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Economic and Welfare Impacts of the EU-Africa Economic Partnership Agreements

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ATPC

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By

Stephen Karingi, Rémi Lang, Nassim Oulmane,
Romain Perez, Mustapha Sadni Jallab and
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March 2005

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Abstract

This study examines the economic and social impacts of the trade liberalization aspects of the proposed Economic Partnership Agreements (EPAs) between the European Union (EU) and African countries. It provides a quantitative assessment of the likely implications of EPAs establishing Free Trade Areas (FTAs) between the EU and the various African Regional Economic Communities (RECs). The focus of the empirical analysis is on the trade liberalization component of the EPAs. In particular, the following questions are addressed. First, how will an EPA that includes reciprocal market access agreements between the EU and Africa impact on African countries' GDPs, levels of employment and other macroeconomic aggregates? Second, what sectors in Africa are most likely to lose and what sectors gain with EPAs? Third, what are the welfare implications for African countries from the EPAs? Fourth, how will the formation of EPAs affect trade expansion through trade creation and trade diversion effects? Fifth, what are the potential fiscal implications of the EPAs?

The main conclusions drawn from the results and the discussions are that full reciprocity will be very costly for Africa irrespective of how the issue is looked at. A focus on deepening integration with a view to enhancing intra-African trade would provide positive results. But it is the scenario that offers unrestricted market access for Africa, which deals effectively with barriers associated with sensitive European products, that portends the largest gain for the continent. Even with reciprocity, a free trade area that includes sectors of export interest to Africa and one that deals with non-tariff barriers promises positive results for African countries.

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Executive Summary

The principles and challenges of the proposed Economic Partnership Agreements

The Cotonou Partnership Agreement (CPA) between the European Union (EU) and African, Caribbean and Pacific (ACP) countries is expected to succeed the expired Lomé Agreement. It envisages the signing of Economic Partnership Agreements (EPAs) by December 2007 between the EU and the ACP countries. The EPAs, which will be the new cooperative framework under the CPA, are expected to adopt an integrated approach based on partnership, cooperation, trade and political dialogue between the EU and ACP countries. One of the essential characteristics of this multilateral partnership is that it hopes to combine responses to the challenge of globalization and the development aid essential to ACP countries; with a strengthened political dimension. The key CPA principles are reciprocity, differentiation, deeper regional integration, and coordination of trade and aid.

Any benefits that EPAs are expected to generate for ACP countries are unlikely to materialize spontaneously or instantaneously. Moreover, the implementation of EPAs will impose a number of severe challenges for ACP countries that include: how to manage the expected losses of fiscal revenue in some ACP countries; how to cope with more competition expected to be entailed under the EPAs principle of reciprocity; how to ascertain net benefits from the EPAs, especially in LDCs, that is, incentive compatibility between EPAs and the EBA provisions that do not require reciprocity; how to deal with limited negotiations capacity because EPAs negotiations will stretch the already limited resources available to the ACP countries; and how to ensure consistency between the negotiations under the EPAs and that under the Doha Work Programme, in particular, how to improve market access for agricultural and non-agricultural products that continue to impose difficulties in trade negotiations at the multilateral level.

Some questions arising from the trade related aspects of EPAs

The focus of this study is to quantify the economic and social impacts of the trade liberalization aspects of the proposed EPAs. More precisely, the study seeks to provide a quantitative assessment of the likely implications of the implementation of the EPAs establishing Free Trade Areas (FTAs) between EU and the various Regional Economic Communities (RECs). The focus of the empirical analysis is on the trade liberalization component of the EPAs. In particular, the following questions are addressed. First, how are African countries likely to gain or lose as evidenced by the impacts on GDP, employment and other macroeconomic aggregates from a bilateral trade liberalization between Africa and the EU as governed by the EPAs reciprocity principle? Second, what sectors in Africa are most likely to lose and what sectors gain with EPAs. And based on the empirical evidence on the industry structure likely to result under the EPAs, would application of the asymmetry principle in the EPAs provide sufficient lead-time for the

nascent manufacturing sectors in African economies? Third, what are the welfare implications for the African countries from the EPAs? Fourth, how will the formation of EPAs affect trade expansion through trade creation and trade diversion effects? Fifth, what are the potential fiscal implications of the EPAs?

Methodological approaches to analysing the potential EPAs impacts

Trade policy analysis such as that required in the evaluation of the potential impacts of EPAs largely involves analysing implications of trade policy instruments on the production structure in economies at the national and global level. Trade policy instruments such as tariffs and quotas have direct and indirect effects on the relative prices of commodities produced in a given country. As the mix of goods and services produced change, the demands for factors of production also change. Consequently, in any given economy, it is difficult to conceive a situation where the change in trade policy would affect only one sector. Due to the forward and backward linkages and their related strengths existing in a particular economy, the result is always one in which the relative mix of sectoral outputs change. This by extension affects the relative mix of the different factors of production in the different sectors.

The country-level effects on output mix and demands for factors of production can in the context of international trade be extended to the global economy. Changes in relative prices of outputs and inputs resulting in a given country's change in trade policy are transmitted to the industries and input markets of other economies that the country trades with. Therefore, for trade policy analysis to be meaningful and for robust results to be produced, the interactions that prevail among different sectors as a result of a change in a given or group of countries trade policy instruments must be taken into account. Since, the EPAs will potentially have these kind of impacts, the general equilibrium methodology presented itself as the most appropriate analytical framework that would allow the inter- and intra-sectoral changes in output mix and by extension the demand for different factors of production to be captured. In this respect, this study utilises the Global Trade Analysis Project (GTAP) model and database to investigate the potential implications of the EPAs on sub-Saharan Africa. But, this model could only allow the assessment of the EPAs at the continental level through a hypothetical SSA-EU EPA due to data limitation with respect to representation of African countries in the GTAP database as stand-alone regions.

It was therefore necessary to look for an alternative methodology that would allow analysis at the country level and also at HS 6-digit level of products classification. The study found it necessary to consider a partial equilibrium methodology, in spite of its weakness of ignoring sectoral and regional feedbacks when trade policy instruments are changed either in a given sector or all sectors in a given country. However, given its capacity to allow analysis at high level of disaggregation, the partial equilibrium models become indispensable especially because of the interest to establish sensitive sectors either with regards to industrial or fiscal policies. The World Integrated Trade Solution (WITS/SMART) model was chosen as the applied partial equilibrium framework. The WITS/SMART model brings together various databases ranging from bilateral trade, commodity trade flows and various levels and types of protection.

WITS also integrate analytical tools that support simulation analysis. The SMART simulation model is one of the analytical tools in WITS for simulation purposes. SMART contains in-built analytical modules that support trade policy analysis such as effects of multilateral tariff cuts, preferential trade liberalization and ad hoc tariff changes. The underlying theory behind this analytical tool is the standard partial equilibrium framework that considers dynamic effects constant. Like any partial equilibrium model, it has these strong assumptions allowing the trade policy analysis to be undertaken a country at a time. In spite of this weakness, WITS/SMART helped to estimate trade creation, diversion, welfare and revenue effects for those countries whose data is available.

The empirical scenarios

In the case of the general equilibrium results, it was necessary to reflect a realistic benchmark for the EPAs given that they are expected to come into force beginning 1 January 2008 when other events with implications to the international trade landscape will have taken place. The main events that will precede the launch of the EPAs and hence likely to affect how they impact on the economies and welfare of sub-Saharan Africa include the following: the enlargement of the European Union; the implementation of the Agreement on Textiles and Clothing as part of the MFA phase out; the implementation of the Uruguay Round Agreement on domestic support and export subsidies; the full accession of China into the WTO; and the conclusion of the Doha Development Round. The Doha Round outcome is currently not clear how it will likely impact on the EPAs. Therefore, it has not been built into the baseline of the EPAs as yet, but the other four events were built into the baseline.

With the baseline in place, three scenarios were designed to help unravel some of the impacts that the EPAs are likely to have on sub-Saharan Africa economies. The first scenario looked at full reciprocity by SSA countries to EU preferences without addressing the sensitivities that currently exist on the part of the EU for some of the sectors. Essentially, the tariffs faced by the EU in Africa were equated to the low tariffs that SSA products face in the EU market. In the second scenario, a benevolent stance by the EU was assumed that would accept an EPAs that front-loads in the first phase the dismantling of tariffs and other barriers within SSA in line with the principle of deepening regional integration in Africa as captured in the Cotonou Partnership Agreement. This scenario was further motivated by the desire to increase the market size within SSA that would support the development of competitive industries driven by economies of scale. The third scenario considered the ultimate goal of the EPAs, the establishment of free trade area between the EU and SSA. Essentially, full trade liberalization is undertaken between the EU and SSA and the sensitive markets in the EU are opened up for the SSA producers and exporters and vice-versa.

In the case of the partial equilibrium analysis, unlike the general equilibrium analysis where it was possible to look at several scenarios, only one simulation was undertaken for each country with the partial model. This scenario looks only at the reciprocity principal. Due to the weaknesses already pointed out especially the *ceteris paribus* assumption upon which this model operates; only one-way liberalization is

possible. The scenario indicates the possible outcomes of reducing to zero the import duties that the SSA countries impose on EU goods. As already noted, one special advantage of the WITS/SMART model is that it allowed the analysis to be undertaken at the 6-digit level. There was therefore no aggregation problem such as the one with the GTAP database. The transmission mechanism for the trade effects in the partial equilibrium model is simple: the elimination of existing tariffs on EU imports reduces the prices that consumers in the importing African country face compared to domestic substitutes and the responsiveness of demand to the price change influences the amount of trade created or diverted. The substitutability of the EU goods for domestic goods is implicitly assumed. The Armington assumption at HS 6-digit level is that goods imported from different countries are imperfect substitutes. It is also assumed that the supply response to the price reduction will allow the EU producers and exporters to meet any demand arising in the importing countries as a result of price reduction. That is, export supplies are perfectly elastic which means that world supplies of each variety of the goods by origin are given.

The main findings

The main conclusions that can be drawn from the results and the discussion are that full reciprocity will be very costly for Africa irrespective of how the issue is looked at. A focus on deepening integration with a view to enhancing intra-African trade would provide positive results. But it is the scenario for unrestricted market access for Africa, which deals effectively with barriers associated to sensitive European products, that portends the largest gain for the continent. Even with reciprocity, a free trade area that does not exclude sectors of export interest to Africa and one that deals with non-tariff barriers promises positive results for African countries.

Based on the magnitudes and direction of impacts under the three scenarios, the overarching conclusion from the findings is that sequencing of policy reforms that Africa will need to undertake is critical to the success of the EPAs. To begin with, the EPAs should focus on deepening intra-African trade. This should be given sufficient lead-time to allow African countries to build the requisite competitiveness. This would have to be accompanied with significant developmental programmes to complement the larger markets with increased supply and diversified capacities. Eventually, any tariff dismantlement by African countries will need to be implemented in phases, hand in hand with unrestricted market access for the African exports into the EU market. Clearly, the 10-12 years period interpreted from Article XXIV of GATT is only sufficient for the deepening of intra-African trade. The EPAs should look beyond 12 years as the possible dates for introducing reciprocity. Before then, unrestricted market access and deeper African integration will have provided sufficient room for supply capacities and exports diversity to be built on the continent.

The adjustment costs at the country level and the dangers to the regional integration processes on the continent emerged also as potential challenges for the EPAs. Two consistent stories underpin these concerns. The first consistent outcome in each of the proposed EPA at the regional economic community

(REC) level is that EU stands to gain significantly in terms of expanded trade into RECs markets. While part of this trade expansion will result from trade creation, which is welfare improving, significant proportions of the trade gain will also be due to trade diversion from the rest of the world and from within the REC EPA grouping itself. As a result, while the reciprocity principle appears to be trade expanding, it will pose serious implications for deepened regional integration in Africa. In deed, unless there are clear mitigating measures, the EPAs could seriously undermine the gains that have been achieved so far in the integration process of the continent.

Another consistent result at the country and regional level, are the potential adjustment costs that African countries will have to bear as a result of revenue shortfalls. Given the prominence of EU imports into these countries and the reliance of majority of African countries on tariff revenues, the tariff dismantlement result, in all cases, in significant revenue shortfalls. It is only in the SACU countries where tariff losses appear limited and even then, the revenues sharing formula within SACU is likely to ameliorate any shocks from the EPAs in those countries. The major challenge that these revenue shortfalls will pose is the adjustment costs associated with tax policy and administration reforms. The EPAs, if no appropriate measures are put in place to forestall the macroeconomic imbalances that are likely to result from falling revenues, could possibly undermine developmental objectives of African countries.

Introduction

Background

The Cotonou Partnership Agreement (CPA) between the European Union (EU) and the African, Caribbean and Pacific (ACP) countries expected to succeed the expired Lomé Agreement, envisages the signing of Economic Partnership Agreements (EPAs) by December 2007 between the EU and ACP countries. The EPAs will be the new cooperative framework under the CPA and are expected to adopt an integrated approach based on partnership and promoting cooperation, trade and political dialogue between the EU and ACP countries. One of the essential characteristics of this multilateral partnership is that it hopes to combine trade (to respond to the challenge of globalization), development aid (essential to ACP countries), and a strengthened political dimension. The key CPA principles are reciprocity; differentiation; deeper regional integration; and coordination of trade and aid.

The EPAs, which are to be CPA development vehicles will address trade barriers, supply-side constraints in ACP countries, and World Trade Organisation (WTO) compatibility question. EPAs will essentially be Free Trade Area (FTA) arrangements to replace the non-reciprocal trading preferences currently advanced to the ACP countries under the Lomé Agreement with reciprocal arrangements in compliance to the WTO rules of non-discriminatory trading arrangements.

Ideally, in order for the ACP-EU arrangements to be WTO-compatible, the EU would be expected to advance similar preferences to non-ACP countries that are at the same level of development just as the ones being enjoyed by ACP countries. Thus, unless the EU is willing to extend similar preferences to both ACP and non-ACP countries, then in order not to be challenged on the grounds of discrimination under the most favoured nation (MFN) clause of the WTO, ACP countries under the EPAs will be expected to grant EU originating imports of goods duty free access into their markets. This will be similar duty free access granted by the EU on selected goods from those countries under the expired Lomé Agreement.

However, the EU can still unilaterally establish a non-reciprocal preference system that favours developing countries and still remain WTO compliant. The Everything-But-Arms (EBA) initiative is one such arrangement granted under the enabling clauses of the GATT/WTO rules that allows developed countries to have favourable preference systems for developing countries without reciprocity. The EBA grants duty-free access to all imports from developing countries that meet the least developed countries criteria. The critical difference between the EBA initiative and the EPAs in terms of trade is that the EBA initiative is non-discriminatory as its preferences are accessible globally to all least developed countries (LDCs) at the same level of development while the EPAs are just for ACP countries. Further, EPAs envisage a wider level of cooperation other than just trade.

The interim period between the signing of the CPA on 23 June 2000 and the launch of the EPAs by 1 January 2008 is supposed to be the time for the negotiation process about the final form and undertakings in the respective EPAs. There are two phases in the negotiation process. The first phase was launched on 27 September 2002 and has been concluded without any bindings as sought by the ACP countries.

During phase I of the negotiation process, the CPA presupposed that ACP member countries will self-determine an appropriate regional trading arrangement, preferably a regional economic community (REC) under which to negotiate with the EU for a new EPA. The REC could either be a free trade area (FTA) or a customs union (CU). EU's preference for RECs in the negotiations can be seen to be justified under its stated objective of wishing to use the EPAs in the CPA to deepen the regional integration processes in the ACP countries. Deeper regional integration it is hoped will eventually facilitate the maximization of these countries gains from the multilateral trade liberalization and globalization. There are two issues that emerge as a result of the requirement for the ACP countries to determine the configuration within which they will negotiate the EPAs. The first issue relates to the ratification of the agreed EPA. It is still not clear whether the EPAs will be ratified at the national or RECs level. Depending on how the ratification is handled, it is possible that in some cases, rather than deepen integration, EPAs could also introduce unnecessary tensions in the RECs. The second issue relates to the rationalization of the multiple RECs especially in Africa. By indicating a preference for EPAs negotiations with RECs rather than individual countries, the EU could be 'forcing' some rationalization of RECs, which is a major political issue at the moment.

The ACP countries expectations under phase I were actually not met since their desire to have a binding common framework from this phase of the negotiations was not attained. Instead, the framework for negotiation of ACP-wide issues remained unresolved. The following key issues remain which the RECs will now have to deal with independently of each other: compatibility with the WTO rules; treatment of non-LDCS at the expiry of the Cotonou Agreement if the EPAs are not concluded; liberalization of rules of origin; technical barriers to trade and the sanitary and phyto-sanitary issues; safeguards, anti-dumping, and dispute settlement; EU-ACP existing commodity protocols; economic and social implications of the EPAs; and the EPAs implementation mechanisms. The outcome of the negotiations on these issues will depend largely on the negotiating ability and capacity of the parties involved. It is common knowledge however that the EU possesses an overwhelming advantage over African RECs on negotiations.

The second phase negotiations now being undertaken on regional basis, began on October 2003 with EPA negotiations for Western and Central African regions under ECOWAS and CEMAC respectively. The negotiations for Eastern and Southern Africa region and those spearheaded by Southern African Development Cooperation (SADC) were later launched in the first half of 2004. Any benefits that EPAs are expected to generate for ACP countries are unlikely to materialise spontaneously or instantaneously. Moreover, the implementation of EPAs will likely impose a number of severe challenges for ACP countries that include:

- (a) How to manage the expected losses of fiscal revenue in some ACP countries;
- (b) How to cope with more competition expected to arise due to the principle of reciprocity of the EPAs;
- (c) How to ascertain net benefits from the EPAs, especially in LDCs, that is, incentive compatibility between EPAs and the EBA provisions that do not require reciprocity;
- (d) How to deal with limited negotiations capacity because EPAs negotiations will stretch the already limited resources available to the ACP countries;
- (e) How to ensure consistency between the negotiations under the EPAs and that under the Doha Work Programme (DWP), in particular, how to improve market access for agricultural and non-agricultural products that continue to impose difficulties in trade negotiations at the multilateral level.

Given this background, this study provides an in-depth analytical work, among other things, aimed at informing African member States and RECs to ensure maximum benefits from the new cooperating framework. This study is therefore designed to contribute analytical work towards seeking ways for maximizing gains for Africa from the EPAs. Moreover, the study hopes to play a crucial role as an indispensable building block for eliciting common negotiating positions of Africa both at sub-regional and regional level as the EPA negotiations pick momentum. While the study aims to contribute to effective participation of African countries in the new ACP-EU framework, it also hopes to play a part in expediting Africa's participation in the EPAs trade negotiations.

Why a Quantitative Assessment of the EPAs Principles is Important

As can be seen from the background, there are many questions that arise. The focus of this study will be to quantify the economic and social impacts of the trade liberalization aspects of the proposed EPAs. More precisely, the study will provide a quantitative assessment of the likely implications of the implementation of the EPAs establishing FTAs between EU and the various RECs. The study will aim to provide suggestions to some specific issues, which African negotiators must deal with in the negotiations with their EU counterparts on the form and nature of the respective EPAs within the different RECs. The issues are particularly of concern to policymakers in Africa as they are faced with the challenge of ensuring that the outcomes of the EPAs will be beneficial to the people of Africa, and will have positive returns for any sacrifices that Africa will have to make under the EPAs. It is expected that EPAs results will have to be better than the outcomes of the expired Lomé Convention, which is widely argued in the literature to have been sub-optimal.

One challenge that studies such as this have to deal with is the multiplicity of RECs in sub-Saharan Africa (SSA). According to the CPA, it is expected that individual African countries will self-determine under which REC they will wish to negotiate for an EPA with the EU. Initially, this self-determination of membership to RECs was complicated by two current factors. First, most countries in SSA are members of more than one REC. As a result, there was the initial difficulty of rationalizing the RECs definition for the purposes of the EPAs negotiations. Second, under the CPA country nomenclature, some African countries are identified as LDCs, while others are non-LDCs. Within the existing RECs, some members are LDCs while others are non-LDCs. In which case, the LDCs may not be under pressure to conclude an EPA by December 2007 since come 1 January 2008, they will still be able to enjoy non-reciprocal preferences for their exports to the EU through the EBA initiative. However EBA does not involve aid, which means they need to weigh the benefits and costs of increased trade possibilities against the loss of aid.

For the purposes of this study, three propositions have been made to justify the empirical analysis. Firstly, it is proposed that it is in the interest of all SSA countries including LDCs¹ that benefit from EBA to wish to see EPAs concluded in which they are members. The reason behind this proposition is that unlike EBA initiative which mainly focuses on trade aspects, the EPAs are an integrated framework which have development aid component which countries may not wish to lose out on, particularly the elements that deal with addressing supply-side constraints of the ACP countries. The EBA initiative does not commit to address the supply-side issues² that saw the ACP countries being unable to exploit the preferences granted to them under the Lomé Agreement. Thus, there are potentially additional significant developmental gains from the EPAs likely to be inbuilt in the financial and technical cooperation component of the EPAs.

The second proposition is that under the EPA negotiations, agreement is likely to be reached on issues that are of interest even to LDCs. There is scope under EPAs for agreements in areas such as the EU commodity protocols on bananas, rice and sugar that LDCs might also be interested in. Other areas include reduction in agricultural export and production subsidies; more liberal rules of origin compared to those under EBA; and financial support to deal with revenue losses due to trade liberalization.

The third proposition is now a moot point, but it is in respect of RECs rationalization. It was proposed that once both LDCs and non-LDC countries in SSA accepted that there was merit beyond trade in concluding EPAs then geographical proximity was going to provide an acceptable criterion for determining the member country composition of the RECs to negotiate with the EU. This study carries out quantitative analysis of the social and economic impacts of the EPAs at the following regional levels, with each region representing a REC: East and Southern Africa; Southern Africa; Central Africa; and Western Africa.

Scope of Quantitative Inquiry into the EPAs

The preceding section has outlined the broad issues addressed in this study. This sub-section details the specific questions that the study sought to provide empirical suggestions on. The focus of the empirical analysis is on the trade liberalization component of the EPAs. In particular, the following questions are addressed.

First, how are African countries likely to gain or lose as evidenced by the impacts on GDP, employment and other macroeconomic aggregates from a bilateral trade liberalization between Africa and the EU as governed by the EPAs reciprocity principle?

Second, what sectors in Africa are most likely to lose and what sectors gain in the EPA. And based on the empirical evidence on the industry structure likely to result under the EPAs, what can be said regarding the phasing in process of trade liberalization for goods from the EU? Would application of the asymmetry principle in the EPAs provide sufficient lead-time for the nascent manufacturing sectors in African economies? Article XXIV of the WTO under which the EPAs will be negotiated, requires that any FTAs formed liberalize “substantially all trade” (which has been interpreted to mean at least 90 percent of the intra-FTA member countries trade) and this has to be done within a reasonable amount of time (interpreted to imply 10 years or so). This study will seek to provide empirical evidence as to whether the 90 percent intra-regional bloc trade liberalization for African EPAs is a reasonable proposition and whether the 10 years suggested for this to take place is sufficient³.

Third, what are the welfare implications for African countries from the EPAs? And what does this portend for the need to have compensatory funds over and above the existing but unutilised European Development Fund (EDF). The welfare implications analysis combined with the potential changes in the economic structure provide the basis for investigating what it means to have preferential elimination of SSA tariffs on imports from the EU on the basis of sensitive sectors. The issue of which sectors are exempted from preferential trade liberalization in the EPAs was seen to be important as it fitted within the infant industry argument that some SSA countries would like to see develop. By linking the welfare implications to the sectors exempted from the preferential liberalization it was possible to determine which sectors are most likely to lead to pro-development outcomes and which should not be exempted as that would simply be pandering to protectionist interests.

Fourth, how will the formation of EPAs affect trade expansion through trade creation and trade diversion effects? Critics and those sceptical of the EPAs could argue that they have the possibility of causing significant trade diversion. As a result, proposals have even been made for the need to have SSA countries reduce their applied MFN tariffs concomitantly with their bilateral reduction of tariffs for EU imports. This study quantifies the trade expansion effects of the reduction of tariffs faced by the EU under the

EPA. This analysis provides sort of *ex ante* counterfactual evidence of what it means for SSA countries to ensure consistency between the tariff reductions related to the EPAs and those that may be agreed at the conclusion of the Doha round of trade negotiations. The World Bank has suggested that a pro-development outcome of the Doha round would need to achieve average tariffs of five percent for manufacturing, with a maximum of 10 percent and an average of 10 percent for agriculture, with a maximum of 15 percent (World Bank 2003).

Fifth, the fiscal implications of the EPAs are seen to be one of the key negotiation issues. Indeed, the development aid component of the CPA in addition to addressing the supply-side constraints of production in ACP countries is also predicated on the expected loss of revenue. There are two ways that the loss in revenue has been shown to occur in this study. First is a direct effect due to the zero rating of imports from the EU. The second effect is through trade diversion effects, which lead to further losses in revenue. Consequently, this study quantifies the direct revenue implications under each of the EPAs for the REC member countries. The quantification of the trade expansion has provided a basis for estimating the revenue effects resulting due to trade diversion from non-EU to EU producers and suppliers.

