

An Impact Study of the EU-ACP Economic Partnership Agreements (EPAs) in the Six ACP Regions

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**AN IMPACT STUDY OF THE EU-ACP ECONOMIC PARTNERSHIP AGREEMENTS
(EPAs) IN THE SIX ACP REGIONS**

NON-TECHNICAL SUMMARY

The EU's trading relations with the 77 members of the African, Caribbean and Pacific (ACP) countries have historically been framed by a series of conventions, most recently Lomé, which granted unilateral preferences to the ACP countries on the EU market. Although the ACP countries are amongst the most vulnerable countries in the global trading system, the conventions nevertheless violated WTO rules as they established unfair discrimination between developing countries. A change was therefore required. The Cotonou Agreement in 2000 paved the way for a new trading regime based on reciprocal preferences. On this basis, in 2001 the WTO agreed to give a waiver to the EU to continue providing unilateral preferences until January 2008.

Under the Cotonou Agreement, Economic Partnership Agreements (EPAs) had to be established between the EU and the ACP countries. EPAs define a new stage in the policy of the EU towards the ACP developing countries, establishing a framework which is fully compatible with the WTO trading rules, in the sense of GATT Article XXIV.

Negotiations with the EU to establish EPAs began in September 2002. For the purposes of negotiations, the 77 ACP countries have been grouped into six negotiation regions (West Africa, Central Africa, Eastern and Southern Africa, the Southern African Development Community, the Caribbean and the Pacific) based on existing regional integration institutions.

During 2007 seven Interim Agreements and a Caribbean EPA have been negotiated. All establish free trade areas for goods between the EU and various ACP countries that are compatible with the provisions of GATT Article XXIV and, in the case of the Caribbean EPA, a services agreement compatible with the provisions of GATS article V. In total 35 of the 77 ACP countries have concluded negotiations on Interim Agreements or an EPA with the EU: 9 LDCs and 26 non-LDCs. Among the remaining ACP countries, 32 LDCs benefit from duty and quota free access to the EU under the GSP "Everything But Arms" arrangement and 10 non-LDCs are eligible for the standard GSP. Negotiations will continue in 2008 towards full regional EPAs including a full range of trade in goods, services and trade-related areas to replace the Interim Agreements.

The EPAs raise several concerns amongst ACP countries. Firstly, ACP countries fear that giving preferential access to EU products, under a reciprocal arrangement, would put their producers in numerous sectors at risk of increased competition. Secondly, they also fear that cutting tariffs for EU products would result in a sizeable loss of tariff revenue that would hurt their public budgets. Thirdly, they claim that the timetable for the negotiations and their implementation is extremely tight given the numerous modalities still to be precisely determined. For example, what will be the scope and pace of liberalisation? Which products will be considered as sensitive for ACP regions and thus excluded from liberalisation? How will integration within each region be linked with ACP-EU liberalisation?

In order to better address these concerns, our study intends to present a very detailed analysis of the trade-related aspects of EPAs negotiations. We use a dynamic partial equilibrium model at the HS6 level (covering 5,113 HS6 products). The main source of trade data are Comext and BACI, while ad-valorem tariffs and Tariffs-Rate-Quotas are provided by MacMapHS6v2. The use of these data sources means that we can accurately deal with the crucial aspect of sensitive products. Two alternative lists of sensitive products are constructed, one giving priority to the agricultural sectors (H1 option), the other focusing on tariff revenue preservation (H2 option). The dynamic aspect of the model allows us to measure the impact of the agreement over different time periods. It is important to remember the strong asymmetry existing between the two trading partners. ACP countries are highly dependent on the EU market, largely due to their historical links. For the EU, on the other hand, despite this longstanding partnership, the ACP region remains of more modest economic importance, accounting for very little in terms of trade. The ECOWAS group alone accounts for half of total EU imports from the whole region. On the export side, ACP countries tend to be highly specialised in a few key products. This strong concentration mainly derives either from the abundance of minerals and natural resources in many African countries (petroleum, gold, diamonds and uranium and radioactive elements) or a heavy reliance on a few unprocessed agricultural commodities such as coffee or cotton.

Looking at protection levels, ACP regions apply differing tariff rates on EU exports. CEMAC, COMESA and Pacific regions appear to be the most protective. Tariff structures present the usual shape. The highest level of protection is in agriculture, with high peaks in agro-food and vegetable production. In manufacturing, CEMAC and SADC still protect textiles while COMESA has high tariff rates in the metallurgic sector. On the other hand, EU trade policy is quite generous to ACP countries. The Cotonou agreement gives largely free access on all industrial products. The only protection remains in agriculture. However, given the high level of specialisation of many ACP countries on agricultural products, some of which are still protected, the average protection they face is often higher than that applied by the EU to the rest of the world.

To be WTO compatible, the EPAs had to satisfy GATT's Article XXIV, including the liberalisation of "substantially all" trade. However, this reciprocity is not the only objective of EPAs and, as the European Parliament has rightly pointed out there is the need "to be vigilant that the issue of compatibility does not take precedence over the overall aim of sustainable development". In this sense, EPAs include several other elements, including support for deep integration and development assistance.

Although both of these elements can be important catalysts for growth, due to difficulties in their integration into the model, they are not quantified in this study. On the other hand, such elements are missing in the intermediary agreements signed with most ACP. However they should not be overlooked when it comes to the interpretation of the results. In other words our results need to be seen in the light of broader positive effects that can be expected from EPAs, but which are not modelled here.

To define what "substantially all trade" means in terms of share of trade, we have followed the guidelines of the EU Commission. They consider that a Preferential Trading Agreement

(PTA) is WTO compatible if 90 percent of bilateral trade is fully liberalised.¹ We use this criterion to simulate EPAs for each negotiating regional block. We assume that the full implementation of EPAs will be achieved within 15 years. To reflect the asymmetry between partners, the EU is modelled as granting free access to all ACP exports in 2008. The selection of sensitive products for the ACP is a key issue. Two approaches have been chosen in our modelling, inspired by the actual negotiation. Under the H1 scenario, priority is given to agricultural products, to reflect the political sensitivity of the sector. Under the H2 Scenario, sensitive products are selected such that tariff revenue losses are minimised at the regional level.

The framework for the analysis is a partial equilibrium model focusing on the demand side. Different simulations are performed in order to assess the impact of both potential outcomes from the EPA negotiations and alternative scenarios in the event that EPAs are not signed. This counterfactual is particularly relevant for ACP that ultimately did not embark in agreements with the EU. In the latter context, firstly, we consider the end of Cotonou, no EPA and GSP tariffs applied to non-LDC ACP countries (Everything But Arms-EBA-will still provide market access for LDCs). Secondly, we model the end of Cotonou, no EPA and the GSP+ tariffs applied to non-LDC ACP countries (EBA for LDCs). Lastly, we consider the end of Cotonou following successful EPA negotiations, using the H1 and H2 scenarios. As a sensitivity analysis, we also examine the H1 case in circumstances where the Doha round of multilateral negotiations is also completed, in order to measure the magnitude of potential preference erosion.

The consequences of EPAs are assessed through different indicators: changes in exports and imports, changes in tariff income and the countries' current accounts. We avoid to put emphasis on the effects on domestic production, due to the fact that information at the product level is scarce and of low quality.

All the results have to be interpreted as deviations from the reference situation, which is not the status quo (which is no longer legally tenable) but rather the only current legal alternative, which is a combination of GSP for ACP-non LDCs and EBA for ACP LDCs. For instance, when considering the impact on trade, ACP exports to the EU are forecast to be 10 percent higher with the EPAs than under the GSP/EBA option. In percentage terms, the largest increases in exports will occur in the livestock sector, which is forecast to at least double in the EPA scenario. Exports of agricultural products (excluding meat and cotton) and textile products are forecast to increase by 40 percent. On the import side, a 7 percent average increase overall is forecast for ACP countries in 2015, against 17.7 percent in 2022. This low forecast in the short run is explained by the limited liberalization of ACP imports over this time horizon.

On average ACP countries are forecast to lose 70 percent of tariff revenues on EU imports in the long run, under the central scenario (H1). The most affected region is ECOWAS. Yet imports from other regions of the world will continue to provide tariff revenues. Thus when tariff revenue losses are computed on total ACP imports, losses are limited to 26 percent

¹This quantitative requirement (90 per cent of free trade) is achieved considering both 90 per cent of bilateral trade in volume and 90 per cent of tariff lines in the Harmonised System.

on average in the long run under H1, and 19 percent under H2 (when the product lists are optimised).

Furthermore, the final impact on the economy depends on the importance of tariffs in government revenue and on potential compensatory effects. Some positive impacts can be expected from EPAs, whenever an enlargement of the fiscal basis upon which other public incomes are based is achieved. However this long term and less visible effect will mainly depend on the capacity of each ACP country to reorganise its fiscal base, shifting to other forms of taxation.

Some improvements in the efficiency of the customs administration could be attained, as a consequence of diminished trade flows to tax and monitor. Considering a 50 percent increase in the collection rate, we find that tariff revenue losses could be significantly alleviated.

ABSTRACT

This study intends to present a very detailed and dynamic analysis of the trade-related aspects of Economic Partnership Agreements (EPAs) negotiations. We use a dynamic partial equilibrium model – focusing on the demand side – at the HS6 level (covering 5,113 HS6 products). Two alternative lists of sensitive products are constructed, one giving priority to the agricultural sectors, the other focusing on tariff revenue preservation. In order to be WTO compatible, EPAs must translate into 90 percent of bilateral trade fully liberalised. We use this criterion to simulate EPAs for each negotiating regional block. ACP exports to the EU are forecast to be 10 percent higher with the EPAs than under the GSP/EBA option. On average ACP countries are forecast to lose 70 percent of tariff revenues on EU imports in the long run. Yet imports from other regions of the world will continue to provide tariff revenues. Thus when tariff revenue losses are computed on total ACP imports, losses are limited to 26 percent on average in the long run and even 19 percent when the product lists are optimised. The final impact on the economy depends on the importance of tariffs in government revenue and on potential compensatory effects. However this long term and less visible effect will mainly depend on the capacity of each ACP country to reorganise its fiscal base.

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AN IMPACT STUDY OF THE EU-ACP EPAS IN THE SIX ACP REGIONS

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1. INTRODUCTION

This study addresses the impacts of the non-reciprocal tariff concessions granted by the EU to the ACP that had to be replaced by new – WTO compatible – preferential agreements.

It was hoped that these agreements could also promote regional integration among sub-groups of ACP countries. The negotiations on Economic Partnership Agreements (EPAs), between the EU and a number of ACP negotiation groups were scheduled to be concluded by 31 December 2007. During 2007 seven Interim Agreements and a Caribbean EPA have been negotiated. All establish free trade areas for goods between the EU and various ACP countries that are compatible with the provisions of GATT Article XXIV and, in the case of the Caribbean EPA, a services agreement compatible with the provisions of GATS article V. In total 35 of the 77 ACP countries have concluded negotiations on Interim Agreements or an EPA with the EU: 9 LDCs and 26 non-LDCs. Among the remaining ACP countries 32 LDCs benefit from duty and quota free access to the EU under the GSP “Everything But Arms” arrangement and 10 non-LDCs are eligible for the standard GSP. Negotiations will continue in 2008 towards full regional EPAs including a full range of trade in goods, services and trade related areas to replace the Interim Agreements.

For the agreements to be WTO compatible they needed to include reciprocal market access which covers “substantially all” trade.¹ However, this reciprocity is not the

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¹This quantitative requirement (90 per cent of free trade) is achieved considering both 90 per cent

only objective of EPAs and, as the European Parliament has rightly pointed out there is the need “to be vigilant that the issue of compatibility does not take precedence over the overall aim of sustainable development”.² In this sense, EPAs include several other elements, including support for deep integration and development assistance.³

Although both of these elements can be important catalysts for growth, due to difficulties in their integration into the model, they are not quantified in this study. However they should not be overlooked when it comes to the interpretation of the results. In other words our results need to be seen in the light of broader positive effects that can be expected from EPAs, but which are not modelled here.

Without any doubt significant differences exist, in terms of economic development, between the two parties to these negotiations. On the one hand there is the EU, one of the richest regions in the world, where ACP countries do not count much in terms of trade. On the other hand ACP negotiating groups are a combination of relatively poor developing countries and LDCs, most of which are highly dependent on the trade relationship with the EU. This dependence is a central aspect when considering the potential losses in import taxes that EPAs may engender and the potential negative impacts of any deterioration in market access should EPAs not be concluded.

In many ACP countries a key fear is of significant tariff revenue losses. Often tariff revenues collected on imports from the EU still constitute a significant amount of government budgetary resources. Given the narrow fiscal basis of many ACP countries, a loss of tariff income would translate into public budget constraints. However, these effects will not be immediate. Tariff losses will be dampened temporarily during the period of progressive phasing out of tariffs on EU imports, (the increase in the level of imports on which the reduced tariffs are applied could cancel out the reductions in the tariff the so-called “Laffer” effect).⁴ Furthermore, a positive impact on economic development can be expected from EPAs, leading to an enlargement of the fiscal basis upon which other public incomes are based, although this will be a long term and less visible effect. In the long run, the final outcome in terms of public budgets will mainly depend on the capacity of the ACP to reorganise their fiscal base, shifting to other forms of taxation. It is also vital to increase the tax collection

of bilateral trade in volume and 90 per cent of tariff lines in the Harmonised System.

²See ?

³Deep integration involves integrating policies and institutions that facilitate trade by reducing or eliminating regulatory or behind-the-border impediments to trade.

⁴The Laffer effect is a concept that has long been discussed in the context of domestic taxation. Reducing taxes will create incentives to pay (as compliance is less costly) that will enlarge the tax base. This means that, even with a reduction in the tax rate, the net effects on tax revenue can be positive. In the context of tariffs and trade, a tariff cut will boost imports and increase the volume of trade affected by the remaining tariffs. However, once tariff becomes equal to 0, potential tax revenue no longer exists.

capacities of ACP countries if major fiscal imbalances or extensive cuts are to be avoided.

There are several standard methodologies that can be used to assess the impact of trade policies, including computable general equilibrium (CGE models) and partial equilibrium (PE) simulation models. General equilibrium models are certainly the most appropriate to try to assess the overall trade and welfare effects of such agreements. However they require social accounting matrices for the affected countries, with comprehensive information on each economy involved and their results are driven by the quality of these data. Since these data are not available for most ACP countries, CGE modelling was not an option for this ACP-wide analysis. Moreover, due to the high level of product specialisation of numerous ACP countries, using a CGE model describing the whole economy at an aggregated level (even at the GTAP sector level) risks missing key impacts. Last but not least, working at the product level is crucial from the point of view of policy relevance because of the problematic issue of the need to select ‘sensitive products’ which will be excluded from liberalisation. For these reasons, we have decided to use a partial equilibrium model, expressly built for this purpose.

In order to take account of the difference in the level of development between the two regions, we give a central place to the hypothesis that local or regional products are different from European products and thus less substitutable. In assessing the results it is also important to remember that the model relies on an assumption of infinite supply capacity, although in reality ACP countries have limited production capacities to resist international competition. This means that our figures have to be interpreted only as ‘potential’ gains.

Given the complexity of the EPAs, the study cannot include all issues that were at stake in the negotiations. The main focus is on trade and budgetary aspects. In particular, the paper deals with the major role that the choice of sensitive products may play in this sense. In order to work on this, we use detailed protection data, taken from the last version of the MAcMap database updated for this study with data on GSP/GSP+ protection levels. The ad-valorem equivalents of the bilateral protection levels and of the consolidated tariffs are taken into account at the 6-digit level of the harmonized nomenclature (HS6). Given the uneven level of achievement of agreements signed so far, a number of simulations are also performed in order to identify the impacts of possible alternative policy options to EPAs.

Though the different computations are made at the level of national economies and at the HS6 level, the results will be presented at the level of ACP negotiating regions and aggregated sectors. Considering the geographical coverage it has to be said that we only incorporate into the study those countries for which we had all the elements, in

terms of data availability, to run the model (see Appendix A, for the list of countries included). It is important to bear in mind that the regions are characterised by strong heterogeneity between and within themselves. One key difference is the number of LDC countries within each group, which is important to the potential impact of possible alternatives should EPAs not be signed.

The paper is structured as follows. After reviewing the literature, section three describes the existing trade patterns of ACP countries. Then, in the fourth section we focus on initial protection and discuss the detailed features of market access in the EPAs. Finally, the results of the EPAs simulations are presented and discussed.

2. LITERATURE REVIEW

A range of studies have tried to model the impact of EPAs. They generally use either General Equilibrium (CGE) models, or Partial Equilibrium (PE) models. The key impacts which they seek to assess are on trade, welfare and government revenues (via tariff revenue losses).

General equilibrium models are certainly more appropriate tools to assess the overall trade and welfare effects of such agreements. However, as indicated above, they lack detail on a sectoral level (they use GTAP sectoral disaggregation while numerous ACP countries are highly specialized in a few products) and on ACP regions (social accounting matrixes are only available for a limited number of individual ACP countries).

For these reasons, a few studies have, like this study, employed a PE model. PE models normally address the issue of welfare by comparing trade creation and trade diversion effects, ignoring other sources of welfare effects such as the impact of more efficient reallocation of resources on the whole economy or changes on the terms of trade. Moreover PE models usually rely on an assumption of common price elasticity for all imports and perfect substitutability between goods.

Both types of approaches tend to ignore the adjustment costs faced by an economy. Those costs emerge from the reallocation of factors of production across sectors, or the reorganization of the fiscal base, shifting to other forms of taxation to replace tariffs. Moreover, they both assume that tariff cuts will translate into proportional reductions in prices which benefit the final consumer. In reality it is likely that some of the cut will be appropriated by the producers/importers, and/or by the exporter (EU) due to an incomplete pass-through of tariff changes to consumer prices (see

?).⁵

In addition to such technical difficulties with the models, different trade scenarios often do not incorporate important aspects of the EPAs negotiations, such as the consequences of excluding specific products from tariff liberalization on the ACP side, and the use of different methods to select them. Including these “sensitive” products in the analysis can significantly change results. Obviously, to introduce this important aspect effectively, it is necessary to work at the most disaggregated level (hs6 product level).

Finally to understand the results, it is important to be aware of the assumptions that have been made in each study in the design of trade simulations. In this respect many studies erroneously compare EPA negotiations to the status-quo (Cotonou-Lomé). In reality in the absence of EPAs, ACP countries would revert to the situation of other developing economies in the WTO: the Generalised System of Preferences (GSP) (or, potentially, GSP+, a more generous system which is available for a limited number of developed countries) and EBA for LDCs.⁶

When reviewing the literature, it is difficult to compare studies, even those ostensibly using the same methodology, due to different assumptions in trade simulations and because studies focus on different ACP regions/countries.

Nevertheless, we can say that, overall, the literature based on partial equilibrium models, tends to show that European exporters are the main beneficiaries of the EPAs, as their sales to the ACP markets increase substantially after the implementation of these agreements. Implementation pushes the prices of imports from Europe down, thus reducing the imports from non-EU countries. At the same time the welfare of ACP consumers is increased due to a reduction in prices.⁷ In some cases, however, whenever less efficient EU producers replace more efficient non-European producers, this type of import substitution is associated with a relative loss of overall economic efficiency. This situation tends to reduce the welfare of ACP countries. Additionally, these PE studies emphasize the potential negative impact of the EPAs on the public revenues of ACP countries.

The United Nation Economic Commission for Africa (UNECA, 2005) has provided an exhaustive assessment of the effect of EPAs on African economies, based on the

⁵This effect strongly depends on the internal market structure of a country, which is far to be competitive in an ACP country.

⁶GSP+ levels of access are accorded to a limited list of developing countries that have signed and implemented a number of international conventions on sustainable development. Up to now, few ACP countries have adhered to the required conventions.

⁷Under the assumption of perfect imports substitutability, a hypothesis strongly questioned by ? in the case of ACP countries.

SMART partial equilibrium model. The study forecasts that European firms could increase their exports by more than 20 percent, while imports from third markets would fall, partly as a result.⁸ In the meantime, consumer welfare is forecast to increase by US USD 509 million, with fiscal losses amounting to US USD 1,972 millions. These results concur with the conclusions of other studies, for example ? looking only at the ECOWAS regional economic community, the ? for the COMESA sub-region, ? for SADC and ? for the Pacific.

More recently, ? provide an analysis of the decomposition of welfare effects in a PE framework. Their approach is rather different from previous studies. Their paper studies the welfare effect of EPAs in the case of a small home country member which is starting to form a PTA. Along with trade creation and trade diversion, they also explicitly model the resulting consumption effects. Moreover the method offers a relatively simple means to estimate potential revenue impacts, a matter of considerable concern to ACP policy makers. The value of the method is not so much in the aggregate estimates of the welfare effect (which is small, as is typically the case for such estimates), but in identifying the sectors or products that are most likely to be affected for ACP countries. The net welfare effects vary from sector to sector, depending on the competitiveness of imports from the EU compared to the rest of the world and compared to regional production.

