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Welfare and Employment Effects of Liberalization of the Services Trade between the African Caribbean and Pacific and the European Union Countries

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Abstract

Services generate employment and income and constitute essential inputs in key sectors such as agriculture and manufacturing in the African, Caribbean and Pacific Group of States (ACP). However, uncertainties regarding the impacts of the liberalization of the highly protected services trade with their largest partner, the European Union (EU) have delayed implementation. This paper analyzes the potential impacts on welfare and employment of the liberalization of the services trade between the EU and ACP countries. I employ simulations based on the General Equilibrium model and take into account the labour productivity gaps among trading countries. Results show that although ACP services represents only about 24% of its total exports to and 28% of its import from the EU, halving the bilateral tariffs in services trade will generate for the ACP a welfare gain 3.4 times larger than the gain under sole elimination of bilateral tariffs on goods (merchandises). Similarly, a liberalization of services trade will generate significant endowment effects equivalent to 410,000 new jobs per year, mostly in service sectors. The employment and welfare gains will reach key sectors such as agriculture due to the reduction in services trade costs. The liberalization of services trade will also raise wages, especially for skilled labour in ACP countries. Despite a slight decline in wages for skilled labour, the EU will also stand to gain by about 7.8 billion USD in welfare. The ACP gains will increase further if its labour productivity increases. My simulation shows that liberalization of the highly distorted services trade between the ACP and the EU should not be delayed. Even a sensible reduction in trade costs in services will help to unlock the trade potential of ACP countries' services and to enhance their contribution to the ACP economy, while also benefitting the EU.

1. Introduction

Globally, service sectors directly employ 70% of the unskilled labour and about 85% of skilled labour. Services also produce 24% and 32%, respectively, of intermediate goods used in the key sectors of agriculture and manufacturing. Despite the strong links between service sectors and overall employment and welfare, however, many important services such as communication, insurance, and transport remain highly protected in both developed and developing countries (van Limburg, 2010; Fontagné et al., 2011). In the trade negotiation between the ACP and the EU countries under the Economic Partnership Agreement (EPA), the liberalization of trade in services is stalled by numerous issues stemming mainly from fears of losing tax revenues and employment (Brenton, 2010; Bendini et al., 2012). For example, negotiators fear that the significant labour productivity gap in the service sectors between the EU and the ACP could lead to lost employment, specifically the loss of less-skilled jobs in the EU and of more skilled jobs in the ACP. Additionally, these negotiators neglect to notice that a liberalization of the goods markets without concomitant liberalization of services markets may retard any gains from the former. A lack of adequate information regarding the sectoral impacts and overall welfare and employment effects of the liberalization of services trade lies at the heart of these fears and prevents well-informed decisions.

The purpose of this paper is to contribute to filling such a knowledge gap. I estimate the welfare and employment effects of the services trade between ACP and EU countries and account for the differences in labour productivity trend among all trading blocs. I focus my attention on the impacts of the service trade liberalization on wage and employment in manufacturing and agriculture, as these sectors host the bulk of the poor small input owners in many low-income countries, especially in African countries within the ACP. This paper uses a general equilibrium GTAP model (Hertel, 1997) to simulate the elimination of bilateral tariffs in goods and halving of the bilateral tariff equivalent in services for EU and ACP trade. The scenarios are designed to determine the distribution of the welfare and employment gains or losses, as well as changes in wage among regions and sectors, especially in agriculture and manufacturing for ACP countries. To my knowledge, no study has attempted to perform such analysis. The findings are intended to provide policy implications especially for unlocking the export potential of ACP countries' service sectors in order to reduce poverty and improve employment outlook and welfare.