Empirical Tools for EPAs Analysis

Trade issues by nature require an analytical framework that allows a holistic view of world economies. This is not only because of the inter-linkages between various sectors in any given economy but also because of the relationships between sectors in one economy to the rest of the world economies. These national, regional and global linkages may occur either in the inputs or products markets or as are usually the case, in both. Therefore, in order to avoid ignoring these linkages, a general equilibrium methodology such as one using the Global Trade Analysis Project (GTAP) model (to be discussed in details in Section IV) is one of the analytical instruments be used in this study⁴.

The GTAP model is a multi-country multi-commodity model that requires data for each and every country (see Hertel 1997). However, most African countries, due to their lack of up-to-date input-output tables, are not included in the GTAP database. Given the challenge that this posed for analysis of implications of the EPAs at the level of individual RECs, the study used the limited data available to build some scenarios for EU-SSA EPA. This approach allowed the potential general equilibrium effects of the EPAs at the RECs level to be analysed. This is a common approach to resolving the data limitation issue (see Karingi et al. 2002 and ECA forthcoming). Some parallels could be drawn for individual African countries where their economic structure can be distinctively identified. As argued in Karingi et al. (2002) in a study of COMESA's FTA and customs union, an initial look at COMESA member countries may show homogenous agricultural economies. However, when the countries are closely examined, three heterogeneous groupings of countries emerge as constituting COMESA.

First group are the purely agricultural economies such as Malawi. Second group comprises economies with some significant level of manufacturing base such as Zimbabwe. And the third group are those countries rich in mineral resources such as Zambia and Zimbabwe. This meant that, through appropriate disaggregation of sectors (or commodities) in the GTAP database; these three characteristics could be captured in detail.

In using the GTAP model whose database benchmark is 1997, the study faced the challenge of the parallel multilateral negotiations taking place even as the EPAs negotiations proceed. This challenge was however overcome in the GTAP simulations in the same way that ECA (forthcoming) study on agriculture in the Doha Round did. Essentially, the ECA study simulated the changes that have taken or are expected to take place between 1997 and 2005. Thus, a baseline that captured all the Uruguay Round commitments, the reform of the Common Agricultural Policy of the EU Agenda 2000, China's WTO accession, the implementation of the Agreement on Textiles and Clothing expected in 2005, and the EU eastwards enlargement was constructed. This study also starts from a baseline that captures these important changes expected to precede the inauguration of the EPAs.

The revenue implications of the EPAs as already pointed out are major concerns for African countries as a majority of them raise a significant proportion of their ordinary revenues from import duties. This justified the case for the complementary partial equilibrium analysis using trade statistics to shed more light on the EPAs possible implications. Tekere and Ndlela (2003) developed scenarios for SADC using this methodology (see more details below) to analyse revenue implication for SADC member countries of different levels of opening up of trade to EU-sourced imports into SADC.

Evolution of the EU-ACP Partnership: from Yaoundé through Lomé to Cotonou

The following section describes how the African Caribbean and Pacific countries' partnership with the European Union was developed and how it evolved over time to the present constitution of Economic Partnership Agreements (EPAs). The challenges that EPAs pose to African countries are also reviewed.

The Yaoundé Conventions

Since its inception the European Economic Community (EEC) agreed to apply a favourable economic treatment to African countries. The Treaty of Rome, signed in 1957, founding the EEC, offered special trade and economic support measures for the offshore territories and dependent countries of the then six EEC member states (Belgium, Federal Republic of Germany, France, Italy, Luxemburg, and the Netherlands). In 1958, the first European Development Fund (EDF) was set up to finance economic and social development projects, mostly in then French territories.

Upon their independence, in the early 1960's, some African countries negotiated with the EEC the continuation of their preferential economic relations. This gave rise to the beginning of the EU-Africa Partnership, under which the European Community (then the European Union) and the group of African, later joined by Caribbean and Pacific countries agreed on a framework of economic, cultural and political cooperation. Over time, this Partnership saw its coverage extended both in geographical terms and in the number of areas of cooperation covered. The accession of the United Kingdom to the European Community in 1972 was followed by a significant increase in the number of Member States in the ACP group.

The African-EC Partnership was launched on a contractual basis by the signing of the first Yaoundé Convention in July 1963, between the EEC and 18 African States, mostly francophone countries. The Convention contained provisions on trade and financial aid. Interestingly, the trade provisions of Yaoundé were based on reciprocal and non-discriminatory terms, pursuing the trade arrangements of pre-independence time. Such reciprocal arrangement were closer to those of a free trade agreement than of a preferential trade scheme⁵, and as such, more similar to the Economic Partnership Agreements (EPAs) currently under negotiations between the EU and ACP states. Agricultural development was given a high profile in the first Yaoundé convention. The second Conference of Yaoundé, signed in July 1969, provided an increase in European Development Fund resources for development projects. It also prolonged the reciprocal non-discriminatory trade arrangements. Kenya, Tanzania and Uganda chose to join the second Yaoundé Convention.

Major reforms to the EEC-African partnership were introduced after the expiry of the Yaoundé Convention, when the first Lomé Convention was signed in February 1975. At this time, the EEC had experienced its first major enlargement, with among others the accession of the United Kingdom. In this new context, countries that had until then privileged trade relations with Great Britain in the Commonwealth were confronted with a shift in paradigm, as their traditional trade partner (the UK) overhauled radically its trade framework. Hence, the UK's accession to the EEC was a strong incentive for some Anglophone countries to also engage into a privileged partnership with the EEC. The ACP group was therefore extended to 46 members, including for the first time, Caribbean and Pacific nations.

The Lomé Conventions

At its beginning, the Lomé Convention was hailed for its innovativeness and as an exemplary form of North-South partnership. With hindsight, however, most commentators now agree that the successive Lomé Conventions failed to reach their development objectives and need reforming. The first Lomé Convention was signed in February 1975. It was characterized by its contractual nature, its partnership principle and a combination of aid, trade and political aspects. The Lomé Convention was renewed 4 times, until 2000.

On **trade**, the Convention proposed a non-reciprocal discriminatory trade agreement between the EEC and the ACP group. This arrangement was a radical change from the Yaoundé convention, which stipulated reciprocal and non-discriminatory trade. Concretely, while the EU was granting a very favourable market access to ACP countries, those were not committed to grant equivalent concessions to European exporters. It was hailed as a great success for developing countries as it was seen at the time as providing them with the possibility of basing an industrial development behind protected borders, while offering export expansions opportunities to the EEC thanks to preferential market access. The Trade provisions of the Convention were, however, countervailing to the MFN principles of the GATT Agreements, and necessitated a waiver in the GATT as detailed below.

Due to prior trade arrangements between the UK and Commonwealth developing countries, special trade protocols were agreed for trade in bananas, beef and veal, rum, and sugar. Those agreements typically meant that the EU would buy an agreed quantity of those commodities at a price significantly above the world price. The Lomé Convention also introduced an innovative mechanism aimed at compensating ACP members in case of a fall in their commodity export revenues. STABEX, was therefore introduced by the first Lomé Convention (1975), with a view to offering compensations for ACP states that experienced a brutal decline in their revenues from trade in agricultural goods. The second Lomé Conference (1980) introduced SYSMIN, an equivalent mechanism for revenues of trade in mineral commodities. Both STABEX and SYSMIN were funded through the EDF, making payment advances to ACP states that were supposed to be refunded at a later stage.

Financial cooperation was also an important feature of the successive Lomé Conventions. The European Development Fund (EDF), and the European Investment Bank (EIB) were both created by the Treaty of Rome in 1957. While the EIB also had other objectives and areas of interventions, notably in the EEC itself, the EDF was a financial arm solely dedicated at providing support to the ACP community. The focus of the EDF funded projects shifted with time according to development priorities and strategies. Thus, Lomé I (1975-1980) focused on infrastructure, with an allotment to the EDF of over 3 billion ECUs. Lomé II (1980-1985) saw the continuation of the priority focus on infrastructure development, but an increase in the fund resources to 4.725 billion ECU. Under Lomé III (1985-1990), both infrastructure and rural development were the major EDF priorities. EDF funding was then raised to 7.4 billion ECUs. Lomé IV emphasised support to the Structural Adjustment Programmes that some ACP states were implementing.

The **political dimension** of the ACP-EU partnership was especially emphasised in the Lomé IV (and IV bis) Convention. At this stage, respect of Human Rights and good governance, as well as the recognition of the importance of gender issues became a component of the agreements. Importantly, for the first time under Lomé IV, those commitments could be used by the EU to limit its support to countries that would not respect them.

A need for a renewed partnership

Although the Lomé partnership was hailed as “the most comprehensive North South partnership” it has clearly not met its objective development. Africa has lagged behind the rest of the developing world, both in terms of its integration in World trade⁶, but also and more importantly in terms of poverty reduction and socio-economic development. Despite a few exceptions - such as the case of Mauritius in textile and apparel – unilateral preferences granted under the successive Lomé conventions showed a very limited positive impact for Africa, and did not trigger the expected take off in industrial exports. Thus, ACP countries’ exports saw their share of the EU market diminish from eight percent in 1975 to 2.8 percent in 2000. Moreover, the composition of ACP’s export has - with a few exceptions- showed little sign of diversification since 1975⁷. Along the same lines, per capita GDP in sub-Saharan Africa grew by an average of only 0.4 percent over the 1960-1992 period, compared with 2.3 percent for developing countries as a whole⁸.

Moreover, a change in the attitude of the EU towards the WTO compatibility of its trade regime with the ACP countries also occurred. As discussed in the section below, non-reciprocal preferences granted to the ACP group by the EU required a waiver from third parties in the WTO. After 25 years of such arrangements the EU since the mid-90’s started seeking a return to a reciprocal arrangement more compatible with WTO obligations. Being itself a strong proponent of a rules based multilateral trading system, the EU is now putting greater emphasis on the WTO compatibility of its trade regime. Moreover, obtaining a waiver required negotiations in the WTO on behalf of the EU, which entailed necessary concessions to be made to third parties as a consequence. Commentators have argued that the EU also

became reluctant to continue with non-reciprocal trade preferences under the ACP partnership for this last reason⁹.

Moreover, financial mechanisms such as STABEX and SYSMIN proved largely insufficient in preventing a further slide in Africa's Terms of Trade. One of the main reasons put forward is the lack of funding for those mechanisms so they could not effectively prevent a strong deterioration of export earnings¹⁰. Moreover, EDF and EIB funding mechanisms have also been recognized as too complex in their administrations, which has been seen as a limiting factor to its utilization by the intended beneficiaries. Large amounts from the EDF were frequently rolled-over to the next period, as they could not be utilized due to heavy and lengthy procedures.

Other reasons weighted for a significant overhaul of the ACP-EU partnership. They include geo-strategic concerns on behalf of the EU, such as the shift in focus of the priorities towards Eastern Europe and Southern Mediterranean states, following the end of the Cold War. They also included an amount of what has been labelled "donor fatigue", the reduced political will to provide financial resources to intervene in development issues. Finally, it has also been argued that the EU chose to move to reciprocal trade arrangements with the ACP countries in order to secure its market access in those regions, in the light of increased penetration of third parties such as the USA or Asian countries on African markets.

By the end of 1996, the EU initiated an analytical work to explore follow-up possibilities to the Lomé Convention. The Commission published in 1997 a "Green Paper¹¹" on the future of the ACP-EU relationship. Talks were initiated with the ACP group for the content of the future framework of cooperation between the ACP and the EU. After two years of negotiations, these discussions led to the signature in June 2000, of the new ACP-EU agreement, in Cotonou, Benin.

The compatibility of regional economic agreements with the WTO provisions

One of the most basic WTO principles – the Most Favoured Nation (MFN) treatment – stipulates that a trade concession granted by a member state to another should be automatically extended to all other WTO members (Article I of the General Agreement on Tariffs and Trade). There are two main exceptions to this MFN principle. The first one allows preferential treatment when based on development concerns, the second one is with regard to free trade areas.

The "Enabling clause" authorises "*preferential and more favourable treatment to developing countries*", on the basis that they are offered by a party, to all developing countries or all Least Developed Countries, without discrimination. The "Enabling clause" is for example utilised to provide preferential market access under schemes such as the various *Generalised System of Preferences* (GSP) in favour of all developing countries, or the *Everything but Arms* initiative (EBA), which the EU provides to the LDCs. The "enabling clause" may also be utilized for preferential trade liberalization among developing countries.

The WTO GATT agreements also contains provisions allowing for derogation to the MFN principle in the case of regional trade agreements. Article XXIV of the GATT-1947, completed by an understanding attached to the Marrakech Agreement on GATT-1994 defines the modalities under which WTO members may not respect the MFN clause in trade in goods, when engaging in a free trade agreement process. Article V (para. 3.a) of the General Agreement on Trade in Services (GATS) provides with similar exemptions with regard to trade in services. Both article XXIV of GATT and article V of GATS stipulate that more preferential treatment may be granted among some members, without automatic extension to the entire WTO membership as is normally required under the MFN clause. The justification behind this derogation to the MFN principle is that, under certain conditions, free trade agreements benefit not only their members, but also the global economy as a whole, through trade creation which results in increased overall welfare. Free trade agreements such as the EPAs clearly could fall under that category, provided they are of a reciprocal nature (i.e. both parties offer each other symmetrical preferential treatment).

However, ACP countries might want to explore possibilities of maintaining a certain degree of asymmetry in their future agreement with the EU. Article XXIV leaves room for ambiguity with regard to this point. In particular, article 8-b) stipulates that “*duties and other restrictive regulations [...] are [to] be eliminated on substantially all the trade*” between the members of a preferential agreements. The exact meaning of “*substantially all the trade*” is strongly debated. How much trade may not be liberalized is a crucial question, and could be important for African countries willing to maintain some protection on some of their trade with the EU in the context of an EPA. It is generally thought that at least 90 percent of the trade has to be liberalized under a free trade agreement, but there is no legal confirmation for that figure. The EU-South Africa free trade agreement, for example did interpret the Article XXIV in a manner allowing for some protection within the 90 percent limit, in a non-reciprocal manner. Under this free trade agreement, the EU agreed to extend liberalization on 95 percent of its trade with South Africa, while South Africa agreed to liberalize “only” 86 percent of its imports from the EU¹².

Article XXIV also maintains some ambiguity on schedule to accomplish liberalization. Here the agreement mentions “*a reasonable length of time*” (Art.XXIV, par. 5c). Again, there is no legal or official interpretation of what a reasonable length of time might be, although it is conventionally thought to be ten years. For example, South Africa was offered 12 years to implement liberalization in its Free trade agreement with the EU, more time than the EU is allowed to liberalize its imports from South Africa. Again, the ambiguity contained in Article XXIV has in this case been utilized to maintain a certain degree of asymmetry. The schedule of liberalization may be important for African countries implementing EPAs, as they determine how much time they have to proceed to internal industrial adjustments before liberalization.

Importantly for African countries (and also for other developing countries), the Doha Declaration launched an effort to clarify the understanding of Article XXIV and the role of Special and Differential treatment in regional trade agreements. These points of negotiations under the WTO will be of crucial

importance in determining the future shape of EPAs, and the degree of flexibility African countries might enjoy under them.

The Cotonou agreement

The new Cotonou agreement will run for a duration of twenty years, with possible revisions every five years and renegotiations of the financial protocol at the same intervals. The new agreement rests on five interdependent pillars:

- a comprehensive political dimension consisting in an enhanced dialogue, and a special focus on conflict prevention and resolution, as well as on governance issues and the respect of human rights and the rule of law,
- a set of participatory approaches, including greater emphasis on the role of civil society,
- a focus on poverty reduction, and a central role for the private sector and regional integration in development strategies,
- a new framework for trade and economic cooperation that would put regional integration at the fore-front, and extended cooperation to non-trade areas,
- a reform of fiscal cooperation, through the simplification and enhanced flexibility of the financial instruments of the partnership as well as the introduction of a performance criteria in the allocation of aid.

As far as trade is concerned, the Cotonou agreement does not really detail the provisions for the future. It does however offer the pursuit of Lomé non-reciprocal trade arrangements until 2008 at the latest, and offer a framework of negotiations for future trade arrangement after that date. This arrangement was validated by another waiver, granted by WTO members during the Doha WTO Ministerial Conference in September 2001¹³. After this deadline, the agreement stipulates clearly that a WTO compatible trade arrangement will have to be put in place¹⁴. Concretely, the new trading arrangements could take the form of free trade agreements between the EU on one side and ACP regional groupings on the other hand. Those agreements would take the name of Economic Partnership Agreements (EPAs) to reflect the fact that their objectives and content also reflect strong development concerns. The Cotonou agreement does not specify however how the group of countries negotiating the EPAs with the EU would be constituted.

Under the Cotonou agreement however, ACP countries may choose not to take part in EPAs. Hence, ACP LDCs that choose not be part of EPAs would still to a large extent benefit from duty free access to the EU's markets under the Everything But Arms (EBA) initiative. On the other hand, non-LDC ACP

countries would face less certainty. The Agreement stipulates that alternatives will be explored for such countries in order to provide them with “*a new framework for trade which is equivalent to their existing situation*”. Concretely, there are two main options available to non-LDC ACP countries. The first one would be to negotiate trade bilateral agreements with the EU. The second one would be to start utilising the General Scheme of Preferences (GSP) through which the EU grants preferential market access to all developing countries. This last solution would probably mean a significant erosion of preferences for African countries, whose exports would then be treated on a par with those from other developing countries including more competitive ones. Finally, it would also be possible for non-LDC ACP countries to resort to exporting to the EU under the MFN clause, but that would clearly be of lesser interests than to use the GSP scheme, however imperfect.

Today, it seems that most ACP African countries have chosen to be part of an EPA. This signifies -among other major consequences- that reciprocity in trade relations will be the future of Africa-EU relations

Some issues for African countries in the EPAs process in the WTO context

At the date of writing, it seems that most African countries opted for the EPA process. Most commentators seem to believe that this was in part due to potential advantages that the EU would confer to EPA members, such as increased assistance, aid and capacity building support. Clearly, it was thought that the EU was itself in favour of the EPA solution, among other things to promote regional integration in Africa, and also to reduce the number of negotiations it would have to hold simultaneously.

One of the hardest problem to solve for African countries was the overlapping of regional groupings. For various political and historical reasons, one individual country may be part of several regional economic groupings. Out of the 53 African countries, only 6 belong to just one regional economic communities (RECs), 26 are members of two groupings, 20 are members of 3 groupings and one (Democratic Republic of Congo) belongs to four¹⁵. Moreover, while some regional economic communities were thought to be very dynamic (UEMOA, SADC, for example), others were seen as dormant. The choice of which regional grouping to join for EPA negotiations, was a very crucial difficult one for some African countries. Countries that may have important economic and political ties with other African countries outside their own EPA may hence have an important stake to actively promote cooperation mechanisms and ties among EPAs.

Moreover, as seen in the previous section, current WTO negotiations under the Doha Round may profoundly transform the overall trade context in which EPA will be negotiated. As discussed, the negotiations to clarify the content of Article XXIV of GATT and Article V of GATS will be crucial. They will determine the degree of non-reciprocity as well as the degree of exemption from coverage that will be allowed to developing countries negotiating preferential trade agreements. African countries engaged in EPA negotiations have therefore a high stake in these negotiations. Other negotiations in the WTO may

affect the outcome of EPAs for African countries. For example, market access negotiations may result in a further deterioration in the preferential margins that African countries would enjoy under the EPA on the EU's markets. If the EU agrees to deep cuts in its protection under the MFN treatment, then the actual benefit of a free trade agreement with the EU may be substantially reduced for African countries.

One particular point of the future of Cotonou -crucial for some ACP countries- will also be determined by the future negotiations in the WTO: the trade protocols. Those protocols are often criticized by non-ACP developing countries and their future seems to be elimination. What mechanisms will replace them will be a crucial issue for some African countries, such as Botswana (beef) or Mauritius (sugar), and WTO negotiations on agriculture carry a high stake for them for this particular reason.

In addition, in view of the content of other EU agreements with developing countries, some commentators have raised a warning for African countries not to accept a “*WTO-plus*” agenda under EPAs. For example, African countries have been vocally opposed to the inclusion of some of the Singapore issues in the Doha Round. They should therefore be cautious not to be imposed excessive commitments on those issues or on intellectual property protection in the EPA context.

Finally, reduction in tariff protection resulting from free trade agreements mechanically result in a loss in fiscal revenues. This should also be an important concern for many African countries undertaking EPAs with the EU. They will experience a loss of tariff revenues, firstly on tariffs imposed on imports from other members of their REC, secondly on tariffs imposed on imports from the EU. This may cause significant problems for those African countries where tariff revenue constitute a large part of the government budget, and for which a lot of imports originates either in the EU or in neighbouring countries.

Emerging Empirical Evidence on EPAs and the Economies of ACP Countries

Introduction

In this chapter, we review some of the available evidence on the likely implications of the EPAs on ACP countries. The studies so far carried out on EPAs are of two categories. The first category is those studies that have attempted rigorous empirical analysis. The second category consists of descriptive (analytical) studies. The former group of studies, while trying to be empirical, have leaned more towards the partial equilibrium analysis following the Viner-type model of analysing regional trade agreements. The analytical category of studies has dominated nevertheless.

While quantitative studies on the EPAs have been few, in this chapter, these studies are reviewed together with some of the analytical ones. The objective is to uncover the evidence so far on the likely implications of the EPAs on African economies in particular. As a study by COMESA in 2002 notes, three key difficulties fetter research on the subject: lack of good quality data; lack of clear understanding of what EPAs will comprise of ultimately; and inability to project the future multilateral trading system and production systems in ACP countries in the next two decades or so.

The chapter is organized along the quantifiable themes of the EPAs impacts on the African economies. Fiscal systems impacts are addressed first; second, is a focus on Africa's economic structures in the context of the role of agriculture and manufacturing sectors. The evidence on the social welfare implications is addressed in the third section. Fourthly, the evidence on the regional integration question and by extension the intra-African trade regime is considered. And finally, the post-EPA position for non-EU rest of the world in Africa is highlighted.

EPAs to exacerbate strain on fiscal systems in Africa

Most countries have been concerned with the revenue implications of the EPAs. In particular, they will be coming into force at the mid-point period when governments will be under enormous pressure to show their results in addressing the Millennium Development Goals. In that respect, quantifying the revenue impacts of the EPAs has been one of the preoccupations of the studies undertaken to assess them. EUROSTEP (2004) provides some estimates based on five case studies. Three of the countries are African: Cameroon, Benin and Ghana. The study estimated that between 20-30 percent of the Cameroonian governments revenue would be lost following a reciprocal free trade with the EU, taking into account accumulated job losses, tax shortfalls and lower growth rates. Ghana on the other hand would experience 20 percent reduction in cocoa exports revenues alone considering that cocoa is the largest export to the

EU of Ghana making up to 37 percent of all exports. The methodology applied in this study could be criticized for its lack of rigour, and also for the lobby-factor, as it relies on experiences and forecasts of people from the five countries working in the sectors that are critical to poverty alleviation. In spite of lack of methodological rigour, and allowing for lobby-factor, there is the industry knowledge by the respondents, which provide some insights on potential outcomes.

COMESA (2002) looks at the broad issues that its member countries would have to contend with in the EPAs negotiations. The issues covered in this early impact assessment focused on the EPAs impacts on trade and economic policy orientation. The study concluded that the costs of EPAs would be the loss of revenue to governments and the associated adjustment costs of developing alternative sources of government revenue. The broad finding was that if all EU imports came in free of duty, on the basis of trade statistics for 2000, governments in the COMESA region would lose about a quarter (25 percent) of their trade taxes and about six percent of their total tax revenue. The COMESA study, like other studies, correctly notes that while a loss of six percent of tax revenue may not seem to be a huge amount of money to make up over an extended period, the precarious situation in which most fiscal systems in COMESA countries are in would present major adjustment difficulties. Reforming the tax administrations in COMESA countries with a view to establishing elastic and buoyant tax systems would be considerable adjustment costs for these countries.

While the COMESA study was more analytical than empirical, it clearly identified factors upon which the loss of revenue to governments would be dependent upon: percentage of total tax revenue made up by trade taxes; the percentage of imports coming in from the EU; and whether the supply of goods from the EU will increase as a result of a reduction in tariffs. Suffice to add at this point that the COMESA (2002) study, using ex post analysis¹⁶, concluded that just as the revenue implications of the introduction of the COMESA FTA were overestimated, there was a danger that the EPAs revenue implications for COMESA countries might also be overestimated.

Another early study was undertaken on the likely impacts of the EPAs on SADC countries¹⁷. Tekere and Ndlela (2003) in addressing the EPAs question for SADC examined the trade aspects of the Cotonou Agreement for the Southern African countries. Relying on a partial equilibrium modelling framework, the study showed that EPAs would result in significant reduction in revenues. Due to the significant imports from the EU, all the countries would experience revenue shortfalls immediately the process of tariffs dismantlement began under the reciprocation process. Cumulatively, countries like Tanzania will experience at least 37 percent decline in tariff revenues. Significant reductions will also occur for Namibia at 24 percent. These shortfalls while not unexpected will pose serious fiscal adjustment challenges for these countries.

Busse et al. (2004) studied the potential impacts of EPAs on ECOWAS countries. Their study focused on the trade and budget effects. Applying a partial equilibrium methodology that follows the Viner model, Busse et al. examined the implications of complete tariff barrier elimination for EU goods in ECOWAS

countries. The study found that in absolute terms, decline in import duties would range from US\$2.2 million in Guinea-Bissau to US\$487.8 million in Nigeria. As a share of total import taxes, the decline will be largest in Cape Verde where 80 percent of import revenues are likely to be lost. The fiscal budget positions of the ECOWAS countries will therefore be under substantial stress in the case of total tariff barrier elimination. Cape Verde and Gambia will particularly be severely affected given the estimated total government revenue shortfalls associated with EPAs of 20 and 22 percent respectively. Assuming no adjustment from the expenditure side, the budget deficits in these countries will worsen by 4.1 and 3.5 percent of GDP respectively.