The method is applied to an EAC (East African Cooperation: Kenya, Tanzania, and Uganda)-EU EPA as an illustration, with estimates of the effects on Tanzania and Uganda.

The analysis suggests that the welfare effects (excluding revenue effects) from a reciprocal agreement with the EU will be small whether positive (for Uganda) or negative (for Tanzania). However ACP countries are forecast to have large adjustment costs, especially due to tariff revenue losses.

Uganda experiences a positive (small) welfare impact because of a relatively greater increase in imports from the EU that displace relatively inefficient imports from Kenya. It therefore experiences a larger consumption welfare gain. Although it is not directly estimated, the model suggests that Kenya would incur a welfare loss, as it could lose regional market share, in addition to facing increased competition from EU imports on the domestic market. Yet the potential costs of an EPA, for countries like Kenya (which is not an LDC), would be offset to some extent by increased (or maintained) preferential access to the EU. However a PE model is not the appropriate method to model such impacts, which would require a CGE method.

⁸Except for Madagascar, Eritrea and Angola. In the case of Zimbabwe, Seychelles, Mauritius, Djibouti, Kenya and Ghana the increase is forecast to be above 35 percent. This drop accounts for 14 percent to 29 percent of the trade creation, in the respective cases of CEMAC and SADC.

As the authors point out, many other aspects need to be considered, which would require a dynamic framework. Formation of an EPA with the EU may have beneficial impacts by making the trade liberalisation measures undertaken by ACP countries irreversible and therefore more credible (the so called ‘locking-in’ effect), as also argued by Collier and Gunning (2005).⁹ This in turn may bring benefits in terms of increased domestic and foreign investment in ACP countries. Secondly the rest of the world is unlikely to stay unchanged as EPAs are implemented. Notably North America might potentially want to set up similar partnership agreements and these would change the welfare impact of a partnership agreement with the EU. In fact the simultaneous opening up of ACP countries to both the EU and the USA would substantially reduce any trade diverting effect.¹⁰ On the other hand, any further agreements between the EU and other suppliers could reduce the value of the preferences that the EU would grant to ACP countries. Expected gains would reduce if a multilateral Doha agreement were to be reached or whenever the EU signs a PTA with other countries (e.g. an EU-Mercosur RTA) (see ?).

Results presented so far do not take into consideration the impact of the terms of trade or structural changes on the output of ACP countries. They also do not indicate the ‘second order effects’ as trade shifts to third markets or endowments are reallocated. General Equilibrium Modelling gives information on these issues. They have used the GTAP model and database (version 6.0) to estimate the impact of EPAs on the SADC sub-region.¹¹ The authors find that after the implementation of a fully reciprocal EPA, the welfare of the SADC sub-region would grow by USD 1.5 billion, due in part to the improvement in their terms of trade. For some SADC countries, in order to reap the full benefits, it is crucial to seek further integration between SADC countries, in parallel to EPAs. These gains, while remaining positive, could be reduced by other liberalisation processes such as multilateral negotiations or the possibility of the EU entering a free trade agreement with other countries/regions such as Mercosur. Similarly, the estimated gains would need to be revised downwards if agricultural liberalisation were not as far reaching as for manufactures.

Although it provides some interesting insights, the paper focuses only on SADC and more importantly it does not explore alternatives to EPAs. ? tries to investigate whether EPAs are the first best optimum for ACP countries compared to other main alternatives under a general equilibrium framework (GTAP model).¹²

⁹Although the history of foreign investment in these countries is not very encouraging, making a major impact unlikely.

¹⁰The effect on tariff revenue losses would be larger.

¹¹They simulate a full FTA between SADC countries and the EU.

¹²He also uses version 6.0 of the GTAP database.

According to his forecasts, switching from the Cotonou preferences to the GSP and EBA would be less costly than adopting EPAs. However SADC and Caribbean countries may obtain a better result in terms of GDP and welfare through the adoption of EPAs. The author also investigates the “GSP+” option. Extending the European GSP so that non-LDC ACP exporters face protection roughly equivalent to the protection they face under the Cotonou scheme, while other exporters remain restricted, gives the most satisfactory result for all ACP sub-groups, in terms of welfare, GDP value, fiscal and external balances.¹³ The exception still remains the SADC group for which welfare and GDP value are larger under EPAs.

In our study we stick to a partial equilibrium model, the advantaged and disadvantages of which have been extensively discussed above. Our analysis aims to improve on previous studies in several ways:

- The partial equilibrium model has been designed to allow for a very detailed evaluation (at the hs6 headings) of the EPA negotiations and the alternatives to them. Consequently very detailed data is used, both for trade and protection. We accurately deal with the possibility of excluding some products from liberalisation by ACP countries. Different selection methods are considered, to see whether or not the approach to selection makes a difference. The issue of the products currently covered by special protocols is also taken into account. Finally for some specific products a capacity constraint has also been implemented.
- We do not rely on the perfect import substitutability hypothesis. On the contrary we introduce an horizontal and vertical differentiation between products.
- Different scenarios are simulated in order to assess the impact of both the EPAs negotiations and alternatives to them. When assessing the impact of EPAs we use as the counterfactual the GSP/EBA combination of market access, instead of the status quo.
- Different time horizons are considered: 2015 and 2022, to evaluate impacts both in the medium and the long run.
- When presenting the effects of EPAs on ACP countries’ public finances we disentangle the overall outcome into three effects: a direct effect, due to tariff liberalisation; a trade diversion effect and a domestic effect. Finally we look

¹³Note that this option, as modelled by Perez, is not WTO compatible and thus not a real “alternative” to EPAs (see ?).

at the fiscal impact of EPAs incorporating the possibility that the efficiency of ACP customs administrations could be improved.

3. TRADE RELATIONS BETWEEN ACP COUNTRIES AND THE EUROPEAN UNION

3.1. Asymmetric trade relations between the ACP and the EU

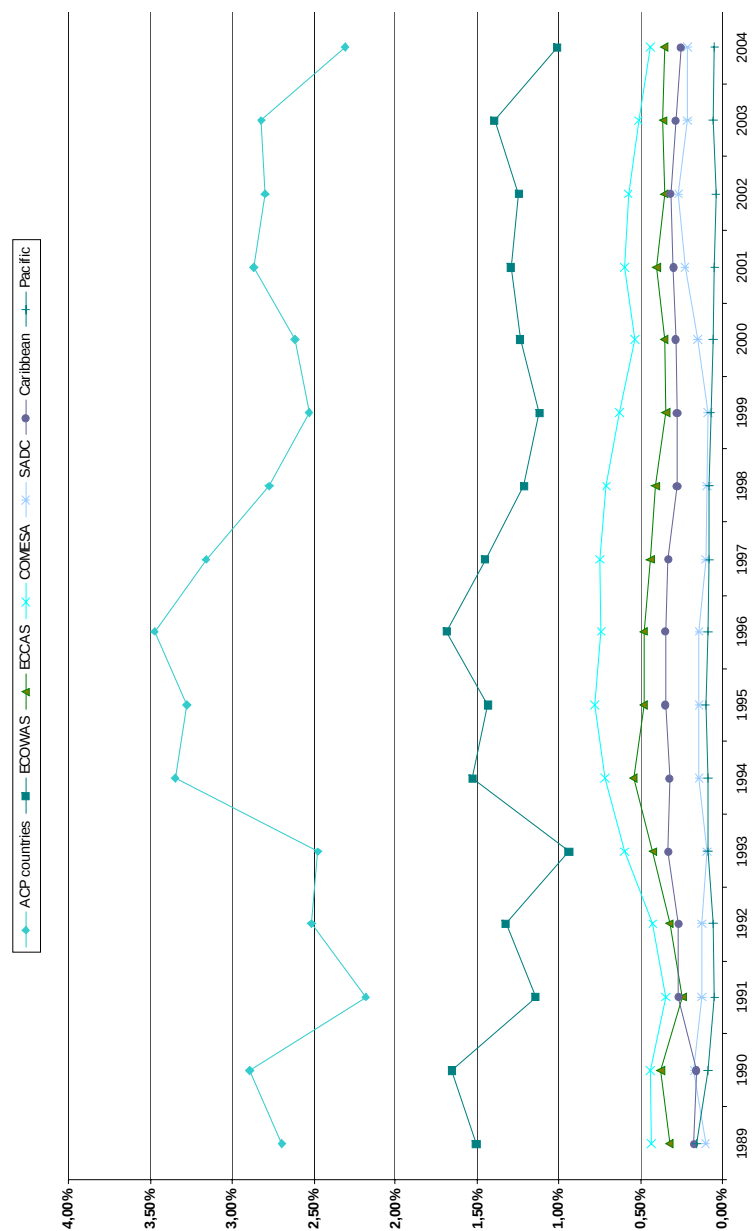
Looking at the nature of trade relations between the EU and the ACP, it is clear that far more is at stake in these negotiations for the ACP than for the EU. Disparities in trade are significant. For the EU, ACP countries represent a limited share of its trade. This is not the case for most ACP.

As depicted in Figure 1 less than 2.5 percent of EU imports currently come from the ACP region. The dynamics of this figure is strongly linked to the performance of the ECOWAS group, which alone accounts for half of the total EU's total imports from the whole region.

In contrast, ACP countries are highly dependent on the EU, largely due to the historical links between the EU and ACP countries (see Table 1). Nearly 30 percent of all ACP exports go to the EU, while for some regions it is even higher. For Central Africa (ECCAS), for example, this figure is close to 38 percent. Additionally, almost 28 percent of all ACP imports come from the EU. For Central Africa (ECCAS) the figure reaches 53.5 percent, followed by West Africa (ECOWAS) with 37 percent. This dependence is a central issue when considering the potential impacts of EPAs on import tax income.

It is important to keep in mind the high level of heterogeneity that exists, not only among the different regional groups, but also within them. At a more disaggregated level, there is an even higher level of disparity in the figures. There are countries, such as Cameroon, for which the EU is an essential trading partner (71.7 percent of exports and 61.2 percent of imports), while for others this is clearly not the case. This is particularly so for countries in the Caribbean and Pacific areas, for which the EU is a more marginal trading partner, mainly because of geographical distance.

Figure 1 : Share of ACP in Total EU imports (1999-2004), total and by Negotiating Group



Source: Baci and Comext. Authors' Calculations.

Table 1: Share of ACP imports from the EU that could potentially be excluded from liberalization

Exports	EU	ACP Same Zone	ACP Oth Zones	RoW
ECOWAS	31.9%	9.3%	1.2%	57.6%
CEMAC+	37.4%	0.8%	3.2%	58.6%
COMESA	29.9%	9.2%	4.8%	56.1%
SADC	32.6%	2.1%	4.5%	60.8%
Caribbean	20.0%	8.9%	0.8%	70.3%
Pacific	15.4%	0.6%	0.5%	83.4%
All ACP	29.8%	6.7%	2.5%	61.0%
Imports	EU	ACP Same Zone	ACP Oth Zones	RoW
ECOWAS	37.0%	10.5%	1.3%	51.3%
CEMAC+	53.5%	1.4%	8.2%	37.0%
COMESA	22.4%	6.4%	2.7%	68.5%
SADC	23.3%	2.5%	4.3%	69.9%
Caribbean	18.1%	5.8%	1.4%	74.6%
Pacific	8.8%	1.3%	0.8%	89.1%
All ACP	27.9%	6.7%	2.4%	63.0%

Source: Baci and Comext. Authors' Calculations.

3.2. Current trade pattern of ACP countries

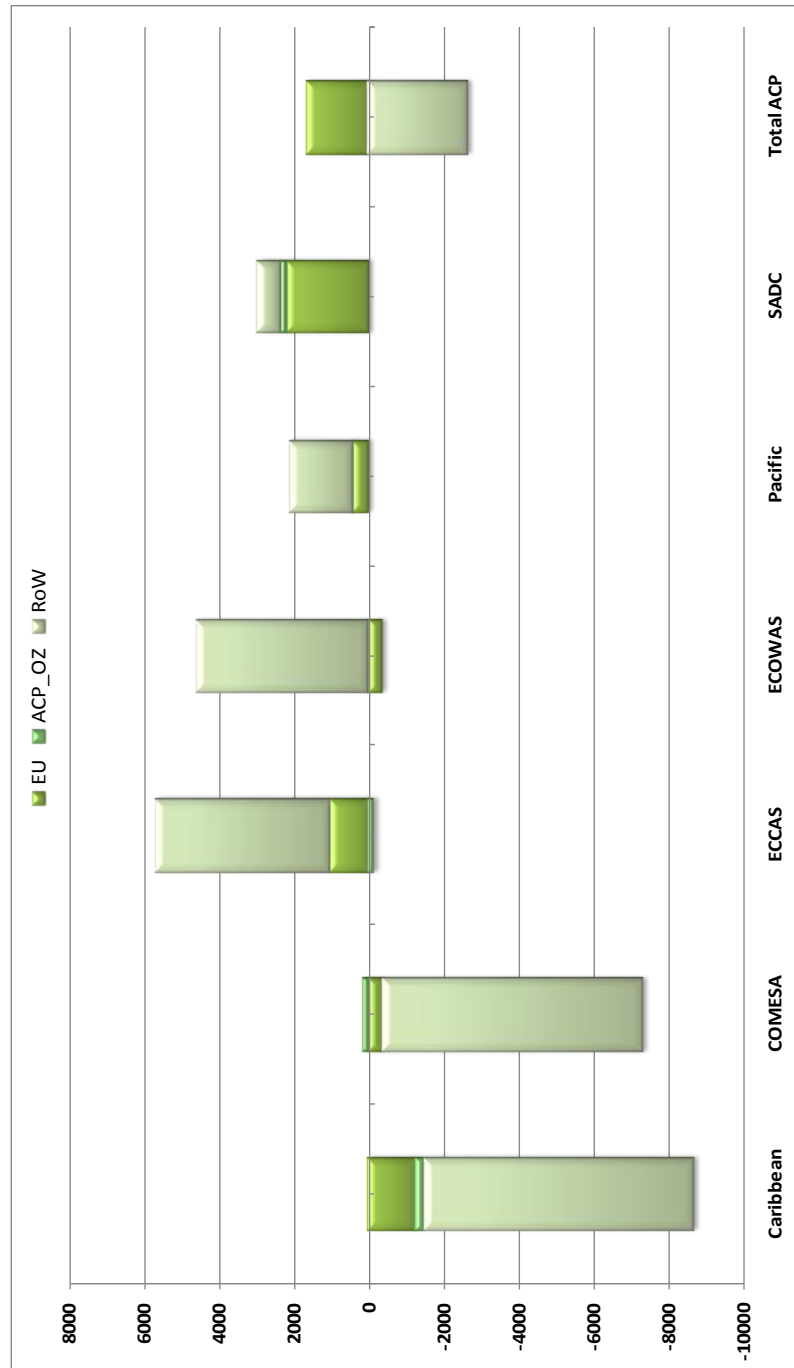
3.2.1. Trade Balance

Total ACP imports (average value of the period 2002-2004) reached euro 103 bn, with a negative trade balance of around euro 980 m. Globally trade with Europe contributes to reducing this deficit, as the trade balance with the EU is positive: + euro 1.6 bn. This overall figure, however reflects varying situations among the different groups. Southern Africa (SADC), Central Africa (ECCAS) and to a lesser extent the Pacific have a positive trade balance with the EU, while the other groups are net importers (see Figure 2).

It is worth noting that this trade pattern with the EU is generally reflected in trade with the rest of the world. The exception is ECOWAS, which although a net importer in its trade with the EU, has a large positive trade balance with the rest of the world.

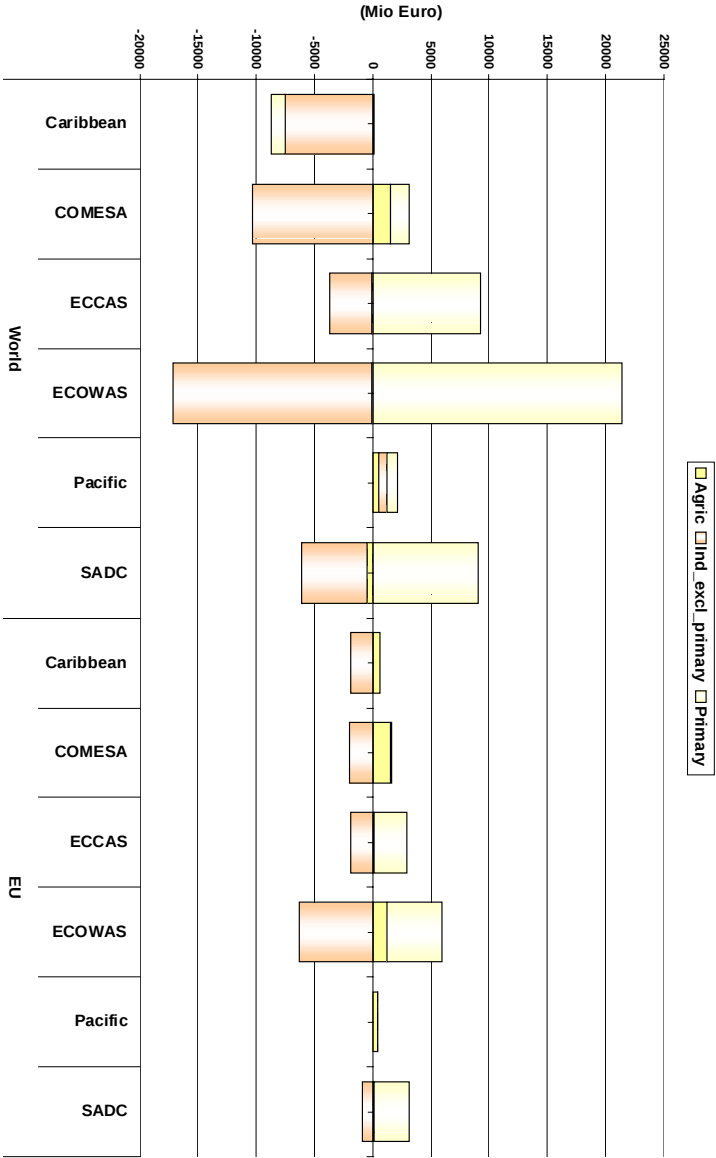
The overall trade balance with the EU is negatively affected by very high imports in the category of industrial products, which are substantially higher than exports in the same category, for all regional groups. ECOWAS is the only group to have a positive

Figure 2: Trade Balance by ACP groups, in different regions. Million Euros



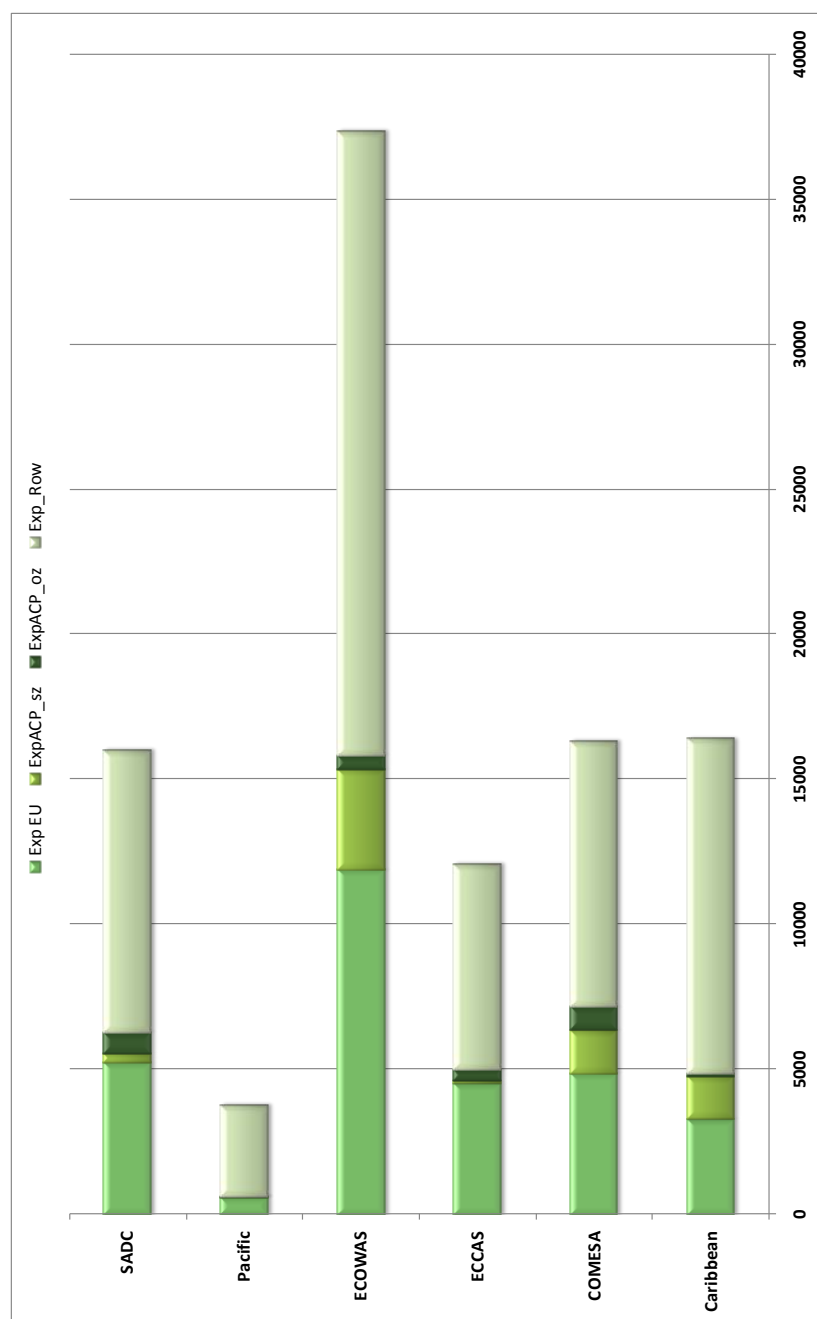
Source: Baci and Comext. Authors' Calculations.

