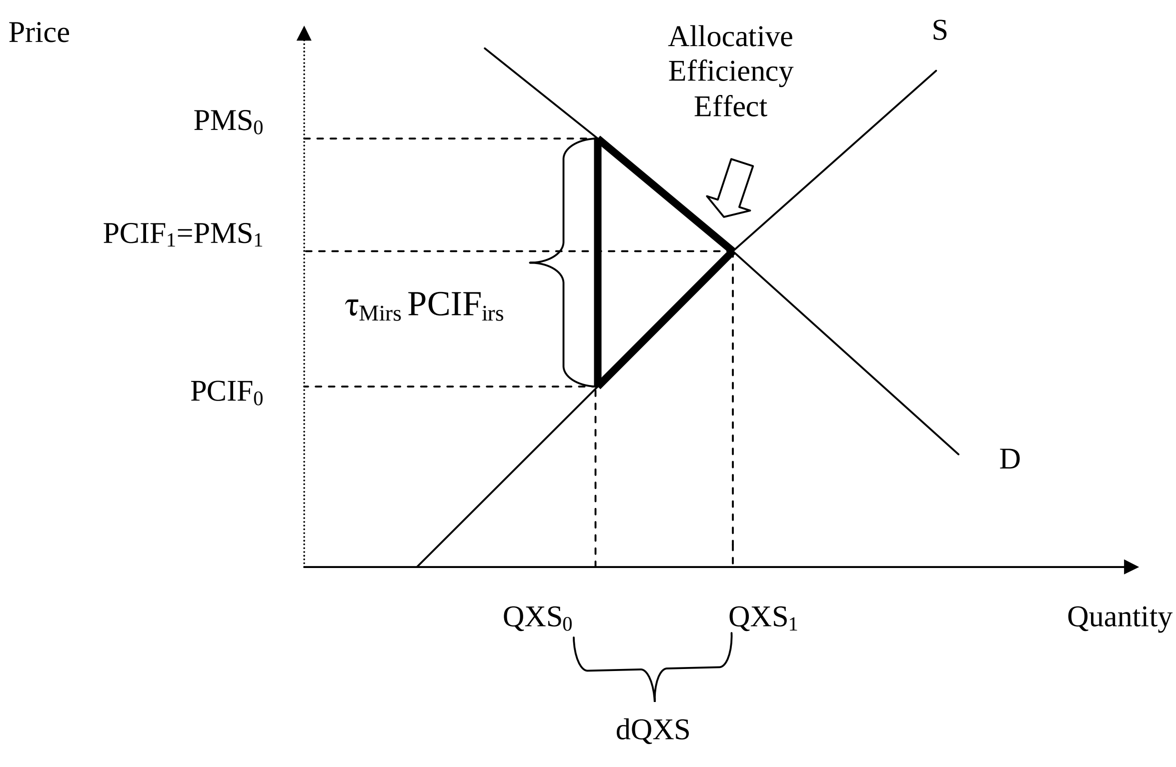
I analysed two main options extensively discussed in literature: the failure and the entering into force of the EPAs.

7 *Results*

The aim of this chapter is to analyse and comparing results generate by the above described benchmark. With GTAP model each region's welfare gains can be decomposed into a term of trade and an Allocative efficiency component.

Figure 1 depict the "Harberger Triangle", which measure the welfare effect in a given countries. In order to evaluate the area of the triangle we need to consider both the base **(**τ_{Mirs} $PCIF_{irs}$**)** and the height ($dQXS_{irs}$). The point in which $PCIF_1$=PMS_1 allows us to accurately measure its area.