Undiversified economic structures in Africa to face unprecedented challenges

African countries have been credited with significant unilateral trade liberalization measures since the advent of the continent's adjustment programmes. These liberalization measures for some countries took place at the same time as commitments at the multilateral level were being implemented. However, the Cotonou Partnership Agreement calls for much deeper liberalization of trade with EU whose trade with African countries ranks first for almost all these countries. EUROSTEP (2004) estimated that only 25 percent of Ghanaian industries would survive without import tariffs support following implementation of free trade with the EU.

Meyn (2004) focuses on Botswana, Mauritius and Mozambique and reinforces the argument that under the North-South arrangement that the EPAs are going to have, trade diversion has the potential of dominating the trade creation effects. Granting the free market access for EU would then imply that the ACP countries would not have the chance to build-up own industries or set-up sustainable market chains. Meyn therefore concludes that while EPAs would have to be WTO compliant at the end of the day, in order to mitigate upon the de-industrialization that will occur, the EPAs should aim to build upon strong South-South integration. In effect, Meyn (2004) calls for deepening of the South-South integration first before the enforcing of the dismantling of tariffs objectives of the EPAs. Like most studies on EPAs to date, Meyn (2004) is also more analytical than empirical, making it difficult to provide evidence on some of the propositions such as the clear argument that the ACP countries would benefit most from EPAs if they were allowed to deepen integration among themselves. The level of integration among the ACP countries that is optimal to guarantee the gains that Meyn (2004) foresees is not clear from studies such as Meyn's.

Busse et al. (2004) also quantifies the potential trade effects of the EPAs, bringing out clearly the trade diversion elements of an EPA between the EU and ECOWAS countries. The total trade effects estimated for ECOWAS countries range from 5.2 percent in Guinea-Bissau to 20.8 percent in Nigeria. Overall, the study found that trade creation effects in ECOWAS will far outweigh trade diversion. However, at a more highly disaggregated level, some trade diversion effects were found to exceed trade creation effects as is likely to be the case for petroleum oils for Ghana. More importantly however in the ECOWAS study, is the focus on sensitive products in terms of impacts on trade and import duty revenues. The study

established that a few product categories are sensitive in almost all ECOWAS countries with respect to trade flows. These include apparel and clothing, footwear, sugar and related products, cereals and cereal products. In general, light manufactures will be affected significantly under an EPA arrangement.

It is also not surprising that Tekere and Ndlela (2003) also shows that the EPAs are likely to have dramatic and challenging effects on the weak and sensitive economic sectors of SADC countries. The concentration of SADC economies on primary and/or extractive sectors and also low-technology processing industries will also present great restructuring difficulties to these countries. In agriculture, cereals, food processing and dairy products were identified as sub-sectors that would be potentially adversely affected by the EPAs in SADC. In the same vein, textiles, clothing, meat, beverages, leather and footwear were also identified as manufacturing sub-sectors in the SADC region that would suffer greatly in the case of a EU-SADC EPA. Tekere and Ndlela study could be faulted for not giving quantifiable effects on the sectors outlined. In spite of this weakness, the qualitative method employed to identify these sectors does however give indications of the sectors that countries in SADC would have to be concerned with post-EPAs.

Similar findings with respect to impacts on sectors were reached analytically in the COMESA (2002) study. The study identified price and quality competition from EU-based industries to local manufacturers, especially given the lack of economies of scale and access to latest technologies for the latter, as a negative aspect of the EPAs. Without any quantification or pinpointing of actual COMESA sectors that will be affected by the EU goods, de-industrialization, attendant loss of jobs and barriers to entry into new markets of local products were identified as the consequences from the EPAs for COMESA countries. COMESA (2002) unlike other studies, is however optimistic on the positive effects of the EPAs on the performance of key sectors. Specifically, exposure of local industries to competition is perceived as a positive element even though the study also identifies lack of economies of scale as an issue. Another positive aspect of the EPAs identified to likely benefit COMESA may be the dynamic effects of the EPAs given the non-reversal nature of the policies that will be locked-in the agreements. While the COMESA study does well to identify the positive and negative aspects of the EPAs with respect to impacts on sectors, it fails to convincingly show whether the negatives will be offset by the positives.

Consumers in African countries will be major beneficiaries from the EPAs

Trade creation for EU producers and exporters within the EPAs arrangement reflects the displacement of inefficient African producers in a given regional economic community arrangement. The SADC study showed that trade creation will far exceed the trade diversion in majority of the countries. The trade created in this setting implies the ability of the importers (both intermediate and final users) to access cheaper products from the EU. Ultimately, the cheaper imports translate into increased consumer welfare, which is a good proxy for the welfare gains by the consumers in the SADC countries considered in the Tekere and Ndlela (2003) study. As the COMESA (2002) study observes, consumers may welcome the variety and potentially lower priced goods, but the subsequent factory closures due to de-industrialization may

dampen and possibly wipe out the welfare improvements achieved by the consumers who double up as the losers bearing the brunt of industrial closures.

The results obtained from the COMESA and SADC studies were consistent with the findings of much earlier studies commissioned by the European Union and summarised in Gunning (1999) and McQueen (1999). In those initial studies, which as already noted used mainly partial equilibrium frameworks, the welfare effects of an EPA were found to be unclear as trade diversion effects were expected to reduce any welfare gains resulting from increased imports for the consumers and some of the producers. Empirical analysis of the exports side also resulted in very small welfare gains. In a partial equilibrium framework setting, the studies converge on the finding that trade diversion effects could dampen welfare gains. Investigating whether the same result would be achieved using general equilibrium frameworks is important at this stage if firm conclusions are to be made on EPAs impacts on overall welfare.

The interpretation of the welfare impacts of most of the partial equilibrium analysis results requires caution. Intuitively, trade creation is welfare improving since consumers are able to access cheaper products and probably of higher quality. Trade diversion on the other hand is welfare decreasing as noted by Busse et al (2004) because higher cost producers displace more efficient sources of imports. Since trade creation effects have a general tendency to exceed the trade diversion effects in most partial equilibrium studies, there is the inevitable conclusion such as in Busse et al (2004) that an EPA between the EU and ECOWAS countries is likely to be welfare improving. The failure of these analytical frameworks to capture declines in producer surplus and given that government revenue shortfalls and trade diversion are non-additive means the impacts of liberalization within the EPAs will appear as welfare improving always.

The non-EU countries to face reduced market shares in Africa

In theory, the outcome of preferential trading arrangements with respect to trade depends on three important preconditions. These preconditions can be explained briefly using the EPAs proposition. First, if the rest of the world supplies goods cheaply to a configured EPA both before and after the enforcement of the EPA than the EU, then there is likely to be no change in trade expansion. Second, if the EU supplies the goods at lower prices both pre- and post-EPA than everyone else, then the implementation of the EPAs would lead to welfare improvement as prices go down because of tariff dismantlement and assuming elastic import demand for the EU goods, there would at the same time be trade creation. The third precondition and which worries the opponents of regionalism is the situation where the rest of the world is a cheaper supplier to the EPA before the EPAs' enforcement compared to the EU but post-EPAs, the EU becomes favoured by the tariff reduction. In this latter case, trade diversion is bound to occur. Given the unbalanced nature of integration process¹⁸ in Africa, the rest of the world that suffers as a result of trade diversion may include also African countries. Therefore, EPAs in theory could lead to replacement of regional suppliers once tariffs on EU imports are dismantled. The implications of this are two-fold. Firstly, intra-African trade, which is expected to create dynamics for deeper integration, will

be compromised. And secondly, the African region will find itself in a situation where there is increased dependence on EU imports, which in itself would prevent the continent from benefiting from embodied technologies that may be more superior to those of the EU.

The SADC study by Tekere and Ndlela (2003) clearly showed that non-EU countries currently exporting into the SADC region will lose trade to EU producers and exporters in spite of the latter not necessarily being the most efficient. Tekere and Ndlela (2003) quantified significant trade diversion that not only affects the non-EU countries but also other African countries that are not part of the SADC grouping. While Tekere and Ndlela have not decomposed the trade diversion impacts to that affecting non-SADC African and the rest of the world countries, it is clear that the US\$79 million they estimate as trade diverted in the case of Tanzania for instance will hurt some African countries currently exporting to that country. Thus, EPAs are likely to harm intra-African trade, an outcome that is going to be contrary to the principle of deepening regional integration anticipated by the Cotonou Partnership Agreement. The same conclusion is arrived at in the case of COMESA where it is found out that imports coming from the region will be substituted by imports coming from the EU leading to reduced regional production and levels of economic activity.

Milner et al. (2002) in their study that considered the possibility of an EPA between the EU and the East African Community (EAC) had reached to a similar conclusion where trade diversion within the EAC would negate not only the integration efforts but would at the same time accelerate de-industrialization. Their results carried out using an extension of the model in Panagariya (1995) indicated that Kenya was going to lose significantly its market share in the two economies of Uganda and Tanzania.

More on the Analytical Methodology for EPAs Analysis

Introduction

This Chapter discusses in details the methodology applied for the empirical analysis. The discussion starts by outlining the GTAP modelling and data framework. Using GTAP database, the initial conditions which the African countries in the RECs are likely to be in before simulation experiments are highlighted. The GTAP model analysis is complemented in the study with a partial equilibrium analysis model. This is the SMART model developed jointly by The World Bank and UNCTAD. The SMART methodology is therefore also described in this Chapter. The partial equilibrium model is aimed to help surmount some of the shortcomings of the GTAP methodology given that the majority of African countries are not included in the database.

Rationale for a General Equilibrium Methodology

Trade policy analysis largely involves analysing implications of trade policy instruments on the production structure in economies at the national and global level. Trade policy instruments such as tariffs and quotas have direct and indirect effects on the relative prices of commodities produced in a given country. As the mix of goods and services produced change, the demands for factors of production also change. Consequently, in any given economy, it is difficult to conceive a situation where the change in trade policy would affect only one sector. Due to the forward and backward linkages and their related strengths existing in a particular economy, the result is always one in which the relative mix of sectoral outputs change. This by extension affects the relative mix of the different factors of production in the different sectors.

The country-level effects on output mix and demands for factors of production can in the context of international trade be extended to the global economy. Changes in relative prices of outputs and inputs resulting in a given country's change in trade policy are transmitted to the industries and input markets of other economies that the country trades with. Therefore, for trade policy analysis to be meaningful and for robust results to be produced, the interactions that prevail among different sectors as a result of a change in a given or group of countries trade policy instruments must be taken into account. The general equilibrium methodology provides an analytical framework that allows these inter- and intra-sectoral changes in output mix and by extension the demand for different factors of production to be captured.

Kehoe and Kehoe (1994) capture succinctly the essence of general equilibrium models. General equilibrium models are an abstraction that is complex enough to capture the essential features of the economy, yet simple enough to be tractable. These models are popular over their partial equilibrium

counterparts because they stress the interactions among different sectors. However, they are not perfect, especially the static ones. This is because they fail to take account of the dynamic effects that accompany changes taking place in a given economy as a result of policy change. The Global Trade Analysis Project (GTAP) model is in this class of general equilibrium models. GTAP is a multi-region computable general equilibrium (CGE) model designed for comparative-static analysis of trade policy issues (Adams et al. 1997). It can be used to capture effects on output mix, factor usage, trade effects and resultant welfare distribution between countries as a result of changing trade policies at the country, bilateral, regional and multilateral levels. Since the GTAP model puts emphasis on resource reallocation across economic sectors, it is a good instrument for identifying the winning and losing countries and sectors under policy changes involving the trade aspects of the EPAs.

A Brief Look at the Theoretical Framework of the GTAP Model

There is abundant literature discussing the underlying theory of the GTAP modelling framework. The theory of the GTAP model is documented in Hertel (1997). Brockmeier (2001) provides a simplified graphical exposition of the model. The GTAP model is essentially a multi-country multi-commodity model. The theory of the GTAP model resembles that underlying the standard multi-regional single country CGE models. The origins of GTAP can indeed be traced to the ORANI model, a regional single country general equilibrium model¹⁹ first developed for the Australian economy (see Dixon et al. 1997). The modelling of each region in GTAP is based on ORANI model. The theory of the ORANI model has been extended to allow international trade to take place between the different countries in the global economy through introduction of a global transport sector and savings institution.

Essentially, the underlying theory of GTAP is captured in two types of equations. The key drivers of the model are the behavioural equations, which are based on microeconomic theory. These equations capture the behaviour of agents in the economy. Accordingly there are behavioural equations for the consumers and also for the international trade (exports and imports). The behavioural equations capture the behaviour of the optimizing agents such as the consumers that allows the derivation of the demand functions. The second type of the equations is the accounting relationships. These are essential in order to ensure that the behavioural equations solution occurs within a consistent macroeconomic framework. Thus, the accounting relationships ensure that the receipts and the expenditures of all the agents (consumers, producers, government, rest-of-the-world) are balanced. Hertel (1997) covers in details the theory behind the model and the derivations of the behavioural equations²⁰. For the purposes of this study, these derivations are taken as given and the study simply provides just the broad outline of what the GTAP model is like.

The GTAP model allows international mobility of capital, multiple trading regions, multiple goods and primary factors, empirically based differences in production technology and consumer preferences across regions and explicit recognition of a global transport sector (Siriwardana 2001). In each region there are

five types of factors of production. First, the model recognizes two types of labour (skilled and unskilled) and a single, homogenous capital good. Then there is land and other natural resources that also form part of the set of the factors of production. In the typical closure of the model, total supplies of labour and land are fixed for each region, but capital can cross regional borders to equalise changes in rates of return. In other words, there is clear distinction between those factors that are perfectly mobile and those that are sluggish in adjusting. In the case of the mobile factors, they earn the same market return regardless of the use location. As for the sluggish factors, returns in equilibrium may be different across sectors.

In the derivation of factor inputs demands, the model structure uses constant returns to scale technology and nested constant elasticity of substitution (CES) production functions with three levels. Two categories of inputs to production are recognized, the intermediate inputs and the primary factors. The technology is assumed to be weakly separable between the primary and intermediate factors of production. There are two advantages of the separability assumption. First, profit maximizing firms are able to select their optimal mix of primary factors independently of the prices of intermediate inputs and vice-versa. Second, it also implies that the elasticity of substitution between primary factors and that between intermediate inputs at the middle nest is equal. In each region, each sector chooses the mix of inputs to minimize total cost for a given level of output. At the highest (top) nest level, intermediate input bundles and primary factor bundles are used in fixed proportions. At the middle nest, intermediate input bundles are formed through combinations of similar imported and domestic intermediate goods. Similarly, primary factors bundles are formed through combinations of labour, capital and land at this middle nest. In both cases the aggregator function has a CES form. At the lowest level, imported bundles are formed through CES combinations of imported goods from each region.

Each region or composite²¹ region in GTAP has a single representative household that collects all the regional income. This representative household aggregate income is exhausted through constant shares²² to private household consumption, government expenditures and national savings. The private household buys bundles of commodities to maximize utility subject to its expenditure constraint. The constrained optimizing behaviour of the private household is represented by Constant Difference Elasticity (CDE) demand system. The CDE function is not as general as the commonly used CES and Linear Expenditure System (LES) but is more flexible and easy to calibrate with different price and income elasticities of consumption by region. The consumption bundles are CES combinations of domestic goods and import bundles, with the import bundles being CES aggregations of imports from each region.

Demand equals supply in all markets, which are, considered competitive implying equality between the price received by the producer and the producer's marginal cost. Regional governments intervene in their own markets by imposing taxes and subsidies on commodities and primary factors, thus driving wedges between prices paid by purchasers and prices received by producers. These policy interventions are modelled as ad valorem taxes, tariffs and subsidies, or quantitative restrictions in the case of textile and apparel trade. International trade is linked through Armington substitution among goods differentiated

by country of origin. Therefore, in markets for traded commodities, buyers differentiate between domestically produced products and imported products with the same name. Product differentiation between imports by region of origin allows for two-way trade across regions in each tradable product.

Other general features of the model are its explicit recognition of savings by regional economies. These savings are completely exhausted on investments that are savings-driven in the model. In the static form of GTAP, current investment is assumed not to affect the production capacity of the industries, as it is not yet installed. The demand for investments however affects economic activity through its effect on patterns of production in the capital goods producing sector in each region to service investment. The cost-minimizing capital creator in each region combines inputs to assemble units of capital, subject to a nested production technology similar to that facing each sector for current production. The only difference is that the capital creator does not use primary factors. The use of primary factors in capital creation is recognized indirectly through inputs of commodities to capital construction. In essence, capital goods are just a Leontief combination of other goods typically. They do not require value added.

Investment in each region is financed from a global pool of savings. Each region contributes a fixed proportion of its income to the savings pool. Two alternative ways can be used to allocate the savings pool. The first way is where each region's share increases by the proportion in which aggregate pool increases. The second way is where the investment allocation is done according to the relative rates of return. Regions, which experience increases in their rate of return relative to the global average, will receive increased shares of the investment budget, whereas regions experiencing reductions in their rate of return relative to the global average will receive reduced shares.

The GTAP framework described above relies on country and regional input-output tables as its database. More specifically, the GTAP database comprises: input-output data for each region, bilateral trade data derived from United Nations trade statistics; and support and protection data derived from a number of sources. A discussion on the database follows including a description of the characteristics of the African economies already captured in the version of the database used in the study.

The GTAP Database and the Study Aggregation

Data description

The GTAP model is used together with the GTAP database. The database, like the model, captures different individual and composites of countries. In this exposition, Version 5 of the database is utilized. This base year for this version is 1997 and recognizes 66 regions as well as 57 sectors and 5 factors of production. Thus, for each of the individual or composite region, there are 57 sectors whose data is captured in the overall GTAP database. As already pointed out, not all countries are individually captured in GTAP, however, all the world economies are part of the database as they could be part of a given composite region or included

as part of the rest of the world²³. Thus, global macroeconomic consistency holds. Unfortunately, only a very small proportion of African countries are individually disaggregated in Version 5 of the database. Majority of African countries are captured through one or other regional composite. Before turning to an aggregation scheme that allows a description of the initial conditions of the African countries as captured in the database, it is useful to describe very briefly what constitutes the GTAP database.

Bilateral trade data is a critical component of the GTAP database. It is this bilateral trade flows that transmit policy and growth shocks between countries. Indeed, trade shares are important in explaining the simulation results. The bilateral trade is also important when it comes to looking at the terms of trade implications. The global bilateral data is sourced from the United Nations COMTRADE data. This is supplemented with individual countries global trade information and trade totals or aggregate bilateral trade statistics such as from the IMF, FAO and World Bank.

Another important sub-component of the GTAP database is the protection data. This data is both explicit and implicit. Explicit in the sense that tariff revenue or export revenue by commodity is available. In addition, anti-dumping data by commodity and region is also obtainable. It is implicit in the sense that the bilateral trade data is available both in market and world prices. The key sources of the protection data vary. In the case of tariffs, the agricultural tariffs are obtained from the Economic Research Service, the EU and the applied or MFN rates. Merchandise tariffs on the other hand are available from the World Integrated Trade Solution project of the World Bank and UNCTAD (details of WITS are presented in the section below discussing the SMART methodology). The domestic support protection data is obtained from the OECD's producer subsidy equivalent tables and this can be divided into output subsidies, input subsidies, land-based and capital-based payments.

What is the Character of the African Countries: Evidence from GTAP Database Aggregation

Policy analysis requires an aggregation that is not only tractable but also one that gives sufficient information that would allow objective recommendations to be arrived at. In this context, it is necessary to undertake a reasonable aggregation of the global GTAP database to a level that would allow the study achieve its objectives. If majority of African countries were included individually in the GTAP database, the main principle that would guide the aggregation is to have a fair disaggregation of the African regions. Unfortunately, given the limited number of African countries in the GTAP database, the aggregation described in this chapter is to allow exposition of the characteristics of the African countries²⁴. This exposition allows the trade policy impacts on Africa to be put in context. The 66 regions have therefore been aggregated to 12 regions with the individual African and composites of African countries as stand-alones. Table 1 shows the regions' aggregation scheme. As for the sectors, the aggregation should be at such a level that allows implications of the EPAs to be analysed at the level of primary commodities, light manufacturing, heavy industries, trade and services. Hence, the initial aggregation has an aggregation of

the original 57 GTAP sectors into 13 sectors. At this stage of methodology development, the commodities aggregation can be revisited depending on the kind of information the initial aggregation allows to be derived from the policy simulations. The two aggregations are shown in the following two tables.

Table 1: Regions Aggregation Scheme of the GTAP Version 5 Database

Code	Aggregated Region	GTAP Regions
EU ²⁵	European Union	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Hungary, Poland, Rest of Central European Association
BWA	Botswana	Botswana
XSC	Rest of SACU	Namibia and South Africa
MOZ	Mozambique	Mozambique
MWI	Malawi	Malawi
TZA	Tanzania	Tanzania
ZMB	Zambia	Zambia
ZWE	Zimbabwe	Zimbabwe
UGA	Uganda	Uganda
XSF	Rest of Southern Africa	Other Southern Africa (Angola)
XSS	Rest of Sub-Saharan Africa	Rest of Sub-Saharan Africa
ROW	All other regions	Australia, New Zealand, China, Hong-Kong, Japan, Korea, Taiwan, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Bangladesh, India, Sri Lanka and Rest of South Asia, Canada, USA, Mexico, Central American, Caribbean, Colombia, Peru, Venezuela, Rest of Andean Pact, Argentina, Brazil, Chile, Uruguay and Rest of South America, Switzerland, Rest of EFTA, Former Soviet Union, Turkey, Rest of Middle East, Morocco, Rest of North Africa, Rest of World

Table 2: Commodity Aggregation Scheme of the GTAP Version 5 Database

Code	Aggregated Sector	GTAP Sectors
Cereals	Grains	Paddy rice, wheat, cereal grains nec
Vegetables	Vegetables and Fruits	Vegetables, Fruits, Nuts,
Oilseeds	Oil seeds	Oil seeds,
Sugar	Sugar	Sugar cane, Sugar beet,
Cotton	Cotton	Plant-based fibres
oCrops	Other crops	Crops nec
Livestock	Animals and animal products	Cattle, sheep, goat, horses, Animal products nec, Raw milk, Wool, silk-worm cocoons
Natresources	Natural resources	Forestry, Fishing, Coal, Oil, Gas, Minerals nec
Agroproc	Agro-based industries	Meat: cattle, sheep, goats, horse; Meat products nec, Vegetable oil and fats, Dairy products, Processed rice, Sugar, Food products nec, Beverages and tobacco products
Lightmanuf	Light industries	Textiles, Wearing apparel, Leather products, Wood products, Paper products, publishing
Industry	Industrial sectors	Petroleum, coal products, Mineral products nec, Chemical, rubber, plastic prods, Ferrous metals, metals nec, Metal products, Motor vehicles and parts, Transport equipment nec, Electronic equipment, Machinery and equipment nec, Manufactures nec
Services	Utility services	Electricity, Gas manufacture and distribution, Water, Construction, Communication, Financial services nec, Insurance, Business services nec, Recreation and other services, Dwellings, PubAdmin/Defence/Health/Education
Trade	Trade facilitation	Trade, Sea transport, Air transport,

The Characteristics of the African Economies in the GTAP Database

In this sub-section the characteristics of the African economies as captured in GTAP database on the basis of the aggregation are described. There are two aims for this discussion. The first aim is to present the stylized facts about these economies. The second and probably the most important objective is to show the nature of bilateral trade taking place between each of the countries with the EU in the first place and with the rest of the African countries. Hand in hand with this, the prevailing level of protection even before the EPA simulations will also be evident. The bilateral trade captured in the base data and the level of protection give the initial conditions that will be instrumental in understanding the results from the envisaged policy simulations.

Macroeconomic and Trade Characteristics of the African Economies

Table 3 gives a summary of the macroeconomic and trade characteristics of the African economies based on the 1997 base year data in the GTAP database. Clearly, the African economies are generally small in size with a GDP of less than US\$10 billion. However, the size does vary. Malawi is the smallest economy with a size of US\$2.8 billion. The rest of SACU (XSC), which basically represents the Republic of South Africa, is the largest economy. The distribution of this output in terms of value added shows an abundance of unskilled labour. This may have implication on the concentration and quality of goods. Capital is the most important in Botswana by nature of the structure of its economy as shown in Table 4. One important observation, which is not surprising all the same, is that the labour share of income is at least 50 per cent. With respect to trade aspects of the EPAs, allocative efficiency of these factors is likely to determine the EPA impacts on the industry structure as currently shown in Table 4.

Probably the most important feature in the context of this study is the dependence of these economies on trade depicted in Table 3. Based on the sum of exports and imports as per cent of GDP, Botswana is the most open economy with openness equivalent to 107.7 per cent of GDP. The country depends extensively on trade. The vulnerability of an economy to external terms of trade shocks would be a concern given this level of openness. However, in the case of Botswana, it is evident that the balance of payments may not be a concern given the favourable terms of trade evidenced by the positive trade balance. It is also noteworthy that besides Botswana, several other countries export more than they import. These include, rest of SACU, Malawi and Zambia. Uganda and Mozambique are the most closed economies on the basis of the sum of the shares of exports and imports to GDP. It is important to note that imports are quite suppressed for a number of the countries, as they constitute less than 30 per cent of GDP. This means that these economies are likely to be affected by trade liberalization in the EPAs.