Figure 3 : Trade Balance by ACP groups in different sectors. Million Euros



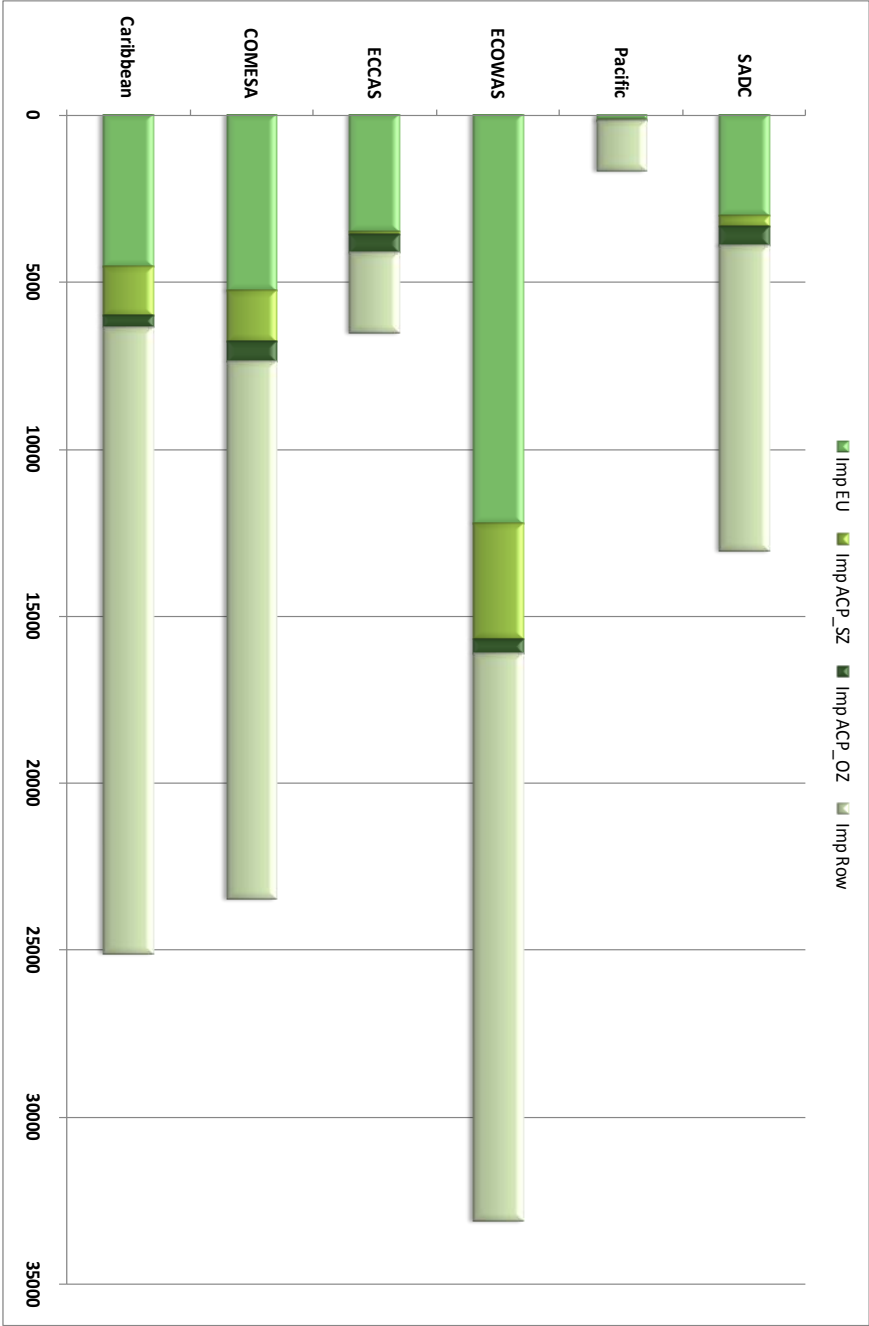
Source: Baci and Comext. Authors' Calculations.

Figure 4: Exports by ACP groups. Million Euros



Source: Baci and Comext. Authors' Calculations.

Figure 5: Import by ACP groups. Million Euros



Source: Baci and Comext. Authors' Calculations.

trade balance both for primary industry and the agricultural sector. The Caribbean, Pacific, and the East South Africa (COMESA) are net exporters to the EU in the agricultural sector, whereas Central Africa (ECCAS) and Southern Africa (SADC) are net exporters of primary industrial products (see Figure 3). It is worth noting that this trade pattern with the EU is generally reflected in trade with the rest of the world. The exception is ECOWAS, which although a net importer in its trade with the EU, has a large positive trade balance with the rest of the world.

Within the ECOWAS group, the positive figure in the primary sector is largely thanks to Nigerian exports, while Cote d'Ivoire and Ghana are the main sources of the positive agricultural balance.¹⁴

The three groups that are net exporters in the agricultural sector all have distinct features. In the Pacific area two countries alone largely account for the positive agricultural balance: Fiji and Papua New Guinea. In the Caribbean several countries contribute to the figure. In COMESA, although the number of countries with a positive agricultural balance is quite high, three countries play a major role: Kenya, Zimbabwe and Mauritius.

Finally considering the two groups that are net exporters in primary industry, their situations are rather different. In the SADC group Angola and Botswana alone explain the positive balance with the EU in the sector, while in the ECCAS group almost all countries play a part.

3.2.2. *Product specialisation*

ACP economies are generally defined by a high level of specialisation, which is reflected in trade flows. Unsurprisingly imports are less concentrated than exports. The weight of the first 3 HS4 products in total imports is between 15 percent and 65 percent for ACP countries, with an average of 30 percent. On the export side, however, we can even speak about “mono-exportation” for many countries: for 50 percent of the countries more than 50 percent of their exports are accounted for by one HS6 product and in 35 percent of cases one product accounts for more than 70 percent of exports.

In many cases the strong concentration in export flows derives from the existence of abundant supplies of certain minerals and natural resources in many African countries. For example petroleum (accounting for 90 percent of Nigerian exports, 70 percent for Chad, 81 percent for Equatorial Guinea and 82 percent for Angola), gold and diamonds (Botswana 96 percent, Lesotho 69 percent, Angola 15 percent, Bu-

¹⁴Detailed results are available to the reader, upon request.

rundi 12 percent), and uranium and radioactive elements (Niger 68 percent). In many other countries exports are heavily concentrated in only a few unprocessed agricultural commodities such as coffee (Burundi 67 percent) or cotton (Mali 56 percent, Burkina Faso 17 percent, Benin 16 percent and Chad 13 percent).

Even though it makes sense to allocate resources to the most productive industries, no country should have such a limited number of products in their export portfolio. This makes those economies especially sensitive to developments in one or a few key markets. If demand suddenly drops for their key product, for example if a cheaper alternative becomes available, the economy of the country could be seriously affected. In the case of countries that are largely dependent on oil exports, their economic fortunes rise and fall in tandem with the oil market. For agricultural products, other non-economic factors, such as weather or disease, also affect the market making prices very volatile and increasing the vulnerability of producers. It is clear that reducing economic vulnerability for ACP countries will involve, not just using their resources more efficiently, but also increasing their capacity to diversify their economies. This is why broad market access is vital to supporting economic growth.

4. CURRENT AND FUTURE TRADE POLICIES BETWEEN THE EU AND THE ACP COUNTRIES

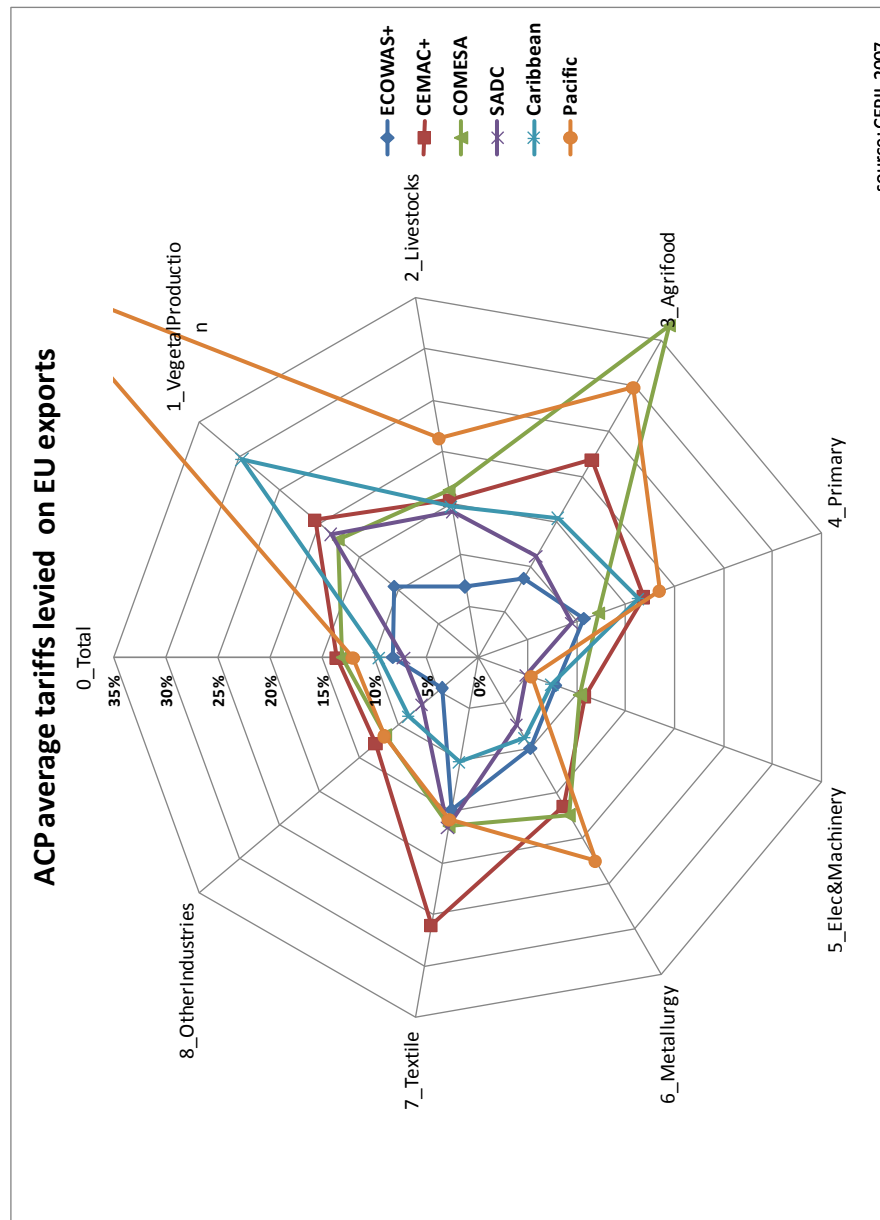
4.1. Current protection pattern

4.1.1. ACP trade policies

ACP regions apply different levels of protection to EU exports. CEMAC, COMESA and Pacific regions appear to be the most protective (see Figure 6) with an average duty of 13.5 percent and 12 percent, respectively. On the other hand, SADC and ECOWAS regions are the most liberal (7.1 percent and 8.1 percent).

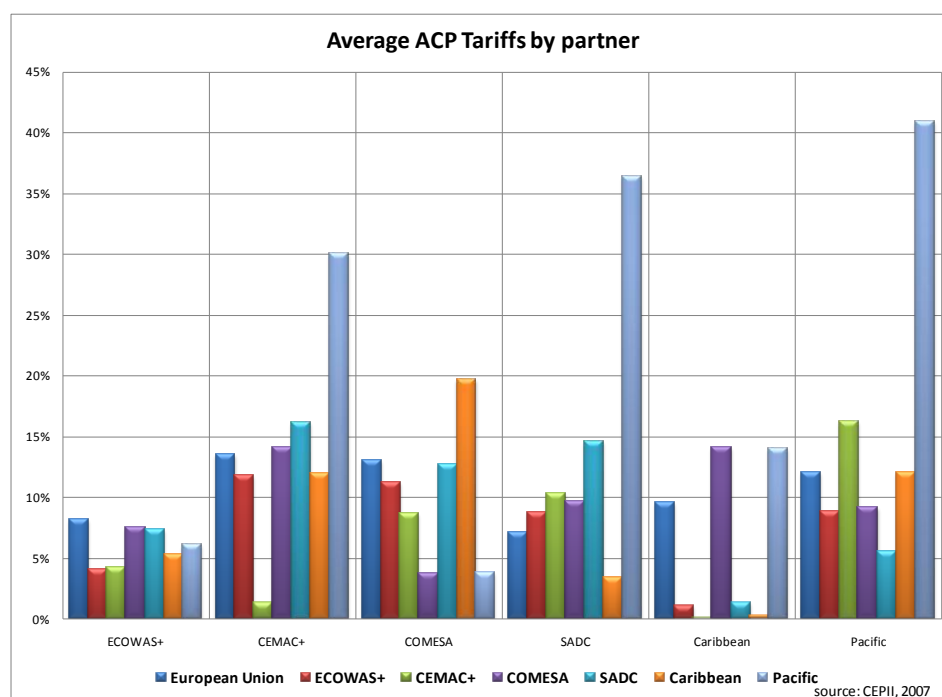
The structure of tariffs has the usual shape - the highest level of protection is in agriculture, with peaks in agrofood (COMESA, 36 percent) and vegetable production (Pacific, 56 percent). In manufacturing, CEMAC and SADC still protect textiles (for protectionist, but also for tariff revenue reasons) while COMESA protects the metallurgic sector. Figure 7 displays the average rate of protection applied by ACP regions on EU and regional imports. The current ACP protection structure has strong negative impacts on other ACP regions, due to the latter's sectoral specialisation. For SADC, the intra regional tariff is still around 15 percent, twice as high as that applied to EU exports to the region.

Figure 6: Initial ACP tariffs on EU exports



Except for the CEMAC and the Caribbean areas, important gains are expected from the ACP countries' own regional integration.

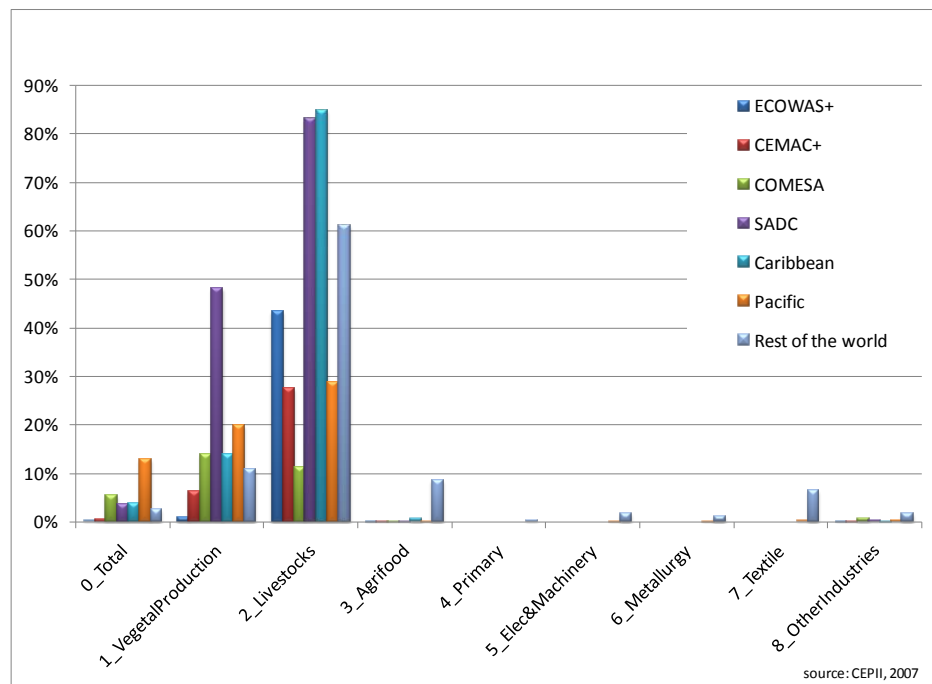
Figure 7: ACP Average tariffs. Regional level



4.1.2. EU trade policy towards ACP countries

The EU trade policy towards ACP countries is quite generous. The Cotonou agreement gives free access to all industrial products, while applying some protection in agriculture. Moreover, ACP-LDCs enjoy duty and quota free market access under the EU's unilateral EBA initiative which provides market access to all LDCs. More precisely in the case of EBA the phasing out of the last remaining quotas (Banana, Sugar and Rice) is currently on-going and will be completed by 2009.

Figure 8: Initial EU applied protection



As shown in Figure 8, our calculations indicate that some ACP countries still face an average tariff rate higher than that applied by the EU to imports from the Rest of the World. The aggregated figure presented here is affected by both the number of LDCs countries within each region and by the export composition of each zone in relation to the EU. On average, ACP countries are strongly specialised in some agricultural products which are still highly protected in the EU. This is the case, for example, for developing countries in the SADC region where producers are disadvantaged by the high level of EU protection in tobacco and rice.

However, it is important to point out that the EU protection pattern in the Cotonou framework does not seem to present evidence of tariff escalation. The average rate of protection in the agro-food sector is in fact particularly low.

Properly speaking the European Union began a cooperation policy with the African, Caribbean and Pacific (ACP) states as a whole in 1975. Until 2000 these relations were governed by the regularly updated Lomé Conventions. The conventions were based on equal partnership as a cornerstone for cooperation, thus investing ACP countries with the ‘ownership’ of their own development. They focused on two key elements: a) economic and commercial cooperation and b) development cooperation. Therefore they contained both aspects of “aid and trade”.

The economic cooperation, implemented through a system of trade preferences, ensured that manufactured and agricultural products (not in direct competition with products covered by the common agricultural policy) could enter the European Community without being subject to customs duties or quantitative restrictions. Most importantly, this access was on a non-reciprocal basis, in the sense that ACP states were merely requested to apply the most favoured nation clause to the Union and to refrain from discriminating between countries of the Union. Specific regimes were applied to products of extreme importance for ACP states such as sugar, beef and veal, rum and bananas.¹⁵

Development cooperation was assured through specific actions in various sectors (the so-called sectoral approach) such as health, education and environment.

In the years running up to the expiration of the IV Lomé convention, ACP-EU cooperation faced pressures on several fronts. ACP countries felt that the principle of ‘equal partnership’ had been eroded and replaced by a relationship based on ‘conditionality’. For example, respect for human rights, democratic principles and the rule of law became ‘essential elements’, whose violation could lead to partial or total suspension of development aid.¹⁶ Moreover, despite preferential access to EU markets,

¹⁵Under the sugar protocol, several ACP countries have the right to deliver fixed quantities of sugar to the EU market at the guaranteed EU price. Under the beef and veal protocol, a few African states, namely Botswana, Namibia, Zimbabwe, Madagascar, Swaziland and Kenya, may export specific quotas of beef and veal into the EU market. Within these quotas limits no ad valorem duties are levied, while customs duties other than ad valorem duties are reduced by 92 per cent. The banana protocol of the Cotonou Agreement includes no specific commitments on preferential market access for ACP banana exports, because the EU banana import regime had to be changed following a long-standing dispute in the WTO. In May 2001, the European Communities adopted a regulation to implement a new banana-import regime, which became effective on 1 July 2001. It provides a shift towards a tariff-only system, which entered into force on January 1st, 2006. ACP bananas are still favoured. Banana imports from ACP countries within their quota of 775,000 tons enter the EU market at a zero duty. In contrast, the tariff applied to imports from non-ACP countries is 176 euros per ton.

¹⁶?, p. 245, points out that notwithstanding the existence in Lomé III of human rights provisions,

ACP export performance was deteriorating over time. Finally, with the emergence of the World Trade Organization, the non reciprocal preferential trade regime provided by the Lomé convention was increasingly seen as unacceptable and ‘incompatible’ with international trade rules, in the sense of GATT’s Article XXIV.

All these arguments highlighted the need for a re-appraisal of development cooperation in general and of ACP-EU cooperation and its trade elements in particular.¹⁷

The new Cotonou Partnership Agreement was signed between the ACP countries and the European Union, on 23 June 2000 in Cotonou (Benin). It was concluded for a twenty-year period from March 2000 to February 2020 with a clause for a mid-term review every five years.

The Cotonou Agreement contains ambitious objectives such as poverty eradication, sustainable development and the gradual integration of the ACP countries into the world economy. These objectives are to be achieved through political dialogue, development cooperation and closer economic and trade relations.