Figure 5: Welfare Effect



The numerical integration depicted in figure one is equation (1.1) that has to be solved use version 8 of GEMPACK software (Harrison and Pearson, 1996; 2002), which is ideally suited to this problem, as it solves the non-linear CGE model using a liberalized version of the behavioural equations, coupled with updated equations that link the change (e.g. $dQXS_{irs}$) and the levels (e.g. QXS_{irs})[9].

$$EV_s = (\psi_\sigma/100)\left\{\begin{array}{l} \sum_{i=1}^{N}\sum_{i=1}^{R}(TR_{ird})(qxs_{irs} - \sigma_\iota\left[(tm_{irs} + pcif_{irs}) - pm_{is}\right] \\ +\sum_{i=1}^{N}\sum_{i=1}^{R}(PFOB_{isr}QXS_{irs})pfob_{isr} \\ -\sum_{i=1}^{N}\sum_{i=1}^{R}(PCIF_{irs}QXS_{irs})pcif_{irs} \end{array}\right\} \tag{0.1}$$

$$qxs_{irs} = qm_{is} - \sigma_\iota\left[pms_{irs} - pm_{is}\right]_{10} \tag{0.2}$$

$$pm_{is} = \sum_{i=1}^{R}\Theta_{irs}\ pms_{irs} \quad {}_{11} \tag{0.3}$$

Where $pms_{irs} = (tm_{irs} + pcif_{irs})$ and tm_{irs} is the percentage change in (1+ τ_{Mirs}). The coefficient and Θ_{irs} is the expenditure share of total imports of *i* into s that is sourced from region *r*.

[9] Lower case denotes the percentage change, upper case levels variables.

[10]In GEMPACK the formula is written as follow:

(**all**,i,TRAD_COMM)(**all**,r,REG)(**all**,s,REG)qxs(i,r,s)=-*ams*(i,r,s)+ qim(i,s)-ESUBM(i) * **[**pms(i,r,s) - *ams*(i,r,s) - pim(i,s)**]**;