De-industrialization is of major concern in discussions related to trade. Even without considering the potential impacts of full reciprocity to EU by African countries under the EPAs, the issue of de-industrialization in some countries within particular RECs have been of major concern. The rate of

liberalization in the African RECs has been checked by fears within the RECs that some economies would suffer as a result of de-industrialization. The concern over de-industrialization has contributed to the pursuance of liberalization on the basis of asymmetry principle. This is likely to be an issue at the EPAs level where the asymmetry principle may be raised both in terms of the sectors to be liberalized and also the time frame for those sectors that eventually are chosen for liberalization under full reciprocity. Table 4 provides a clear picture of the structure²⁶ of the African economies.

Table 3: Macroeconomic Characteristics of the African and non-African Countries

	EU	BOT	XSC	MWI	MOZ	TZA	ZAM	ZWE	XSA	UGA	XSS	ROW
GDP and Trade Flows (Final Demand, billion US\$, 1997)												
GDP	8254.2	4.8	139.1	2.8	3.6	6.8	4.2	8.3	13.6	6.8	156.6	20381.0
Exports	2577.0	3.0	34.9	0.6	0.4	1.1	1.1	2.6	7.4	0.7	41.2	3739.2
Imports	2509.9	2.2	32.2	0.5	1.0	2.1	1.0	3.3	4.9	1.1	48.9	3802.2
Trade Dependence (shares, % GDP)												
Exports	31.2	61.8	25.1	22.6	11.7	16.6	26.2	31.6	54.4	10.8	26.3	18.3
Imports	30.4	45.9	23.2	19.0	26.5	31.6	23.0	39.7	35.9	15.9	31.2	18.7
Factor Shares (% of Value Added)												
Land	0.4	0.4	0.5	3.9	4.5	5.6	3.0	1.9	1.1	6.2	2.2	1.3
Unskilled Labour	33.4	22.2	40.7	43.2	42.4	43.5	39.8	38.6	27.4	48.3	41.7	35.8
Skilled Labour	21.8	12.2	19.6	9.5	8.1	5.4	10.3	15.0	11.4	6.6	10.7	20.9
Capital	44.1	61.7	37.3	42.6	44.1	44.3	45.6	43.7	50.2	38.0	40.6	41.1
Natural Resources	0.3	3.6	1.9	0.9	0.9	1.2	1.3	0.7	9.8	0.9	4.8	0.9

Source: GTAP Database Version 5 Aggregation

On the basis of the proportion of the value added that constitutes light manufactures and industry, the rest of SACU is the most industrialized. Zambia and Zimbabwe also have some significant industry at 15 per cent of total value output. These economies with some sizeable light manufacturing and industrial sectors are likely to be the most concerned by de-industrialization. However, the extent to which de-industrialization takes place should not be considered in isolation as it would also depend on the abundance or lack of factors of production as shown in Table 3 which ultimately determine comparative advantage. The picture for individual countries in terms of production structure shows Botswana as a

predominantly resource-based economy at 28.8 percent of its value of output. Malawi, Mozambique, Tanzania, and Uganda are basically agricultural economies. These economies and that of Botswana may not find reciprocity with EU on the primary commodities a major issue considering the share of labour in the value added, although this is an empirical question. Agro-based industries are significant in Tanzania and in at least four other individual countries. Competitiveness of such industries Africa-wide would be a major issue under the EPAs. The picture for individual countries is mirrored to some extent in the composite rest of sub-Saharan Africa (XSS) region where the economies are predominantly primary commodities-based with sizeable natural resources and light manufacturing sectors. Trade and services appear to be critical industries in all the countries. They constitute at least one-third of the economies. Given the issue of trade facilitation and trade in services under the WTO, these sectors would be areas of interest in EPAs discussions.

Trade by Sectors

Tables 5 and 6 show the export and import shares by sectors of the total exports and imports of goods and services respectively in each of the economies. In the case of Botswana, the dominating resource based sector also dominates its exports. Rest of SACU has industrial based exports dominating. In the smaller economies such as Malawi, mainly other crops exports dominate with limited exports from agro-processing and light manufactures. Other crops exports also dominate in the case of Tanzania, Zimbabwe and Uganda. Agro-processed exports are important in the case of Mozambique and as such EPAs with full reciprocity would most likely be a concern. Light manufacturing and industry constitute what can be called as the manufacturing base²⁷ and exports from this base are clearly important for Zimbabwe as they add up to at least 36 per cent of total exports.

The import shares are also an important starting point in understanding potential implications of the EPAs. Table 6 shows the total imports of the various commodities into each of the countries in the aggregation. However, the most important imports information would be the distribution of these imports in terms of source and type. In other words, data on the imports from the EU into each of these countries would be more informative with respect to EPAs analysis particularly on the issue of reciprocity as this would have a bearing on the revenue implications if most of the imports are from the EU. It is clear however from the aggregate imports data that in general, industrial goods dominate the rest of SACU, Zambia, and Zimbabwe. Other crops are also significant in a number of the countries, probably pointing to possible agricultural deficits. Agro-processed imports are substantial in Mozambique, Tanzania, and Zimbabwe. Generally, imports of primary commodities are not much for all the countries except for the category of other crops.

Table 4: Production Structure (Per cent of Total Value of Output)

	Botswana	Rest of SACU	Malawi	Mozambique	Tanzania	Zambia	Zimbabwe	Rest of S. Africa	Uganda	Rest of SSA
Cereals	0.5	0.5	6.8	4.9	8.8	3.5	1.6	1.1	4.6	4.9
Vegetables	0.2	0.6	2.3	6.0	3.4	1.0	0.7	0.6	22.2	2.3
Oilseeds	0.0	0.0	0.7	0.2	0.9	0.4	0.2	0.2	0.7	0.5
Sugar	0.0	0.1	0.1	0.0	3.6	0.4	0.8	1.0	0.9	0.5
Cotton	0.0	0.0	0.2	0.5	1.2	0.5	1.3	0.5	0.3	0.8
Other crops	0.0	0.4	15.5	6.2	7.3	4.4	6.6	1.6	4.9	3.4
Livestock	1.6	1.9	1.4	2.3	2.2	2.1	3.2	1.5	5.1	2.9
Natural Resources	28.8	5.6	2.8	4.4	5.1	5.6	3.9	21.5	3.8	11.7
Agro processing	4.9	7.0	10.9	10.9	16.1	11.3	12.2	7.5	6.3	11.4
Light Manufactures	1.8	5.8	6.3	1.7	3.9	5.3	6.2	7.8	1.4	5.0
Industry	9.6	22.9	9.6	2.3	6.3	15.1	15.7	11.4	2.8	9.9
Trade	10.8	18.6	25.1	32.2	20.1	19.1	14.9	15.1	17.6	20.8
Services	41.8	36.5	18.2	28.5	21.2	31.2	32.7	30.3	29.5	25.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: GTAP Database Version 5 Aggregation

Table 5: Exports Shares by Sectors (% of Total Exports of Goods and Services)

	Botswana	Rest of SACU	Malawi	Mozambique	Tanzania	Zambia	Zimbabwe	Rest of S. Africa	Uganda	Rest of SSA
Cereals	0.0	0.7	0.2	0.8	1.1	0.1	3.1	0.1	0.2	0.1
Vegetables	0.0	2.1	0.7	7.0	7.1	0.6	1.6	0.1	1.4	1.6
Oilseeds	0.0	0.1	0.7	1.3	1.1	0.3	0.3	0.0	0.3	0.4
Sugar	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Cotton	0.0	0.1	1.0	5.6	12.1	1.1	5.3	0.0	2.6	2.9
Other crops	0.0	0.5	68.0	1.3	20.7	2.7	28.8	0.2	61.4	9.8
Livestock	0.3	0.6	0.1	0.1	1.3	0.2	0.4	0.1	1.2	0.3
Natural Resources	73.8	11.7	2.2	5.0	2.7	1.9	3.9	57.4	5.8	48.0
Agro Processing	2.6	4.1	3.5	27.6	10.9	2.7	7.4	7.3	4.5	5.2
Light Manufactures	2.7	7.7	8.4	3.9	5.1	4.0	9.1	12.6	0.5	3.8
Industry	13.3	57.2	1.2	9.6	7.1	61.8	27.6	7.9	3.3	13.5
Trade	2.7	8.9	5.8	12.8	21.3	7.1	5.5	7.9	8.1	6.9
Services	4.6	6.4	8.3	24.9	9.1	17.5	7.1	6.4	10.7	7.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: GTAP Database Version 5 Aggregation

Table 6: Imports Shares by Sectors (% of Total Imports of Goods and Services)

	Botswana	Rest of SACU	Malawi	Mozambique	Tanzania	Zambia	Zimbabwe	Rest of S. Africa	Uganda	Rest of SSA
Cereals	0.0	0.9	0.2	0.9	1.3	0.1	3.8	0.1	0.3	0.1
Vegetables	0.0	2.9	0.7	7.2	7.9	0.9	2.0	0.1	1.8	2.1
Oilseeds	0.0	0.2	0.7	1.7	1.6	0.3	0.4	0.0	0.5	0.6
Sugar	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
Cotton	0.0	0.1	0.9	5.1	11.5	1.1	5.0	0.0	2.6	2.9
Other crops	0.0	0.5	67.9	1.4	22.0	2.9	28.9	0.2	62.1	10.3
Livestock	0.3	0.6	0.1	0.1	1.4	0.2	0.4	0.1	1.4	0.3
Natural Resources	72.8	12.7	2.1	5.0	2.5	1.8	3.9	55.0	5.6	47.6
Agro Processing	3.9	5.3	5.3	33.1	13.1	4.4	10.4	11.2	5.3	6.5
Light Manufactures	2.8	8.0	9.0	4.0	5.0	4.1	9.0	13.2	0.5	3.9
Industry	13.4	55.3	1.1	9.2	6.6	61.7	25.6	7.3	3.1	12.9
Trade	2.5	7.9	5.0	11.0	18.5	6.5	4.6	7.1	7.3	6.2
Services	4.3	5.7	7.1	21.4	7.9	16.0	6.0	5.7	9.6	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: GTAP Database Version 5 Aggregation

Level and Structure of Protection: the Base for the EPAs

The level and structure of protection as captured in the GTAP database provides the initial conditions or the benchmark from which the trade liberalization aspects of the EPAs would have to be assessed. This benchmark in respect to trade liberalization analysis needs to be seen at two levels. The first level is the prevailing protection against imports from the European Union. The protection structure is provided in Table 7. The table shows the average applied tariffs on goods imported into the country shown at the top of the column from the EU. It can be seen from Table 7 that on average, agro-processed and light manufactures from the EU are heavily protected as evidenced by the high tariffs. This high taxation can be seen first as part of the industrial policy in these countries. It is the use of this high taxation as part of the industrial policy that has recently become an important area of discourse as pertains to policy space for developing countries. The second way that the high tariffs on EU goods should be looked at is as a source of revenue. Considering that these highly taxed EU imports are in sectors that constitute main imports imply that under the EPAs, with full reciprocity there are possibilities of significant revenue implications in addition to trade creation and diversion issues. The net effect in terms of trade expansion for the trade creation and diversion aspects will be determined at the empirical stage of the study. The protection data indicates that most countries are protectionist ranging from Botswana, Rest of SACU, Malawi, Mozambique, to Zimbabwe.

Table 7: Ad Valorem Tariff Rates (%) on EU Imports into African Countries

	BOT	XSC	MWI	MOZ	TZA	ZMB	ZWE	XSF	UGA	XSS
Cereals	25.8	38.8	24.9	2.5	17.5	12.4	6.4	0.5	63.7	11.1
Vegetables	25.6	25.6	33.0	18.8	9.8	11.1	15.8	5.6	27.4	18.4
Oilseeds	38.2	38.2	39.6	2.5	13.3	0.0	4.9	12.8	63.7	9.8
Sugar	17.1	0.2	0.0	7.6	0.0	0.0	0.0	8.7	15.0	0.0
Cotton	34.0	17.1	42.3	2.5	39.5	0.1	0.0	0.1	14.9	3.5
Other crops	9.2	9.2	37.3	4.1	30.1	5.2	7.8	12.9	5.2	16.6
Livestock	13.0	7.3	18.9	12.9	27.2	8.2	4.9	2.4	1.0	15.0
Natural Resources	28.7	0.1	0.3	7.8	2.5	20.1	13.0	13.4	11.4	7.6
Agro Processing	67.1	71.4	32.3	30.5	21.3	16.5	42.9	29.6	18.2	22.9
Light Manufactures	25.5	12.1	24.5	21.9	23.5	12.4	21.8	26.8	15.9	20.9
Industry	23.9	7.2	17.4	9.8	17.1	10.8	14.9	27.3	13.8	14.7
Trade	0.0	0.0	0.0	0.0	0.0	13.3	0.0	3.0	0.0	1.4
Services	0.0	0.0	0.0	0.0	0.0	8.5	5.0	6.8	0.0	4.1
Average (excl. trade & services)	28.0	20.7	24.6	11.0	18.3	8.8	12.0	12.7	22.7	12.8
Average (incl. Trade & services)	23.7	17.5	20.8	9.3	15.5	9.1	10.6	11.5	19.2	11.2

Source: GTAP Database Version 5 Aggregation

Table 8 is more specific as it gives indications on what could be expected in terms of trade creation and diversion. The table shows the average intra-Africa trade ad valorem tariffs. It can be read as follows. The average applied tariffs on goods into the country at the top of the column from each of the country in the row. For example, Botswana levies the highest import tariffs (24 per cent) on Zambian goods. The picture that emerges from the intra-African tariff protection data is one of substantial intra-African trade tariff barriers. Botswana in this case emerges as the most protective. Overall, each of the individual countries at the top of each column has substantial tariffs towards the rest of sub-Saharan Africa. This essentially indicates that in spite of lack of disaggregated GTAP information on individual countries, the composite African country faces significant tariff barriers in the African countries. Mozambique generally levies the lowest tariffs on trade. In addition to the question of reciprocity to EU, most of these intra-African tariffs will have to be eliminated accentuating concerns regarding de-industrialisation and revenue shortfalls in majority of the countries.

Table 8: Average Intra-Africa Trade Ad Valorem Tariffs (%)

	BOT	XSC	MWI	MOZ	TZA	ZMB	ZWE	XSF	UGA	XSS
Botswana (BOT)	0.0	0.0	18.7	6.2	4.4	10.1	13.5	11.6	24.6	9.7
Rest of SACU (XSC)	0.0	0.0	7.6	4.3	16.9	4.7	17.2	15.4	12.3	14.3
Malawi (MWI)	22.2	18.3	0.8	5.7	10.6	10.3	13.0	10.1	12.2	7.7
Mozambique (MOZ)	20.8	14.2	9.8	0.3	11.5	11.1	12.2	10.9	20.8	6.2
Tanzania (TZA)	20.2	15.8	12.5	7.6	0.0	10.2	20.5	14.9	9.8	18.2
Zambia (ZMB)	24.2	13.9	4.1	6.5	15.1	0.5	11.8	11.9	17.7	9.4
Zimbabwe (ZWE)	23.6	17.3	16.5	5.7	12.6	9.9	1.9	13.5	16.9	13.8
Rest of S. Africa (XSF)	22.0	16.9	19.0	6.5	6.9	11.9	13.2	12.4	21.1	17.9
Uganda (UGA)	20.6	16.7	18.4	5.8	15.3	10.8	12.4	11.3	4.3	19.4
Rest of SSA (XSS)	20.2	15.2	18.2	5.9	17.5	11.1	9.5	13.0	12.9	7.8
Average tariff rate	17.4	12.8	12.6	5.4	11.1	9.1	12.5	12.5	15.3	12.4

Source: GTAP Database Version 5 Aggregation

Most of the tariff barriers protection with respect to intra-African trade discussed above is on agro-processing and light manufactures (see Table 9).

Table 9: Average Commodity Tariffs on Intra-African Trade (%)

	BOT	XSC	MWI	MOZ	TZA	ZMB	ZWE	XSF	UGA	XSS
Cereals	31.4	30.7	3.9	1.2	19.2	4.1	19.0	3.1	32.8	7.6
Vegetables	22.8	22.8	23.3	7.3	14.6	16.4	21.5	13.4	47.9	19.9
Oilseeds	34.0	34.0	30.8	7.8	11.9	0.0	0.6	22.8	38.7	18.4
Sugar	11.4	0.1	0.0	5.9	0.0	0.0	0.0	6.8	13.3	0.0
Cotton	15.1	9.5	22.7	0.3	3.3	0.6	0.3	0.0	7.8	3.6
Other crops	8.2	8.2	22.7	9.0	19.1	13.0	32.8	23.8	13.7	37.4
Livestock	5.7	5.1	2.0	4.7	15.6	14.3	1.5	7.8	1.8	12.3
Natural Resources	20.5	0.7	2.5	5.7	8.6	20.0	8.8	10.8	7.5	10.3
Agro Processing	57.2	56.2	37.7	7.7	27.9	13.5	26.5	21.0	14.4	19.7
Light Manufactures	21.9	13.3	24.1	17.5	26.0	17.0	33.4	22.0	15.9	17.1
Industry	22.8	4.9	10.6	11.1	13.8	7.7	27.4	23.3	20.4	17.8
Trade	0.0	0.0	0.0	0.0	0.0	13.3	0.0	2.8	0.0	1.2
Services	0.0	0.0	0.0	0.0	0.0	9.3	6.3	5.2	0.0	3.0

In the absence of reciprocity with the EU, there is potential for trade creation in the African trade if these tariff barriers were to be eliminated²⁸. However, with reciprocity, trade creation for most efficient African producers is not likely to be maximised because of the competitive advantage of the EU producers. In the area of primary production, vegetables and other crops are also heavily protected. Similarly, cereals are protected under the intra-African trade. Given that primary production is labour intensive, trade creation and specialisation possibilities in these sectors exist under an EPA.

The Partial Equilibrium Modelling Framework – the WITS/SMART Model

Rationale for a Partial Equilibrium Model

It was argued in the introductory chapter that trade policy analysis is more robust when undertaken within a general equilibrium modelling framework. This can be seen as the first-best option as general equilibrium models, not only measure the first-round effects of simulated changes, but also the second-round effects which include inter-industry effects and macroeconomic adjustments. However, as has been indicated in the discussions on the GTAP modelling and database frameworks, majority of the African countries are not individually captured in that methodology due to lack of data disaggregation. Only a few which have been presented in the previous section as individual stand-alone countries while

the rest are part of composites of countries viz. the rest of SACU, rest of Southern Africa, and Rest of sub-Saharan Africa. Consequently, the partial equilibrium modelling framework lends itself as a second-best option for those countries that are not captured individually in the GTAP database. This section therefore describes the partial equilibrium modelling methodology that was used in the study to complement the GTAP results. The main distinction that should be noted at the outset is that as a partial equilibrium model, the inter-sectoral implications (second-round effects) of a trade policy change are not taken into account, as is the case in the general equilibrium model. Similarly, the inter-regional implications such as within a REC setting are also ignored in a partial equilibrium framework. The only point of convergence of the partial and general equilibrium models is that it is still possible within a partial equilibrium model to analyse the trade policy effects on trade creation and diversion, welfare and even on tariff revenues while holding everything else constant.

Milner et al. (2002) provides a simple analytical framework explaining the theory behind partial equilibrium modelling and notes that to adequately capture the interactions between sectors and elasticities of substitution between factors, and to simulate dynamic effects in their EPA study between the EU and the East African Community, a general equilibrium model would be desirable. However, due to scarcity of individual and regional CGE models for developing countries then partial equilibrium models would be alternative choices. Milner et al. (2002) also raise a valid observation that the database for general equilibrium models lacks the commodity detail to take account of the specific sensitive and special products that are of interest to both the sub-Saharan African countries and the EU in this particular case. Despite its shortcomings, a partial equilibrium framework is more suitable as it allows the utilization of widely available trade data at the appropriate level of detail to capture the principle of special and differential treatment in the simulation analysis. It however remains true that although partial equilibrium models have drawbacks, as a modelling approach they have the advantage of working at very fine levels of details such as at tariff line level.

The WITS/SMART Model

For the purposes of this study, it is proposed that the WITS/SMART model will be the applied partial equilibrium framework. The World Integrated Trade Solution (WITS) brings together various databases ranging from bilateral trade, commodity trade flows and various levels and types of protection. WITS also integrate analytical tools that support simulation analysis. The SMART simulation model is one of the analytical tools in WITS for simulation purposes. SMART contains in-built analytical modules that support trade policy analysis such as effects of multilateral tariff cuts, preferential trade liberalization and ad hoc tariff changes. The underlying theory behind this analytical tool is the standard partial equilibrium framework that considers dynamic effects constant. Like any partial equilibrium model, it has these strong assumptions allowing the trade policy analysis to be undertaken a country at a time. In spite of this weakness, WITS/SMART can help estimate trade creation, diversion, welfare and revenue effects for those countries whose data is available.

Trade creation

The underlying theory is summarized below for the estimation of the trade flows and revenue effects. The exposition of the WITS/SMART theory is summarized from Laird and Yeats (1986). Trade creation captures the trade expanding aspects of liberalization that leads to the displacement of inefficient producers in a given preferential trading area (a free trade area for instance). It is assumed that there is full transmission of price changes when tariff or non-tariff distortions (ad valorem equivalents) are reduced or eliminated. Laird and Yeats (1986) derive clearly the equation that can be used to estimate the trade creation effects. The derivation begins with the following basic trade model composed of simplified import demand and export supply functions and an equilibrating identity:

A simplified import demand function for country j from country k of commodity i :

$$M_{ijk} = f(Y_j, P_j, P_k) \quad (1)$$

The export supply function of commodity i of country k can be simplified as:

$$X_{ijk} = f(P_{ikj}) \quad (2)$$

The equilibrium in the trade between the two countries is the standard partial equilibrium equation:

$$M_{ijk} = X_{ikj} \quad (3)$$

In a free trade environment, the domestic price²⁹ of commodity i in country j from country k would change with the change in an ad valorem tariff as follows:

$$P_{ijk} = P_{ikj} (1 + t_{ijk}) \quad (4)$$

To derive the trade creation formula, following Laird and Yeats (1986), the price equation (4) is totally differentiated to get:

$$dP_{ijk} = P_{ikj} dt_{ijk} + (1 + t_{ijk}) dP_{ikj} \quad (5)$$

Equations (4) and (5) are then substituted into the elasticity of import demand equation³⁰ to get:

$$\frac{dM_{ijk}}{M_{ijk}} = \eta_i^m \left(\frac{dt_{ijk}}{(1+t_{ijk})} + \frac{dP_{ijk}}{P_{ijk}} \right) \quad (6)$$

From the identity in equation (3),

$$\frac{dM_{ijk}}{M_{ijk}} = \frac{dX_{ikj}}{X_{ikj}}$$

can be used to derive the following expression for elasticity of export supply:

$$\frac{dP_{ikj}}{P_{ikj}} = \frac{1}{\gamma_i^e} \frac{dM_{ijk}}{M_{ijk}}$$

which when used in equation 6, allows the computation of the trade creation effect. From equation (3) the trade creation effect is equivalent to exporting country k 's growth of exports of commodity i to country j :

$$TC_{ijk} = M_{ijk} \eta_i^m \frac{dt_{ijk}}{((1+t_{ijk})(1-\eta_i^m/\gamma_i^e))} \quad (7)$$

If $\gamma_i^e \rightarrow \infty$, then equation (7) can be simplified as follows:

$$TC_{ijk} = \eta_i^m M_{ijk} \frac{(1+t_{ijk}^1) - (1+t_{ijk}^0)}{(1+t_{ijk}^0)} \quad (8)$$

where TC_{ijk} is the sum of trade created in millions of dollars over i commodities affected by tariff change and η_i^m is the elasticity of import demand for commodity i in the importing country from the relevant

trading partner. M_{ijk} is the current level of import demand of the given commodity i . t_{ijk}^0 and t_{ijk}^1 represent tariff rates for commodity i at the initial and end periods respectively. Trade creation then depends on the current level of imports, the import demand elasticity and the relative tariff change.