Major changes from the Lomé Conventions include the strengthening of the political dimensions of the partnership, the deepening of the regional integration process between ACP countries, the preparation of a new WTO compatible trade policy and a more rationalised performance-based aid management.¹⁸

4.1.3. Towards WTO-compatible arrangements: main alternatives

The driving force behind the EU’s search for new trading arrangements was the need to ensure that future ACP-EU trade relations were compatible with the requirements of the World Trade Organization (WTO), specifically, GATT article XXIV.¹⁹

At the Fourth WTO ministerial conference in Doha in 2001, the EU was granted the

they had little substance. It was a major issue of discussion in the joint bodies of the convention.

¹⁷For arguments about the general reform of the European Union’s development cooperation see ? .

¹⁸The strong political foundation of the Cotonou Partnership Agreement, which is defined by tight conditionality, is evidenced by the fact that the agreement is underpinned by a set of core values or ‘essential elements’, such the respect for human rights, democratic principles and the rule of law, whose violation can lead to the suspension of aid under Article 96 of the Agreement. Good governance is considered to be a “fundamental element” of the Cotonou Agreement. Serious cases of corruption, including acts of bribery leading to such corruption, are grounds to suspend cooperation See Hilpold (2002), where the author argues that the attempt to consolidate the concept of good governance can be seen as the confirmation of the prominent role attributed by the EU to the fight against corruption.

¹⁹Article XXIV, provides exceptions to MFN treatment for customs unions (CUs) and free-trade areas. In particular it requires that, in free trade areas and customs unions, trade preferences are permitted only when duties and other restrictive regulations are eliminated on ‘substantially all the trade’ between the constituent territories. Thus preferences in an FTA have to be reciprocal.

most recent waiver for the Lomé conventions, allowing it to maintain the current non reciprocal tariff preferences for ACP countries until 31 December 2007. Negotiations for the so-called new Economic Partnership Agreements (hereafter EPAs), started in September 2002 and should be completed by 2007, to comply with the requirements of the waiver.

While on the one hand it is clear that reciprocity and free trade should be phased in progressively and asymmetrically within the EPAs “within a reasonable period of time”, as required by GATT XXIV, on the other hand several matters remain unclear. For example, the interpretation of the ‘substantially all the trade’ that should be liberalised?²⁰ What is a “reasonable period of time”? Or, more importantly, what will happen in the case that EPAs are not signed on time?

In relation to the latter point, it is worth noting that the EPA negotiations are not mandatory for ACP countries. They countries are invited to sign as groups or individually (on a voluntary basis), building on their own regional integration schemes.²¹

Not all ACP countries face the same choices. ACP-least developed countries (LDCs) will still benefit from the Everything But Arms (EBA) initiative whatever they decide to do. This initiative, part of the GSP scheme, grants them full access to the EU without having to reciprocate. However there may still be an incentive for these countries to join an EPA, as other issues are also at stake. LDCs need to compare alternatives including ‘variables’ other than applied duties. The EPA negotiations may yield less restrictive rules of origin, for instance. In this case the gains associated with more favourable duties could be offset by more elevated administrative costs, or incapacity to meet origin requirements. Participating more actively in the EPAs negotiations to make sure that the agreement offers better conditions beyond tariffs, therefore remains important for LDCs.

²⁰ Some scholars maintain that both a quantitative and qualitative assessment must be made: the quantitative requirement would be that a high coverage must be achieved by the free trade area of around 90 per cent of current trade and of 90 per cent of the tariff lines; the qualitative test would be that no major sector of trade should be excluded. However as most ACP negotiating groups are a combination of developing countries and LDCs, and “as there has never been a free trade area negotiated between a developed country and a group of predominantly LDCs, there is a strong argument to agree the definition of ‘substantially all trade’ [in GATT Article XXIVV] to be significantly lower than a 90 percent average (??). Other scholars (?) also argue that since sub-Saharan African countries (which are the most disadvantaged among ACP countries) are not in a position to benefit from liberalised trade, trade agreements with these countries should provide for differentiated reciprocity, rather than strict reciprocity.

²¹ See Cotonou Agreement, Article 37.5 which states: “Negotiations of the economic partnership agreements will be undertaken with ACP countries which consider themselves in a position to do so, at the level they consider appropriate and in accordance with the procedures agreed by the ACP Group, taking into account regional integration process within the ACP”.

The main problem arises with the non-LDCs ACP countries which are not in a position to enter an EPA and for whom “alternative trade arrangements” have to be provided by 2008, once the Doha waiver for the current market access arrangements lapses.

The main alternative available is that non-LDCs ACP countries avail of their access to the Generalized System of Preferences (GSP). Currently they already have access to the general scheme available to all developing countries (although rarely used as Cotonou preferences are usually more generous). A more attractive alternative would be the GSP-plus scheme, which provides improved market access to “vulnerable” countries which show commitment to a sustainable approach to development by ratifying and implementing a series of international conventions.

Although, on the one hand, this solution would be fully WTO compatible, as the GSP is legally justified under the Enabling Clause, on the other side, it will not grant to the ACP the same level of preferences that they currently enjoy.²² Both the GSP and GSP plus provide for a less favourable treatment (see Figure 9).

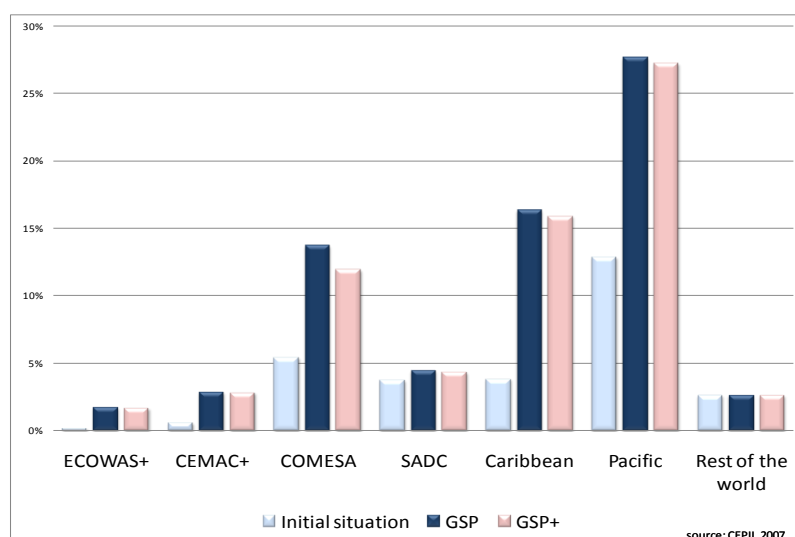
Figure 9 displays the impact in terms of average tariff applied by the EU to ACP exports if ACP countries were to move from Cotonou preferences to those provided by either GSP or GSP+ (EBA for LDCs). All regions will suffer, but the impact varies depending on the number of LDCs in the group and the structure of exports. Even for ECOWAS and CEMAC, which export mainly raw products that tend to have low or zero MFN tariffs (oil, cocoa, cotton), the effects are still visible. They move from an average tariff of close to zero to 1.7 percent and 2.8 percent respectively. Moreover, tariff escalation will become an issue, with a jump of protection for processed products from zero to 6 percent on average.

The Caribbean and Pacific regions will also see strong impacts from the reduction in their preferential margins on sugar and bananas, key exports from both regions. For COMESA, moving to GSP would more than double its average tariff rate (from 5.4 to 13.7 percent). Overall, the difference between GSP and GSP plus is not significant, except in Eastern Africa. This is due to the fact that several countries in the region, especially Mauritius, are significant exporters in the textiles sector, where GSP plus

²²As part of the Tokyo Round negotiations, the GATT members developed and adopted a declaration entitled “Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries”, for simplicity referred to as the ‘Enabling Clause’. It stated that “Contracting Parties may accord differential and more favourable treatment to developing countries without according such treatment to other Contracting Parties”. It has to be noted however that, although on the one hand the Enabling Clause introduced a permanent waiver to Article I (the MFN clause, which stipulates no discrimination between contracting countries), on the other hand it did not introduce any legally binding obligations on developed countries, whose decisions about the introduction of preferential schemes were left completely to their discretion, provided that they were accorded to all developing countries.

eliminates protection, while GSP provides only limited advantages. As GSP plus does not cover either sugar or bananas its impact on the tariffs applied to other regions is limited

Figure 9: Average protection rates when moving from Cotonou to GSP and GSP+



The granting of the same level of preferences for ACP countries as they currently enjoy under Cotonou could only be achieved within the GSP by enhancing the existing GSP preferences to the level of trade preference currently provided by the Cotonou Agreement. However, even this option would be unsatisfactory for the ACP countries. This is because GSP is available to all developing countries. Under a more generous GSP they would therefore face competition from Asian or South American producers also covered by the scheme. Major problems would emerge in the sugar, rum and bananas sectors. Moreover, while the preferences provided under the Cotonou Agreement derive from a negotiated agreement, which gives them legal certainty, the preferences granted under the GSP (except for EBA, which is provided without time limits) are unilateral, thus potentially subject to withdrawal at any time.

4.2. EPAs: designing a WTO compatible agreement

As already mentioned, EPAs have to satisfy Article XXIV of the GATT. Among other things, this means that the desire of most ACP countries to maintain some tariffs for protectionist and tax reasons can, to some extent, be fulfilled. However to determine to what extent this will be possible it is important to consider what ‘substantially all trade’ would mean for them in terms of share of trade to be liberalised. Concerning this point we have followed the guidelines of the European Commission, which considers that a PTA is WTO compatible if 90 percent of bilateral trade is fully liberalized.

Assuming full liberalization from the EU side, this would imply a liberalization of 80 percent of the ACP imports if trade flows were balanced. However, when implementing this criterion at the regional level, important differences appear (see Table 2). Indeed, depending on the extent to which ACP regions display negative or positive trade balances with the EU, the extent of liberalisation of imports required to meet the 90 percent target will naturally vary. For instance the Pacific region, which exports much more to the EU than it imports (distance effect), could potentially shelter up to 42 percent of its original imports and still cover 90 percent of trade. On the contrary, for the Caribbean region, which has a negative trade balance with the EU, the share of the excluded imports would represent less than 20 percent.

Table 2: Share of ACP imports from the EU that could potentially be excluded from liberalization

Regions	Share of exclusion in ACP imports	Regions	Share of exclusion in ACP imports
ECOWAS+	21%	SADC+	25%
CEMAC+	23%	Caribbean	17%
COMESA	19%	Pacific	42%

Source: Authors' Calculations.

On the issue of timing, we assume that the EPA will be implemented over a period of 15 years. However to reflect the asymmetry between partners, the EU is assumed to grant free access to all ACP exports by 2008. Even if such a choice would exceed the recommendation of the article XXIV:5, it could be easily justified due to the specific weaknesses of African countries and the number of LDCs among them.

A last question remains - how do we select sensitive products? Methodological problems arise, not only when we have to choose the list at national level but also when a regional list has to be proposed (for the latter point see Box 1).

Two approaches have been chosen, following guidelines provided by DG Trade ex-

perts.

H1 Scenario: in this scenario, priority for protection is given to agricultural products. Agricultural products are selected first for exclusion, then the most important industrial ones, up to the share of excluded trade assumed to be allowed (Table 2). The ranking inside this category is given by the theoretical value of tariff revenue (Imports from the EU x tariff).²³ All computations are made at the regional level, adding up national effects by product.

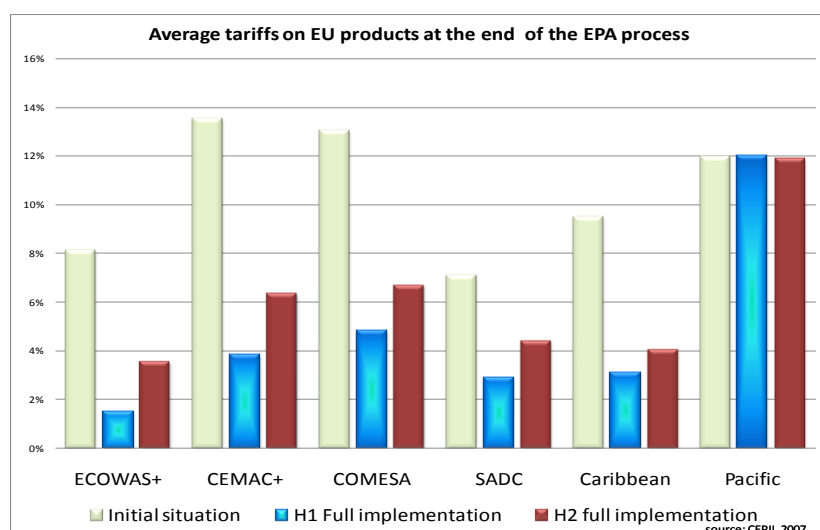
H2 Scenario: in this scenario, the objective is to reduce tariff revenue losses at the regional level. A discrete choice model has been built to ensure that products are chosen in a way that minimises tariff losses, at initial trade level, subject to two constraints: the share of excluded trade should not exceed the amount allowed and the number of products in the regional list should not be above 20 percent of total tariff lines.

Due to the different approaches, products contained in the exclusion lists vary considerably: agricultural products under H1, manufacturing goods (e.g. cars, used clothes) under H2.

The consequences of the exclusion lists are displayed in Figure 10. The result is far from full liberalisation. Due to the extensive list of excluded products which the Pacific region could potentially include, the effects of liberalisation are completely neutralised in that region. Other regions could retain between one-fifth and half of their initial protection. Obviously, since the H2 scenario is aimed at protecting tariff revenue, the better outcome is achieved under this approach. Under this second option, COMESA could still keep half of its initial level of protection by excluding just 19 percent of EU imports from liberalisation.

²³For trade data we use the average of three consecutive years: 2002-2004, while for tariffs we use the protection rates in 2004.

Figure 10: Effective ACP liberalisation at the end of the EPA process.



Box 1: Possible way to aggregate sensitive products lists

Following Arrow's impossibility theorem, it is clear that aggregating preferences cannot be done in a perfect way. Different approaches exist but none is flawless. If inside a national framework, it is already difficult, in the context of regional integration and region to region negotiations, the problem is still more complex. Members of regional blocks generally have no way to redistribute global gains between themselves, as can be done within a single nation and different countries have good reasons to have very different preferences (heterogeneity in factor allocations, national resources, political culture, consumer tastes...).

The problem of regional aggregation is twofold:

- How to build a common list from different national preferences?
- How to assign a weight in the regional decision to the different players? As an example, should we consider that Nigeria and Liberia have the same weight in product choice within the ECOWAS region (1 country 1 vote) even though the Nigerian economy is 50 times larger than that of Liberia?

In this context, several rules could be proposed. First, we assume that countries have already built a ranked list of products and then meet to decide a common position; i.e. a regional ranking.

The approach used is based on a regional objective where changes in tariff revenue by country are simply added up. Redistribution problems are ignored and in addition, we assume that the bigger economies have more negotiation powers in a region. However, it is important to keep in mind that, on the issue of market access, the LDCs, have very little to lose in not joining an EPA. For this reason, their opinion cannot easily be disregarded, as they would have little incentive to agree to a regional position biased towards the needs of the wealthier, developing countries' economies.

5. THE MODEL AND DATA SOURCES

In this section we firstly describe the structure of the model. Major caveats are highlighted in order to enable the reader to properly interpret the results. The model's equation are displayed at the end of the document in Appendix B. Data are described in a second sub-section. At last, we conclude with a discussion on the employed calibration procedure.

5.1. The Model

Quantitative studies of the impact of trade liberalisation can be performed using either a general equilibrium or a partial equilibrium framework. General equilibrium models are certainly more appropriate to try to assess the overall trade and welfare effects of such agreements. However they require social accounting matrices with comprehensive information on each economy involved and their results will be driven by the

quality of these data.

Since all the required data is not available for the member countries, this approach was not appropriate for an ACP-wide analysis. Moreover, due to the high level of product specialisation in numerous ACP countries, using a CGE model describing the whole economy at an aggregated level (even at the GTAP most disaggregated level) will miss the point. For these reasons, we have decided to use a partial equilibrium approach in this study. The quantitative study of the impact of EPAs is therefore performed using a dynamic partial equilibrium model, expressly built for this purpose. The model, which is based on usual assumptions of partial equilibrium analysis has been designed to allow a very detailed evaluation of the impact on trade and government budgets of the ongoing EPA negotiations.²⁴

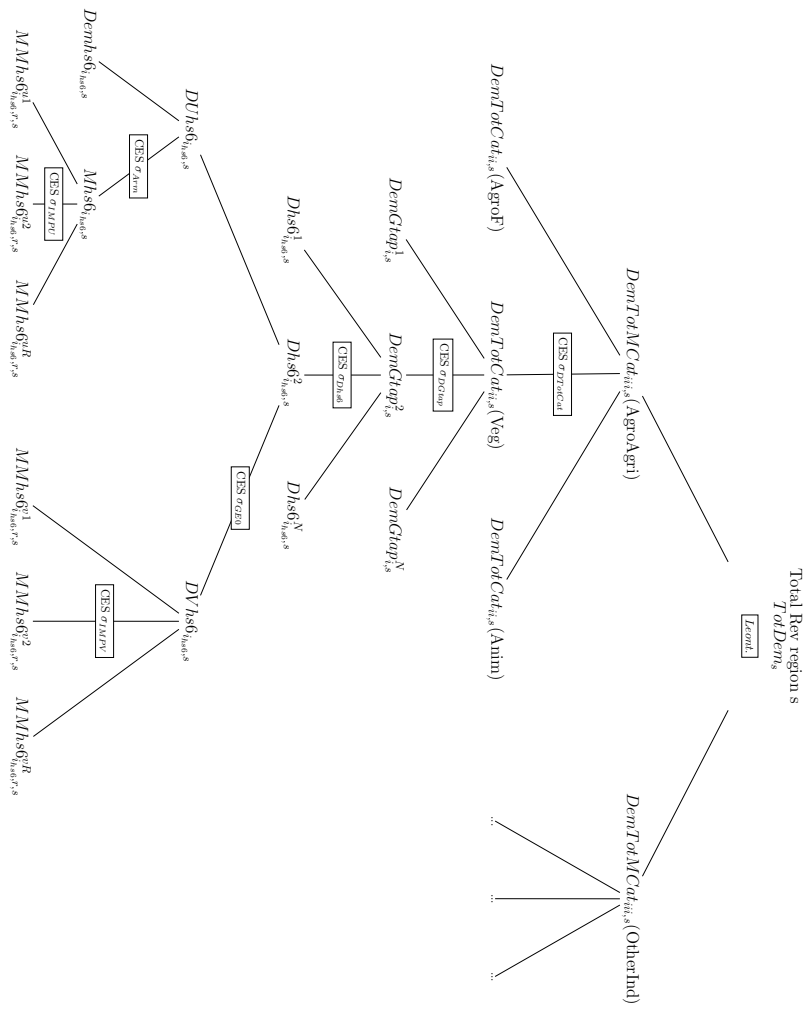
Regional income, which is assumed to be fixed, is allocated among different hs6-products (5,113 HS6 products) using a system of nested CES functions (the demand nesting is shown in Figure 11).

More precisely, at the first stage consumers have to arbitrate between two main categories of products: agricultural ($DemTotMCat_{iii,s}$, AgroAgri) and industrial ($DemTotMCat_{iii,s}$, OtherInd). Here we assume a complementarity between the two (Leontieff preferences). Then, the total demand for each category is allocated between different sectors ($DemTotCat_{ii,s}$) with a weak substitution $\sigma_{DTotCat} = 0.8$. For instance in the case of the main category AgroAgri we have considered three sub-sectors: Agro-food (AgroF), Vegetables (Veg) and Animal (Anim) products. The consumption of these large sectors are splitted between between GTAP-defined sectors (see ?), ($DemGTAP_{i,s}$) with an elasticity of substitution of 0.95. The last stage of product disaggregation will go from the GTAP level to the hs6 nomenclature ($\sigma_{Dhs6} = 1.5$). The choice made on the elasticity of substitutions, (0.8, 0.95, 1.5), reflects the will to be transparent and systematic. Moreover, increasing substitutability with the level of disaggregation appears to be a sound assumption even if the exact level of substitution is difficult to define.

As far as consumption choices within each hs6 category are concerned, we make use of a nested Armington “assumption” (Armington, 1969) inspired by the Mirage model demand tree (?). Without excessive complexity, it allows the particular status of domestic goods, together with product differentiation according to geographical origin (the so-called Armington’s assumption) and horizontal product differentiation between varieties to be taken into account. The last point is crucial in the context of EPAs since in most of the cases, EU products are not in direct com-

²⁴Some of them are quite suitable to the situation, such as the fixed exchange rate assumption due to the existence of the CFA franc zone.