2. Features of ACP-EU Services Trade
2.1 Importance of the services sector in ACP and EU trade

ACP and EU countries have made progress in negotiating the liberalization of merchandise trade but remain reluctant to fully address the liberalization of the services trade. The main reason for delay is uncertainty regarding the effects of such trade liberalization for welfare and employment and of trade imbalances. Globally, services contribute up to 24% and 32% respectively of the value of intermediate goods in agriculture and manufacturing. For both the EU and ACP groups, service sectors play an even more important role in their economy,

especially in job creation. Service sectors employ the majority of unskilled labour and the large majority of skilled labour in both ACP and EU countries. For instance, in the EU, 67% of employed unskilled and 82% of employed skilled labour are in the service sectors. The respective figures for ACP countries are 54% and 90%. These figures indicate that any change in trade policies for the service sectors affect not just them but also other sectors such agriculture and manufacturing in ACP and EU countries. But so far, quantitative information of such impacts remains elusive.

Services trade, though overshadowed by goods trade in the Economic Partnership Agreements, is an important trade component for both the ACP and the EU. Data show that services export represents on average of 15 % of total trade value of ACP countries (reaching 35% for the Pacific and Caribbean groups of the ACP) and about and 22% of total trade of EU countries. More important, services represent non-negligible parts of the ACP trade with the EU: ACP services export to the EU represents about 24% of the ACP total exports to the EU, and 28% of ACP imports from the EU are services.

Although services trade is an important component of ACP-EU trade, the balance remains in favour of the EU. Recent data (Figure 1) on ACP-EU services trade show that the ACP as a whole is a net importer vis-à-vis the EU in all except two aggregated sectors: the communication and transportation sector and the utility sector. In large sectors such as finance and business services and construction services, the ACP is a net importer, which could be attributed to many reasons including the different sizes of the economies, difference in labour skills and productivity, and difference in capital endowment between the two trading blocs. Still hampered by poverty and unemployment problems, ACP countries hope that reversing their status on services trade will help solve these problems.

(Figure 1)

2.2 High barriers and trade costs in the service sectors

Uncertainties over total welfare and employment effects of the liberalization in services trade are also due in part to high barriers and trade costs on both sides. To date, data on the level of barriers remain patchy. The difficulties reside in measuring the trade distortion, because undeclared non-tariff barriers seem to prevail. There are also many hidden costs of services trade (linked to merchandise trade) that create complications in the estimation.

However, the few available data on the distortions in services trade point to a high trade cost in services trade in both the EU and the ACP. For instance, Fontagné et al. (2011) provide a measure of the tariff equivalent showing that trade costs are particularly high for both developing and developed countries (Table 1). It seems obvious that any sensible reduction of these high barriers and trade costs will have significant impacts on ACP services trade values and welfare.

(Table 1, here)

2.3 Significant gaps in labour productivity

An important feature of the services trade between the ACP and the EU countries is the significant gaps in labour productivity between the two trading blocs. As in the agriculture or manufacturing sectors, van Dijk (2013) shows, as reported in Table 2, that there is a huge gap in labour productivity in the service sectors (such as finances and business services), especially between ACP countries and the rest of the world including the EU. This productivity gap increases the uncertainty regarding employment impacts of services trade liberalization. If services trade is liberalized, the EU fears of losing services jobs to the ACP, especially jobs that require less skilled workers. Conversely, the ACP fears of losing some of its already strained skilled labour supply to the EU. This is why addressing the likely impacts of the liberalization in the service sectors on ACP and EU employment is important.

(Table 2 here)

3. Model
3.1. Model description

I use a GE analysis based on the static GTAP model (Hertel, 1997) to estimate the impacts of liberalization of the services trade between ACP and EU countries on welfare and employment. The GTAP model is a multi-sector, multi-country model that provides an accounting exercise of how shocks such as changes in tariff and input productivity growth rates in service sectors affect prices and incomes, and hence welfare and employment. Changes in welfare as results of any policy shocks are captured as an equivalent variation; employment effects are captured by the endowment effect component of the total welfare effect. The advantage of using the GTAP model is its access to detailed trade data on all sectors, including the various service sectors.

The GTAP model is one of the most widely used GE models and features market-clearing conditions for outputs (across domestic and exports), imports (by users as firms, households and government), domestic consumption (by users as assigned for imports), and endowment output (by usage in various sectors). Zero profits are assumed in the standard form of this model, implying perfect competition. This condition is employed to infer the endogenous output change in every sector.