Trade diversion

Trade diversion as opposed to trade creation can expand or contract trade globally. Trade diversion is the phenomenon that occurs in a free trade area for example whereby efficient producers from outside the free trade area are displaced by less efficient producers in the preferential area. Consider an EPA between ECOWAS and EU for instance. Trade diversion would occur if as a result of the establishment of the EPA more efficient suppliers from the rest of the world (ROW) into ECOWAS are displaced by inefficient producers from the EU. Assuming that such an EPA is formed which leads to reduction of tariffs facing the EU without any changes in the tariffs facing the ROW exporters; the theory underlying the measurement of trade diversion in SMART is also explained in Laird and Yeats (1986). To see the derivation clearly, first the expression for elasticity of substitution is given. The elasticity of substitution can be expressed as the percentage change in relative shares of imports from two different sources due to a one per cent change in the relative prices of the same product from these two sources:

$$\sigma_M = \frac{\Delta \left(\sum_k M_{ijk} / \sum_K M_{ijK} \right) / \left(\sum_k M_{ijk} / \sum_K M_{ijK} \right)}{\Delta (P_{ijk} / P_{ijK}) / (P_{ijk} / P_{ijK})} \quad (9)$$

where k denotes imports from EU and K denotes imports from the rest of the World. Equation (9) can be expanded, and through substitutions and rearrangements be used to obtain the expression for trade diversion, which is expressed as:

$$TD_{ijk} = \frac{M_{ijk} \frac{\sum_k M_{ijk} \sum_K M_{ijK} \frac{\Delta(P_{ijk} / P_{ijK})}{P_{ijk} / P_{ijK}} \sigma_M}{\sum_k M_{ijk} \sum_k M_{ijk} + \sum_K M_{ijK} + \sum_k M_{ijk} \frac{\Delta(P_{ijk} / P_{ijK})}{P_{ijk} / P_{ijK}} \sigma_M}}{\quad} \quad (10)$$

Equation (10) can be simplified to the case of an EPA. The relative price movement terms in the equation as noted in Laird and Yeats (1986) capture the movement due to changes in tariffs or the ad valorem

incidence of non-tariff distortions for the EU and the ROW. Therefore, the trade diverted to the EU in the EPA, TD^{EPA} can be captured by reducing equation (10) above as follows:

$$TD^{EPA} = \frac{M^{EU} M^{ROW} \left(\frac{1+t_{EU}^1}{1+t_{EU}^0} - 1 \right) \sigma_M}{M^{EU} + M^{ROW} + M^{EU} \left(\frac{1+t_{EU}^1}{1+t_{EU}^0} - 1 \right) \sigma_M} \quad (11)$$

Equation (11) shows the additional EU imports into the African EPA configured region such as ECOWAS over and above the increase in ECOWAS imports as a result of trade creation. There isn't necessarily a net increase in imports into ECOWAS as this involves the displacement of ROW imports into ECOWAS. M^{EU} and M^{ROW} are the current imports into the African REC configuration for EPA purposes from the EU and ROW respectively. t_{EU}^1 and t_{EU}^0 are respectively the end and initial periods import tariffs imposed on EU imports in the destination REC with $t_{EU}^1 < t_{EU}^0$. σ_M is the elasticity of substitution between EU and ROW imports into the concerned country or REC. Trade diversion then depends on the current level of imports from the EU and ROW, the percentage change (reduction in this case) of tariffs facing EU imports with those for ROW remaining unchanged and the elasticity of substitution of the imports from the two sources. The higher the value of the elasticity of substitution, the greater will be the trade diversion effects.

Trade expansion

Adding the trade creation and diversion derives the total effect on trade. As indicated in Laird and Yeats (1986), the summation in equations (8) and (10) for an importing country can be done across products and/or across sources. It is also possible to sum the results across a group of importers for single or groups of products as well as for single sources of supply or groups of suppliers.

The revenue effect

The quantification of the revenue effect using WITS/SMART model is simple. In theory, the tariff revenue is given as the product of the tax rate (tariff rate in this case) and the tax base (the value of imports). Thus, before the change in the ad valorem incidence of the trade barriers, the revenue is given as:

$$R_0 = \sum_i \sum_k t_{ijk}^0 P_{ijk} M_{ijk}$$

After the change in the tariff rate, the new revenue collection will be given by:

$$R_1 = \sum_i \sum_k t_{ijk}^1 P_{ijk} M_{ijk}$$

The revenue loss as a result of the implementation of an EPA would then be the net effect between R_1 and R_0 which is the same as:

$$R = \sum_i \sum_k \Delta t_{ijk} P_{ijk} M_{ijk} \quad (12)$$

The welfare effect

The WITS/SMART model estimation of welfare effects is quite simple. This is unlike the equivalent variations measurement in general equilibrium models. Essentially, the welfare effect is mainly ascribed to the consumer benefits in the importing country as a result of lower import prices³¹. This allows them to substitute more expensive domestic or imported products with the cheaper imports that are affected by the relevant tariff reduction. Increased imports leads to a net welfare gain that can be thought as the increase in consumer welfare and is measured as follows:

$$w_{ijk} = 0.5(\Delta t_{ijk} \Delta M_{ijk}) \quad (13)$$

The coefficient of 0.5 captures the average between the ad valorem incidence of the trade barriers before and after their elimination/reduction. Equation (13) assumes that the elasticity of export supply is infinite. If this is not the case, the import prices in the importing countries fall by less than the full reduction in trade barriers. Therefore, while the equation can be used to measure welfare effect, it is no longer a representation of consumer surplus alone but has some element of producer surplus (see Laird and Yeats 1986).

The WITS Database

WITS database comes from various sources. The external trade statistics comprise of UN COMTRADE, UNCTAD TRAINS and the WTO Integrated Data Base (IDB). The tariffs data is derived from UNCTAD TRAINS, WTO IDB and WTO Consolidated Tariff Schedule Data Base (CTS). The non-tariff measures are compiled from UNCTAD TRAINS database.

Potential Economic and Welfare Impacts of EPAs on African Economies: General Equilibrium Results

Introduction

The economic models employed to quantify the potential implications of the trade aspects of the EPAs were discussed in detail in the previous chapter. As indicated in that discussion, both the general equilibrium and partial equilibrium modelling frameworks emerged as the suitable tools that could be used to quantify the likely impacts of the EPAs. The general equilibrium modelling framework it was noted, has the advantage of allowing the analysis to indicate the potential impacts on the industry structure in the African economies, a feature that is not present in the partial equilibrium model. Moreover, the general equilibrium analysis also allows for strong feedback mechanisms not only among economic sectors but also across and among countries. It is also not possible under a partial equilibrium analytical framework to alter trade policy instruments in more than one country (region) at the same time. In fact, the partial equilibrium analysis depends mainly on the *ceteris paribus* assumption.

The General Equilibrium Analysis

In this section, the general equilibrium analysis results are discussed. The general equilibrium analysis was undertaken using Version 5.4 of the GTAP database. The motivation for the analysis is what implications EPAs are likely to have on African economies. The aggregation scheme for the analysis comprises of seven regions: North America (NAM); Japan; Sub-Saharan Africa (SSA); China; Rest of the World (ROW); EU-15; and EU-10 (CEEC). There are 16 sectors in each of these regions.

Three scenarios were investigated, each addressing a possible option that the EPAs negotiations are likely to be faced with. It needs to be noted that the results, as presented here, are more indicative of the directions of change on the economic variables. While the magnitudes are also important, it is important to qualify at this early stage that the robustness of the changes indicated have not been analysed in any statistical way. Nevertheless, the results do broadly indicate the direction of change and what policymakers could expect from their decisions on the African countries' position in the EPAs negotiations. The discussion of the general equilibrium results starts by presenting how a new baseline was developed upon which the changes resulting from the various scenarios were evaluated.

Generating the baseline scenario for EPAs

The Cotonou Partnership Agreement specifies January 1, 2008 as the date by which the EPAs should take effect. Before that date, various international agreements will have been implemented with important implications on the global economic landscape. It is therefore important that these changes be captured

in the baseline upon which implication of the trade aspects of the EPAs are to be assessed. The main events that will precede the launch of the EPAs and hence likely to affect how they impact on the economies and welfare of sub-Saharan Africa include the following: the enlargement of the European Union; the implementation of the Agreement on Textiles and Clothing as part of the MFA phase out; the implementation of the Uruguay Round Agreement on domestic support and export subsidies; the full accession of China into the WTO; and the conclusion of the Doha Development Round. The Doha Round outcome is currently not clear how it will likely impact on the EPAs. Therefore, it has not been built into the baseline of the EPAs as yet. As for the other four main issues, the following discussions explain how they were incorporated into the baseline:

Enlargement of the EU: An enlarged EU will ultimately be the trading bloc that the African countries will have to face by the time the EPAs come into effect. A harmonized and integrated trade policy is expected to be in place by the time the EPAs come into force. In order to capture this integration, the following trade policy changes are reflected in the baseline. First, all tariffs and export subsidies as well as non-tariff barriers between the EU-15 and the new ten members are abolished. Second, trade barriers among the 10 new EU members have also been eliminated. Finally, all sectors in the EU-10 are given the same level of protection against the rest of the world as found in the EU-15 at the time of the accession. This means that some of the tariff rates that the new EU members charge third countries have been increased or reduced to the existing levels of the old EU members. The relevant percent changes effected on the prevailing tariffs are shown on Table 10 below.

Table 10: Required change (%) on prevailing CEEC tariffs for a harmonized enlarged EU CET

	NAM	Japan	SSA	China	ROW
Cereals	169.79	251.25	22.35	128.93	181.44
Vegetables	-16.18	-9.38	20.83	-22.46	-29.61
Oilseeds	-100.00	-100.00	-100.00	-100.00	-100.00
Sugar	1521.94	1576.00	1521.94	1511.54	1598.65
Cotton	-100.00	-100.00	-100.00	-100.00	-100.00
Other Crops	-77.04	-69.00	-71.82	-80.00	-70.75
Livestock	7.33	23.23	24.07	18.83	50.00
Animal products	-75.74	-70.67	-63.79	-78.69	-69.29
Fishing	83.67	1.4*	700.00	52.17	-12.20
Other Natural resources	-86.96	-95.24	-100.00	-86.21	-33.33
Agro-processing	-24.92	43.06	-8.80	-6.73	16.27
Textiles	-22.33	-8.14	159.52	-25.78	-2.15
Clothing	16.67	31.46	112.28	-42.49	-29.41
Low tech industries	-57.63	-35.21	-61.19	-44.06	-33.33
Medium tech industries	-47.95	-38.67	16.67	-36.90	-53.06
Heavy industries	-60.98	-49.51	-66.67	-54.37	-69.47

Source: GTAP 5.4 and authors' computations; * Tariff rate of 1.4% on fish imports from Japan

Elimination of MFA quotas (implementation of the Agreement on Textiles and Clothing): It is expected that the phasing out of the multifibre agreement on textiles and clothing will have significant implications for developing countries. It was therefore important to capture the likely effects of the removal of the MFA into the baseline. The elimination of the MFA was captured through elimination of the export tax equivalents of the textile and clothing quotas in the developed countries markets in particular.

Uruguay Round Agreement implementation: The European Union has traditionally used domestic support and export subsidies especially in agriculture. While the Doha Round negotiations are expected to have an agreement that will have dramatic impacts on how these two instruments are applied, there are still outstanding issues from the Uruguay Round. The EPAs baseline captures the 20 percent reductions for developed countries domestic support. A rate of 13 percent was applied for the developing countries. In the case of the agricultural export subsidies, the baseline implements the 36 percent and 24 percent reductions agreed at the Uruguay Round for developed and developing countries respectively.

China accession to the WTO: The full accession of China to the WTO is expected to have important implications for both developed and developing countries. At full accession, all WTO members will be expected to impose import tariffs on Chinese goods on an MFN basis. This was captured in the baseline by reducing tariffs on Chinese imports above the highest rate currently charged by importing country on each commodity³².

After the construction of the new baseline, three scenarios were designed to assess the possible implications of the EPAs on African economies. As already observed, the scenarios are based on a hypothetical SSA-EU EPA that is motivated by the objective of an African Economic Community. The Cotonou Partnership Agreement presented an opportunity that could advance the African economic integration if the EPAs were to be negotiated on a continental rather than the RECs basis. But given that the negotiations are taking place at regional level, and since not many African countries are individually disaggregated in the GTAP database, the optimal way to look at implications on the economies of the African countries is through the SSA-EU Economic Partnership Agreement. It is only in the case of SADC where a more detailed country level analysis can be undertaken. The scenarios that are described below are for a typical African country, based on the SSA composite region derived from the GTAP database.

Scenarios for the EU-SSA Economic Partnership Agreements

Scenario 1 – SSA reciprocation of EU preferential tariffs: One of the key principles of the EPAs is reciprocity. This scenario assesses the EPAs implications in the case of SSA reciprocating on the favourable tariffs it is currently receiving from the EU. The scenario addresses the question of whether full reciprocity is feasible under the EPAs. The Lomé Conventions provided for duty free access for 95 percent of the tariff lines of the ACP member countries. But as can be seen from the Table 11 below based on the GTAP Version 5.4 protection data, the EU is still shown to levy duties on SSA goods albeit at generally lower rates compared to what the SSA countries impose on EU goods. The indicated protection rates by the EU on SSA goods could be explained in three ways. Firstly, the UNCTAD TRAINS tariff data might not reflect fully the preferential rates accorded to African countries. Secondly, due to aggregation from the original thousands of tariff lines in TRAINS to the GTAP level of aggregation, it is possible that the five percent of tariff lines excluded from the Lomé Conventions (besides possibly being of more interest to Africa) find themselves in the 16 sectors used in this analysis as shown in Table 11. And thirdly, the inclusion of the additional ten new EU members may have contributed to the non-zero tariffs observed for SSA.

Table 11: Percent change on SSA tariffs for reciprocity purposes.

	EU tariffs rates on SSA	SSA tariffs rates on EU	SSA reciprocation (% change)
Cereals	41.6	10.5	296.2
Vegetables	14.5	17.1	-15.2
Oilseeds	0.0	9.6	-100.0
Sugar	251.4	1.5	16660.0
Cotton	0.0	3.6	-100.0
Other crops	3.1	16.1	-80.7
Livestock	36.6	11.7	212.8
Animal products	6.3	9.9	-36.4
Fishing	12.0	9.3	29.0
Energy	0.0	9.5	-100.0
Other natural resources	0.0	13.1	-100.0
Agro-processed goods	39.4	23.9	64.9
Textiles	10.9	16.4	-33.5
Clothing	12.1	29.6	-59.1
Low tech industries	2.6	23.5	-88.9
Medium tech industries	2.1	15.4	-86.4
Heavy industries	1.4	15.8	-91.1

Source: GTAP V.5.4 and authors' simulation baseline

Therefore, in order to capture the reciprocal principle³³ without necessarily thinking of an FTA, all the tariffs by SSA that are above those levied by EU on SSA sourced imports are reduced to the EU level. In other words, a key assumption in this simulation is that the EPAs aim to establish partnerships that are compatible with the WTO but not necessarily to create a free trade area between EU and African countries, which would in itself require full trade liberalization³⁴. For the sectors cereals, sugar, livestock, fishing, and agro-processing, whose tariffs are lower in SSA than in the EU, no change is effected in this scenario. The main justification for this treatment is that, in the case of the agro-processing sector, there are the beef and sugar protocols that are part of the aggregated. Another reason is that these sectors reflect the problem of tariff peaks and escalation. The commodity protocols, tariff peaks and escalations, non-tariff barriers questions while being part of the EPAs negotiations are not part of the full reciprocity simulation. From Table 11, reciprocation will be an issue mainly in sectors such as textiles and clothing; industrial sectors; and most primary producing sectors.

Scenario 2 – Deeper regional integration without reciprocity: The Cotonou Partnership Agreement also hopes to achieve deeper integration in participating ACP states. One might therefore ask would deeper integration within sub-Saharan Africa be acceptable to a benevolent EU as a substitute for immediate full reciprocity by SSA countries? In this scenario, the principle of deeper regional integration within Africa is investigated further. Essentially, the rationale behind this second scenario is that one reason why most African countries have not been able to exploit the preferences under Lomé Agreement is the lack of supply capacity. Thus, these countries would require sufficient time for them to build this capacity. Since the EPAs must eventually be WTO compliant, this scenario presents an option where the SSA countries liberalize trade among themselves without immediate reciprocation on the preferences granted by the EU on the understanding that the EU is in a position to agree to EPAs that provide enough time to the African countries to build their capacities so that they can eventually be able to compete with the EU producers and exporters. The time before the reciprocation by the SSA countries will begin is not captured in this scenario due to the static nature of the model, but the point is that deeper regional integration³⁵ within SSA will enable the producers and exporters in the region to build capacities as they compete among themselves before facing EU producers and exporters when the reciprocity principle kicks in. This scenario is also premised on the desire to increase the market size that African producers and exporters face within the continent. Due to small domestic markets, African industries might not be able to exploit the economies of scale that could afford possibilities for the building of competitive industries.

Scenario 3 – EU-SSA Free Trade Area: Scenarios 1 and 2 considered the option of establishing a partnership between the EU and SSA that is not necessarily a free trade area. Thus, in scenario 1, the assumption is that in order for the partnership to be WTO compliant, the SSA countries must reciprocate on the preferential treatment that they are currently receiving from the EU. The EU takes no action on the commodity protocols and other non-tariff barriers and does not deal with market access issues related to tariff peaks and escalation. The second scenario's objective was to provide room for capacity building within the SSA regions before they can reciprocate on the preferences that the EU has been according the region's exports. In this third scenario, the option for a EU-SSA Free Trade Agreement is explored. Should the EPAs aim for just partnerships that do not address issues such as the commodity protocols, non-tariff barriers, tariff peaks and escalations fully or should they aim for WTO compliance that is based on free trade between the two sub-regions? In this scenario therefore, all the trade barriers between the SSA and EU in both directions are eliminated.

Results from EU-SSA EPA Scenarios

Macroeconomic, trade and welfare: aggregate effects

The income and trade effects of the three scenarios are shown in Table 12. The results for SSA are also presented in Figure 1 for comparison purposes of the three scenarios. The results indicate the aggregate impacts full reciprocity and deeper regional integration principles of the EPAs are likely to have. It is

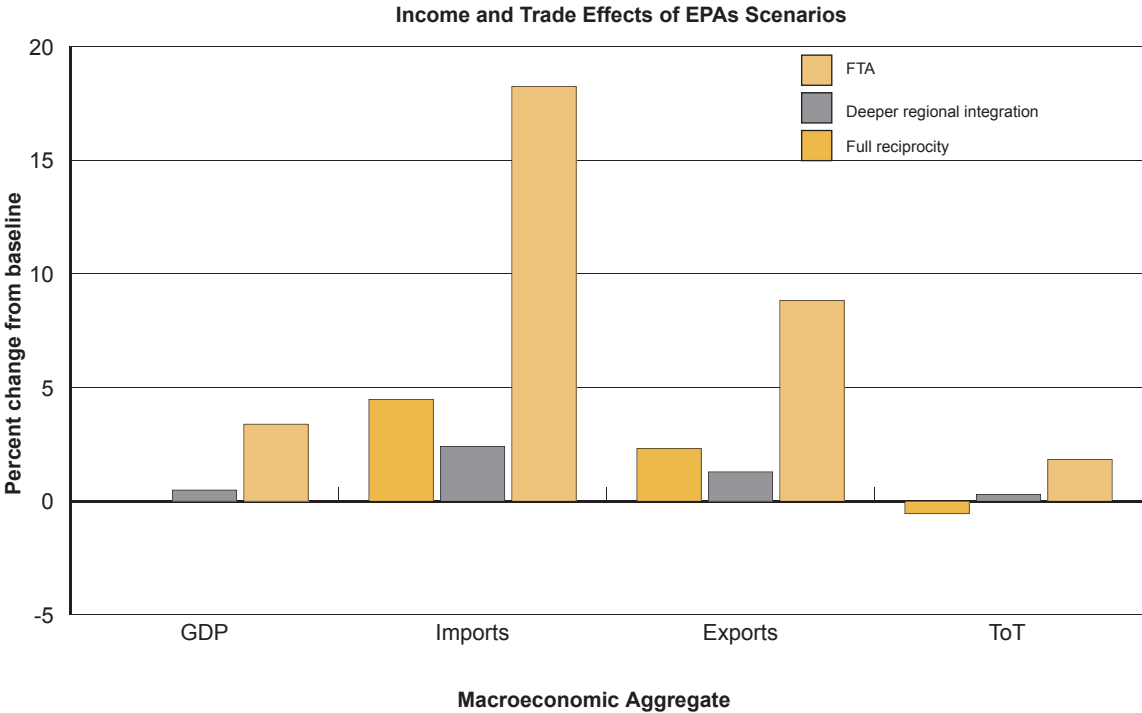
clear based on the implication on the volume of GDP that other than the EU, all other regions stand to lose from full reciprocity. SSA's income marginally declines. The effect of SSA's reciprocation is more pronounced in the effects on trade and welfare as measured through equivalent variation. SSA's imports grow faster than its exports and combined with the deterioration in the terms of trade, its balance of trade worsens by US\$1,868 million. This can be seen to represent a major adjustment cost for the SSA. In deed, in spite of the marginal deterioration in the terms of trade for other regions, it is only SSA that suffers from a poorer balance of trade position under full reciprocity. The poor GDP performance, worsening trade balance, and deteriorating terms of trade result in loss of welfare for SSA region from EPAs' reciprocal principle. Full reciprocity, at least in the short-run stands to lead to losses both in terms economic and welfare outcomes for SSA.

Trade barriers among African countries evidently limit the realization of the economic and welfare gains of intra-African trade (scenario 2). The elimination of the tariff barriers and the tariff equivalent of non-tariff barriers have the potential of raising incomes and welfare in the SSA region. As the Figures 1 and 2 indicate, a scenario where the SSA countries liberalize trade among themselves in an EPA without immediate reciprocity, results in gains both in terms of economic expansion and improved welfare. While the change in balance of trade still indicates deterioration, there are positive gains in all the other economic indicators in the SSA region. A comparison of the outcomes from full reciprocity and deeper regional integration strongly indicate that an EPA that expects immediate or full reciprocity would be disadvantageous to SSA countries. Without full reciprocity but deepened regional integration, SSA countries would experience positive GDP growths from the EPAs. The terms of trade, which under full reciprocity register deterioration, improve in a deepened regional integration scenario.

Table 12: Income, trade and welfare effects of EPAs

	GDP (%)	Imports (%)	Exports (%)	ToT (%)	BoT (US\$ mln)	EV (US\$ mln)
Scenario 1: Full reciprocity						
EU15	0.0044	0.1095	0.05	0.0565	52.7352	1748.8019
CEEC	0.0019	-0.01	0.0211	-0.0058	23.4368	-2.5357
NAM	-0.0001	-0.0317	0.0207	-0.0103	529.9121	-83.1632
Japan	-0.0005	-0.0574	0.0493	-0.0214	366.1649	-45.8012
SSA	-0.0129	4.4775	2.3152	-0.5477	-1868.361	-563.9485
China	-0.0018	-0.0671	-0.0115	-0.0282	45.5154	-57.3101
ROW	-0.003	-0.0864	-0.0032	-0.0406	850.6011	-921.4965
Scenario 2: Deeper intra-Africa integration						
EU15	-0.0004	-0.0082	0.0045	-0.0048	191.6676	-150.4622
CEEC	-0.0005	-0.0043	0.0049	-0.0018	11.8501	-5.3033
NAM	0	-0.0078	0.0092	-0.0042	150.7274	-58.1692
Japan	-0.0001	-0.0106	0.0186	-0.0083	98.9025	-45.1652
SSA	0.4916	2.4112	1.2906	0.2996	-629.7655	1204.2651
China	-0.0002	-0.0113	0.0016	-0.0056	15.5255	-16.4879
ROW	-0.0002	-0.0045	0.0014	0.0024	161.0926	27.1114
Scenario 3: EU-SSA Free Trade Area						
EU15	0.0079	0.2245	0.2331	0.0194	934.9118	1116.3458
CEEC	0.0030	-0.0696	0.1245	-0.0829	169.0720	-131.7854
NAM	-0.0003	-0.0780	0.0751	-0.0349	1437.1685	-438.9070
Japan	-0.0013	-0.1163	0.1579	-0.0693	928.5612	-313.1068
SSA	3.3890	18.2476	8.8278	1.8336	-5484.2998	8028.7661
China	-0.0032	-0.1236	0.0051	-0.0557	144.5395	-144.1505
ROW	-0.0040	-0.1205	0.0072	-0.0327	1870.0596	-883.5765

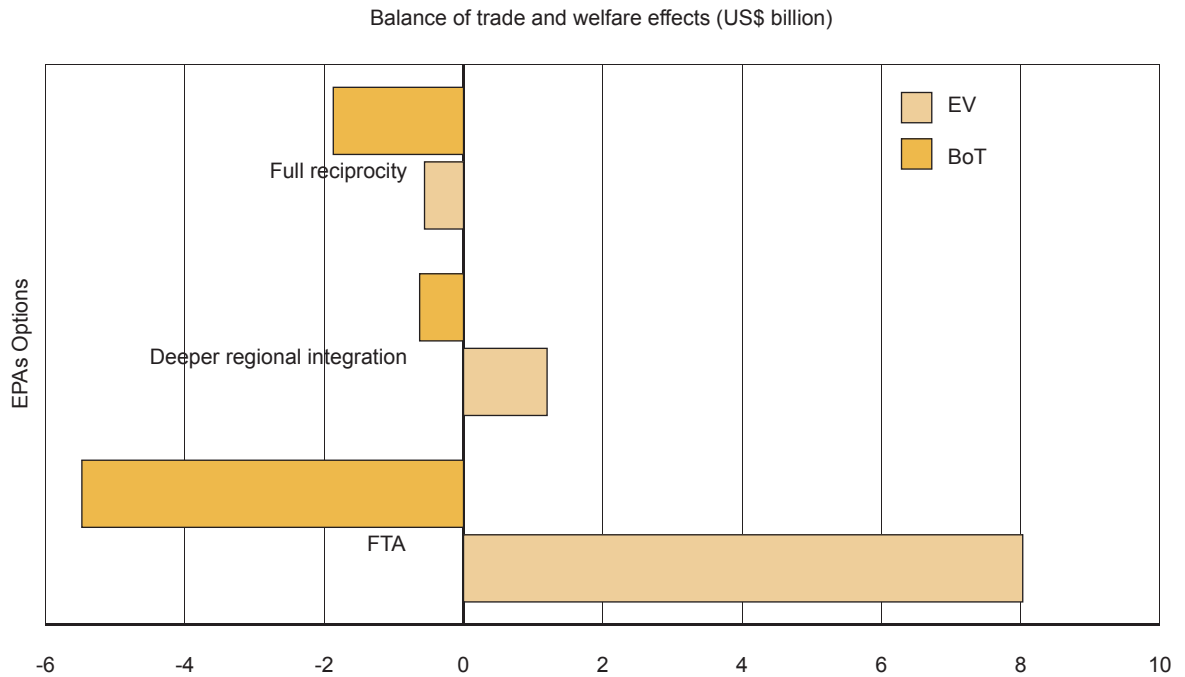
Figure 1: Income and trade effects on Sub-Saharan Africa



A very telling result from the three scenarios is that the SSA region would reap the largest gains from EPAs that take the form of FTAs rather than partnerships that do not address all the trade barriers with EU. The SSA's GDP would expand by an additional 3.4 percent above the base in an FTA agreement. The terms of trade for the region in the FTA would also be most favourable. This result suggests that unless the EPAs are aim to include even what are perceived to be sensitive sectors in the EU, the African economies are unlikely to benefit. An ambitious liberalization of the EU with unrestricted market access comes out clearly as the best way that the EPAs can hope to lock in benefits for SSA countries. Hence, unrestricted market access into the EU market even with reciprocation by the SSA countries can derive benefits to the latter. These results suggests that the exports that are of interest to African countries are more likely to be best handled in an unrestricted market situation even with reciprocity rather than having sensitive sectors in the eyes of the EU being included in the EPAs agreements. It is important to look the results of the unrestricted market access also in the context of scenario 2. Deeper regional integration without reciprocation has benefits for Africa. Locking in these benefits by allowing a lead time for African countries and then pursuing the unrestricted market access option suggest the most beneficial sequencing for the African countries for them to maximize gains from the EPAs. Whereas

welfare gains and the balance of trade outcomes are more positive in an integrated SSA region that does not have to immediately reciprocate on the EU preferences over an EPA that simply has full reciprocity, it is an FTA that provides the highest gains of over US\$8 billion to the region. This gain will however come at a major macroeconomic adjustment cost in terms of the balance of trade.