Figure 11: Demand tree



petition with the ACP ones (?). More precisely, for every HS6 product, a CES ($\sigma_{GEO_{hs6,s}}$) allocates the demand between goods originated in countries with the same level of development ($DU_{hs6,s}$) and goods originated in countries of a different category ($DV_{hs6,s}$). Then, DU is distributed between local variety and imported ones thanks to a CES function with an elasticity of substitution $\sigma_{ARM_{hs6,s}}$. A last stage is added to define the exact origin of products across similar countries group (CES with $\sigma_{IMPU_{hs6,s}}$). On the other side, DV is distributed across different importers using a CES with an elasticity $\sigma_{IMPV_{hs6,s}}$. To have a consistent tree, we need to have $\sigma_{GEO_{hs6,s}} > \sigma_{ARM_{hs6,s}} > \sigma_{IMPV_{hs6,s}}$ and $\sigma_{GEO_{hs6,s}} > \sigma_{IMPU_{hs6,s}}$, e.g. for an ACP country, a products will be more substituable with other ACP countries (included in DU) than with the EU (included in DV). This framework is also suitable to see how the EPA could affect the regional integration process by diverting intra ACP trade.

Since, the choice of product origins is made at the HS6 level, we would have needed Armington elasticities at this level even if we have only access to Armington elasticities at the GTAP level, drawn from the GTAP database. At the hs6 level only import demand elasticities are available for a number of countries, thanks to the estimation provided by the World Bank(?). However, the structural form of the model (nested CES) gives a relation between all elasticities and particularly between direct price elasticities and elasticities of substitution.

So, we calibrate elasticities at the product level in order to match Armington elasticities of substitution at the GTAP level and direct price elasticities computed by the World Bank at the HS6 level. This last source of information will allow us to have countries heterogeneity in their import demand behaviour, reflecting not only preferences but also the availability of local production. Import elasticities are defined by the gap between domestic demand and domestic supply parameters.

We have

$$\sigma_{GEO_{hs6,s}} = \frac{Mhs6_{hs6,s}}{Mhs6_{hs6,s} - MVhs6_{hs6,s}} \times \left(\eta_{i,s} + MVhs6_{hs6,s} \right) \times \left(\frac{\sigma_{Dtotcat_{i,s}}}{MDemotcat_{iii,s}} + \frac{\sigma_{Dtot} - \sigma_{Dtotcat}}{MVhs6_{hs6,s}} + \frac{\sigma_{Dhs6} - \sigma_{Dtot}}{MVhs6_{hs6,s}} - \frac{\sigma_{Dhs6}}{Mhs6_{hs6,s}} \right)$$

where $\eta_{i,s}$ is the direct price elasticity estimated by the World Bank.²⁵

²⁵Since some elasticities are missing for some countries and products, we fill the elasticities ma-

Finally, to avoid unrealistic results from the simulations, we limit $\sigma_{GEO_{hs6,s}}$ in the range $[1.1, 8]$. For the same reason we limit $\sigma_{ARMU_{hs6,s}}$ to $[1.05, 8]$ and we assume $\sigma_{IMPU_{hs6,s}} = \text{Min}(2 \times \sigma_{ARM_{hs6,s}}, 12)$, $\sigma_{IMPV_{hs6,s}} = \text{Min}(2 \times \sigma_{ARM_{hs6,s}}, 12)$ applying the usual “rule of two” used in the GTAP database for moving up in the Armington tree.

This partial equilibrium model focuses on the demand side. The supply side is assumed to be perfectly adjustable and so, the elasticity of supply is equal to infinity. This means that production prices are constant over all scenarios, while consumer prices follow the changes in product taxes, in this case tariffs. As a result of this assumption, volume changes and value changes of producer prices will be the same for all the results presented.

This assumption, while realistic for the EU side, may seem crude for ACP countries. Indeed the EU’s production capacity would have no problem adapting to the forecast shifts in demand within the ACP. Even if their demand were to double, it would never exceed 1 percent of EU production. In contrast, ACP countries suffer severe capacity constraints when adapting to changes in demand.

The main consequences of this hypothesis on the results presented are the following:

- We overestimate the effects on the EU exports (in volume) from ACP liberalisation, since ACP producers would not reduce their price to face increasing competition.
- We overestimate the effects of EU liberalisation on ACP exports (in volume) as we assume that they have no supply constraints.

Consequently, forecast increases in ACP exports should be interpreted as potential gains. To transform them into real gains, specific policies would have to be set up to support production in the sectors where the highest increases are forecast. In this way bottleneck effects could be avoided.

5.2. Data Sources

Even setting our analysis in a partial equilibrium framework, our model requires very detailed data which unfortunately is not always available. So we have to make some

trix by an iterative process. For one product, trade weighted average are computed across group of countries (same level of development and same continent) to fill the missing values. If no value is available in the reference group, we pursue this strategy by computing average by continent, then level of development (worldwide) and in fine the world average to be sure that we have all the elasticities needed.

key assumptions for missing data.

5.2.1. Trade data

For trade data, we make use of a number of sources in order to complete missing information, notably concerning African countries' trade. Specifically we employ COMEXT (source Eurostat) for EU-ACP relations and BACI (CEPII's database, which is a harmonized trade database based on UN-COMTRADE) for all the other importers. Many weaknesses remain on intra-African trade flows, bringing a lot of uncertainty to any exercise focusing on intra-African trade relations (e.g. a deep regional integration process). To reduce the annual volatility in trade data as much as possible we calibrate the model using a mean figure based on three years (2002-2004).

5.2.2. Tariff data

Tariff data for the year 2004, on the other hand, are fully accessible. Tariffs are obtained from MAcMApHS6v2 (CEPII), which is a comprehensive information system at the tariff line level (more precisely at the Harmonized System product classification). Both the ad valorem tariffs and Tariff-Rate-Quotas are considered. An addendum has been made to take account of the recent EU GSP reform.

Due to the crucial role of sugar and bananas, in ACP exports and preferential treatment, a specific approach has been adopted for these two products. We accurately calibrate the equivalent marginal rate of protection faced by each country, given their production costs. Indeed, due to the quota system and a strong variation in their production structures, the same change in the rate of protection (moving from the Cotonou regime to GSP, or preference erosion as a result of the DDA) will not have the same impact on all of the ACP countries.

5.2.3. Domestic data

To include the share of domestic production in domestic consumption for agriculture we used highly disaggregated data compiled by the FAO. We employ this data to calibrate the initial market share of local and imported hs6 products. Whenever data at this level is not available or inaccurate, we determine this proportion from the GTAP 6.2 database, making the assumption that the same share holds at the most disaggregated level.

For industry sectors, detailed data are available from UNIDO, but only for a small number of countries. Consequently we decided to rely on the same assumption made in the case of non-accessible agricultural data (i.e. based on the GTAP database).

Indirect taxation on products is assumed to be homogeneous over all ACP countries with a VAT rate of 16 percent. This assumption is very crude since VAT does not exist everywhere (although in many cases other sales taxes exist, which have the same effect as VAT in a partial equilibrium context). When it does exist it varies across countries and products. However, since the aim of this study is to provide results for more than 70 countries and 5,000 products, going into each domestic legislation in depth would be an enormous undertaking. Finally, for domestic sales alone, the informal sector, which avoids VAT, represents half of national production.

5.2.4. Demand and trade elasticities

The model structure requires values for several elasticities, namely elasticity of substitution between products from the most aggregated level to HS6 (industrial and agricultural goods, meat and vegetables, poultry meat and pork meat. . .) and across geographical origins. At the HS6 level only import demand elasticities are available for many countries thanks to the estimations performed by the World Bank (?). The only other reliable estimates are provided by the GTAP 6.2 database, at the GTAP sectoral level.

A specific calibration procedure is applied to jointly determine the other substitution elasticities used in the model. With our calibration method we maintain coherence between the initial levels of consumption, the Armington elasticities at the GTAP level and the demand elasticities for the HS6 products.

5.2.5. Customs duties and efficiency collecting rate

In reality, government never receives 100 percent of their theoretical tariff duty receipts (computed as the sum of the official tariff rates multiplied by the import values). This can be explained both by legitimate exemptions such as those for NGO imports, food aid, diplomatic services, public and private investment goods and by tax avoidance (corruption, smuggling). Detailed data from the customs services are not easily accessible. Some aggregated figures on tariff revenues are collected by the IMF. However using these data can be misleading. It is clear that some countries mix several tax resources that are not stricto sensu tariffs: sales taxes, phytosanitary taxes, statistical taxes etc. in the “customs duties” category. Comparing theoretical duties calculated with the aggregate figure for collected tariffs, the overall picture for the

effective collection rate is quite puzzling. Figures go from 17 percent collection rate to more than 90 percent and exhibit high volatility from one year to another. Given these difficulties we decided to adopt an optimistic assumption: an average collection rate of 80 percent for developing countries and 60 percent for LDCs.

6. ASSESSING THE IMPACTS OF EPAS

This section will be devoted to the analysis of the forecast trade and fiscal impacts of EPAs. Since all results should be compared to a reference situation, in the first subsection we discuss the choice of the relevant counterfactual, namely status-quo vs. GSP. Finally we will conclude with a discussion on the consequences of EPAs.

6.1. Experiment design

Several scenarios regarding ACP-EU trade policies have been studied:

- The end of Cotonou, no EPAs, GSP tariffs applied to non-LDC ACPs and EBA for LDCs ACP.
- The end of Cotonou, no EPAs, GSP+ tariffs applied to non-LDC ACPs and EBA for LDCs ACP.
- The end of Cotonou, successful EPA negotiations with full duty-free, quota-free access for ACP countries to the EU and the liberalisation of ACP imports under the H1 scenario (sensitive products are not liberalised and they are concentrated in agriculture).
- The end of Cotonou, successful EPA negotiations with full duty-free, quota-free access for ACP countries to the EU and the liberalisation of ACP imports under the H2 scenario (sensitive products are not liberalised and they are chosen in order to reduce fiscal losses).
- The H1 case including a successful outcome to the Doha negotiations to assess the consequences of potential preference erosion.²⁶

²⁶G20 formula in agriculture, 4 percent of sensitive products for everyone, 10 percent of special products for developing countries. Swiss formula 10/20 in industry, 10 percent of imports could be considered as sensitive for developing countries. "Paragraph 6" countries are excluded in NAMA liberalisation. Small and Vulnerable Economies and LDCs are not affected by tariff cuts. All these flexibilities, combined with the existing binding overhang, would result in almost no tariff reduction for ACP countries.

Our main scenario will be the item (3), namely H1. Our main counter-factual will be item (1), as discussed in the following paragraphs.

In addition to the liberalisation outlined above, we also deepen the trade integration within each negotiating block. More precisely, we assume that each region will become a free trade area, but not a customs union. This choice is justified by the fact that the current regional negotiations do not appear to envisage common external tariffs in the near future. Furthermore, the complex pattern of existing trade agreements, in particular in the Eastern Africa region, makes FTAs the most likely scenario. This movement will be considered as a part of the EPA process, meaning that the tariff revenue losses computed will also include the losses related to the elimination of tariffs between countries within the same region.

The dynamic of the liberalisation is modelled in the following manner:

- From 2008 to 2015, regional FTAs are fully implemented following a linear reduction of all tariffs.
- From 2008 to 2015, a linear 20 percent-cut is applied on ACP tariffs towards EU exports for non sensitive products.
- From 2016 to 2022, the non sensitive products are fully liberalised following a linear pattern.
- Doha Round commitments start in 2008 and are fully implemented by 2011 (for scenario 5. above).

Only results at a regional level are discussed in this document.²⁷

Finally, it is important to underline the fact that the Pacific region is only weakly represented in the model, with only four countries out of twelve.

6.2. Choosing the right counterfactual: different options

The debate addressing the consequences of the EPAs, in particular in terms of the assumed impacts of changes in preferences on exports, is often based on irrelevant assumptions. In particular, the alternative to the EPAs is not the status quo. In the context of the WTO waiver, there is a commitment to move towards WTO compatibility. That means either FTAs, or, in their absence, ACP countries would go back to the situation of other developing economies in the WTO.

²⁷ Results at country level can be provided to the reader, upon request.

LDCs are already eligible for EBA preferences. This alternative is therefore the next best option for them. The rest of the ACP countries would have to go back to preferences provided under the GSP scheme, which means a considerable downgrading of their preferential access. Alternatively, a limited number of ACP countries could envisage claiming the benefit of the GSP+. However, at this stage none is eligible and as we saw above, its benefits are limited for most ACP regions. The fact that the current situation is untenable has clear implications for the empirical evaluation of the consequences of potential agreements. Gains and losses, in terms of exports, imports or tariff revenues must be assessed, not in comparison with the current situation, but rather with an alternative situation corresponding to reduced preferential access, as outlined above.

We begin with the situation in 2004 and then we move to 2007. From this starting point we perform the full range of simulations discussed in section V.1. We first simulate the case in which at the end of 2007 EPA is not signed, in other words EBA for LDCs (including the removal of the last restrictions for sugar, rice and bananas in 2009) and GSP for non-LDCs ACP. We will use this as the reference situation.

For all scenarios, we will compare the outcome of the simulations with this reference situation. We provide changes in trade flows and tariff revenues in percentage terms and/or in values.

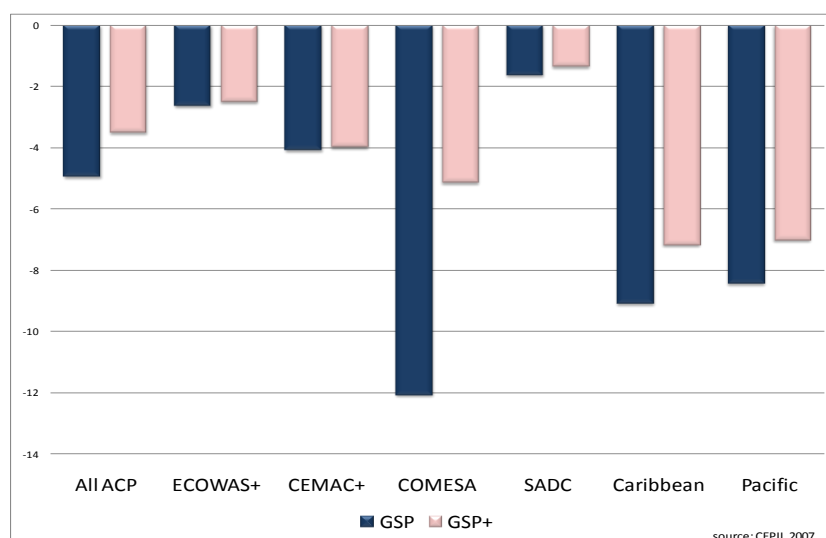
Concerning EPAs, two time horizons are important. The first one is 2015, by which time regional integration within each grouping is supposed to be completed. This means that a 100 percent liberalisation among ACP countries belonging to the same region is assumed, while only 20 percent of the scheduled liberalisation vis-à-vis European imports will be enforced. In contrast, EU imports from ACP are assumed to be totally free of tariffs and quotas in 2015. The second horizon is 2022, when full implementation of the EPAs, meaning a liberalization for 90 percent of the value of bilateral trade, is assumed.

These timing choices magnify the regional trade creation effects in the first period, while smoothing adjustments in relation to increased EU imports over the same period. Hence, it is only after 2015 that the largest impacts of EPAs are expected for ACP countries.

Results concerning EPAs will be presented in the next section. Firstly, it is important to consider the outcome for the reference scenario. In this sub-section results for both an EBA and GSP scenario and an EBA and GSP+ scenario are presented.

Considering the first option (EBA for ACP LDCs and GSP for the remaining ACP countries), the loss of preferences associated with the lapsing of the Cotonou scheme would result in a fall of 4.8 percent in ACP exports to the EU. For COMESA, the

Figure 12: The cost of not-signing an EPA. Regional results, with full implementation of EBA.
Exports (to EU) volume changes, %

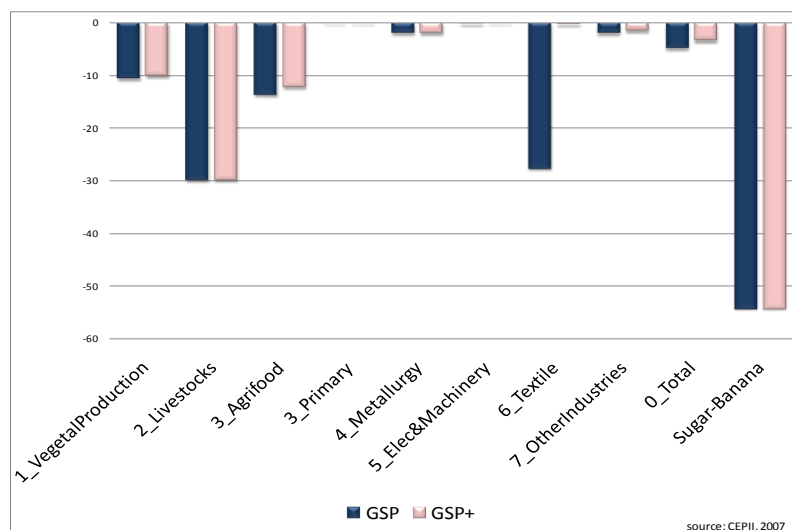


Caribbean and the Pacific countries the reduction would be even sharper, reaching 12 percent for the former (Figure 12). The second option, providing GSP+ preferences to all non LDC ACP countries, seems to have little impact compared to the more general GSP scheme. A positive impact is seen only for the COMESA region, due to the more favourable treatment of textile products in the GSP+.

The sectoral impact of our reference scenario is illustrated in Figure 13. Losses are concentrated in products associated with specific protocols: sugar and bananas (55 percent), which also explains the difficult situation of the Caribbean countries. It is worth noting that for sugar the impact of the EU's domestic reform is not directly considered here. However the consequent fall in the sugar price in the EU market will reduce the preferential margins granted to ACP countries in any case.

Other products strongly affected are livestock (with a 30 percent fall in exports) and textiles (-27 percent). For the latter, under GSP+ losses are cancelled out.

Figure 13: The cost of not-signing an EPA. Sectoral results, with full implementation of EBA. Exports (to EU) volume changes, %



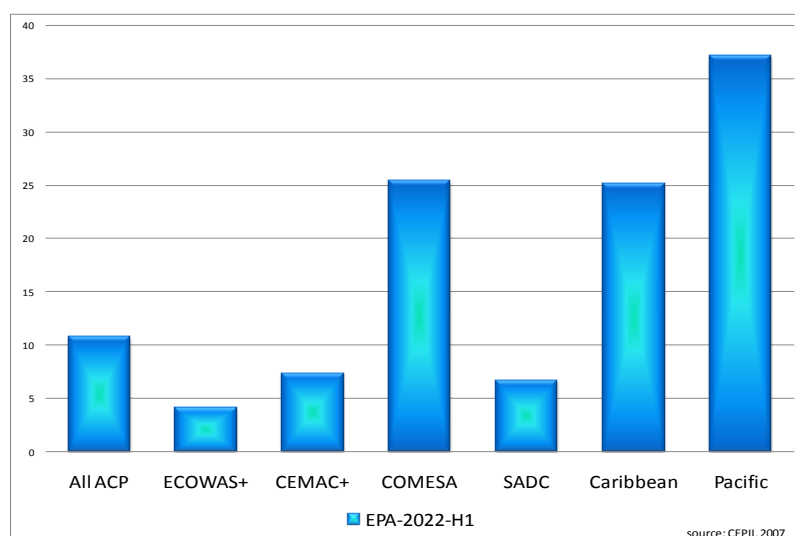
6.3. The global impact of EPAS on ACP countries

In this subsection we examine the impact of the EPAs, using as the counterfactual the combination of EBA for LDC ACP countries and GSP for non-LDCs ACP countries.

6.3.1. Main trade effects

As indicated in Figure 14 we forecast a 10.7 percent increase in the volume of ACP exports to the EU in 2022 under an EPA scenario. This percentage is calculated in comparison with the benchmark scenario: GSP and EBA. If we were to consider the current situation as a benchmark, signing EPAs would have led to a more limited gain of 5.4 percent $((1.107 \times 0.952) - 1)$. Hence we see the importance of using the correct benchmark if we wish to accurately assess likely impacts.

Figure 14: ACP exports to the EU with the full implementation of EPAs. Regional results - Exports (to EU) volume changes, %



All in all, we can conclude that ACP exports to the EU are forecast to be 10.7 percent higher with EPAs than in their absence and 5.4 percent higher than is currently the

case. These figures refer to the scenario in which a multilateral agreement has not been reached. Under the assumption of the simultaneous successful completion of the Doha Round, the margins of preferences on the EU market associated with EPAs, would be eroded. Hence, export gains would be slightly reduced for all ACP regions. With or without an agreement at multilateral level in the immediate future, preference erosion is unavoidable over time. Nevertheless the EPAs will provide a temporary advantage in terms of market access, particularly for the livestock sector.

Finally, we should keep in mind that increases in exports will not translate into equivalent changes in the ACP trade balance, since imports from the EU will also be liberalised with consequent changes in their trade flows. This is particularly true for the 2022 time horizon. In 2015, only 20 percent of the liberalisation of ACP countries in relation to EU imports will be achieved, while full access will be provided to the EU market. Accordingly, a transitory gain for the trade balance of ACP countries is expected over the period.