[11] In GEMPACK the formula is written as follow:

```
(all,i,TRAD_COMM)(all,s,REG)pim(i,s)=sum(k,REG,MSHRS(i,k,s)*[pms(i,k,s)-ams(i,k,s)]);
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$(TR_{ird}) = \tau_{Mirs}$ $PCIF_{irs}QXS_{irs}$ = tariff revenue on commodity *i* imported from *r* into *s*.

The size of export price changes therefore will be determined by the export demand elasticity $-\sigma_t$ for a country that is small in its export market ($\Theta_{isr} \cong 0$). Large value of σ_t (also known as Armington Elasticity) will affect the Equivalent Variation, since the shift in imports sourcing becomes more pronounced. On the other hand, large values for σ_t serve to increase the export demand elasticity facing region s, thereby dampening the change in export price. In my experiment I increase the default value of σ_t. This means that the second part of equation (1.2) will affect $qxs_{irs.}$ The overall question is the changes in bilateral imports (qxs_{irs}), correlate with bilateral tariff revenues. If we eliminates tariffs on flows that are already lightly taxed, then there will be potential for trade diversion, as the bilateral imports changes will be negatively correlated with tariff revenues (i.e. qxs_{irs} > when $TR_{irs} \cong 0$ and $qxs_{irs}<0$ for $TR_{irs}>>0$.

Annex 2 reports results generated from four scenarios. There is not a scenario better than another, given the heterogeneity of countries under examinations. Annex one divide countries in three groups, according to sugar production cost. There are countries thus such as Nigeria or Botswana that are not sugar producers but still are ACP countries that will join an EPA group together with countries sugar producers. Countries are moreover divided according to their trade agreement status. Among ACP countries a distinction is made according to their status. Some of them are LDC, which means that since 2001 they are enjoying duty free access into the EU market; some are SP countries non LDC, which means that are countries that until 2007 could enjoy sugar trade preferences that will be eroded until an overall reduction of 36%; other are countries that have GSP preferences with the EU such as rest of developing countries and Brazil, which has also the peculiarity of being the most cost efficient sugar producer and South Africa, the only developed countries in Africa that has special trade preferences not only with the EU but also with other neighbouring countries.

The aim of this chapter is not to find out the best scenario, which would be rather utopian or it would impose the author to like best one country rather than another. The aim of this chapter is to weight up pros and con of each viable alternative taken into examination, attempting thus to offset which scenario would have more pros than cons in terms of welfare effects. Annex 3 reports welfare % change in the four scenarios adopted, and annex 2 decompose the new welfare results into its terms of trade and Allocative efficiency. For detailed welfare % change please refer to annex 3). There are countries reporting a substantial either positive or negative % change. It is interesting to note as SADC economies are more sensitive than others to the shocks submitted.

The first set of simulations take into consideration the possibility of the collapse of the EPAs negotiations. For this scenario I will assume that EPAs had not been negotiated and therefore the EU will give EBA treatment without reciprocity to all ACP countries, including non-LDCs. This option would contravene existing WTO rules: it would artificially discriminate among Developing Countries, in contradiction to the Enabling Clause, and it would not cover the elimination of trade barriers on 'substantially all trade' among the parties, in contradiction to GATT article XXIV. The only solution for this option to be in place would thus be a WTO waiver or a change of WTO rules.