Figure 2: Impacts of EPAs on SSA balance of trade and welfare



Industry structure in SSA: EPAs options

Majority of sub-Saharan African countries have stated industrial policies that endeavour to achieve more industrialization and diversification in their economies. In deed, explanations that are given for the dismal performance of SSA in global trade are lack of supply capacities and exports diversification. As a result, the impact of EPAs on the industrial structure of these countries is important. Table 13 indicates the likely impacts of the three EPAs options on industries in SSA. Deeper regional integration in SSA could potentially provide the space for diversification in production and exports to take place. Unlike in the case of full reciprocity scenario where SSA region will specialize in production of primary commodities, deeper regional integration allows the emergence of high value-added non-primary commodity producing sections. The region has the potential to develop production capacities in sectors that require low- and medium-technologies and even in heavy industries. But it is in textiles and clothing, sectors likely to

provide solid foundation for industrialization and diversification that will benefit most from deepened trade in the region. These sectors will see their outputs expand by 1.2 and 2.7 percent compared to contractions if the region was to fully reciprocate to the EU lower tariffs. Another important result is the positive result for some primary producing sectors that could otherwise decline under full reciprocity. These include sectors such as vegetables, oilseeds, livestock and animal products.

Table 13: Industry outputs in Sub-Saharan Africa (percent change in output from the base)

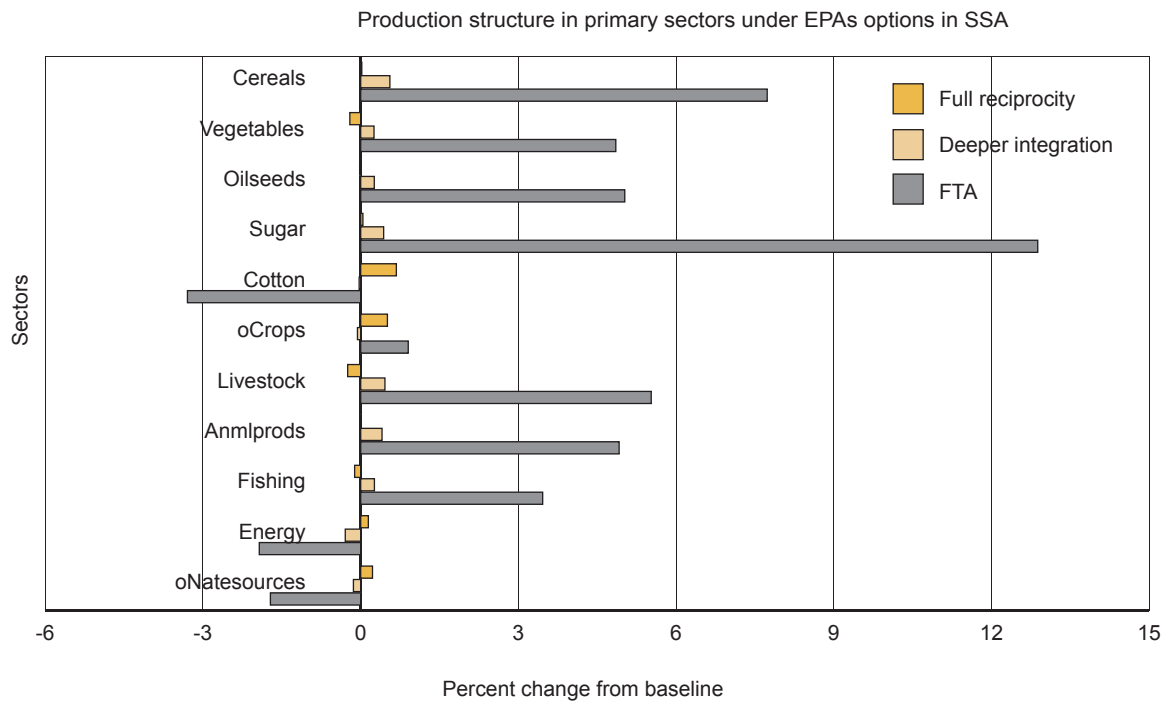
	Full reciprocity	Deeper integration	Free trade area
Cereals	0.0213	0.5554	7.7333
Vegetables	-0.2063	0.2536	4.8533
Oilseeds	-0.0199	0.2588	5.0238
Sugar	0.0423	0.4369	12.8798
Cotton	0.6788	-0.0293	-3.2957
Other Crops	0.5084	-0.0616	0.9048
Livestock	-0.2478	0.4614	5.5269
Animal prods	-0.0189	0.4063	4.9162
Fishing	-0.1151	0.2612	3.4621
Energy	0.1458	-0.2934	-1.9289
Other Natural resources	0.2248	-0.1383	-1.7175
Agro-processing	0.0885	0.4376	12.482
Textiles	-0.6989	1.3384	2.3047
Clothing	-2.6639	2.7493	9.1321
Low tech industries	-4.8511	1.2875	-5.0218
Medium tech industries	-3.0865	1.0426	-2.9961
Heavy industries	-3.2136	1.2986	-10.7966

A comparison between the three options is also shown in Figures 3 and 4 for the primary and manufacturing sectors in SSA. Considering first the primary sectors, the full reciprocity scenario is unfavourable for SSA even in these sectors. But in the cases of deeper intra-SSA integration and the FTA, sectors concerned with primary commodities production other those of extraction in nature expand.

Clearly, majority of SSA industries will witness a reduction in their output under full reciprocity. This contraction will be more serious in those sectors that are perceived to be the foundations for

industrialization, viz. low-tech and mid-tech industries; heavy industry; clothing; and textiles. Other than cotton, other crops, energy, natural resources and agro-processing industries where there are marginal expansions, SSA industrial sectors stand to contract significantly. Thus, de-industrialization is likely to be a major outcome if the EPAs reciprocity principle is implemented through full reciprocation. The only industrial sector that is likely to survive under such EPAs is agro-processing and this is because no tariff change was effected for this sector under this scenario as earlier noted. The outcome on the industrial structure from full reciprocity is replicated somehow but on larger magnitudes in the FTA option. De-industrialization is a clear possibility even for the low-tech industrial sector. Nonetheless, under an FTA, the SSA region's agro-processing, textiles and clothing sectors expand substantially.

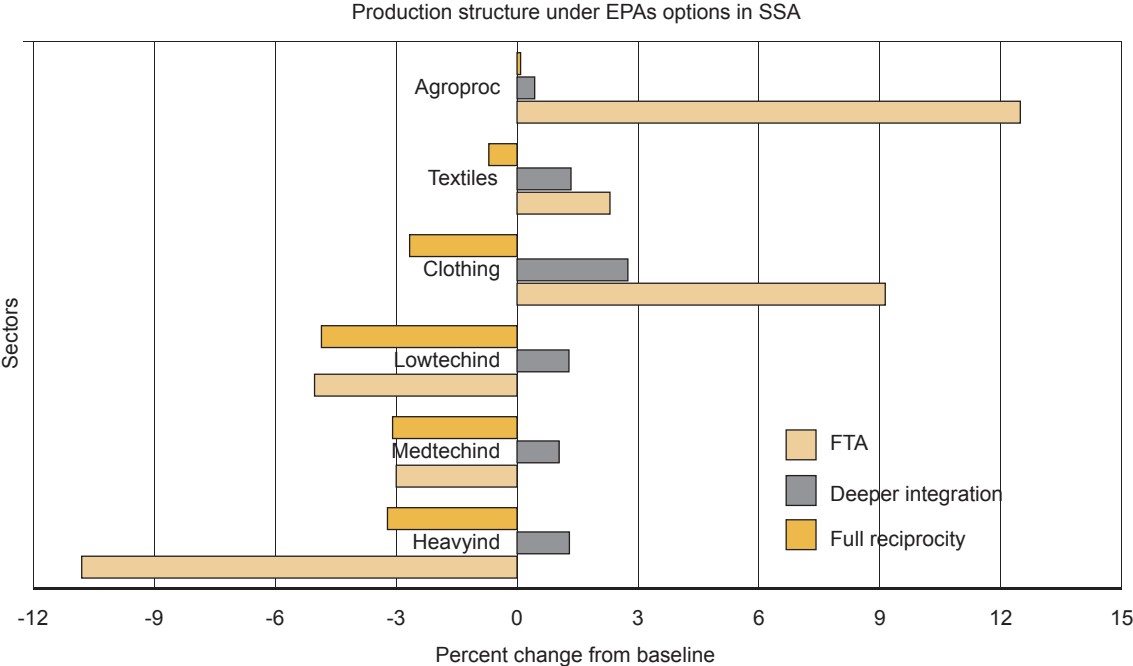
Figure 3: Impacts on primary sectors in SSA as a result of the EPAs



SSA countries have potential to develop an industrial base as Figure 4 indicates. But it needs to be reiterated that this outcome needs to be put in the context of the other two scenarios. If there is fully reciprocity without the exports of interest to SSA countries being considered in the liberalization, then Africa will stand to lose its existing industries. On the other hand, the capacity for the current industries

in SSA to withstand competition can be strengthened through enlarged African markets if the intra-African trade barriers were to be eliminated. Therefore, the industrial base that appears possible under the FTA scenario with the EU is realisable if the sequencing of the implementations of the EPA was such that the SSA countries have room to build competitiveness, broaden supply capacities and diversify their industries. The implications on the industrial structure of SSA countries then suggest that the best way to configure the EPAs is by first undertaking deep integration within the African market and thereafter have unrestricted market access to the EU market with reciprocity.

Figure 4: Implications of EPAs options on SSA countries industrial structure



Demand for and returns to factors of productions

The three EPAs options would have varying levels of adjustment costs in terms of endowments utilisation. In SSA region, this adjustment would especially be of interest in the case of employment demand and the returns to labour. The adjustments likely to take place in terms of demand for unskilled labour in selected sectors, under a full reciprocity scenario is indicated in Figure 5. The demand for unskilled labour in the sectors where there is more value adding, that is, in the manufacturing industries contracts sharply. But,

there is likely to be increased demand in the use of unskilled workers in sectors such as cotton, other crops, energy, natural resources and agro-processing. The contractions out of textiles and clothing and other industrial sectors could prove to be too costly, as returns to labour tend to be higher in these sectors than in the primary sectors.

Figure 5: Demand for unskilled labour in SSA (volume terms) in a full reciprocity scenario

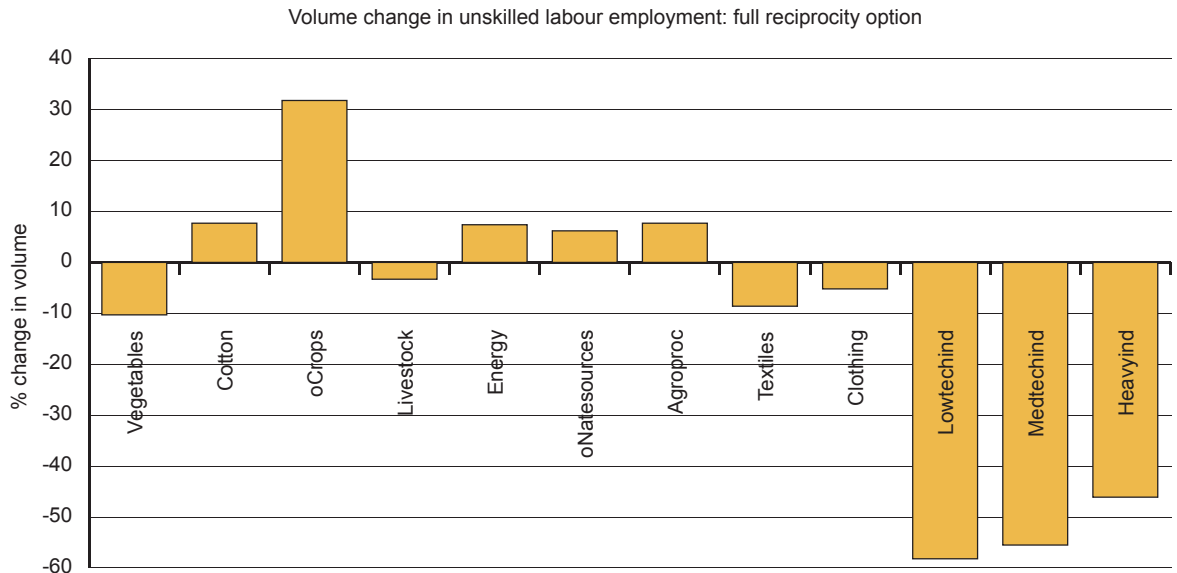


Table 14: Demand for endowment factors in primary and manufacturing sectors in SSA under a EU-SSA FTA (percent deviation from baseline)

	Land	Unskilled Labour	Skilled Labour	Capital	Natural Resources
Cereals	2.3449	9.0177	7.2315	7.0138	0.0368
Vegetables	0.0548	6.0083	4.2714	4.0597	0.0251
Oilseeds	0.2072	6.2081	4.4679	4.2558	0.0259
Sugar	6.4283	14.4232	12.5484	12.3198	0.0572
Cotton	-6.436	-2.4318	-4.0304	-4.2253	-0.0098
Other Crops	-3.0492	1.9554	0.2849	0.0813	0.0087
Livestock	0.6094	6.7356	4.9868	4.7736	0.0279
Animal products	0.1196	6.0933	4.355	4.1431	0.0254
Fishing	1.9935	7.5047	6.016	5.8343	0.0366
Energy	-5.4413	-1.8293	-3.1887	-3.3547	-0.0086
Other natural resources	-4.6468	-0.8387	-2.2118	-2.3794	-0.0036
Agro-processing	-4.2477	19.79	10.7919	9.7325	0.0167
Textiles	-9.7968	7.6427	-1.41	-2.4699	0.0064
Clothing	-6.9228	15.5495	5.8319	4.6941	0.012
Low tech industries	-12.7499	-0.1578	-8.5545	-9.5376	0.0004
Med tech industries	-11.2978	3.6367	-5.079	-6.0995	0.0034
Heavy industries	-14.7534	-5.2645	-13.2317	-14.1646	-0.0037

The demand for the different factors in the FTA scenario is also shown in Table 14. Demand for most of the factors of production grows in the primary sectors except for cotton sub-sector. The increased demand is consistent with the expansion of these sectors as the region specializes more on primary raw-materials production. The manufacturing sectors in the FTA have mixed results for labour and capital demand. Demand for these factors in the low-tech industries contracts across board. A similar result occurs in the heavy industry sector. The agro-processing and clothing sectors would generally benefit in terms of increased labour and capital demand under the FTA. It is useful however to note that the more

important results relate to the returns that these factors have in each of the EPAs options. The returns to the factors of production in the SSA region comparing the scenarios for deeper regional integration without immediate reciprocity and the FTA are summarized in Table 15 below.

Table 15: Real returns to factors of production in SSA (percent deviation from base)

	Deeper integration	FTA
Land	1.3223	25.0395
Unskilled labour	-0.3219	-1.9728
Skilled labour	0.7898	5.1056
Capital	0.8745	6.0111
Natural Resources	-0.9176	-2.509

Integration in SSA, under the deepened intra-African integration, in addition to facilitating diversification in the industrial structure also results in positive returns to some of the crucial factors of production. Real returns to land, skilled labour and capital are positive, a result that is crucial in contributing to the region's development. Similar outcomes but on a higher scale are also likely to be achieved in the case of a EU-SSA FTA form of EPA. However, due to its abundance and hence the rate of change in the money wage for unskilled labour in SSA, its real returns fall. Unlike the other factors of production whose supply is assumed fixed, unskilled labour is abundant in the SSA region and the fall in the real returns indicates that the nominal wage does not increase as fast as a result of this abundance. The returns to the factors of production and also the overall economic performance of the SSA region have implications for the regions welfare. This was evident at the aggregate level, where the SSA region was shown would lose in welfare terms from full reciprocity but gain from both the deepened integration and FTA scenario, with the latter according up to US\$8 billion. The next sub-section decomposes the determinants of the welfare change under each of these scenarios, in order to highlight the potential implications each of the scenarios has in terms of policy.

Sources of welfare changes under EPAs options: decomposition

At the aggregate level, full-reciprocity on the EPAs indicated that apart from the European Union, all the other regions would experience welfare losses. Sub-Saharan Africa is likely to suffer a welfare loss of US\$564 million. The Table 16 shows the determinants of this welfare loss. The worsening terms-of-trade that the SSA region will face explain more than half of the deterioration in the welfare. In other words, the inability of the exports to pay for the imports increase following the reciprocity will result in the African countries being worse-off in an EPA with full reciprocity. Moreover, the region will also experience a welfare loss emanating from deterioration in the investment-savings balance. The only positive determinant of the welfare, though heavily out-weighed by the negatives, is the US\$45.7

million resulting from the endowment changes³⁶. This is attributable to net increase in demand for the unskilled labour.

Table 16: Sources of welfare changes by region (US\$ million)

		Efficiency	Endowment Changes	Terms of Trade	Investment Savings balance	Total
EU15	Reciprocity	347.4	0	1412.8	-11.5	1748.8
	Integration	-34	0	-116.9	0.4	-150.5
	FTA	628.9	0	503.9	-16.4	1116.3
CEEC	Reciprocity	5.4	0	-22.9	14.9	-2.5
	Integration	-1.4	0	-2.1	-1.8	-5.3
	FTA	8.8	0	-124.9	-15.7	-131.8
NAM	Reciprocity	-12	0	-91.3	20.2	-83.2
	Integration	-0.6	0	-46.4	-11.2	-58.2
	FTA	-24.9	0	-360.5	-53.5	-438.9
Japan	Reciprocity	-19.2	0	-125.8	99.2	-45.8
	Integration	-6.3	0	-41	2.1	-45.2
	FTA	-55.5	0	-364.7	107.1	-313.1
SSA	Reciprocity	-71.6	45.7	-323	-215.1	-563.9
	Integration	168.6	844.7	174.4	16.7	1204.3
	FTA	878.2	6112	1104.3	-65.8	8028.8
China	Reciprocity	-16.1	0	-77.3	36.1	-57.3
	Integration	-2	0	-14.4	-0.1	-16.5
	FTA	-28.5	0	-149.2	33.5	-144.2
ROW	Reciprocity	-201.7	0	-775	55.2	-921.5
	Integration	-12.8	0	46.1	-6.2	27.1
	FTA	-274.6	0	-620.1	11.1	-883.6

The intra-SSA trade barriers as they exist today impose a substantial cost to the region. Their elimination, in an EPA whose objectives is to create competitiveness through deepened regional integration would lead to the region reaping US\$1,204 million in welfare gains. This gain would emanate mainly from the change in endowments utilization, better terms of trade in the region and removal of distortions that currently result in inefficient allocation of the endowments under utilization.

But it is still an FTA that guarantees unrestricted market access into the EU that offers the highest welfare gain of US\$8,028.6 million for sub-Saharan African countries. And 75 percent of this improvement in welfare is attributable to increased demand in unskilled labour. Clearly, the EPAs if designed in favour of Africa have the long-term potential of addressing income poverty as indicated by the welfare gains emanating from endowment changes in the decomposition of the total welfare. Allocative efficiency is also important, as there is potential from a reallocation of resources under an FTA with unrestricted market access to yield US\$1,104.3 million in welfare.

The results that emerge from the welfare implications of the EPAs are consistent to the economic and trade effects. That the EPAs should aim first to consolidate the intra-African trade. Then secure unrestricted market access. The reciprocity elements of the EPAs should as much as possible be backloaded because of they will undermine the welfare gains through deterioration of terms of trade for SSA and also through weaker investment-savings balance for these countries.

Conclusion

An attempt has been made in this chapter to try and shed light on the possible impacts of the EPAs on African economies. The general equilibrium framework allowed the implications on the industrial structure to also be investigated. The main conclusions that can be drawn from the results and the discussion are that full reciprocity will be very costly for Africa irrespective of how the issue is looked at. A focus on deepening integration with a view to enhancing intra-African trade would provide positive results. But it is the scenario for unrestricted market access for Africa that portends the largest gain for the continent. Even with reciprocity, a free trade area that does not exclude sectors of export interest to Africa and one that deals with non-tariff barriers promises positive results for African countries.

The overarching conclusion from these findings then are that sequencing of policy reforms that Africa will need to undertake is critical to the success of the EPAs. To begin with, the EPAs should focus on deepening intra-African trade. This should be given sufficient lead-time to allow the African countries build the requisite competitiveness. This would have to be accompanied with significant developmental programmes to complement the larger markets with increased supply and diversified capacities. Eventually, any tariff dismantlement by the African countries will need to be implemented in phases hand in hand with unrestricted market access for the African exports into the EU market. Clearly, the 10-12 years period interpreted from Article XXIV of GATT is only sufficient for the deepening of the intra-African trade. The EPAs should look beyond the 12 years as the possible dates for introducing reciprocity. Before then, unrestricted market access and deeper African integration will have provided sufficient room for supply capacities and exports diversity to be built in the continent.

Potential Economic and Welfare Impacts of EPAs on African Countries: Partial Equilibrium Results

Introduction

In this chapter, the results using the WITS/SMART partial equilibrium model showing the possible impacts of the EU-SSA EPAs on individual countries participating in EPAs negotiations are discussed. The major weakness of the general equilibrium analysis, whose results were discussed in the previous chapter, was the limited number of African countries individually disaggregated in the GTAP database. This made it necessary for the partial equilibrium methodology to be considered, in spite of its weakness of ignoring sectoral and regional feedbacks when trade policy instruments are changed either in a given sector or all sectors in a given country. However, given its capacity to allow analysis at high level of disaggregation, the partial equilibrium models become indispensable especially where there is interest in establishing sensitive sectors either with regards to industrial or fiscal policies. In addition, most African countries report their trade data to the UN and WTO organisations, which are used in this partial equilibrium modelling, unlike the limited representation of individual countries in the GTAP database.

Essentially, the question the analysis in this chapter sought to answer is, what are the impacts on trade, revenue and welfare of eliminating tariff barriers that EU exports to African countries currently face? Or put differently, what does it mean for a given African country to reciprocate on the trade preferences that it currently receives through EU's trade preferences regime for ACP countries?

In order to derive the results presented here, the benchmark for each country whose EPAs impact is analysed was the last year with available complete trade statistics on commodities flows and applied tariffs. For all the countries reported, the benchmark dates fall between 2001-2003, which is a reasonably recent period to base the analysis. The results are organized following the EPAs negotiations groupings in the continent: ESA; CEMAC; ECOWAS; and SADC. In each of these regional groupings negotiating an EPA with the EU, the results on trade creation and diversion, revenue and welfare implications are reported. In the case of trade, some further elaborations is available at the country level to show the impacts total elimination of tariffs on EU sourced imports.

The simulation scenario

Unlike the general equilibrium analysis where it was possible to look at several scenarios, only one simulation was undertaken for each country with the partial model. This scenario looks only at the reciprocity principal. Due to the weaknesses already pointed out especially the *ceteris paribus* assumption upon which this model operates; only one-way liberalization is possible. The results discussed here are the possible outcomes of reducing to zero the import duties that the SSA countries impose on EU goods.

One special advantage of the WITS/SMART model is that it allowed the analysis to be undertaken at the 6-digit level. There was therefore no aggregation problem such as the one with the GTAP database.