The sectoral breakdown of these forecast export gains is detailed in Figure 15. In percentage terms, the largest gains would accrue to exporters in the livestock sector, where exports are forecast to increase by 140 percent.²⁸ Exports of vegetable products and textiles are also forecast to increase significantly, by 40 percent. The completion of the Doha Round would be particularly detrimental to these forecast gains in the textiles sector. The relatively high MFN tariffs which still exist in textiles in the EU, will be reduced. Consequently the value of preferences given to developing countries will also shrink.

Turning to imports (see Figure 16), an average 17 percent increase in ACP imports is forecast for ACP countries in 2022. Note that this percentage applies both to the current situation and to the benchmark, as no difference between the two exists in terms of EU access to ACP markets. This outcome corresponds to a situation where liberalisation is fully achieved. When considering the 2015 horizon, the increase in the ACP imports from the EU is forecast to be limited to 7 percent. This smaller percentage is explained by the limited liberalisation of ACP imports over this time horizon.

Once again, the Caribbean is the region most affected, with a forecast increase in EU imports of 27 percent. The SADC region is at the opposite of the spectrum with imports forecast to increase by only 11 percent.

The sectoral composition of these import increases (see Figure 17) points to a con-

²⁸Non tariff barriers are not considered here. They may limit this potential increase, as may the existing supply capacities. These results should therefore be seen as potential increases in exports given the existing trade pattern.

Figure 15: ACP exports to the EU with the full implementation of EPAs. Sectoral results - Exports (to EU) volume changes, %

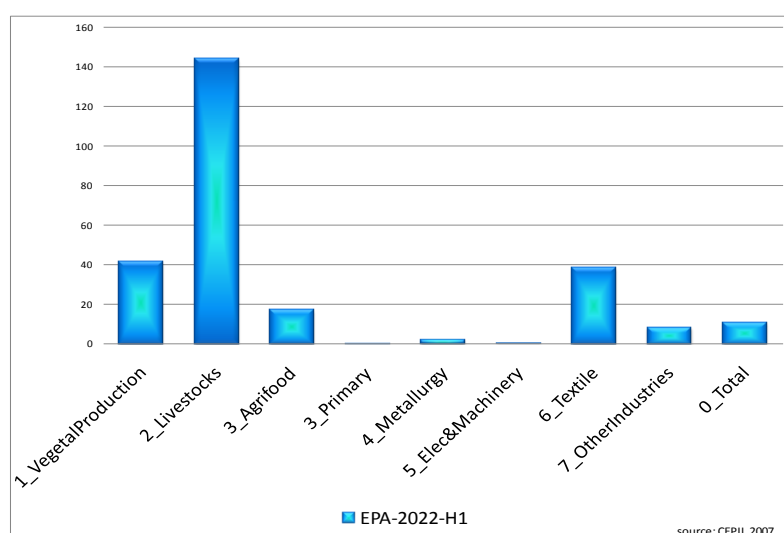


Figure 16: EPA consequences for ACP imports from the EU. Sectoral results - Import volume changes, %

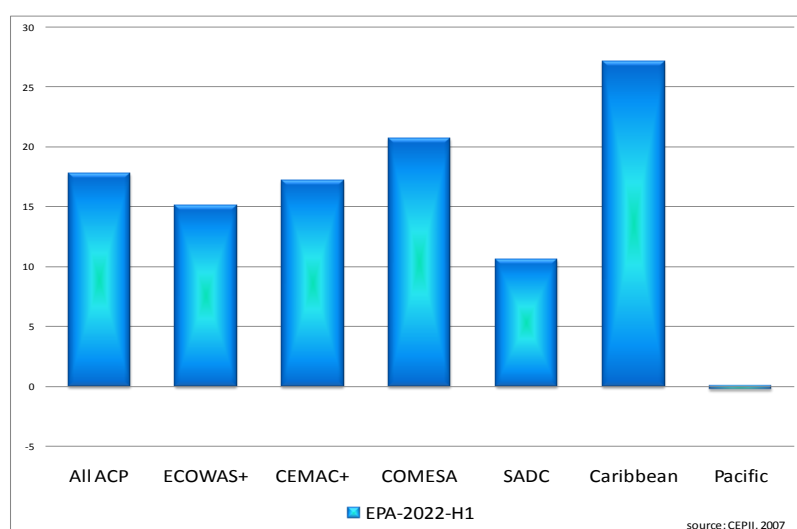
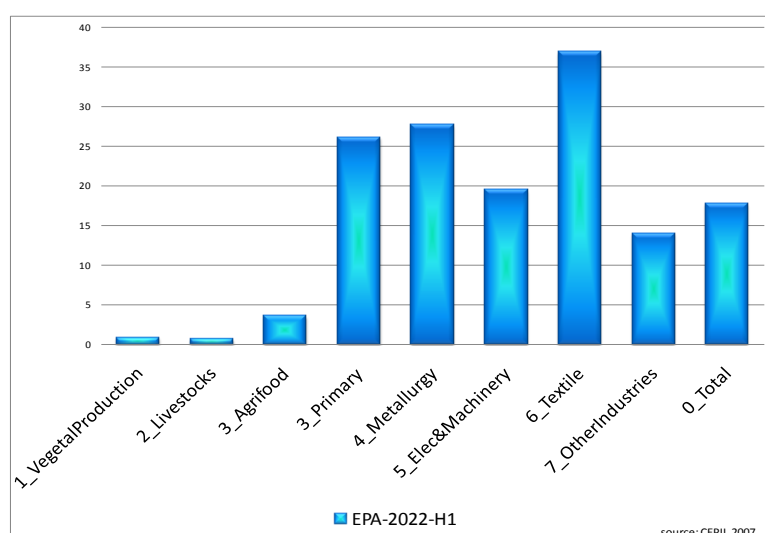


Figure 17: EPA consequences for ACP imports from the EU. Regional results - Import volume changes, %



centration in industrial goods (particularly textiles) and primary products. The increase is negligible in agriculture. All in all, the composition of respective changes in exports and imports mirrors the traditional trade specialisation of Europe and the ACP, with the latter specialised in agriculture and the former in industrial goods. The exception is textiles, where exports and imports will both increase; this might be explained by a vertical division of labour (with ACP countries importing intermediate products from the EU) takes place.

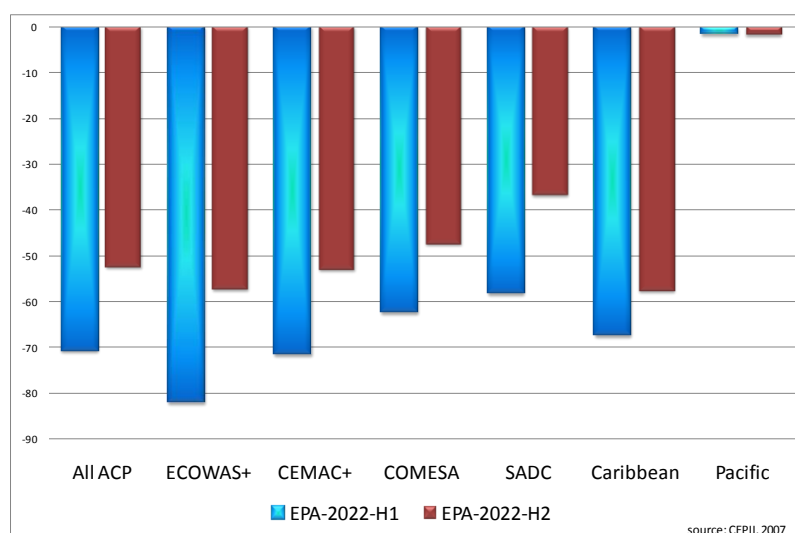
6.3.2. *Impact of excluding products*

Two issues which are amongst the most contentious in the EPA debate are the percentage of products to be excluded from liberalisation (on the ACP side), and the choice of these excluded products. We do not tackle the first issue here, we assume only that 90 percent of the bilateral trade must be liberalised by the 2022 time horizon. On this basis, two options to choose sensitive products are modelled. Under scenario H1, priority is given to the exclusion of agricultural products in order to alleviate the competitive shock faced by the agricultural sector in the ACP countries. After these products are ruled out, the most sensitive manufactured products (identified here as the ones contributing the most to tariff revenues) are also excluded, up to the overall level of residual protection assumed to be acceptable. Adopting such strategy would not optimise the choice of products in order to minimise the losses in tariff revenues, but in this way we reflect the political sensitivity of the agricultural sector in most ACP countries. We can see from Figure 18 to Figure 20 that the alternative assumption (H2), optimally choosing tariff lines in order to secure tariff revenues, would efficiently protect sensitive products, while limiting the increase in imports.

The results presented in Figure 18 are averages, which clearly hide tremendous differences in the expected impacts of the alternative choices of the exclusions at the sectoral level. For instance a manufactured sector with tariff peaks will have numerous products excluded using H2; while using H1 largely protects agricultural products. Figure 19 illustrates the impacts at sectoral level.²⁹ Under H2, the surge in ACP imports of textile products from the EU would be curbed: they would be five times lower than under scenario H1. On the contrary, imports of vegetable products, livestock and agrifood would increase more under H2. Reducing potential increases in imports is not the only issue. Whenever imports are also industrial inputs, restraining them and making them more expensive could have a negative impact in terms of

²⁹ The Figure displays regional import effects for all products. It shows that the manner in which the exclusion lists are defined will have the greatest impact on CEDEAO and SADC imports.

Figure 18: Tariff revenue on EU products. The role of the exclusion list. (% Change)



overall competitiveness. Unfortunately the structure of the model does not permit us to address this issue.

Figure 19: The impact of the exclusion list on sectoral trade flows. ACP Import volume from the EU. (% Change)

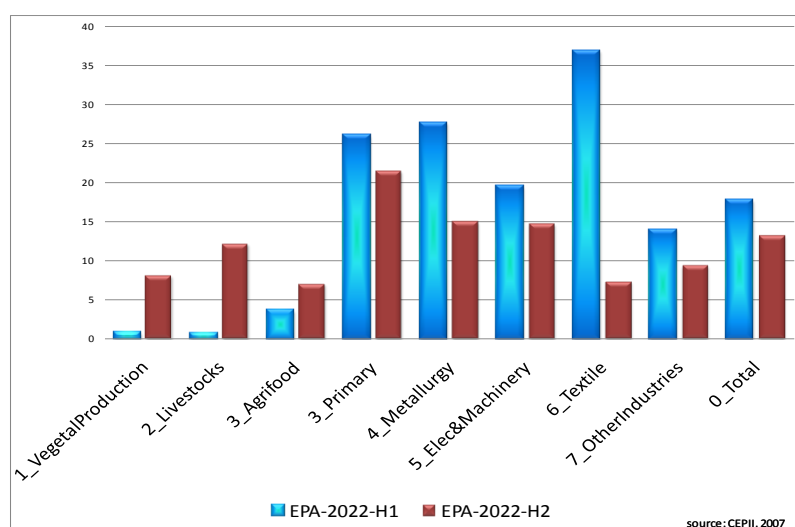
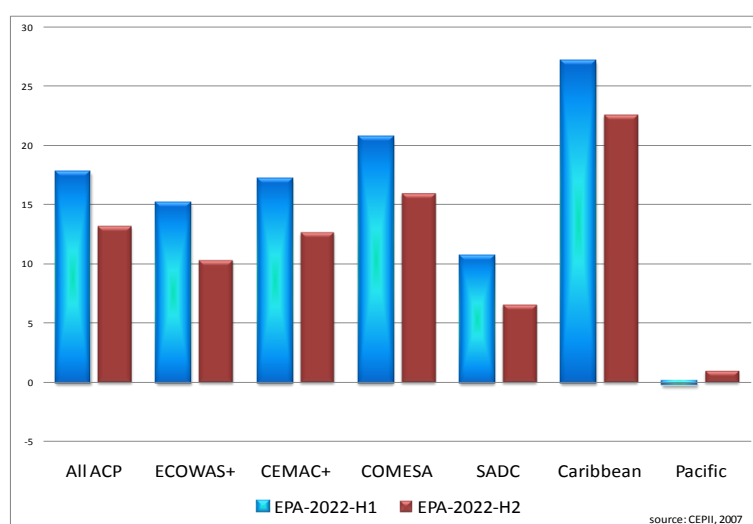


Figure 20: The role of the exclusion list on regional imports. ACP Import volume from the EU, regional breakdown. (% Change)



6.3.3. Impacts on tariff and government revenues

The effects of EPAs on the ACPs' public finances have been widely debated. First of all it is important to remember that the impact will be different across countries, depending on the initial importance of tariff revenue in total government income.

This being said, the different impacts have rarely been disentangled. Here we identify three effects: a direct effect, due to tariff liberalisation, a trade diversion effect and lastly a domestic effect.

Concerning the first, the overall effect of cutting tariffs will depend on the combination of both reducing tariffs and the increase in imports as a result of falling import prices. All in all, the direct effect will translate into a reduction of ACP tariff revenues, as the impact on tariffs will always be stronger than that on imports. Obviously in the short run (2015) tariff losses will be kept down as a consequence of limiting tariff cuts. After 2020 the direct effect will not be important anymore, as all protection rates on non sensitive products will be brought to zero.

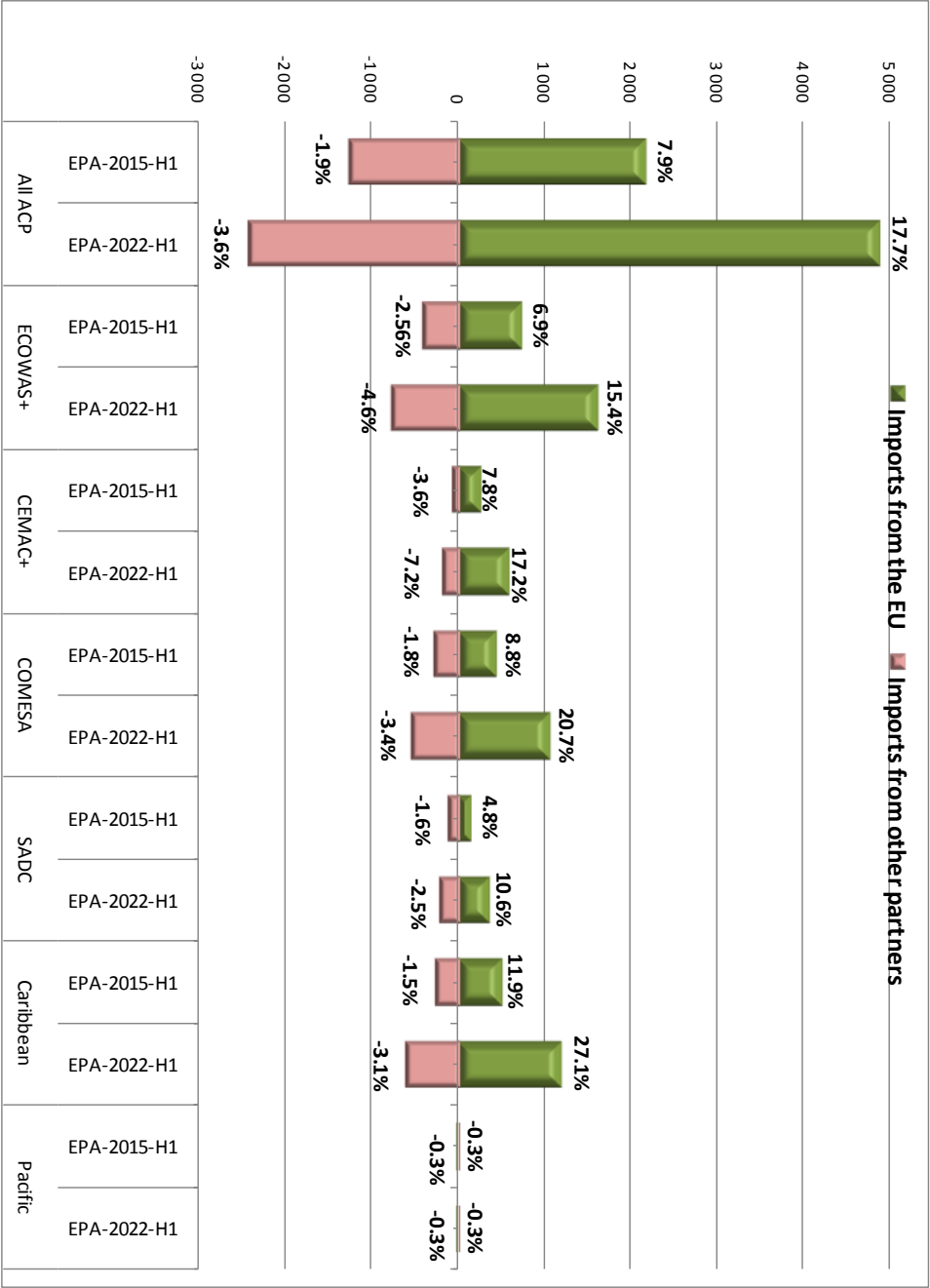
Dynamic effects, such as growth increasing imports on products still protected, are not captured in this kind of partial equilibrium model. However, since exemptions concern highly protected products, such effects can be disregarded.

A second effect of the EPAs is trade diversion, expected from any FTA. Here, untaxed imports from the EU - or from countries belonging to the same ACP region - will replace currently taxed imports from the rest of the world. Accordingly, trade diversion provides additional negative impacts, in addition to the direct effects.

Trade diversion is illustrated in Figure 21: the two time horizons (2015 and 2022) are considered. In 2015, net imports of all ACP countries are forecast to increase by euro 0.89 bn (the algebraic sum of the red and green bars). Imports from the EU are forecast to increase by euro 2.1 bn (+7.9 percent as compared to the reference scenario). The red bar represents the forecast reduction in imports from non-EU countries, including regional partners. In 2022, when EPAs will be fully implemented, the magnitude of this effect will be even larger. The trade diversion figures presented here also include tariff losses coming from the implementation of regional FTAs. All in all in 2022 the regional integration component will represent a different share of the tariff revenue cost, from 15 percent in the case of ECOWAS up to 33 percent in the case of SADC.

Finally, a domestic effect has to be taken into account. Basically, other things being equal, reduced tariffs should increase the extent to which transactions take place in the formal economy. As we made the assumption that half of domestic sales escape taxation, when domestic sales are replaced by imports, formal sales in effect replace

Figure 21 : Net imports and trade diversion, H1 scenario (changes in imports, Million Euros)



Source: simulation results.
Note: % included in the graph indicates the relative variation from the reference value.

the black economy for half of the value of the transaction. In the end, these additional sales are a source of additional VAT income for the government (we recall the conservative assumption of an average VAT rate of 16 percent).

In Figure 22, losses (expressed as positive values) associated with the combination of the three effects are summarised, for the central scenario (H1), in 2015 and in 2022. The positive impact of the domestic taxation effect remains very limited. The average loss of tariff revenue on EU imports for all ACP is forecast to be 71 percent in 2022, and 28 percent in 2015 (see Figure 23). The lowest losses are forecast in the SADC region (58 percent), while the region most heavily affected is forecast to be ECOWAS, for which the trade diversion effect would be particularly detrimental (losses of 700 millions of euros annually in the long run or 82 percent of the tariff revenue in 2022).

The share of initial EU imports in total trade is crucial, the more dependent the country is on EU imports, the stronger the impact on tariff revenue losses (see Figure 23). When taking into account imports from all sources (Figure 24), overall losses are significantly reduced: ECOWAS, for instance, is potentially facing a fall in tariff revenue of less than 38 percent overall. The average is 26 percent for all ACPs in 2022 under H1 and 19 percent under H2, when the exclusion list is optimised.

Appendix D discusses the role of sensitive products in reducing potential adjustment problems by comparing EPAs with a hypothetical full FTA between the ACP and the EU.