In this scenario everything except armaments from all ACP's will enter duty free in the EU market. This will create a reallocation of trade partners, since new actors that until now where not able to enjoy preferences with the EU will start to impose their presence. Columns 1, 5, 9 and 13 of Annex 2 report results in terms of welfare (in US millions $) decomposed into Allocative efficiency, terms of trade and technology change of the just described Grand EBA experiment. In this scenario both Botswana and Zimbabwe report an increase of welfare effects of 3% and 3.28%. Rest of SADC countries, (Lesotho, Namibia and Swaziland) report a welfare gain of + 4.76%. The reason of these major gains could be tracked back to gains in terms of trade. The ratio between export and imports prices shows us clearly that the new market access gained by countries that were destined to loose it according to the new sugar reform and the EBA initiatives with LDCs, boost EU import prices until a level of reaching ToT of 213 US million $ for Rest of SADC countries, 239 US million $ for Zimbabwe and 154 US million dollars for Botswana (for further result please refer to column five of annex 2).

In the second scenario the entering into force of a "full" EPA is considered. In this scenario it is assumed that the EU is reaching six separate agreements with six

ACP regions, belonging to ECOWAS, CEMAC, ESA, SADC, Pacific and Caribbean group. All quantitative restrictions on Protocol Commodities are phased down, and both ACP countries and the EU will lower tariffs to zero. It is assumed that all ACPs (both LDC and non LDC) join their respective EPA. It might be that the EU will seek to implement a weaker version of this scenario, with quantitative limits on trade in Protocol Commodities, but we do not attempt to model this particular scenario. It is interesting to underline that in this scenario the major losses are reported by LDCs that have accepted to joint their respective EPA and thus open their own market to EU goods and services. They are on the same level of ACP's not LDCs, which are more competitive and therefore lose less into EPAs in where also LDCs countries are involved. Worthy to be noted is the case of the Pacific group in which welfare losses of -0.17% are reported. If in a Grand EBA scenario the Pacific group reports welfare effects deficit equal to -58 US million $, in a grand EPAs scenario the deficit is equal to – 160 US million Dollars. This deficit is mostly due to Allocative efficiency effects. Pacific market prices are not strong enough to bear the lack of EU demand due to supplies coming both from LDC and non LDC, ACPs. Again in this scenario, Botswana, Zimbabwe and rest of SADC report major increase in terms of welfare due again to favourable term of trade conditions.

The third simulation reflects the second one but it is instead assumed that LDCs countries will not joint their EPAs, and will remain in the EBAs. Therefore ACP-LDCs will export into the EU at zero tariffs without opening their markets, while ACP-non LDC and EU will establish a bilateral tariff reduction for all commodities. In this scenario, EBAs countries report fewer losses compare to the previous one. This could help us concluding that for LDCs countries would be better to conclude unilateral agreements with the EU instead of bilateral one. Mozambique in a full EPA regime would lose 4 million US $ in term of welfare effects, in this new scenario of a partial EPA would report welfare gains of 2.4 US millions dollars. Tanzania would reduce welfare deficit form -52 US million $ to 1 US million dollars while Uganda from - 14 US million $ to -3.8 US million Dollars.

It is interesting to note the case of Mauritius. Welfare effects in Mauritius increase from 7 US million $ in a full EPA scenario to 9 US million $ in a partial EPA scenario. Mauritius in both scenarios reports negative terms of trade, while in the grand EBA scenario terms of trade where positive.