Because an important emphasis of this study is on the labour productivity gaps in ACP-EU trade, I summarize here how shifts in productivity and technical progress are captured in the model. The production function Y in the GTAP model is in a Leontief form for which output is produced from primary inputs (mainly land, labour, and capital) nested in and source (i.e. domestic and foreign source) differentiated intermediate inputs. The primary inputs (land,

labour and capital) are imperfect substitutes in a nested CES function Q_v. The technological shifts in domestic production in the GTAP model are through a Hicks-neutral (for overall productivity) shift at the Leontieff level, and input productivity parameter shift at the second stage.

In summary, the production function is

(1) $Y = A_0 \min\{A_{i1}Q_{i1},...A_{in}Q_{in};Q_v)$

where

(2) $Q_v = \left[\sum_e (A_e Q_e)^{-\rho} \right]^{-1/\rho}$

and Y is output, A_0 is Hicks-neutral change parameter, A_{ij} is output-per unit input coefficients, and Q_{ij} is quantity of intermediate input for country i from source $j \neq i$. Q_v is the domestic second-stage CES production function using primary inputs e; A_e is share parameter of input e = {land, unskilled labour, skilled labour, and capital}; and $-1 < \rho < \infty$ is the elasticity-of-substitution parameter. The neutral shift in overall productivity is due to a shift in the parameter A_0, whereas the shifts in the productivity in the intermediate and primary inputs are due to parameters A_{ij} and A_e respectively. For this study, the technical and productivity shifts of interest are particularly on A_0 and A_e, especially for e = labour. As (1) and (2) show, these technical and productivity shifts affect production directly, which affects price and the comparative advantage of an open economy. In an open economy, technical progress and increases in productivity lead to welfare gain, due to increased competitiveness of production and export.

An increase in labour productivity, for instance, leads to an increase in the marginal value products of other inputs (especially capital). This leads to an increase in technical efficiency, which enhances welfare gain. Moreover, there can also be a gain in allocative efficiency when sectors that use labour intensively expand and attract productive labour from other sectors. This allocative efficiency effect is noticeable under full employment of resources, especially with expected rises in factor payments. When there are unemployed resources (and factor returns are more or less fixed), the increases in labour productivity and production increase the demand and hiring of resources and, as a result, the country's or region's welfare increases. The welfare effect of such an increase of the use of formerly unemployed resource is captured by the endowment effects. Additionally, the model captures terms of trade and

investment-savings adjustment effects. In this study, such welfare change is the result of trade policy shocks for the EU-ACP services trade, taking into account differences in labour-productivity trajectories (as shown earlier in Table 1) among all trading partners.

My approach is first to introduce the productivity gaps in the model using estimates of labor productivity growth rates from Van Dijk (2013) and then to embed the average tariff equivalent of protection in service sectors based on estimates by Fontagné et al. (2011). I examine various policy scenarios based on tariff and labor productivity growth rates by taking into account the progress made in the negotiation on the goods markets and including a hypothetical shock of halving the tariffs in services between EU and ACP countries.

3.2 Aggregation and Scenario

The GTAP model in this paper is composed of 15 regions, 10 sectors (including 6 service sectors) and 5 main factor inputs. These aggregations are as follows:

Regional aggregation: West Africa; Central Africa; Eastern and Southern Africa; East Africa; Pacific and Caribbean; MENA (Middle East and North Africa); EU-25, North America; Latin America; Asia Developing (Thailand, Malaysia, Indonesia, and Vietnam); Asia Industrialized (Japan, South Korea, Singapore, Hong-Kong, and Taiwan); Oceania (New Zealand and Australia; BRIC (Brazil, Russia, India and China); and Rest of the World.[1]

Sectoral aggregation: Raw Food and Agriculture; Extraction; Textile and Apparel Manufacturing; Transport and Communication Services; Construction and Dwelling Services; Finance, Business Insurance and Trade Services; Utility (Electricity, Water, and Gas manufacture distribution) services; Government (Public Administration, Health, Education, Defense) services; and Recreation and other services.