The trade created from the full reciprocity scenario depends on the following three key elements as discussed in the analytical methodology: the initial level of trade (imports from the EU by individual countries), the initial level of protection and the price elasticity of import demand. The higher the initial level of protection, the greater would be the change expected from the reciprocation policy. The transmission mechanism for the trade effects is simple: the elimination of existing tariffs on EU imports reduces the prices that consumers in the importing African country face compared to domestic substitutes and the responsiveness of demand to the price change influences the amount of trade created or diverted. The substitutability of the EU goods for domestic goods is implicitly assumed. The Armington assumption at HS 6-digit level is that goods imported from different countries are imperfect substitutes. It is also assumed that the supply response to the price reduction will allow the EU producers and exporters to meet any demand arising in the importing countries as a result of price reduction. That is, export supplies are perfectly elastic which means that world supplies of each variety of the goods by origin are given.

The EU-ESA Economic Partnership Agreement: Trade creation and diversion effects

The partial equilibrium effects of reciprocal trade preferences between EU and ESA countries are shown clearly in Table 17. The results presented on the trade effects indicate that in all the countries, as expected, significant trade creation will occur for the EU goods. Overall, the EPAs reciprocity principal, with all things being equal, will lead to expansion of trade. In no country does the trade diversion exceed trade creation, meaning that there will be positive trade effect in each of the countries as a result of the EPAs. The trade creation indicated in the table is in favour of the expanded EU exports into the respective countries within ESA. The created trade in the classical sense imply supplanting of domestic production in the ESA countries.

Trade diversions indicated on the other hand signify the level of trade that is shifted from the rest of the world including other ESA countries to the EU producers. Given similar conditions, the rest of the world would more efficiently produce the diverted trade, but because of the tariff reductions on EU imports, the more inefficient EU producers are favoured over the more efficient rest of the world producers.

The results presented in Table 17 can be interpreted as follows. Take the case of Burundi. If Burundi were to dismantle the tariffs it imposes on the goods from the 25 member-countries of the enlarged EU, trade worth US\$12.4 million would be created in favour of the EU. This additional trade would be of benefit to the Burundi consumers in the sense that more efficient EU producers and exporters will supplant inefficient producers in Burundi. While this created trade is considered to be welfare enhancing since it expands the consumer surplus, the tariff dismantlement will also lead to a net trade diversion of US\$1.6 million. The EU captures this diverted trade; hence the overall EU's trade gain of US\$13.9 million. Of

the US\$1.6 million worth of diverted trade, 17 percent is trade that before the tariff dismantlement originated from the COMESA region, the REC in which Burundi is a member. The tariff dismantlement by Burundi, while it appears to be trade expanding overall, has two potential negative implications. First, the overall diverted trade will be welfare decreasing as it was originally from more efficient non-EU rest of the world. And secondly, there is significant loss within the regional economic community.

Looking closely at Table 17, most of the trade creation in ESA in favour of the EU will under a EU-ESA EPA take place in Kenya, Mauritius, Sudan and Ethiopia. In the case of Kenya and Mauritius, a mixture of the significance of the tariffs reduced and the large volume of trade in these two countries drive the large impact. Ethiopia's large effects are more to do with the initial level of protection which if eliminated will create substantial room for EU sourced imports. It is therefore clear, ignoring the general equilibrium effects, that the EPAs will be trade expanding but at a cost to regional integration.

Table 17: Trade Creation and Diversion Effects of EPAs for ESA Countries (US\$)

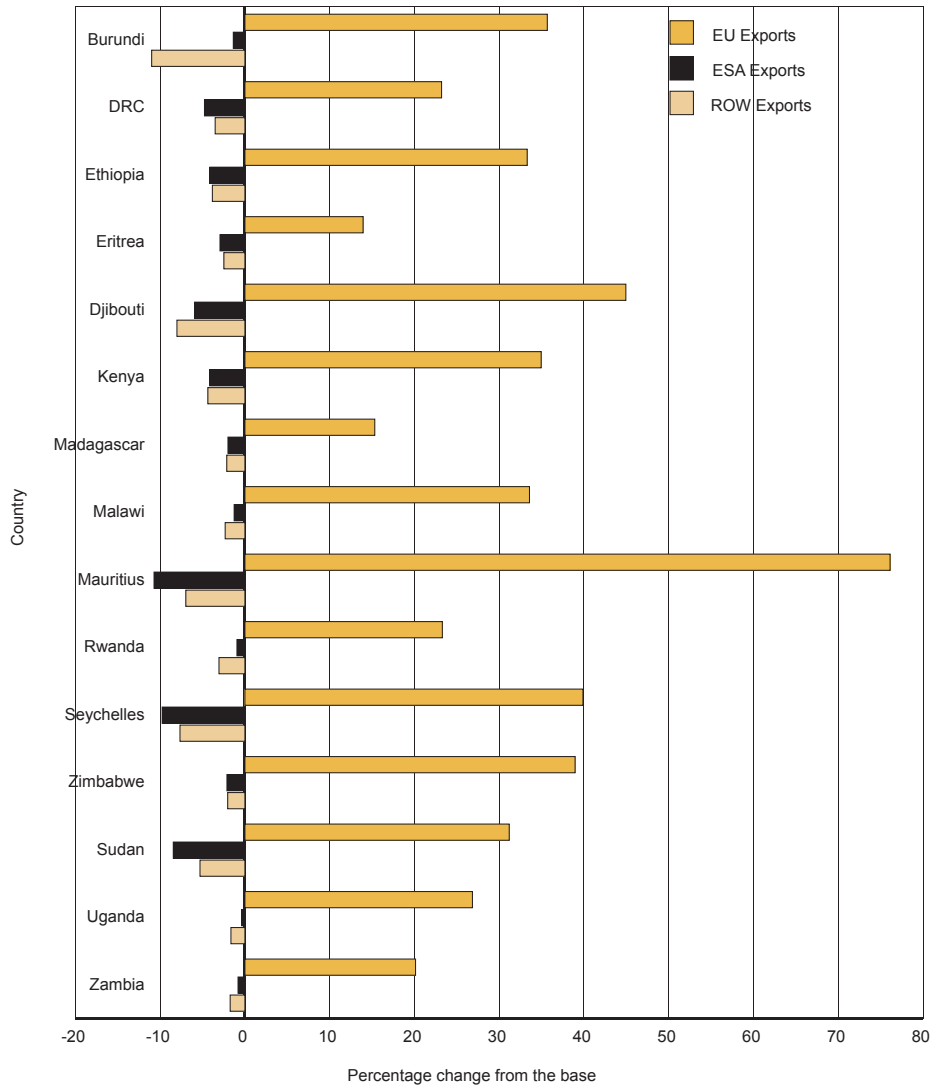
Country	Trade creation	Net trade diversion	ESA's diverted trade	EU's trade gain
Burundi	12,352,687.00	-1,590,623.00	-269,314.00	13,943,310.00
DRC	45,389,815.00	-6,839,450.00	-134,193.00	52,229,265.00
Ethiopia	120,678,556.00	-31,151,559.00	-3,285,650.00	151,830,115.00
Eritrea	13,137,093.00	-1,381,481.00	-26,814.00	14,518,574.00
Djibouti	56,456,321.00	-9,564,476.00	-215,526.00	66,020,797.00
Kenya	211,271,997.00	-60,498,415.00	-2,426,328.00	271,770,412.00
Madagascar	16,555,404.00	-4,086,557.00	-248,092.00	20,641,961.00
Malawi	15,124,010.00	-6,545,835.00	-331,744.00	21,669,845.00
Mauritius	166,926,856.00	-44,739,919.00	-2,864,042.00	211,666,775.00
Rwanda	10,552,742.00	-3,056,649.00	-749,240.00	13,609,391.00
Seychelles	25,349,172.00	-2,726,566.00	-371,749.00	28,075,738.00
Zimbabwe	45,604,361.00	-17,633,252.00	-253,778.00	63,237,613.00
Sudan	119,558,097.00	-33,493,487.00	-1,232,861.00	153,051,584.00
Uganda	19,166,664.00	-9,017,648.00	-1,236,647.00	28,184,312.00
Zambia	31,748,630.00	-10,358,152.00	-433,072.00	42,106,782.00

Source: WITS/SMART Simulations

Figure 6 indicates the growth in imports by source (exports to ESA destination) following tariff dismantlement in favour of EU imports into ESA countries. Clearly, producers in ESA countries will face

serious competition from EU producers. In particular, Mauritius, Djibouti, Seychelles, and Zimbabwe will become significant markets for EU products.

Figure 6: Export effect of EPAs for ESA Countries



Revenue implications

The majority of ESA countries have substantial reliance on import duties as a source of government revenues. This reliance on trade taxes might at times be a serious binding constraint to development activities in situations where the concentration of the source of these revenues is in a few countries' imports. The EU serves as a significant source for most of the ESA countries' imports and is therefore a major component of the import taxes base. The elimination of the import tariffs on EU-sourced imports is therefore an important factor in the economic analysis of EPAs. Table 18 indicates the likely losses in revenues for each of the ESA member country due to the reciprocal treatment of EU goods into the ESA countries' markets. The results indicate the value of tax revenues the ESA countries are likely to forego under the reciprocal arrangement for trade policy between the EU and ESA nations.

Table 18: Revenue implications of a EU-ESA EPA (US\$)

Country	Revenue shortfall
Burundi	-7,664,911.00
DRC	-24,691,828.00
Ethiopia	-55,126,359.00
Eritrea	-7,385,208.00
Djibouti	-37,523,124.00
Kenya	-107,281,328.00
Madagascar	-7,711,790.00
Malawi	-7,090,310.00
Mauritius	-71,117,968.00
Rwanda	-5,622,946.00
Seychelles	-24,897,374.00
Zimbabwe	-18,430,590.00
Sudan	-73,197,468.00
Uganda	-9,458,170.00
Zambia	-15,844,184.00

Source: WITS/SMART Simulations

In absolute value terms, the countries that will suffer most from the elimination of the tariffs on EU goods are Kenya, Sudan, Mauritius, Ethiopia, DRC and Seychelles. The foregone revenue in itself presents a major challenge to these countries ability to reciprocate on the trade preferences obtained from the EU. In a number of these countries, the reliance on trade taxes is dictated both by the simplicity of their administration and also their use as part of industrial policy. In terms of their use due to ease of collection,

most of the countries are likely to find it difficult even in the short-term to come up with ways to replace the foregone revenues. This is likely to be made more difficult by the low productivity (both in terms of elasticity and buoyancy) of the alternative taxes to the import duties. The speed within which tax policy and administration changes can be effected to raise productivity of the other taxes to fill the shortfall from import taxes becomes a major determinant of the practicability of the reciprocal principle of the EPAs. The adjustment costs of undertaking tax policy and administration reforms are likely to weigh heavily on the ESA economies. This is because the nature of these adjustment costs is such that they are not only financial, but involve also human resources. Administration of income taxes and consumption taxes such as the VAT are more human capital demanding than the administration of import duties.

Moreover, the EPAs generated revenue shortfalls will also have economic, social and political dimensions. The fact that these countries will need to resort to income and consumption taxes will introduce growth and equity issues. Policy makers will be faced with the unwelcome option of having to rely on income taxes, which tend to have a more defined negative relationship with economic growth. And on the aspect of equity, consumption taxes are likely to be more regressive.

Welfare implications of the EU-ESA EPA

Welfare enhancing properties of trade liberalization have always made it an attractive policy. Nonetheless, measuring the welfare accruing to a country as a result of trade liberalization has not been simple. Empirical investigation of this question due to measurement problems has therefore not been an easy matter. Welfare changes arising from tariff changes have been analysed within the context of consumer and producer surpluses. In addition, implicit welfare changes derived from government revenues arising from tariffs alterations can also be considered on top of the consumer and producer surpluses.

Table 19: Welfare (consumer surplus) implications of a EU-ESA EPA (US\$)

Country	Consumer surplus
Burundi	1,825,590.00
DRC	3,832,716.00
Ethiopia	19,029,481.00
Eritrea	1,157,124.00
Djibouti	10,894,790.00
Kenya	30,657,688.00
Madagascar	863,988.00
Malawi	2,105,759.00
Mauritius	57,580,281.00
Rwanda	875,792.00
Seychelles	8,067,172.00
Zimbabwe	8,190,357.00
Sudan	19,157,950.00
Uganda	1,661,690.00
Zambia	3,389,191.00

Source: WITS/SMART Simulations

The WITS/SMART model applied to measure welfare implications of the reciprocal principle of the EPAs underestimates the total welfare change in that it quantifies only the consumer surplus change but ignores the producer surplus movements. Thus, the results reported in Table 19 are for the consumer surplus changes due to the EPAs reciprocity. The results indicate that in addition to the trade creation noted previously, all the ESA countries stand to gain in terms of consumer welfare.

The level of welfare gain depends to a large extent on the level of trade creation. It is therefore not surprising that it is in countries such as Mauritius and Kenya that also witness substantial trade creation whose consumers seem to benefit significantly from the EPAs reciprocation. Weighed against the revenue loss, the trade expansion effect and positive welfare changes present the EPAs as potentially beneficial arrangements for ESA countries. However, these are static results and the welfare results do not account for the producer surplus loss that occurs due to the supplanting of domestic producers in the ESA countries by the EU producers. Moreover, the partial analysis ignores the changes in the economic structure, which in a dynamic sense are likely to have tampering effects on the potential gains indicated from the partial analysis.

The EU-ECOWAS Economic Partnership Agreement: Trade creation and diversion effects

The ECOWAS region, like the ESA countries, similarly stands to experience rapid trade creation effects for EU producers and exporters as reflected in the Table 20. In particular, the EU is going to benefit by having strong growth of its exports into countries such as Nigeria, Ghana, Cote d'Ivoire and Senegal. EU exports into Ghana for instance will grow by 37.5 percent over the base. Indeed, apart from Guinea-Bissau where EU exports grow by 15.5 percent, in all the other countries, the average growth is above 20 percent (see Figure 7 overleaf).

Table 20: Trade Creation and Diversion Effects of EPAs for ECOWAS Countries (US\$)

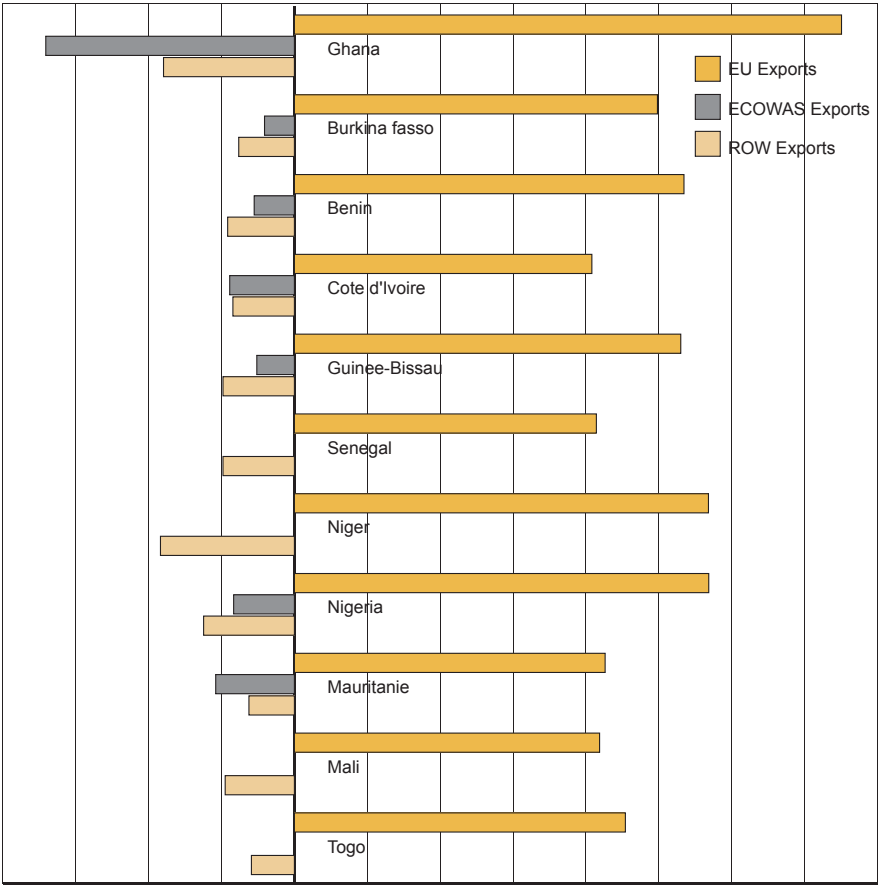
Country	Trade Creation	Net Trade Diversion	ECOWAS Diverted Trade	EU's Trade Gain
Ghana	267,762,342.00	-101,924,746.00	-23,480,674.00	369,687,088.00
Burkina Faso	40,483,269.50	-9,180,224.00	-2,883,310.00	49,663,493.50
Bénin	61,057,168.50	-14,118,814.00	-2,695,298.00	75,175,982.50
Cote d'Ivoire	188,827,587.50	-26,441,888.00	-1,771,993.00	215,269,475.50
Guinée-Bissau	2,847,097.50	-272,652.00	0.00	3,119,749.50
Senegal	144,594,478.50	-16,273,266.00	0.00	160,867,744.50
Niger	39,532,750.00	-4,265,105.00	0.00	43,797,855.00
Nigeria	617,735,025.00	-172,854,272.00	-4,174.34	790,589,297.00
Mauritanie	28,506,803.00	-5,301,686.00	-248,052.00	33,808,489.00
Mali	54,709,194.50	-4,454,198.00	0.00	59,163,392.50
Togo	58,332,504.50	-6,494,013.00	0.00	64,826,517.50

Source: WITS/SMART Simulations

Similarly to the trade diversion effects in ESA, in the ECOWAS region, substantial trade will be diverted in Ghana and also in Nigeria. In the Nigerian case, as much as US\$173 million of trade value will be diverted to EU from possibly more efficient producers in the rest of the world. However, unlike in the ESA grouping where all the countries experience trade diversion from the rest of the REC partners, five of the countries in ECOWAS register no trade diversion from the rest of the REC members. This indicates the limited efficient intra-ECOWAS trade for these countries that include Togo, Mali, Niger, Senegal and Guinea-Bissau. Also noteworthy is the limited trade diversion occurring in Nigerian from the ECOWAS member countries. In the case of Ghana, 23 percent of the trade diverted is originally from ECOWAS member countries. Burkina-Faso, Benin and Cote-d'Ivoire will also express substantial trade diversion of ECOWAS origin.

The intra-ECOWAS trade, which before the EPAs is limited to only a few countries, is likely to be undermined further through the reciprocity principle of the EPAs. This limited intra-ECOWAS trade will therefore experience negative shock from the EPA reciprocation as the ECOWAS producers exporting within the region are likely to face it increasingly difficult to compete with the EU-sourced goods as can be deduced from Figure 7.

Figure 7: Export effect of EPAs for ECOWAS Countries



Therefore, the two principles of reciprocity and deeper regional integration are likely to pull in different direction. The ECOWAS producers and exporters to member countries are likely to be supplanted by

the EU producers as evidenced by the reduction of exports from the rest of ECOWAS to countries such as Ghana and Mauritania. The case for emphasising on the principle of differentiation with respect to sectors that can be opened up for competition with the EU is underlined by this possibility of reciprocity and deeper regional integration working at cross-purposes. In other countries in ECOWAS where there are insignificant imports from the rest of ECOWAS as is the case for Guinea Bissau, Senegal, Niger, Mali, and Togo, the possibility of such trade emerging is likely to be curtailed by imports from the EU. Given that the principles of reciprocity, deeper regional integration and differentiation are likely to have different weights from individual or group of countries perspective and even globally, the negative impacts of the EPAs to regional trade cannot be ignored.

Revenue implications

As would be expected, the elimination of tariffs for EU-sourced imports in ECOWAS countries would harm the government revenue positions in these countries. The extent of revenue shortfall as a result of the import duties foregone on EU exports into the region varies across the countries as indicated in Table 21. But, it is in the large economies and also most open economies that the revenue crunch is most experienced. Nigeria will have to forego up to US\$427 million. Ghana also will be adversely affected in terms of revenue collections, as its revenues based on the EU-imports base will go down by US\$194 million. In a few of the countries, the revenue foregone is not significant in value terms. This is particularly the case for Guinea-Bissau that is estimated will forego only about US\$2 million. Probably at this point, another weakness of the WITS/SMART approach to measuring revenue shortfalls needs highlighting. The revenue loss indicated in the Table 21 relates to imports tariff revenues. In reality, the increased imports presented earlier resulting from trade creation are in most countries subject to indirect taxes such as the VAT. As such, as long as there is rapid increase in the volume and value of imports into the ECOWAS countries, and these countries have indirect taxes such as VAT for whom imports form part of the base, then the revenue shortfall shown in Table 21 will be tampered off. However, unless the elasticity of the VAT and indirect taxes is significantly higher than that for import duties, it is unlikely that the addition indirect taxes revenues will outweigh the revenue foregone from the import tariffs.

Nevertheless, in terms of evaluating the EPAs for ECOWAS countries at least, it can be noted that the revenue foregone is likely to have negative impacts on other government programmes. When this is combined with the feature of the reciprocal principle of undermining regional integration, one is left with a picture that goes beyond the normal international trade theory arguments. The question about the significance of non-economic reasons for integration comes into play, while at the same time; the cost of the EPAs is magnified through the revenue losses.

Table 21: Revenue implications of a EU-ECOWAS EPA (US\$)

Country	Revenue Shortfall
Ghana	-193,683,365.00
Burkina Faso	-22,003,937.50
Benin	-39,523,104.00
Cote d'Ivoire	-112,236,538.00
Guinée-Bissau	-1,990,216.50
Senegal	-80,203,188.50
Niger	-20,487,214.00
Nigeria	-426,902,557.50
Mauritanie	-14,572,779.00
Mali	-33,141,747.00
Togo	-35,471,728.00

Source: WITS/SMART Simulations

Welfare implications

The welfare implications of the EU-ECOWAS Economic Partnership Agreement as measured by the changes in the consumer surplus are indicated in the Table 22. The consumers in the ECOWAS countries will derive significant gains from the EPAs in that they will have access to goods at lower prices. To this point, it is assumed that the EU producers and exporters will not be pricing to market. In other words, there is an implicit assumption that the EU exporters will pass on the benefits of the tariffs reduction to the ECOWAS consumers. If the benefits for tariff dismantlement are not passed on to the ECOWAS consumers, it is possible that there will be no increase in consumer welfare. While the rate of decline of the prices of EU exports to ECOWAS remain unclear, in this exposition and in the results discussed for this region and other RECs, it is assumed that prices fall concomitantly to the tariff rates easing, resulting in consumer benefit for the trade creation.

The same caveat highlighted under ESA, also applies in the measurement of the welfare effects of the ECOWAS EPA. The overall economic welfare effects are not clear within a partial equilibrium modelling framework since producer surplus changes especially due to supplanting of domestic producers by the EU producers has not been captured in this analysis. Nonetheless, the big economies of ECOWAS that is, Nigeria and Ghana experience substantial consumer surplus gains. Besides, Senegal and Cote d'Ivoire are also likely to obtain some significant improvement in their welfare.

While recognising the weakness of the consumer surplus as a proxy for welfare implications of the EPAs, the partial equilibrium results tell only part of the story. Indeed, increased imports through trade creation do not only benefit consumers in the ECOWAS region. In addition to this are potential gains likely to emanate from embodied technologies in some of the imports, that might eventually be welfare enhancing. This will however depend on whether capital equipments and machineries and such imports that tend to have embodied technologies are already zero-rated as tends to be the case in most countries or not.

Table 22: Welfare (consumer surplus) implications of a EU-ECOWAS EPA (US\$)

Country	Consumer Surplus
Ghana	71,478,699.50
Burkina Faso	3,834,553.00
Bénin	6,595,922.00
Cote d'Ivoire	16,206,072.00
Guinea-Bissau	221,876.00
Senegal	12,470,439.50
Niger	3,904,466.00
Nigeria	113,346,061.50
Mauritanie	2,471,498.50
Mali	4,482,770.00
Togo	5,462,732.50

Source: WITS/SMART Simulations

Like in the case of trade effects (creation and diversion), the outcomes through EPAs reciprocity will depend on the initial conditions. Therefore, for countries like Burkina Faso and Mauritania, which have been fast trade liberalizers, the welfare implications might seem small because the required changes in the reciprocation to the EU preferences are not major. Ultimately though, all the ECOWAS region countries are likely to experience positive consumer welfare and whether the net welfare gain will remain positive, depends on whether the supplanted producers in the region experience outweighing producer surplus losses.

The EU-CEMAC/ECCAS Economic Partnership Agreement: Trade creation and diversion effects

The Central African countries like other regions in Africa will experience substantial trade expansion if there was going to be reciprocal treatment under the EPAs for the EU goods. Once again, while there is some trade diversion that occurs in a EU-CEMAC/ECCAS EPA, the trade creation far exceeds the diversion, resulting in positive trade expansion in each of the countries as indicated in Table 23. The EU will therefore have a rapid expansion of its market. In value terms, the most significant expansion will occur in Cameroon, Congo Republic and Gabon. As in other African regions negotiating as a group with the EU due to their belonging in same REC, the reciprocal treatment will most likely undermine the objective (principle) of deeper regional integration.