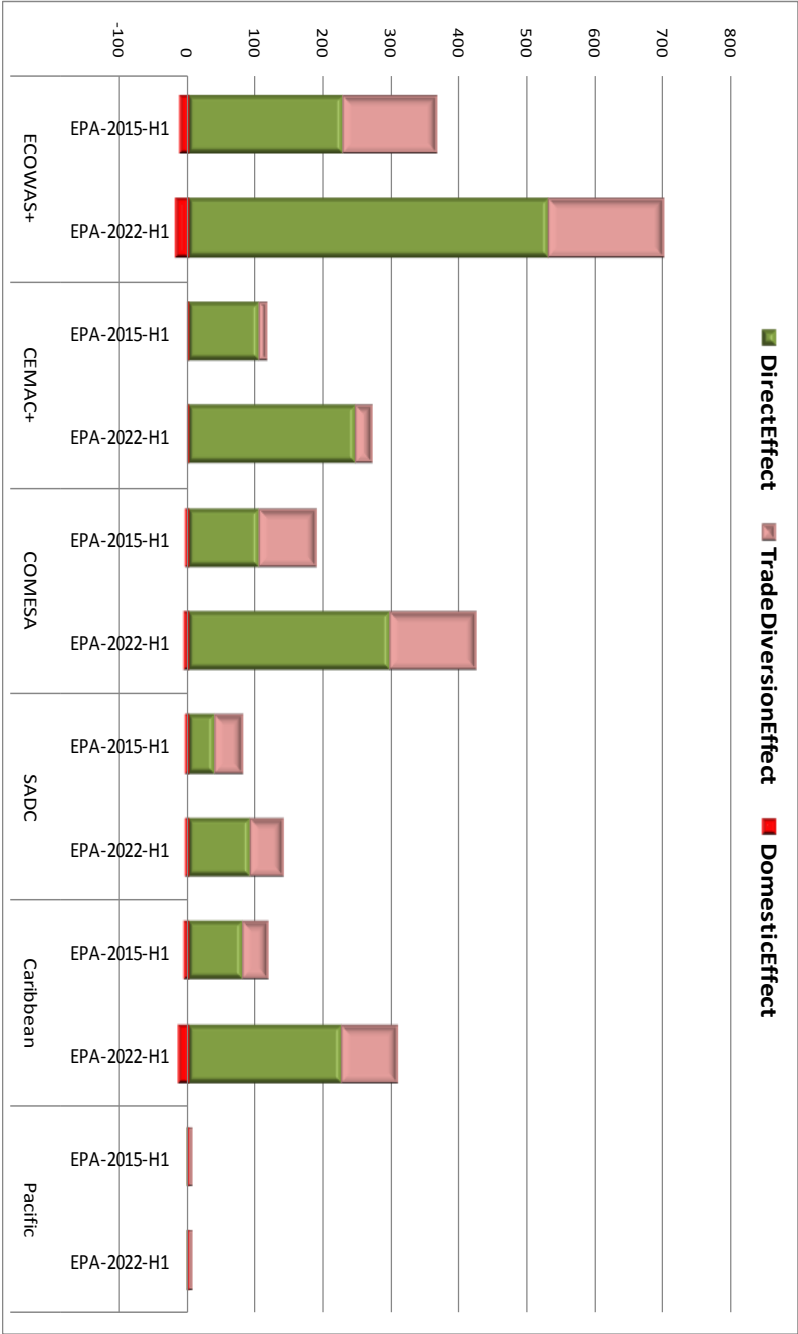
6.4. From fiscal effects to net fiscal costs

In the EPA framework, trade liberalisation will mean tariff elimination on the “essential share” of ACP’s imports from the EU. Since for a liberalised product, the final tariff will be 0, no “Laffer” effect takes place. Consequently tariff revenue and with it, a significant part of government funding, may be significantly reduced. This section will consider this issue. In particular we consider under what circumstances EPAs may or may not have positive impacts on tariff revenue.

6.4.1. Tariff revenue losses and Fiscal constraints

A major fear related to the EPAs is that for some ACP governments, the tariff revenue losses will have significant impacts on their fiscal capacity. However, this threat needs to be viewed in the wider context. Key issues to consider are:

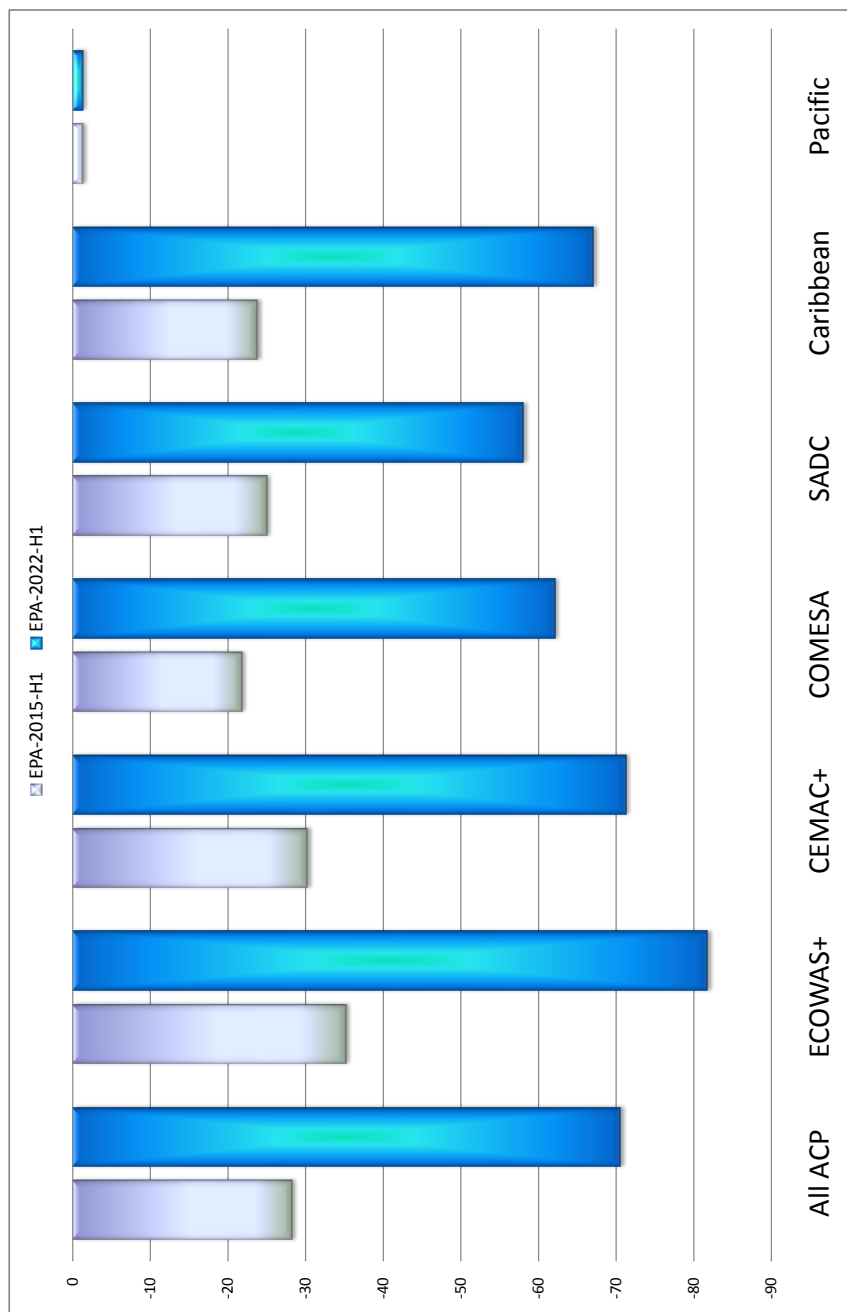
Figure 22: Fiscal effects: annual losses, H1 scenario (Million Euros)



Source: simulation results.

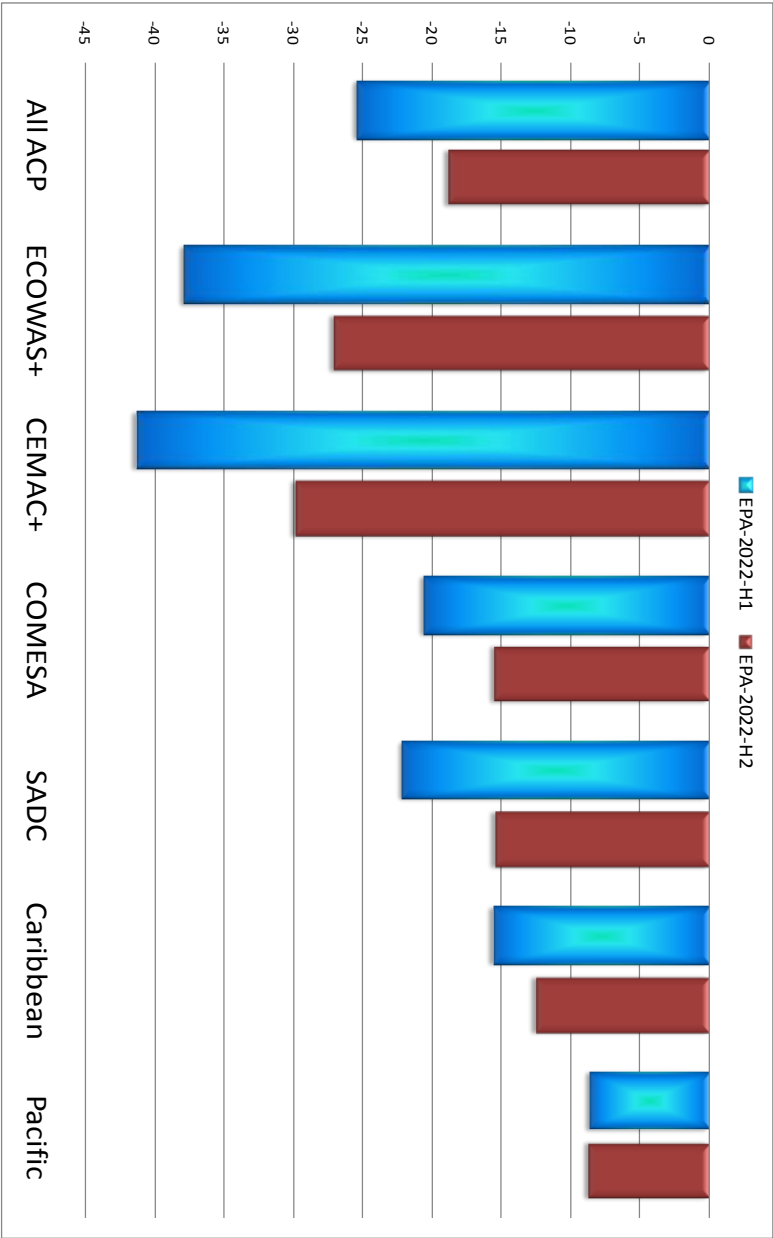
Note: In the Trade diversion figures presented here we have included also tariff losses coming from the implementation of regional FTA, both coming from direct effects and diversion effects. These effects are totally implemented by 2015.

Figure 23: Tariff revenue on EU products. H1, short and long term.(%, Change)



Source: simulation results.
See Table 7 in Appendix C for the share of tariff revenue losses in GDP.

Figure 24: Variation in tariff revenue. H1, short and long term.(All origins,%, Change)



Source: simulation results.
See Table 8 in Appendix C for the share of tariff revenue losses in GDP.

- As we have seen above, EPAs will not be fully fledged FTAs, in that there will not be 100 percent symmetric liberalisation between the parties. Tariff revenue will continue to be collected on EU imports, as a certain number of products can be excluded from tariff cuts. In the H1 scenario, for instance, 29 percent of the initial tariff revenue on EU imports is forecast to still be collected (up to 42 percent for the SADC region) even after full implementation.
- The European Union is not the only trade partner for ACP countries. They still collect tariff revenue on most third countries imports.
- Finally, tariff revenue is not the only source of income for the government.

Figure 25 displays a scatter graph with the percentage of (total) tariff revenue losses and the share of custom duties in government revenues.³⁰ Only a relatively small number of countries are taken into consideration; the list of countries corresponds to those for which IMF database provides reliable figures on collected duties and government income. Luckily, the global picture is an inverse relationship - countries that are the most dependent on tariff revenue seem to be the ones which suffer the smallest losses in the EPA context. Swaziland with a very high dependence rate (47 percent of government income derives from customs duties) is forecast to have a loss in tariff revenue of only 5.7 percent. On the other hand, countries such as the Congo, where tariff revenue losses are forecast to be high, (31 percent) often have a low dependence on these taxes for government income (7.1 percent in the case of Congo). However some developing countries in western Africa such as Ghana, and especially Côte d'Ivoire, where both figures are high, may go through difficult transition phases.

In this context, it will be important for the negotiators to focus on critical countries where tariff losses are likely to be significant and tariff revenue is also a key component in the fiscal equilibrium of the country. LDCs are likely to benefit the most from an adjustment package allowing them to move progressively from a taxation system based on imports to a more stable, domestic focused, system. The transition towards other forms of taxation will be particularly difficult in post-conflict countries where the central government power is weak and the whole administration system is still in a phase of 'rebirth' (e.g. Central Africa Republic).

The partial equilibrium analysis presented here cannot consider all second order positive or negative fiscal effects related to changes in wages and profits (income taxation) as a result of EPAs. Moreover, the VAT system modelled here is approximate compared to reality. Small VAT revenue gains, explained by the increase in imports, are

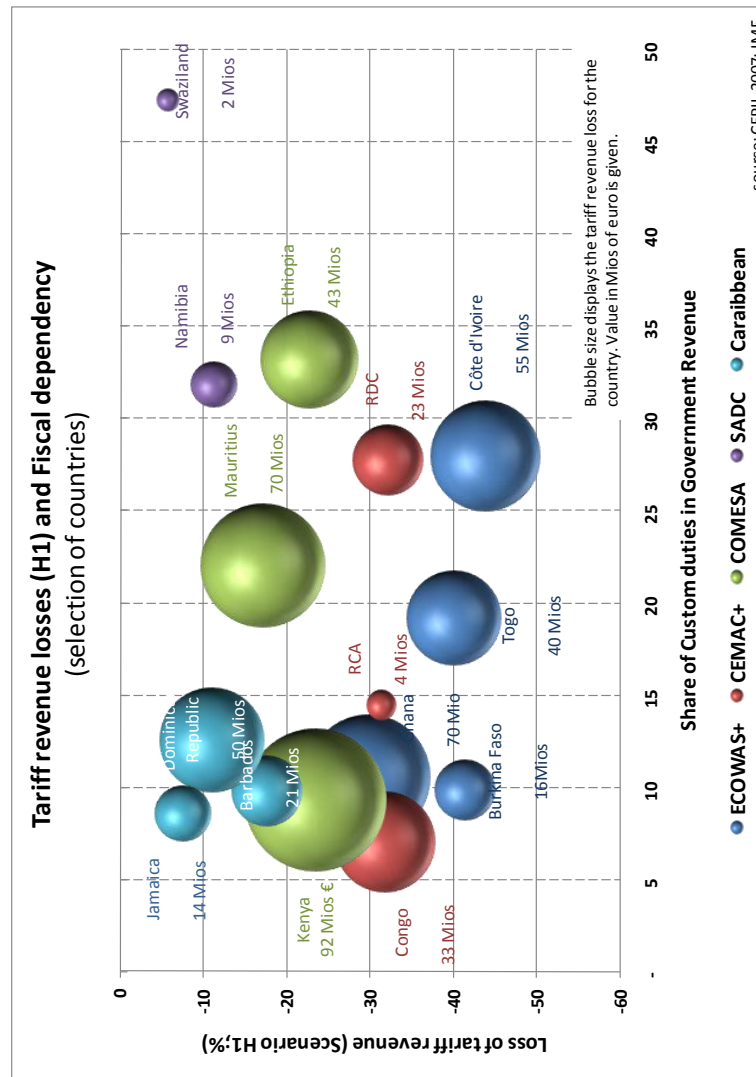
³⁰The analysis is limited to countries where reliable data is available from the IMF.

Table 3: Tariff revenue losses and fiscal dependence (selected countries)

Country	Share of Government income in GDP*	Share of Duties in Government income*	Forecast decline in collected duties** (%)	Value of forecast losses** (Euro m.)	Share of forecast losses in GDP (%)**
Ghana	30.1	10.6	-29.7	70.4	1.0
Côte d'Ivoire	16.8	28.0	-43.9	55.3	0.4
Togo	14.2	19.2	-40.1	40.2	2.4
Burkina Faso	18.1	9.9	-41.5	16.2	0.4
Central African Rep.	10.1	14.5	-31.3	3.7	0.3
Congo	29.6	7.1	-31.8	46.1	1.3
RDC	7.2	27.8	-32.1	22.7	0.4
Ethiopia	16.7	33.2	-25.9	43.5	0.6
Kenya	21.1	9.3	-22.7	92.1	0.7
Mauritius	20.1	22.0	-23.4	70.2	1.4
Uganda	22.0	15.9	-17.2	7.2	0.1
Namibia	28.2	31.8	-11.2	9.3	0.2
Swaziland	26.8	47.3	-5.7	2.1	0.1
Barbados	35.4	9.8	-17.6	21.3	0.9
Dominican Rep.	16.4	12.6	-10.9	49.3	0.3
Jamaica	31.8	8.6	-7.5	14.1	0.2

* IMF, GFD database, ** Simulation results.

Figure 25: Tariff revenue losses and Fiscal dependency.(selection of countries)



related to the move of a part of economic activity from the informal (untaxed) sector to the formal (taxed) one. We assume that only half of domestic sales are taxable in the sense that VAT is actually collected. In contrast imports are fully taxable, as they do not generally enter the informal market. For instance, for a tax rate of 16 percent, while for 1 euro of domestic sales just 8 cents are collected, for 1 euro of imports, up to 16 cents could be obtained. “Up to” because we also need to consider the efficiency of the customs system.³¹ Our results indicate that the impact of this shift from the informal market to the formal one is quite limited. However, there is reason to believe that the effects could be much stronger in reality. In particular VAT losses due to a reduction in domestic sales may be kept down by replacing a proportional VAT rate with a “lump sum VAT system” levied on small businesses.³² In this case a fall of domestic sales will not necessarily bring a proportional reduction in collected VAT taxes.

6.4.2. Customs duties efficiency and monitoring capacity

This part aims to shed some light on a potential benefic aspect of EPAs. In particular, several EU initiatives intend to support the efficiency of ACP custom services (training, hardware); these programs will be continued, and should be strengthened, with EPAs.

In the context of customs efficiency, it seems reasonable to assume that when an administration has less trade flows to tax, it will do the job better. Focusing their monitoring on a few goods/sources should help customs administration to increase the effective collected rate.³³

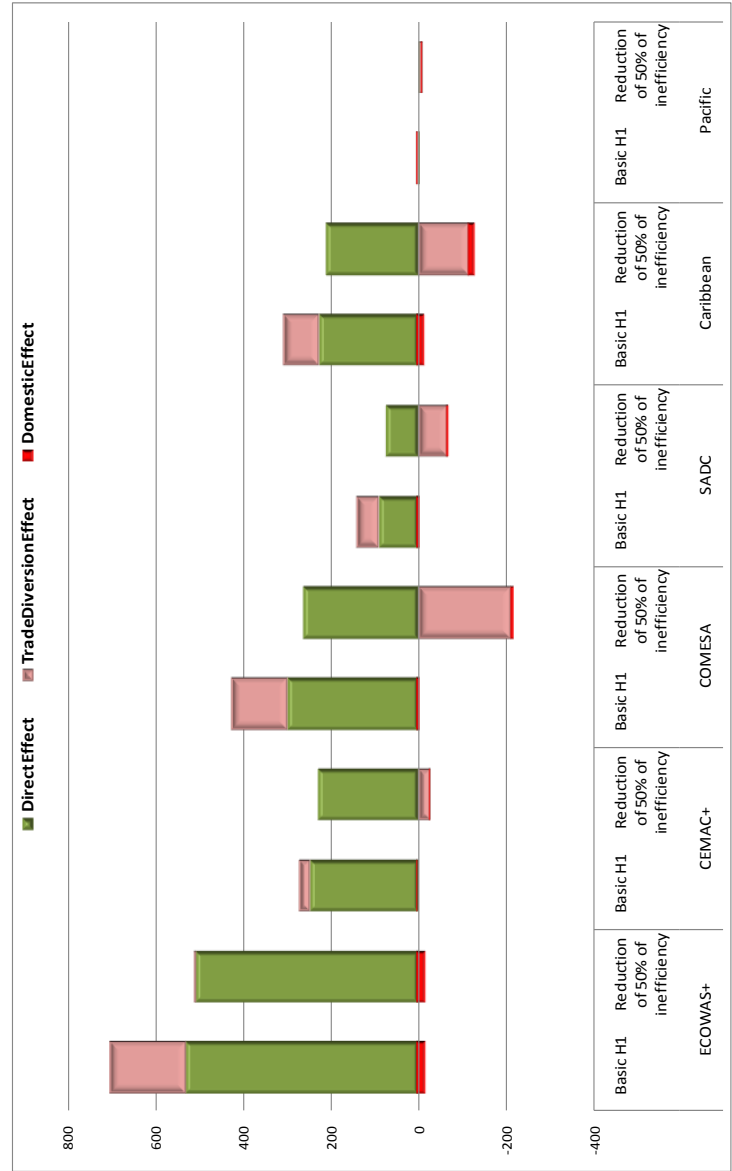
To assess the effects of this assumption, we have decided to simulate the previous scenarios, but reducing customs inefficiencies by half. As shown in Figure 26, which compares our basic H1 scenario with this alternative case, trade diversion losses are totally offset by such increased efficiency. In some cases we even register an effective

³¹ The efficiency rate for customs in terms of collection rates has been fixed in this model at 80 percent for developing countries and 60 percent for LDCs.

³² Several developing countries have established VAT structures which levy a lump sum payment on small businesses rather than taxing on the basis of turnover. This has several advantages including clarity and predictability.

³³ Moreover in this work we have assumed homogeneous efficiency in the collection rate over different products. In reality, for some structural reasons (NGO and the diplomatic bundle of imports, tax exemptions on investment goods, ease of smuggling of some categories of products), this rate changes quite a lot from one product to another. To raise the “average” collected efficiency rate, one possibility could be to take into consideration this aspect when building the exclusion list: for instance products associated to the lowest efficiency rate should be liberalised first. Some of them are quite suitable to the situation, such as the fixed exchange rate assumption due to the existence of the CFA franc zone.