Factor agregation: Skilled labour; Unskilled labour; Capital; Land; and Natural resources

The model closure is mainly based on the assumptions that there are unemployment in both skilled and unskilled labour in ACP countries and unemployment in skilled labour in the EU.

The simulations are based on the following three main scenarios (see Table 3 also):

Base Case Scenario (S0): In this scenario, labour productivity differences among regional aggregation and the average tariff equivalents are introduced in the service sectors.

Scenario (S1): All shocks in the baseline scenario are maintained, but removals of reciprocal tariffs on the goods markets between the EU and the 6 ACP groups are added;

Scenario 2 (S2): The same as Scenario 1, except that all bilateral tariffs on services are halved (reduced by 50%). This tariff reduction is ad hoc but can be changed under many

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[1] The ACP countries are aggregated in the EPA groups:

sensitivity analyses. Sensitivity analyses also include changing the rates of productivity growth.

(Table 3 here)

The GTAP model employs GTAP database 8 (Narayanan and Walmsley, 2008) that includes tariffs and other trade data on 134 countries and regions and 57 commodities (sectors). These data permit the model aggregation described earlier. .

4. Results

4.1 Welfare Effects

With no trade liberalization on goods or services

Simulations using the GTAP model were conducted to analyze the effects of the services trade liberalization using the base case S0 and the scenarios S1 and S2. The welfare decomposition results are reported in Table 4.

(Table 4 here)

Taking into account the differences in labour productivity growth rates among the 15 regions in the model, simulation results in panel (4a) shows that at the current average protection in the service sectors with no liberalization in goods market, the six ACP groups as a trading bloc lose about USD 10 billion per year. Contrastingly, the EU gains by about USD 201 billion, 70% of which comes from allocative and technical efficiency and only about 10% from an increased employment income.

The base case scenario here is a reminder that current ACP trade in goods and services with the EU puts the ACP at loss. The ACP loss is due in part to its less productive labour holding down its competitiveness in the international market.

It is important to note, however, that the welfare impacts among ACP groups are unevenly distributed and mixed. The ACP loss is borne mainly by SADC and Pacific and Caribbean groups due specifically to decreased employment income in the services and manufacturing sectors. While four ACP groups lose, two other groups, namely Central Africa and West Africa, post some welfare gains of about USD 0.57 and 1.3 billion per year. These gains, especially for West Africa, come from the terms-of-trade effects, apparently due to relatively lower distortion than in other ACP groups vis-à-vis the EU and a higher trade volume and proximity to the EU market.

With trade liberalization in goods (merchandises) trade

Based on the simulation results (panel 4b) from scenario S1, engaging in EPA on merchandises (abolition of bilateral tariffs between EU and ACP groups) but still protecting

services markets will increase the ACP's total welfare by about USD 1.8 billion compared to the base case. The distribution of such relatively slight gain is mixed: the Pacific and Caribbean and the Eastern and Southern Africa (mainly COMESA) groups are much better off than the rest of the ACP groups. The relatively slight welfare increase and its mixed distribution are consistent with the foot-dragging of some African countries in the negotiation on merchandises trade under the EPA. The EU on the other hand will gain in total welfare (including increases in employment income from its skilled labour) about 8 billion USD from the EPA compared with the base case.

With liberalization of services trade

Comparisons of the results of the simulation (panel 4d) under scenarios S1 and S2 show that halving bilateral tariff in services (in addition to the liberalization of trade in goods) between the ACP and the EU will increase ACP groups' welfare by an additional USD 6.2 billion (i.e., about USD 8 billion gain with respect to the base case scenario, as panel 4c shows). The gain is non negligible relative to the small size of some of the ACP economies. More important, such a result indicates that with just a halving of the protection in service sectors, ACP groups' welfare gain is 3.4 times larger than their gain under full elimination of bilateral tariffs with the EU on goods markets. The results also show that the gain in employment income is more than 50% of the welfare gain, pointing to a significant employment effect of the liberalization of the services trade. These results place higher importance on the liberalization of the services trade for welfare improvement and especially job creation for the ACP groups.