In the fourth scenario a “Grand” EU-ACP FTA is taken into consideration. All ACP states and the EU are involved in a single free trade area. Reciprocal FTA between all ACP and EU 25 will be in place. Same shocks are given to the EU and ACP countries also among themselves. In this scenario it is interesting to underline Brazil welfare effect losses that reach -91 US million $. The multilateral scenario among the other is the one that most undermine Brazil economy through both negative terms of trade and Allocative efficiency effects. South Africa as well would report negative welfare effects from the multilateral agreement between ACPs and the EU.

For rest of ESA countries this option reports positive welfare effects (18 US million $) while for Mauritius 11US million $.

Worthy to be noted also is that land value at market price in Mauritius increase of 5 % in a Grand EBA scenario, while it will have an increase of only 2% in a full EPA scenario, 1.5 % in a partial EPAs and 1.3% in a multilateral framework

8 Conclusions

The findings in this paper lead to several conclusions. There are no winners or losers in EPA negotiations in light of the sugar reform. The EU sugar reform creates a reallocation of EU sugar preferences from Protocol countries to LDCs, granting access to new countries that until 2007 had to develop competitiveness because of the lack of preferences. Countries that until 2007 could enjoy preferences did not feel the urge to develop new technologies to boost production. This new reform thus will severely harm those economies not ready to compete in an open market. This is the reason why the simulation in which EBA privileges where granted to all ACP countries, both LDC and non recorded positive welfare effect mostly to SP countries that could still enjoy unilateral preferences without opening their own markets.

Between a full EPA and a partial EPA, the model shows that for ACP non-LDC countries the second option yields better results than the first one, given the option to the EU to export in a more restricted market. The full EPAs scenario gives bilateral market access to both ACP LDC and non LDC.

The multilateral scenario will be most harmful to Brazil and other economies that would be excluded by this vast multilateral free trade area.

The real challenge of the EPA negotiations is the development dimension included in the pillars of the Cotonou agreement. The reason why the EU decided to negotiate the Cotonou agreement rather that a V Lomè is that a development initiative, that seems difficult to negotiate, had to be included into the negotiations. Lack of infrastructures, lack of telecommunications, together with the incapability of some ACP countries to reach the high safety standard imposed by the EU legislation or non trade barriers such as rules of origins are seriously affecting the current negotiations.

Annex 1: List of ACP Counties

	AFRICA		CARIBBEAN	PACIFIC
Angola	Gabon	Niger	Antigua	Cook Islands
Botswana	Gambia	Nigeria,	Bahamas	East Timor
Burkina Faso	Ghana	Rwanda,	Barbados	Micronesia
Burundi	Guinea	Senegal,	Belize	Fiji
Cameroon	Bissau	Seychelles	Cuba	Kiribati
Cape Verde	Kenya	Sierra Leone	Dominica	Marshall Isl.
Chad	Lesotho	Somalia	Grenada	Nauru
Comoros	Liberia	South Africa	Guyana	Niue
Congo	Madagascar	Sudan	Haiti	Palau
Cote d´ Ivoire	Malawi	Swaziland	Jamaica,	Papua new
Djibouti,	Mali,	Tanzania	ST. Kitts & Nevis	Guinea
Equatorial	Mauritania	Togo	St. Lucia	Samoa
Guinea	Mauritius	Uganda	St.-Vincent	Solomon Isl.
Eritrea	Mozambique	Zambia	Suriname,	Tonga
Ethiopia	Namibia	Zimbabwe	Trini&Toba.	Tuvalu
				Vanuatu

Annex 2- Welfare Effects

			Allocative Efficiency				Terms of Trade				Total Welfare Effects			
Sugar PC	**Trade**	**Country**	**Grand EBAs**	**Full EPAs**	**Partial EPAs**	**Multilateral EPAs**	**Grand EBAs**	**Full EPAs**	**Partial EPAs**	**Multilateral EPAs**	**Grand EBAs**	**Full EPAs**	**Partial EPAs**	**Multilateral EPAs**
	EBA	Malawi	1.1	-1	0.8	0.2	-0.9	-1.9	-0.9	-2.9	0.2	-2.9	-0.1	-2.7
	EBA	Mozambique	-0.1	-3.8	0.1	-3	0.8	-0.1	2.2	3.2	0.7	-3.9	2.4	0.2
	EBA	Tanzania	-0.2	-13.6	0.2	-8.2	0.1	-38.5	-1.2	-23.8	-0.1	-52.2	-1.1	-31.9