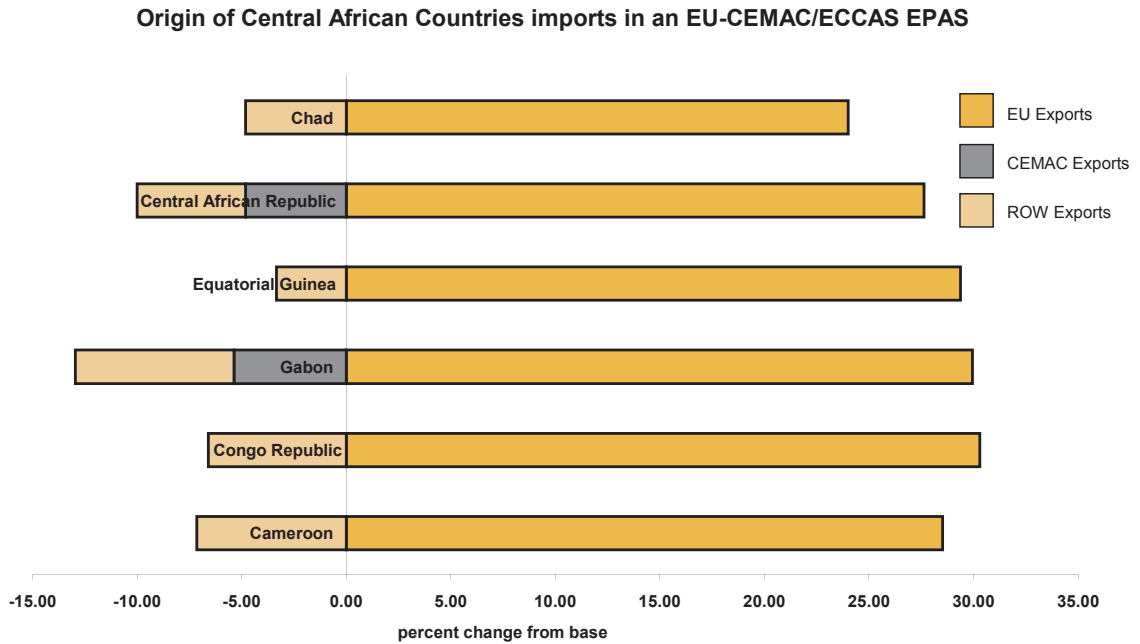
Trade diversion from the rest of the world is significant in some of the CEMAC countries. This is more so the case in Gabon where 22 percent of the total trade gain for the EU is comprised of trade diverted from the non-EU countries. And more significantly, for Gabon, five percent of this trade is from other CEMAC countries. Congo Republic and Cameroon also register substantial trade diversion. In the case of Congo Republic, this is equivalent to 16.6 percent of EU's trade gain. Close to 10 percent of EU's trade gain in Cameroon is as result of trade diversion.

Table 23: Trade Creation and Diversion Effects of EPAs for CEMAC Countries (US\$)

Country	Trade Creation	Net Trade Diversion	CEMAC's Diverted Trade	EU's Trade Gain
Cameroon	255,425,935.00	-26,568,238.00	0.00	281,994,173.00
Congo Republic	123,707,240.00	-20,477,850.00	0.00	144,185,090.00
Gabon	126,494,870.00	-27,689,910.00	-1,244,920.00	154,184,780.00
Equatorial Guinea	53,293,680.00	-5,389,737.00	0.00	58,683,417.00
Central African Rep.	8,232,940.00	-1,252,818.00	-305,600.00	9,485,758.00
Chad	40,732,150.00	-5,941,230.00	0.00	46,673,380.00

As seen in Figure 8, there is very little intra-CEMAC/ECCAS trade. It is only in the Central African Republic and Gabon where the reciprocal treatment of EU imports in the CEMAC countries has trade diversion away from other CEMAC countries. In countries like Chad, Equatorial-Guinea, Congo Republic and Cameroon, there is surprisingly insignificant level of trade with other CEMAC/ECCAS countries. This situation is going to be made worse by the rapid expansion of EU exports into these countries. In all the CEMAC countries, EU exports will expand by at least 25 percent from the base year. The development and deepening of intra-CEMAC/ECCAS trade will therefore be undermined by the reciprocal treatment of EU-sourced imports.

Figure 8: Imports in CEMAC countries by origin as a result of EPAs



Consistent to the results for ESA and ECOWAS, the EPAs, on the basis of the trade creation effects appear will be most beneficial to the EU unless there are other elements favourable to the CEMAC countries. The fact that intra-CEMAC trade might be undermined makes it even more important for mechanisms that ensure maximisation of gains for individual and group of countries to be prioritised. The Central African region is one of the least integrated parts of Africa, meaning that the principle of deeper integration should be emphasised in the EPAs negotiations for this region vis-à-vis the reciprocity principle. Moreover, adjustment to the reciprocal principle will not be easy as the region's governments; will be faced with declining revenues (see Table 24).

Table 24: Revenue implications of a EU-CEMAC EPA (US\$)

Country	Revenue Shortfall
Cameroon	-149,256,117.00
Congo Republic	-75,104,052.00
Gabon	-74,302,297.00
Equatorial Guinea	-33,914,150.00
Central African Republic	-5,844,950.00
Chad	-26,677,028.00

Source: ECA, WITS/SMART Simulations

Cameroon, Congo Republic, Gabon, Equatorial Guinea and Chad will have significant absolute reductions in their revenues. Since the replacement of the revenue foregone cannot be achieved instantaneously, then concrete measures that would ensure fiscal sustainability once the EPAs are launched become critical. Otherwise, the revenue shortfall, coupled with trade creation that favours the EU, and the ability of the EPAs to undermine the regional integration efforts through deeper intra-regional trade, mean that the CEMAC countries are more likely to be net losers. The welfare gain shown in Table 25 and captured through the consumer surplus due to removal of trade restrictions on the EU goods may not be sufficient to counter the apparent imbalance in favour of the EU.

Table 25: Welfare (consumer surplus) implications of a EU-CEMAC/ECCAS EPA (US\$)

Country	Consumer Surplus
Cameroon	30,260,214.00
Congo Republic	16,047,979.00
Gabon	16,116,391.00
Equatorial Guinea	6,231,219.00
Central African Republic	1,050,210.00
Chad	4,348,180.00

Source: ECA, WITS/SMART Simulations

The consumers in the Central African regions, as expected, stand to benefit from the EPAs reciprocity principle. However, this welfare measure ignores the reduced producer surplus due to the supplanting of domestic producers in each of the countries within the region by the EU producers as evidenced by the rapid expansion of the EU exports.

The EU-SADC Economic Partnership Agreement: Trade creation and diversion effects

SADC is spearheading negotiations with the EU on behalf of seven of its member countries. Four of these countries, that is, Botswana, Lesotho, Namibia and Swaziland (BLNS) are also part of the South African Customs Union (SACU) jointly with the Republic of South Africa. However, in terms of EPAs negotiations, South Africa is not eligible. In any case, South Africa already has a Technical Cooperation and Development Agreement (TDCA) with the EU. However, an EPA that includes the BLNS countries is likely to be impinged upon by rules, which are dictated by the RSA-EU Technical Cooperation and Development Agreement of 2000.

For the seven countries whose EPAs negotiations are being spearheaded by SADC, the trade creation and diversion effects are presented in the Table 26. In the three countries, the net trade effect will be trade expansion, with all the expansion being attributed to increased market share for the EU. In Angola for example, the net trade effect will be an expansion of US\$213.5 million. Of the total EU's trade gain in Angola, 18 percent will be composed of diverted trade from other countries that arguably are possibly more efficient. Tanzania will also provide significant scope for market expansion for the EU, with the potential of total trade growth equivalent to US\$88.6 million. Thirty percent of this trade will be diverted trade. The Mozambique trade effects appear small in absolute terms compared to the other two countries outside SACU. The reason for this subdued response is not so much because of the small size of the Mozambican economy, but also because Mozambique has been one of the fastest liberalizers in Africa. Meaning that its tariffs were already low by the time of implementing the EPA reciprocity experiment.

Table 26: Trade Creation and Diversion Effects of EPAs for Selected SADC Countries (US\$)

	Trade Creation	Net Trade Diversion	SADC Diverted Trade	EU's Trade Gain
Angola	174,486,238.00	-39,002,117.00	-95,439.00	213,488,355.00
Botswana	9,319,349.00	-4,078,001.00	-5,940.00	13,397,350.00
Lesotho	486,569.00	-30,002.00	-105.00	516,571.00
Mozambique	16,487,354.00	-5,868,765.00	0.00	22,356,119.00
Namibia	6,992,788.00	-3,792,184.00	-13,123.00	10,784,972.00
Swaziland	979,162.00	-505,980.00	-1,003.00	1,485,142.00
Tanzania	63,523,552.00	-25,090,704.00	-607,417.00	88,614,256.00

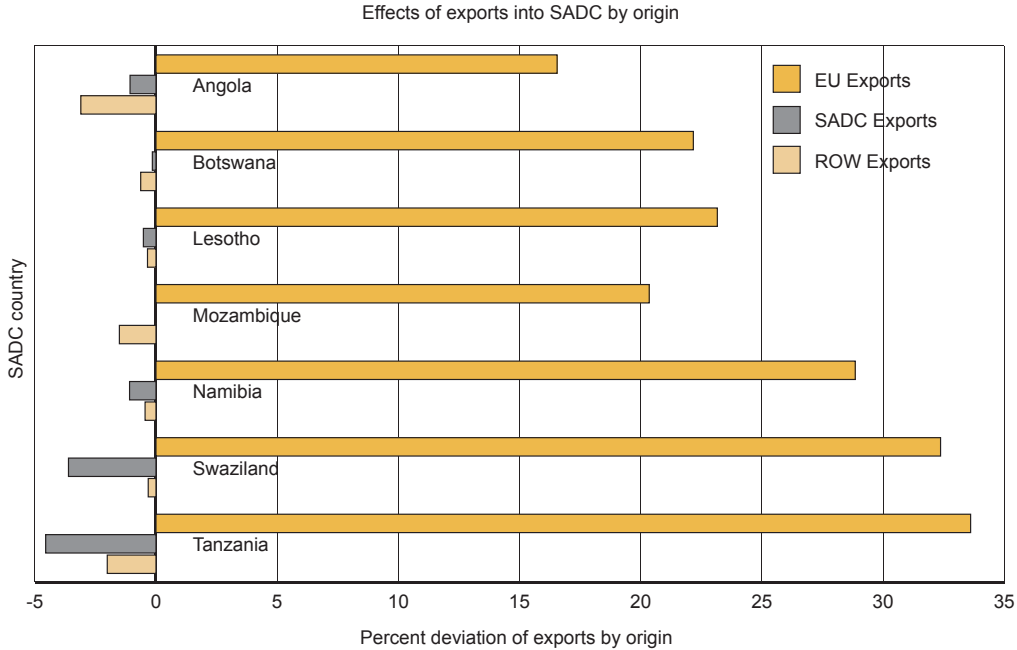
Source: ECA, WITS/SMART Simulations

In the case of the SACU countries except South Africa, there will also be positive trade growth. Given the existence of a common external tariff within SACU countries, it is reasonable to treat the four countries as one market, the BLNS market. Consequently, a SADC-EU EPA is likely to result in a trade creation

equivalent to US\$17.8 million. The deep integration of the SACU countries is evident from the limited trade diversion taking place in these countries markets. This contrasts sharply to the more than 32 percent of EU's trade gain in the BLNS countries that emanates from trade diversion from the rest of the world.

As would be expected, the EU exports into the SADC countries indicate a significant level of growth reaching at least 30 percent in Tanzania and Swaziland. In Mozambique, the EU exports expand by an additional 20 percent. The trade diversion indicated in Table 26 can also be visually seen in Figure 9. As indicated above, this diversion occurs both for other SADC member countries exporting into other member countries and also for the rest of the world countries. In the case of Tanzania, imports from the rest of the world are likely to contract by as much as 20 percent, with most of this trade being taken over by the EU. Tanzania and Angola also experience reduced imports from the rest of SADC countries, indicating possible negative impact of EPAs reciprocity to the objective of deepening regional integration through trade.

Figure 9: Implications on exports into SADC countries of an EPA by origin



As Figure 9 indicates, and also considering similar trend in the partial equilibrium results of the other African EPAs, there is need for the differentiation principle enshrined in the Cotonou Partnership

Agreement to be considered in the light of how it can be used to deepen regional trade, without compromising the desire for efficiency represented by the overall trade expansion in the EPA. Clearly, a consistent story has emerged that while globally the trade creation exceed trade diversion, at the country and regional level, the EPAs outcome is likely to be one that negates the objective of having greater integration among African countries. This implies, in the case the SADC-coordinated EPA, and also for the others, there is a trade-off between the reciprocity and the deeper regional integration principles of the EPAs. However, it is clear that in the case of SADC, the deep integration that has already taken place through SACU will minimize the negative effects that are associated with trade diversion. Trade diversion will be limited in the BLNS countries.

Revenue implications of a SADC-EU EPA

The revenue implications for SADC countries are likely to be a more serious issue for those members outside SACU. This is because, within SACU, there is a tariff revenue sharing formula that may not be adversely affected much by the EPAs impact. In any case, as Table 27 shows, the revenue effects are only significant for Botswana at US\$5.2 million and Namibia at US\$3.8 million. For the other two BLNS countries, namely Lesotho and Swaziland, the revenue shortfalls are not substantial even though these are small economies also.

Table 27: Revenue impacts of a possible SADC-EU EPA (US\$)

Country	Revenue Shortfall
Angola	-103,254,613.00
Botswana	-5,232,995.00
Lesotho	-256,314.00
Mozambique	-7,640,140.00
Namibia	-3,831,993.00
Swaziland	-811,140.00
Tanzania	-32,490,659.00

In the case of the non-SACU countries, Angola in absolute terms stands to lose US\$103.2 million. Tanzania may also lose up to US\$32.5 million from the dismantlement of the tariffs currently levied on EU goods. Mozambique, which is the smallest economy of the three non-SACU countries, is likely to experience a shortfall of US\$7.6 million. As in the case of the other potential EPAs discussed so far, there are costs associated to the revenue shortfall. In particular, challenges associated to policy reforms will have to be dealt with. In the case of Angola, there is the added challenge that a significant part of its revenues is based on natural resources extraction. This means that the tax administration infrastructure to cope with income or indirect taxes taxation is not as developed as in other economies in the region. Mozambique

also will face the challenge of having to deepen its reforms further, even though it has been undertaking economic reforms at an accelerated pace for a post-conflict country.

Welfare implications of a SADC-EU EPA

Unlike in the potential EPAs for ESA, ECOWAS and CEMAC, the SADC region gains in terms of consumer welfare are much lower in value terms. These consumer welfare effects are directly related to the trade creation resulting from the tariffs dismantlement. In the BLNS countries, there is a likelihood of non-substantial trade creation and consequently, the resulting welfare effects appear smaller. For the four countries that are members of SACU, the estimated welfare gains on the basis of 2001 trade statistics is only US\$757,935. This somehow emphasises the negative impacts such as revenue shortfall and trade diversion that the EPAs appear to be portending for these countries.

As for the non-SACU countries, Angola will benefit by close to US\$15 million improvement in welfare. Although this is insignificant compared to the large revenue losses, which implicitly relate to Angola's social welfare. Tanzania can hope to gain in terms of consumer welfare, US\$8.2 million.

Table 28: Welfare implications of a SADC-EU EPA (US\$)

Country	Consumer Surplus
Angola	14,940,260.00
Botswana	365,737.00
Lesotho	68,492.00
Mozambique	1,698,084.00
Namibia	246,540.00
Swaziland	77,166.00
Tanzania	8,180,419.00

Source: ECA, WITS/SMART Simulations

Conclusion

This chapter has presented overall results using a partial equilibrium model of the likely impacts of the EPAs being negotiated between four African regions and the EU. The discussion has focused on the impacts of a full tariff dismantlement in favour of EU exports to Africa on respective countries. The consistent outcome in each of the proposed EPA is that EU stands to gain significantly in terms of expanded trade into these markets. While part of this trade expansion will result from trade creation, which is welfare improving, significant proportions of the trade gain will also be due to trade diversion from the rest of

the world and from within the EPA grouping itself. As a result, while the reciprocity principle appears to be trade expanding, it will pose serious implications for deepened regional integration in Africa. Indeed, unless there are clear mitigating measures, the EPAs could seriously undermine the gains that have been achieved so far in the integration process of the continent.

Another consistent result from the simulations, are the potential adjustment costs that African countries will have to bear as a result of revenue shortfalls. Given the prominence of EU imports into these countries, the reliance of majority of the African countries on tariff revenues, the tariff dismantlement result in all cases in significant revenue shortfalls. It is only in the SACU countries where tariff losses appear limited and even then the revenues sharing formula within SACU is likely to ameliorate any shocks from the EPAs in those countries. The major challenge that these revenue shortfalls will pose is the adjustment costs associated with tax policy and administration reforms. The EPAs, if no appropriate measures are put in place to forestall the macroeconomic imbalances that are likely to result from the falling revenues, will have the possibility of undermining developmental objectives of the African countries.

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Endnotes

¹ It is important to note that when free trade of goods and services eventually becomes a reality, the non-LDCs may be at a stronger position than the LDCs that remain simply under EBA, as the non-LDCs will have been forced to restructure more deeply under EPAs. It is reasonable therefore to assume that EPAs may have more positive effects when compared to EBA initiative with respect to encouraging continuous structural adjustments that enable producers to restructure and hence be more competitive in the various economies that form EPAs.

² Whether an LDC country chooses EBA over EPA, it will still be faced with supply-side constraints. These will even be more pronounced by the fact that whether under EPA or EBA, preference erosion will be a reality when the Doha Round is concluded. Therefore, in order to resolve the supply-side constraints, adjustment will be required in the respective economies. Such adjustment is likely to be delayed under EBA when compared to the EPAs. The important issue then is to note that long-term competitiveness of economies under EBA may be delayed compared to those under EPA.

³ The Cotonou Partnership Agreement aims at reciprocity in trade policy for the EU and the ACP countries. Hence, the EPAs are expected to aim at the final products being FTAs. However, the European Union recently offered (see EC letter by Pascal Lamy and Franz Fischer dated 9 May 2004) to have the developing countries have the “Doha Round for free” meaning that they will not be expected to implement the agreements on tariff reductions in the on-going multilateral trade negotiations. If this proposal is accepted and forms part of the Doha Round agreement, then the architecture of the EPAs will have to change from what the CPA expects them to be.

⁴ The GTAP methodology will need to be complemented by partial equilibrium analysis, particularly with regard to revenue implications of the EPAs. Several studies that have looked at this issue of the EPAs to date have tended to employ the partial equilibrium methodology (see Morrissey et al.; Tekere and Ndlela 2003).

⁵ See Henri-Bernard Solignac Lecomte: “Effectiveness of Developing country participation in ACP-EU negotiations”.

⁶ ACP countries’ share of the EU market declined from 6.7% in 1976 to 3% in 1998, and still about 60% of total exports are concentrated in only 10 products. Source: http://europa.eu.int/comm/development/body/cotonou/overview_en.htm#Heading1

⁷ See San Bilal and Kathleen Vn Hove: “*An overview of the ACP-EU negotiations: issues and timeframe*”, ECDPM, CTA international seminar, November 2002.

⁸ See http://europa.eu.int/comm/development/body/cotonou/lome_history_en.htm

⁹ See Bilal and Van Hove, op. cit.

¹⁰ See Ben Hammouda: “*Afrique: pour un nouveau contrat de Développement*”. L’Harmattan, 1999.

¹¹ * COM(96)570 final of 20 November 1996 “Green Paper on relations between the European union and the ACP countries on the eve of the 21st century - challenges and options for a new partnership”.

¹² See Sanoussi Bilal: « Les aspects multilatéraux des accords de partenariat économique entre les pays ACP et l’Union Européenne ». ODI, ECDPM, May 2002.

¹³ This Waiver was granted by other WTO members on the basis that the period until 2008 would be used for negotiations of WTO compatible trade arrangements between the ACP countries and the EU.

¹⁴ Art. 36.1 of the Cotonou agreements stipulates that the parties will seek to “conclude new World Trade Organization (WTO) compatible trading agreements, removing progressively barriers to trade between them and enhancing cooperation in all areas relevant to trade”.

¹⁵ See “assessing Regional Integration in Africa”{

¹⁶ At the introduction of COMESA FTA, there were serious concerns about the loss of government revenue. Two years after the FTA came into force for the signed up countries, there was no evidence to suggest that countries in the FTA had experienced revenue loss as a result. The study cites the examples of Uganda, Kenya and Zambia.

¹⁷ At the time of the study under review, the issue of geographical configuration for the SSA countries had not been concluded. Some of the countries included in that study have since decided to negotiate for EPAs under the ESA grouping.

¹⁸ Consider the case of COMESA and SADC. In both RECs, there is no common external tariff. Therefore, current suppliers from COMESA into SADC are likely to be displaced by EU either post-EU-ESA or post-SADC-EU EPAs. This would undermine efforts to rationalise the integration of COMESA and SADC.

¹⁹ The ORANI model is one of the early general equilibrium models that have come to be known as Computable General Equilibrium (CGE) models. The CGE models have been credited with the operationalization of the abstract Arrow-Debreu general equilibrium model. The ORANI model applied the Johansen procedure that was first applied by the Norwegian economist to find the solution for Norway’s first CGE model (Johansen 1960). Since the Johansen solution procedure, other mathematical

numerical methods have been integrated to the solution algorithms for general equilibrium modelling to the extent that non-linear models have become part of the wide class of CGE models.

²⁰ Chapter 2 of what has come to be popularly known as the GTAP Book covers the economic theory of the GTAP model.

²¹ A composite region is an aggregation of different countries whose individual disaggregation has not been done in the GTAP database e.g. rest of sub-Saharan Africa is an aggregation of all African countries that are not available in the database as stand-alones.

²² As indicated in Brockmeier (2001), according to a Cobb-Douglas per capita utility function, the regional income is distributed over the three forms of final demand: private household expenditures; government expenditures; and savings. But the constancy of this proportionality between the three may sometimes not be maintained because of the endogenous nature of the private expenditure through its non-homothetic function. The price of the private household expenditure ends up depending on the quantities purchased and as a result of this endogeneity of the private household's optimisation problem; the shares in the resultant demand equations cease to be constant.

²³ The simulations conducted in this study use version 5.4 of the GTAP database, which is not very different from Version 5 apart from the level of disaggregation, and a few improvements. However, Version 6 of GTAP database that is yet to be made available does away with the aggregation rest of the world that is then replaced with composite aggregates for different geographical regions.

²⁴ The simulations for the EPA analysis are done at an aggregated continental level but to understand the data, an exposition is done using disaggregated African countries included in the GTAP database.

²⁵ In the GTAP version 5 database, the recently EU acceding countries were either presently individually as in the case of Poland and Hungary or as members of the composite Rest of Central European Association. In this study's aggregation scheme, the new EU-10 is aggregated with original EU-15 to an expanded region EU.

²⁶ It is possible to disaggregate the sectors of industries further especially if one is concerned with more details of which sub-sectors gain or lose from trade liberalization.

²⁷ The proportion of industrial exports for Zambia appears overstated.

²⁸ As seen in the introductory part of this study, deeper regional integration through elimination of intra-African tariff and non-tariff barriers is one of the principles of the EPAs. It is therefore possible that at the negotiations that the African countries could commit to reducing tariff barriers among themselves as part of receiving non-reciprocation commitment from the EU.

²⁹ The transport and insurance costs are not reflected in the equation explicitly.

$$\frac{\Delta M_{ijk}}{M_{ijk}} = \eta_i^m \frac{\Delta P_{ijk}}{P_{ijk}}$$

³⁰ The elasticity of import demand is

³¹ As emphasized in Laird and Yeats (1986), in the case of pre-existing level of imports, there is no net welfare gain in the country as the tariff reduction simply means a reallocation/transfer of revenue from the government to the consumers.

³² The following sectors were found to be the most important with regards to China's accession to the WTO on the basis of the tariff rates currently applied on Chinese goods: animal products, clothing, low and medium technology industrial goods in the case of sub-Saharan Africa; cereals and low technology goods into ROW; cereals, other natural resources and medium technology goods into North America; other natural resources, low and medium technology goods into Japan; and low and medium technology goods into the enlarged European Union.

³³ Due to failure for GTAP version 5.4 database to fully reflect preferences African countries enjoy in the EU market, results from this simulation may be understated in the sense that the rate of reduction is not as would be the case had tariffs faced by SSA countries been zero.

³⁴ The free trade area between the EU and SSA is presented as an alternative scenario in case the negotiations eventually aim for an FTA rather than what is currently perceived as the objective to establish partnerships that are not necessarily FTAs.

³⁵ Ideally, due to the mix of LDCs and non-LDCs among the SSA countries, an asymmetrical intra-Africa trade liberalization would be more realistic. However, due to the data aggregation and the limited number of individual SSA countries disaggregation in the GTAP database, we were unable to capture this asymmetry arrangement where all the least-developed SSA countries would have full market access in the non-least developed SSA countries. The latter would face some level of protection in the least-developed SSA countries.

³⁶ The macroeconomic closure in the GTAP scenarios discussed here allows the supply for unskilled labour to be endogenous by fixing the nominal wage for the same labour category. The endowment change creating a positive impact on welfare is in this case associated to the endogenous unskilled labour rather than the other factors of production