4.2. Trade Effects of the liberalization in services

Panel 4d of Table 4 (5th column) shows that all ACP groups except Central Africa benefit from improvement of the terms of trade when service sectors trade is liberalized. The total welfare gain due to terms-of-trade effects for the whole ACP is about 1.7 billion USD; this gain is mainly due to increased volume of exports of the ACP services, especially to Transport and Communication service sector and Finance and Business service sector (see Panel 5a in Table 5).

(Table 5 here)

The figures in Table 5 are the differences between the percentage changes in export volume in Scenario 2 and Scenario 1, i.e., the net changes in percentage points due to the service trade liberalization in comparison with the base case. For ACP exports to the EU, although the Recreation (tourism, hotels, etc.) services sector shrinks slightly, the other sectors do well, especially Finance and Business services (67-78%) and Transportation and Communication services (68-75%). Similarly, EU services exports to the ACP rise by about 30-34%, except in the Recreation sector where export growth is low. The low response of the Recreation services to liberalization may be linked to its facing lower trade costs than other sectors.

4.3. Employment Effects

A simple way to account for the employment effects of the liberalization of services trade is to assume that the endowment effects of about 2.44 billion USD of the ACP groups from Table 4 Panel 4d are all due to increases in employment. In other words, with an arbitrary 500 USD wage per month, the 2.44 billion dollars endowment effect of services trade liberalization will hire about 407 thousands unskilled ACP workers who are currently unemployed. Such a figure shows the importance of services trade liberalization for ACP countries.

It is customary to think that the welfare gain from trade liberalization or other policy shocks can be represented by or measured equivalently to the return to factors, especially labour, i.e., employment income. Under this presumption, Table 6 presents the changes in the value of endowment purchased by firms at agents' prices in order to indicate the income effects of the halving of the tariff in services trade between the EU and ACP countries. Over all ACP groups, the values of the gain in employment in unskilled and skilled labour are about 5.2 and 2.7 billion dollars, respectively (Table 6, Panel 6a). The results also show that excepting Central Africa, all five African groups do well, but the Pacific and Caribbean group carries more than half of those employment income gains. The main reasons for this imbalance are that the Pacific and Caribbean group has a much larger services trade (35% of their total trade), and that this group has a large Transportation and Communication sector that will benefit from the reduction of the high tariffs in the transportation services trade.

(Table 6 here)

At the sectoral level (Table 6 panel 6b), it is not surprising that the bulk of the increases in employment income due to the liberalization of services trade is within the service sectors. Particularly, the ACP's Finance and Business and Transportation and Communication service sectors hold the largest gains. There is also an increase in equivalent employment income of about 150 million USD in ACP agriculture. This is attributed to the increase in hiring as output expands due to service import being less restricted. But ACP manufacturing stands to lose by about 113 million USD as some of its workers move towards the less distorted service sectors.

It is important to note that the employment income equivalent of the welfare gain shows that unskilled labour reaps most of the benefits. This is consistent with the high proportion of unskilled labour in the ACP labour supply and their high response to changes in production and trade in services.

4.4 Effects on output, wages and prices

Panel 7a in Table 7 shows that the 50% reduction of the bilateral tariffs in services trade leads to noticeable increases in the skilled labour's wage of between 0.9 to 3.5% (except in Central Africa where wage slightly declines). Such an increase in the wage of skilled labour is consistent with the tight supply of skilled labour and the increase in services trade and production, because the service sectors are relatively skilled-intensive. The largest increases

are in Pacific and Caribbean and the East Africa groups. Similarly, the nominal wage of unskilled labor slightly increases, except for West Africa and Central Africa, but at a slower pace.

(Table 7 here)

Panel 7a also shows that the liberalization of services trade will trigger slight increases in output prices in almost every sector and for all ACP groups (except Central Africa). Agriculture in particular experiences less than a 1.68% increase in price, which will not affect food security much. The highest price increase is the 2.3% for the Government and the Recreation services in the Pacific and Caribbean group.