Figure 26: Fiscal effects with increased efficiency in tariff collection. Annual losses. (Million Euros)



Source: simulation results.

increase in the amount of duties collected on third countries' exports. For COMESA and SADC, which depend the least on EU imports for tax revenue, this second effect will totally compensate for losses of tariff duties on EU products. All in all, the analysis indicates that EPAs potential negative fiscal effects could be reduced or even totally neutralized (e.g. for COMESA and SADC) if efforts were made to secure a strong improvement in customs systems. This means that within the adjustment packages likely to accompany the EPAs, a structural program aimed at improving customs administration would be crucial to the overall success of the agreement.

6.4.3. Tax evasion

Although revenues from trade taxes have become less important over the last 20 years, they continue to be a major source of government finance in many low- and middle-income countries, where they represent between one quarter and one third of total tax revenues. As a consequence, even in countries where governments are persuaded that they would enjoy substantial growth or other benefits from further trade liberalisation, there may be fears of a substantial cost in terms of lost revenues and subsequent reluctance to pursue trade reform.

The capacity to switch from trade revenue to domestic tax sources is a crucial point for those countries. However the ability of poorer countries to increase domestic revenues and maintain their total tax receipts at their initial level is questionable given the low level of activity in their economies (see ??).

When considering the revenue implication of trade liberalisation for LDCs and middle income countries, it is important to take into account the relationship between corruption in the customs service and tariff rate structures. In this sense it can be argued that the losses deriving from trade liberalisation can be mitigated, or even offset by taking into account these linkages.

Corruption is likely to fall when a country reduces distorting exemptions, establishing a more uniform structure. ? investigates the potential benefits of adopting a uniform tariff schedule. By explicitly accounting for the interaction between importers and corrupt customs officials, his study argues that setting trade tariff rate at a uniform level limits corruption and therefore could increase government revenues as well as improving welfare.

Other empirically work has been done on the causal relationship between border tax rates and tax evasion. Work, by ? focusing on the bilateral trade relationship between China and Hong-Kong and by ?, using the same methodology, in the case of Mozambique, finds that high tax levels are associated with high levels of under-

reporting of import values. In the case of Mozambique the author finds that for every percentage point increase in the customs tax rates, evasion increase by an estimated 1.4 percent. Even considering an inelastic price elasticity of demand for imports, this would imply a partial offset of the losses incurred from the fact that tariffs are reduced, due to reduced evasion.

In order to obtain an estimate of the elasticity of customs evasion for a number of ACP countries, we replicated these two latter papers.

Clearly the empirical problem presented when studying tax evasion is that, by its very nature, evasion is not easy to measure. The central feature of the methodology presented here, originally pioneered by ?, is to measure evasion with some precision by comparing bilateral trade flow data between a given country and its trading partners at the product level (hs6 level). In particular the measure of evasion is determined by the ratio between declared exports from a group of countries to a given ACP country (defined hereafter as X) and the same country's recorded imports from the same group (defined hereafter as M). In principle, assuming no evasion and no errors of measurement, the numerator and the denominator should be a mirror image of each other. A ratio of X/M of unity thus would be indicative of an absence of evasion.

In order to study the empirical linkage between customs rates and tax evasion, a baseline model is specified, which assumes a linear relationship between the logarithm of our measure of evasion (X/M), and the "Taxes" variable, a central variable defined as the sum of applicable taxes levied on a particular hs6 product. This is given by:

$$\ln(X/M) = \alpha + \beta * Taxes + \epsilon \quad (1)$$

A positive value for β suggests that tax evasion, defined as the gap between X and M , is positively related to the tax rate. In other words, high tax rates would be associated with high levels of evasion. Of course, because of the nature of the specification, the coefficient β indicates also the responsiveness of tax evasion to tax rates, so that a marginal increase in the tax rate would bring about a change in evasion of β percent. Alternatively equation (1) allows us to infer a formula for the growth rate of evasion:

$$(dX/X) - (dM/M) = \beta * (dTaxes) \quad (2)$$

Data on applied tariffs cover the year 2004 at the hs6 level of the harmonized system, and include all bilateral preferential agreements. They are provided by the MACMap database version 2.

To perform the study we also needed mirror flows from country pairs, originally declared for the same year (2004). Firstly we consider a list of importers that have declared their imports in 2004 as well as the list of the countries from which they were importing. Then, considering this last group of countries, we check whether they also declared their exports to the importer in question. Whenever an exporter does not declare trade we exclude the flows from the importer's declaration. In this way we keep only country pairs where bilateral trade was declared by both in the same year. Using this approach we could analyse only a few of ACP countries as importers: Burundi, Ghana, Kenya, Malawi, Senegal, Tanzania, Togo, Zambia and Zimbabwe.

Once we established the potential list of ACP countries on which we could carry out the regression analysis we needed the values for X and M expressed in the same terms. In trade while imports are normally declared at their Cost Insurance Freight (CIF) value, exports are instead declared Free On Board (FOB). Thus there is a difference in the costs taken into account in the import and export valuations, which accounts for some of the variation in figures. At the same time we also need the respective flows for each tariff heading in quantities (tons, liters etc.), expressed in the same unit of measurement, in order to check whether the practice of under-declaration stems from differences in declared quantities or if it is caused by under-reporting in unit values.

For the last two points we used the BACI database which provides FOB value data on X and M, and values on quantities expressed in tons.

We first focus on the results for the baseline model, using values of bilateral trade flows. Table 4 presents a first set of results for the estimated equation. We also add the estimation provided by Arndt for the case of Mozambique to our results.

The results presented in Table 4 indicate that the estimate of B is positive and statistically significant for all ACP countries examined, except for Malawi and Zimbabwe for which the sign of B is also positive, but the coefficient is not statistically significant.

Kenya and Tanzania are the two countries for which we have both the highest number of observations and a particularly high significance level for the B coefficient (1 percent). For the former we obtained an estimated value very close to that previously estimated for Mozambique (1.36 percent) while in the case of Tanzania the estimate is higher: 2.95.

We also run the same regression considering the quantity model (Table 5).

Results from Mozambique seem to indicate that there is no evidence of the practice of under-declaration on quantities, suggesting that under-reporting in the value of im-

Table 4: Results from the baseline model (dependent variable in value)

	Constant		Taxes		Nb of obs	R-square
	Coef a	t stat	Coef B	t stat		
Mozambique+	-.12 (.11)	-1.13	1.38*** (.32)	4.29	2486	.007
Burundi	.08 (.18)	.44	2.26** (.95)	2.37	191	.029
Ghana	-.68 (.16)	-4.20	1.22* (.68)	1.78	503	.006
Kenya	-.01 (.06)	-0.19	1.36*** (.28)	4.76	1719	.013
Malawi	.02 (.078)	.25	0.79 (.69)	1.14	443	.003
Senegal	-.01 (.12)	-.06	2.46*** (.82)	3	554	.013
Tanzania	-.10 (.064)	-1.65	2.95*** (.376)	7.85	1507	.039
Togo	.81 (.264)	3.07	3.08* (1.72)	1.79	211	.015
Zambia	.02 (.08)	.29	1.27** (.64)	2.37	573	.007
Zimbabwe	.28 (.11)	2.51	0.58 (.53)	1.10	388	.003

Note: standard deviations in brackets.

*, **, *** mean significant at the 10%, 5% and 1% levels respectively.

* Estimation provided by ?.

ports is caused by under-reporting of unit values. We obtained the same results in the case of Kenya and Togo, while the B coefficient continues to be positive and statistically significant for those countries for which it was the case in the first regression. It is worth noting that for Tanzania the coefficient is still 1 percent significant, with an estimate of 2.14.

It is also important to point out the poor fit of the regression, not only in our study but also in previous ones. In fact in spite of the significance of the B coefficient, the tax rate does not explain much of the variation in evasion across the different results.

Table 5: Results from the baseline model (dependent variable in quantity)

	Constant		Taxes		Nb of obs	R-square
	Coef a	t stat	Coef B	t stat		
Mozambique+	-.19 (.16)	1.17	.30 (.50)	.60	2201	.0002
Burundi	-.50 (.33)	-1.48	3.18* (1.71)	1.86	151	.0348
Ghana	-.84 (.23)	-3.64	1.47* (.95)	1.55	366	.0065
Kenya	-.014 (.125)	-.11	-.91 (.85)	1.07	1280	.0019
Malawi	.28 (.153)	1.84	0.5 (1.29)	.39	286	.0005
Senegal	-.10 (.17)	-.61	2.46** (1.19)	2.07	554	.0077
Tanzania	-.16 (.113)	-1.44	2.14*** (.67)	3.20	1161	.0087
Togo	.95 (.313)	3.03	-2.29 (2.09)	-1.10	191	.0086
Zimbabwe	.23 (.24)	.95	0.96 (1.21)	.80	208	.0031

Note: standard deviations in brackets.

*, **, *** mean significant at the 10%, 5% and 1% levels respectively.

* Estimation provided by ?.

The regression results indicate that for African countries, liberalisation has the potential to be beneficial, at least in term of the potential to reduce corruption. However, in order to achieve this goal, tariff peaks and tariff heterogeneity should both be reduced.

In terms of the potential for reduced corruption to increase tax revenue, in the long run, in the context of EPAs, protection rates for the products to be liberalised would be set to zero at the end of the transition period, while the others, the highest, could remain unaffected at their MFN value. As tariff peaks are likely not to be reduced differences between tariffs are therefore likely to increase. Given that this discrepancy

will increase the incentive for corruption, EPAs could negatively impact on tariff revenues in the ACP countries. Thus better support to enhance the efficiency of customs services may be necessary to avoid potentially significant losses.

APPENDIX

A LIST OF COUNTRIES INCLUDED IN THE STUDY

Table 6: List of countries included in the study

ISO code	Country	In the Model
024	Angola	yes
028	Antigua and Barbuda	yes
044	Bahamas	yes
052	Barbados	yes
084	Belize	yes
090	Solomon Islands	yes
108	Burundi	yes
120	Cameroon	yes
132	Cape Verde	
140	Central African Republic	yes
148	Chad	yes
174	Comoros	
178	Congo	yes
180	Congo (Democratic Rep.)	yes
184	Cook Islands	
204	Benin	yes
212	Dominica	yes
214	Dominican Republic	yes
226	Equatorial Guinea	yes
231	Ethiopia	yes
232	Eritrea	yes
242	Fiji	
262	Djibouti	yes
266	Gabon	yes
270	Gambia	
288	Ghana	yes
296	Kiribati	
308	Grenada	yes
324	Guinea	
328	Guyana	yes

Continued on next page

An Impact Study of the EU-ACP EPAs in the Six ACP Regions

ISO code	Country	In the Model
332	Haiti	
384	Côte d'Ivoire	yes
388	Jamaica	yes
404	Kenya	yes
430	Liberia	yes
450	Madagascar	yes
454	Malawi	yes
466	Mali	yes
478	Mauritania	yes
480	Mauritius	yes
508	Mozambique	yes
520	Nauru	
548	Vanuatu	yes
562	Niger	yes
566	Nigeria	yes
583	Micronesia, Fed. St.	
585	Palau	
598	Papua New Guinea	yes
624	Guinea-Bissau	yes
626	East Timor	
646	Rwanda	yes
659	Saint Kitts and Nevis	yes
662	Saint Lucia	
670	Saint Vincent and the Grenadines	yes
678	Sao Tome and Principe	
686	Senegal	yes
690	Seychelles	yes
694	Sierra Leone	yes
706	Somalia	
716	Zimbabwe	yes
736	Sudan	yes
740	Suriname	yes
768	Togo	yes
776	Tonga	
780	Trinidad and Tobago	yes
800	Uganda	yes
834	Tanzania	yes

Continued on next page

ISO code	Country	In the Model
854	Burkina Faso	yes
882	Samoa	
894	Zambia	yes
072	Botswana	yes
426	Lesotho	yes
516	Namibia	yes
748	Swaziland	yes

B MODEL EQUATIONS

B1. Demand tree

Regional income is assumed to be fixed.

$$Rev_s = \sum_{iii} P_{iii,s}^{MCat} DemTotMCat_{iii,s} \quad (1)$$

Leontieff relation between the two main categories: $DemTotMCat_{iii,s}$. (First Stage)

$$TotDem_s = a_s^{AgriAgro} DemTotMCat_{AgriAgro,s} = a_s^{OtherInd} DemTotMCat_{OtherInd,s} \quad (2)$$

CES to allocate the total demand within each main category to different broad sectors: $DemTotcat_{ii,s}$. (Second Stage)

$$DemTotcat_{ii,s} = \sum_{iii} DemTotMCat_{iii,s} a_{ii,s}^{DemTotcat} \left(\frac{P_{iii,s}^{MCat}}{P_{ii,s}^{Cat}} \right)^{\sigma_{DtotCat}} \quad (3)$$

CES to define the consumption between the Gtap sectors: $DemGtap_{i,s}$. (Third Stage)

$$DemGtap_{i,s} = \sum_{ii} DemTotcat_{ii,s} a_{i,s}^{Gtap} \left(\frac{P_{ii,s}^{cat}}{P_{i,s}^{Gtap}} \right)^{\sigma_{DGtap}} \quad (4)$$

CES from Gtap to hs6 level. (Forth Stage)

$$Dhs6_{hs6,s} = \sum_i DemGtap_{i,s} a_{hs6,s}^{hs6} \left(\frac{P_{i,s}^{Gtap}}{P_{hs6,s}^{Dhs6}} \right)^{\sigma_{Dhs6}} \quad (5)$$

Nested Armington. (Fifth Stage)

Differentiation between quality range

Regions with the same level of development

$$DU_{hs6,s} = a_{hs6,s}^{hs6U} Dhs6_{hs6,s} \left(\frac{P_{hs6,s}^{Dhs6}}{P_{hs6,s}^{DU}} \right)^{\sigma_{GEO}} \quad (6)$$

Regions with different levels of development

$$DV_{hs6,s} = a_{hs6,s}^{hs6V} Dhs6_{hs6,s} \left(\frac{P_{hs6,s}^{Dhs6}}{P_{hs6,s}^{DV}} \right)^{\sigma_{GEO}} \quad (7)$$

Same quality range: Differentiation between Import and Domestic demand

$$Mhs6_{hs6,s} = a_{hs6,s}^{Mhs6} DU_{hs6,s} \left(\frac{P_{hs6,s}^{DU}}{P_{hs6,s}^M} \right)^{\sigma_{ARM}} \quad (8)$$

$$MM_{hs6,s,s} = a_{hs6,s}^{Dem} DU_{hs6,s} \left(\frac{P_{hs6,s}^{DU}}{P_{hs6,s,s}^{MM}} \right)^{\sigma_{ARM}} \quad (9)$$

Same quality range: Differentiation between origins

$$MM_{hs6,r,s} = a_{hs6,r,s}^{MM} Mhs6_{hs6,s} \left(\frac{P_{hs6,s}^{Mhs6}}{P_{hs6,r,s}^{MM}} \right)^{\sigma_{ImpU}} \quad (10)$$

Different quality range: Differentiation between origins

$$MM_{hs6,r,s} = a_{hs6,r,s}^{MM} DV_{hs6,s} \left(\frac{P_{hs6,s}^{DV}}{P_{hs6,r,s}^{MM}} \right)^{\sigma_{ImpV}} \quad (11)$$

B2. Prices

$$P_{hs6,r,s}^{MM} = P_{hs6,r,s}^{Cif} (1 + \tau_{hs6,r,s}^{Adv}) \quad (12)$$

$$P_{hs6,s}^M = \left(\sum_{r \in U(s)} a_{hs6,r,s}^{MMhs6} P_{hs6,r,s}^{MM} 1^{-\sigma_{ImpU}} \right)^{\frac{1}{1-\sigma_{ImpU}}} \quad (13)$$

$$P_{hs6,s}^{DU} = \left(a_{hs6,s}^{Dem} P_{hs6,s}^{MM} 1^{-\sigma_{ARM}} + a_{hs6,s}^M P_{hs6,s}^M 1^{-\sigma_{ARM}} \right)^{\frac{1}{1-\sigma_{ARM}}} \quad (14)$$

$$P_{hs6,s}^{DV} = \left(\sum_{r \in V(s)} a_{hs6,r,s}^{Mhs6} P_{hs6,r,s}^{MM} 1^{-\sigma_{ImpV}} \right)^{\frac{1}{1-\sigma_{ImpV}}} \quad (15)$$

$$P_{hs6,s}^{Dhs6} = \left(a_{hs6,s}^{hs6U} P_{hs6,s}^{DUhs6} 1^{-\sigma_{Geo}} + a_{hs6,s}^{hs6V} P_{hs6,s}^{DVhs6} 1^{-\sigma_{Geo}} \right)^{\frac{1}{1-\sigma_{Geo}}} \quad (16)$$

$$P_{i,s}^{Gtap} = \left(\sum_{hs6} a_{hs6,s}^{Dhs6} P_{hs6,s}^{Dhs6} 1^{-\sigma_{Dhs6}} \right)^{\frac{1}{1-\sigma_{Dhs6}}} \quad (17)$$

$$P_{ii,s}^{Cat} = \left(\sum_i a_{i,s}^{Gtap} P_{i,s}^{Gtap} 1^{-\sigma_{DGtap}} \right)^{\frac{1}{1-\sigma_{DGtap}}} \quad (18)$$

$$P_{iii,s}^{MCat} = \left(\sum_{ii} a_{ii,s}^{DemTotCat} P_{ii,s}^{Cat} 1^{-\sigma_{DtotCat}} \right)^{\frac{1}{1-\sigma_{DtotCat}}} \quad (19)$$

C TARIFF REVENUE LOSSES AS A SHARE OF GDP

Table 7: Tariff revenue losses by ACP regions (With the EU, share of GDP, %)

Region	EPA-2015- H1	EPA-2022- H1	EPA-2022- H2	EPA-2022- H1-Doha	EPA-2022- FTA
All ACP	0.2	0.5	0.4	0.5	0.7
ECOWAS+	0.2	0.5	0.4	0.5	0.6
CEMAC+	0.3	0.7	0.5	0.7	1.0
COMESA	0.2	0.5	0.3	0.5	0.7
SADC	0.1	0.2	0.1	0.2	0.3
Caribbean	0.2	0.5	0.4	0.5	0.8
Pacific	0.0	0.0	0.0	0.0	0.1

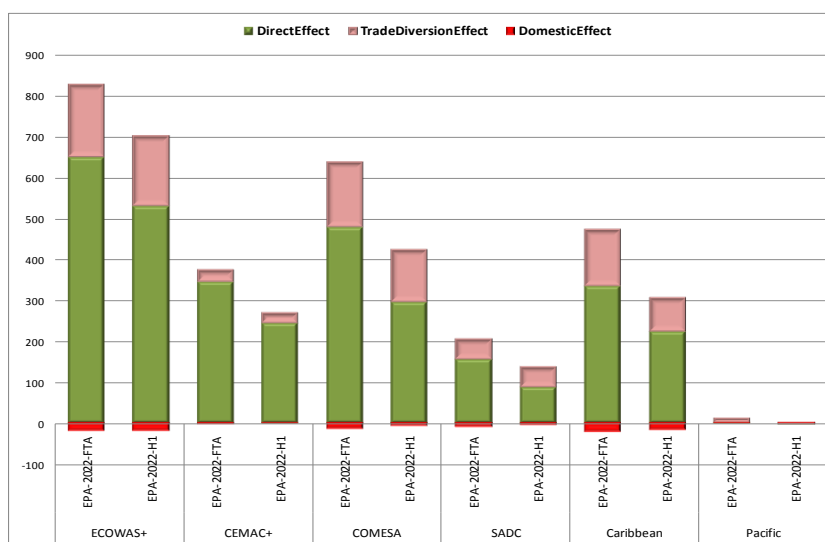
Table 8: Tariff revenue losses by ACP regions (All origins, share of GDP, %)

Region	EPA-2015- H1	EPA-2022- H1	EPA-2022- H2	EPA-2022- H1-Doha	EPA-2022- FTA
All ACP	0.3	0.6	0.5	0.7	0.9
ECOWAS+	0.4	0.7	0.5	0.7	0.8
CEMAC+	0.3	0.8	0.6	0.8	1.1
COMESA	0.3	0.6	0.5	0.7	1.0
SADC	0.2	0.3	0.2	0.4	0.4
Caribbean	0.3	0.7	0.6	0.8	1.1
Pacific	0.2	0.2	0.2	0.2	0.4

D EPA VS FULL FTA ASSUMPTION

In this annex we address the potential impact on tariff revenues of the implementation of a full FTA, without exclusions, in 2015 and 2022. In such a situation the impact on government revenues would be much larger. For the Caribbean region, moving from the EPA to a full FTA is forecast to increase losses by 4%. Once again we confirm the role of sensitive products in smoothing any adjustment costs.

Figure 27: Fiscal effects decomposition EPA vs. full FTA. (Million Euros)



Note: In the Trade diversion figures presented here we have included also tariff losses coming from the implementation of regional FTA, both coming from direct effects and diversion effects. These effects are totally implemented by 2015.

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