	EBA	Uganda	0	-2.5	-1	-2	0.7	-11.5	-2.9	5.1	0.7	-13.9	-3.8	3.1
	EBA	Rest ESA	-2.1	46.6	-1.7	96.3	-2.4	-64.6	-6.4	-78.6	-4.4	-18	-8.1	17.7
	EBA	Zambia	0.9	-1.2	1	-2.1	-5	-5.2	-3.9	3.4	-4.1	-6.3	-2.9	1.4
	SP	Rest SADC	13.6	19.5	20.3	36.5	222.1	220.4	220.7	272.5	235.7	239.8	241	309
	SP	Rest Sub Sahara	0.6	-165.5	-162	-115.5	2.1	-784.3	-772.1	-706.5	2.7	-949.8	-934	-822
	SP	Zimbabwe	35.6	22.6	22.2	25.2	228.2	227	225	240.1	263.7	249.6	247.2	265.3
		Botswana	-4.9	7.9	8.1	14.7	145.7	149.8	147	153	140.8	157.6	155.1	167.7
	GSP	Brazil	-0.8	-27.2	-22.3	-28.8	-3.9	-61.3	-49.1	-62.8	-4.6	-88.5	-71.4	-91.6
		Nigeria	0.3	-255.2	-255.3	-192.7	1.8	-44.4	-41.2	-28.6	2.1	-299.5	-296.4	-221.3
		South Africa	25.3	-18.2	-4.2	-16.8	26.9	-122.1	-70.5	-138.7	52.3	-140.3	-74.6	-155.5
Low PC		Rest Developing	-7.1	-194.6	-175.3	-214.1	-11.3	-905.6	-799.8	-953.6	-18.5	-1100.3	-975.1	-1167.6
	EBA	Senegal	0	-4.7	-11	8.2	-0.1	-79.8	-21	-50.7	-0.1	-84.5	-31.9	-42.6
	SP	Mauritius	0.8	13.1	13.6	14.2	7.3	-6.1	-4.4	-3	8.1	7	9.2	11.2
Medium PC	SP	Pacific	11.1	-39.4	-39.4	-37.5	32	-121.1	-120.6	-117.9	43.1	-160.6	-160.1	-155.4
	EBA	Madagascar	0	-0.1	-0.3	0	0.1	-6.9	-0.1	-6.3	0	-6.9	-0.4	-6.3
	EBA	Rest LDCs	0.1	-0.4	-0.3	-0.4	-0.4	-0.4	-0.2	-0.6	-0.3	-0.8	-0.5	-0.9
	SP	Caribbean	8.8	-101.6	-101.9	-90.1	83.6	-118.5	-118.1	-89.1	92.4	-220.1	-219.9	-179.2
		EU15	550.8	673.6	655.8	655.3	-751.6	2108.6	1711.4	1968.7	-200.8	2782.2	2367.2	2624
		EU10	-6.7	-12.7	-15	-12.7	-22.2	26.5	26.9	23.8	-28.9	13.9	12	11.2
High PC	GSP	Rest Developed	-11.3	-238	-207	-250	29.9	-391.3	-349.1	-439	18.6	-629.3	-556.1	-689.1

Annex 3- Welfare % Change

Sugar PC	Trade	Country	Grand EBAs	Full EPAs	Partial EPAs	Multilateral EPAs
	EBA	Malawi	0.01	-0.17	0	-0.16
	EBA	Mozambique	0.02	-0.12	0.07	0.01
	EBA	Tanzania	0	-0.59	-0.01	-0.36
	EBA	Uganda	0.01	-0.26	-0.07	0.06
	EBA	Rest ESA	-0.03	-0.14	-0.06	0.14
	EBA	Zambia	-0.13	-0.19	-0.09	0.04
	SP	Rest SADC	4.76	4.85	4.87	6.25
	SP	Rest Sub Sahara	0	-1.12	-1.1	-0.97
	SP	Zimbabwe	3.28	3.11	3.08	3.3
		Botswana	3	3.36	3.31	3.58
	GSP	Brazil	0	-0.02	-0.02	-0.02
		Nigeria	0.01	-0.8	-0.79	-0.59
		South Africa	0.05	-0.14	-0.08	-0.16
Low PC		Rest Developing	0	-0.02	-0.02	-0.02
	EBA	Senegal	0	-2.05	-0.77	-1.03
	SP	Mauritius	0.2	0.17	0.23	0.28
Medium PC	SP	Pacific	0.31	-1.15	-1.15	-1.11
	EBA	Madagascar	0	-0.17	-0.01	-0.15
	EBA	Rest LDCs	0	0	0	0
	SP	Caribbean	0.08	-0.2	-0.2	-0.16
		EU15	0	0.04	0.03	0.04
		EU10	-0.01	0	0	0
High PC	GSP	Rest Developed	0	-0.01	-0.01	-0.01

Annex 4: EPAs Groups

	ACP LDC	ACP-non LDC	ACP signatory of Sugar Protocol	ACP Signatory of Banana Protocol	ACP Signatory of Rice Protocol
ECOWAS	BENIN	COTE D'IVOIRE	COTE D'IVOIRE	COTE D'IVOIRE	
	BURKINA FASO	GHANA			
	CAPE VERDE	NIGERIA		CAPE VERDE	
	GAMBIA				
	GUINEA				
	GUINEA-BISSAU				
	LIBERIA				
	MALI				
	MAURITANIA				
	NIGER				
	SENEGAL				
	SIERRA LEONE				
	TOGO				
CEMAC	CENTRAL AFRICAN REPUBLIC	CAMEROON		CAMEROON	
	CHAD	CONGO	CONGO		
	EQUATORIAL GUINEA	GABON			
	SAO TOME AND PRINCIPE				
ESA	BURUNDI	KENYA	KENYA		
	COMOROS	MAURITIUS	MADAGASCAR		
	CONGO DEM REP	SEYCHELLE	MALAWI		
	DJIBOUTI	ZIMBABWE	MAURITIUS		
	ERITREA		ZAMBIA		
	ETHIOPIA		ZIMBABWE		
	MADAGASCAR			MADAGASCAR	
	MALAWI				
	RWANDA				
	SUDAN				
	UGANDA				
	ZAMBIA				
SADC	ANGOLA	NAMIBIA			
	LESOTHO	SWAZILAND	SWAZILAND		
	MOZAMBIQUE	BOTSWANA	MOZAMBIQUE		
	TANZANIA		TANZANIA		
CARRIBEAN	HAITI	ANTIGUA AND BARBUDA			
		BAHAMAS			
		BARBADOS	BARBADOS		
		BELIZE	BELIZE	BELIZE	
		DOMINICA		DOMINICA	
		DOMINICAN REPUBLIC			
		GRENADA		GRENADA	
		GUYANA	GUYANA		GUYANA
		JAMAICA	JAMAICA	JAMAICA	
		SAINT KITTS & NEVIS	SAINT KITTS & NEVIS		
		SAINT LUCIA		SAINT LUCIA	
		SAINT VINC. & THE GREN.		SAINT VINC. &	
		SURINAME		SURINAME	SURINAME
		TRINIDAD & TOBAGO	TRINIDAD & TOBAGO		
PACIFIC	KIRIBATI	AMERICAN SAMOA			
	SAMOA	COOK ISLANDS			
	SOLOMON ISLANDS	FIJI	FIJI		
	TONGA	MARSHALL ISLANDS			
	TUVALU	MICRONESIA			
	VANUATU	NAURU			
		NIUE			
		PALAU			
		PAPUA NEW GUINEA			

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