The impacts of the liberalization of services trade on outputs are more important (Table 7b). It is no surprise that output increases are in key service sectors such as Transportation and Communication sector (e.g. more than 6% increase in East Africa and 4.2% in the Pacific and Caribbean) and the Construction sector (almost 3% in the Pacific and Caribbean). The results for other ACP sectors are mixed. Agricultural outputs decline but only slightly for the African groups (less than 0.7%), whereas the decline is 1.51% for the Pacific and Caribbean (still not huge). Manufacturing outputs in East Africa and in the Pacific and Caribbean will shrink by 3.6% and 4.5%, respectively. Contrastingly, manufacturing outputs for West and Central Africa will slightly rise by 0.35% and 1.9%, respectively. The changes in volume of outputs in the key sectors are mainly tied to the movement of factors (especially labour and capital) to the service sectors as the latter grow faster and receive higher growth in prices, attracting labour and capital.

5. Conclusions

Trade in services between the ACP and the EU is currently highly protected, and its liberalization has been stalled due to uncertainties over the impact on welfare and especially employment. I analyzed the impact on welfare and employment of a halving of the bilateral tariffs in services trade between the EU and ACP countries. Because of important role of labour inputs in the service sectors and of the huge labour productivity gaps between the ACP and the EU, I included projections of the growth rates of labour productivity for all trading regions in the simulation. In the model I divided the ACP countries into six groups: five African groups and the Pacific and Caribbean group.

The simulation shows that although ACP services export represents only about 24% of its total exports to and 28% of its imports from the EU, halving the bilateral tariffs in services trade between the ACP and the EU generates a welfare gain 3.4 times larger than comes about from elimination of bilateral tariffs on goods alone. Similarly, liberalization of services trade generates significant endowment effects equivalent to 410 thousand new jobs per year, mostly in service sectors. The employment and welfare gains reach key sectors such as Agriculture due to reduction in the services trade costs. The liberalization of services trade also increases wages, especially for skilled labour in ACP countries. All these ACP gains will be enhanced

if its labour productivity increases. Apart from a slight reduction in wage of skilled labour, the EU's welfare will increase by about 7.8 billion USD.

The major implications of these findings are that liberalization of the highly distorted services trade between the ACP and the EU should not be delayed. Interestingly, both the EU and ACP blocs benefit (both in terms of welfare and employment creation) from an EPA with reduced tariff in services. Along with their negotiation of a reciprocal agreement on goods, both parties should not be afraid to conclude agreement on the reduction of service tariffs. Even a sensible reduction in trade costs in services will help unlock the trade potential of ACP countries' services and enhance their contribution to the economy, while causing no harm to the EU.

My research reported here is only the first step to uncover the impacts of the liberalization of services trade and employs a static model to see what the immediate effects will be. The next steps include investigating both the importance of timing the tariff reduction and the impacts of liberalization of services on welfare and employment, especially capital stock and investment over time. We also need to get a better handle on the estimation of trade costs in services. Additionally, new research should include contemporary trade contexts such as the effects of the Transatlantic Trade and Investment Partnership (TTIP) and the Trans-Pacific Partnership, along with the much anticipated Free Continental Trade in Africa. These steps will help increase the applicability and accuracy of projections of the impacts of services trade liberalization and its role in the economy.

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Table 1. Tariff equivalent for selected service sectors

	Cmn	cns	ofi	isr	obs	osg	trd	trn	wtp	Average
France	37.6	36.4	50.7	61.7	35.6	39.8	42	20.3	40.9	40.6
Great Britain	23	84.9	19.6	36	30.9	16	34.6	6.1	38	32.1
Germany	22.3	15	30.4	39.3	16.6	23.7	18.8	10.8	38.1	23.9
Mauritius	62.9	101.9	60.2	27.2	19.3	36	47.8	16.8	31.1	44.8
South Africa	73.4	144	116.2	36.2	73.2	51.3	70.1	39	79.2	75.8

Source: Fontagné et al. (2011)

Table 2. Labour productivity growth by major sectors: Projection 2006-2050 (% per year)

Sector	Industrialized countries	China	India	Asian Tiger	Asian Dev	Brazil	Rest of Latin America	SSA	RoW
Agriculture	3.43	4.11	1.48	4.23	2.59	4.87	2.39	2.14	2.59
Construction	-1.05	3.96	-0.18	0.38	-1.49	0.29	-0.64	-2.69	2.59
Finance and insurance real estate	1.32	1.72	-4.86	0.28	-1.14	-1.52	-1.55	-0.57	
Manufacturing	1.74	7	1.59	4.55	1.82	-0.98	0.46	-6.3	1.82
Transport storage and communication	2.37	5.4	4.22	3.05	0.86	-2.17	1.17	2.04	1.82
Wholesale and retail trade	1.41	3.11	2.96	2.29	-1.81	-2.04	-2.34	-4.89	0.95
Other Services	-0.63	4.58	3.42	0.89	0.95	0.27	0.05	-4	
Overall	1.17	5.46	3.17	2.38	1.53	-0.14	0.42	0.37	1.53

Source: van Dijk, 2013

Annex 1
Sectors

1. **Raw Food and Agriculture:** Paddy rice; Wheat; Cereal grains nec; Vegetables, fruit, nuts; Oil seeds; Sugar cane, sugar beet; Plant-based fibers; Crops nec; Cattle, sheep, goats, horses; Animal products nec; Raw milk; Wool, silk-worm cocoons; Meat: cattle, sheep, goats, horse; Meat products nec.

2. **Processed Food**: Vegetable oils and fats; Dairy products; Sugar; Food products nec; Beverages and tobacco products; Processed rice.

3. **Extraction** (Mining and Extraction): Forestry; Fishing; Coal; Oil; Gas; Minerals nec.
4. **TextWapp** (Textile and Apparel): Textiles; Apparel.
5. **LightMnfc** (Light Manufacturing): Leather products; Wood products; Paper products, publishing; Metal products; Motor vehicles and parts; Transport equipment nec; Manufactures nec.
6. **HeavyMnfc** (Heavy Manufacturing): Petroleum, coal products; Chemical, rubber, plastic prods; Mineral products nec; Ferrous metals; Metals nec; Electronic equipment; Machinery and equipment nec.
7. **Services**: Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport nec; Sea transport; Air transport; Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/Defence/Health/Education; Dwellings.

The EPA regions

<u>West Africa countries</u>: Benin, Burkina Faso, Cape Verde, Ivory Coast, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, Mauritania

<u>Central Africa countries</u>: Cameroon, Central African Republic, Chad, Congo (Brazzaville), Congo Democratic Republic of (Kinshasa), Equatorial Guinea, Gabon, São Tomé & Principe

<u>Eastern and Southern Africa countries</u>: Comoros, Djibouti, Eritrea, Ethiopia, Madagascar, Malawi, Mauritius, Seychelles, Sudan, Zambia, Zimbabwe

<u>East Africa countries</u>: Kenya, Uganda, Tanzania, Burundi and Rwanda

<u>Southern African Development Community</u>: Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland

<u>Caribbean countries</u>: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St Lucia, St Vincent and the Grenadines, St Kitts and Nevis, Suriname, Trinidad and Tobago

<u>Pacific countries</u>: Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Federated States of, Nauru, Niue, Palau, Papua New Guinea, Samoa American, Samoa Western, Solomon Islands, Tonga, Tuvalu, Vanuatu

Table 3: The Scenarios

	Base Case (S0) (with labor productivity shocks)	Scenario 1 (S1): Liberalization in ACP-EU goods trade only	Scenario 2 (S2): Liberalization in ACP-EU goods and services trade
Main Closures:	• Unemployment of unskilled labor except in emerging and developed economies • Fixed trade balance except in emerging and developed economies	• Unemployment of unskilled labor except in emerging and developed economies • Fixed trade balance except in emerging and developed economies	• Unemployment of unskilled labor except in emerging and developed economies • Fixed trade balance except in emerging and developed economies
Shocks:			
Labor productivity growth*	Projection estimates	Projection estimates	Projection estimates
Tariffs goods EU - ACP	No change	Zero tariff (reciprocal)	Zero tariff (reciprocal)
Tariffs services EU-ACP	Ad valorem (Fontagné et al.)	Ad valorem (Fontagné et al.)	50% reduction (reciprocal)

Table 4. Decomposition of the Welfare Changes (in the millions of USD)

(4a) Base Case: Welfare change by including of labour productivity gaps but no changes in trade policies

WELFARE	1 alloc_A1	2 endw_B1	3 tech_C1	5 tot_E1	6 IS_F1	Total
1 ESoAf	-391.7	-825.4	-147.1	24.6	-10.3	-1349.9
2 EastAf	-143.2	-327.0	150.7	-354.7	-103.7	-778.0
3 WestAf	-140.8	-416.8	999.1	1168.1	8.2	1617.8
4 CentAf	83.0	-84.3	26.6	1225.8	-682.4	568.7
5 SADC	-885.8	-1552.1	-1137.5	-378.5	-4.6	-3958.4
6 PacCar	-1291.9	-1878.8	731.5	-2096.3	-668.8	-5204.3
7 MENA	1943.4	2174.6	9889.7	8855.9	212.9	23076.5
8 NAmerica	11948.9	0.0	149675.3	-250.9	436.4	161809.6
9 SCAmerica	108.1	-639.1	804.7	1540.9	-30.8	1783.6
10 EU_25	51601.2	27582.5	125016.4	-3374.2	439.2	201265.0
11 BRIC	22034.4	56584.2	121764.6	-8126.7	1624.8	193881.3
12 AsiaDev	287.4	376.6	2519.8	1209.9	-173.3	4220.3
13 JapAsiaTiger	7349.9	0.0	61510.0	-2985.7	-1100.2	64774.0
14 AustraNZ	1358.9	0.0	7924.4	990.7	44.0	10317.9
15 RestofWorld	8398.3	10549.4	24924.1	2551.2	8.5	46431.4
Total	102260.0	91543.7	504652.2	0.0	-0.1	698455.7

(4b) Scenario 1: Welfare gain from tariff elimination in goods trade w.r.t baseline

WELFARE	1 alloc_A1	2 endw_B1	3 tech_C1	5 tot_E1	6 IS_F1	Total
1 ESoAf	404.58	372.63	0	19.16	0.55	796.92
2 EastAf	30.86	70.51	0	-83.92	-42.45	-25.02
3 WestAf	165.85	177.01	0	-471.39	-22.45	-150.97
4 CentAf	298.03	112.76	0	-223.04	502.74	690.5
5 SADC	17.04	250.5	0	-366.78	-13.33	-112.57
6 PacCar	223.19	332.3	0	94.44	-20.12	629.81
7 MENA	-54.57	-53.08	0	-401.39	18.09	-490.94
8 NAmerica	-80.39	0	0	-249.86	-375.89	-706.15
9 SCAmerica	-24.43	-49.64	0	-117.46	-0.66	-192.18
10 EU_25	2836.92	1297.44	0	3304.21	-44.7	7393.87
11 BRIC	-146.93	-316.1	0	-714.55	-4.08	-1181.65
12 AsiaDev	-16.59	-18.44	0	-166.01	17.94	-183.11
13 JapAsiaTiger	-60.83	0	0	-215.9	24.15	-252.57
14 AustraNZ	-13.31	0	0	-104.01	-14.69	-131.99
15 RestofWorld	35.37	-22.7	0	-303.5	-25.09	-315.93
Total	3614.81	2153.2	0	0	0	5768.02

(4c) Scenario 2: Welfare gain from tariff elimination in goods trade and halving of services tariff w.r.t baseline

WELFARE	1 alloc_A1	2 endw_B1	3 tech_C1	5 tot_E1	6 IS_F1	Total
1 ESoAf	518.11	676.78	0	117.8	22.09	1334.78
2 EastAf	105.2	230.7	0	96.64	16.78	449.31
3 WestAf	378.4	634.21	0	-434.13	-23.69	554.79
4 CentAf	320.69	184.41	0	-283.32	748.2	969.98
5 SADC	262.88	663.42	0	9.47	-8.99	926.78
6 PacCar	976.18	1368.89	0	1176.13	290.87	3812.07
7 MENA	-79.06	-108.9	0	-367.51	1.22	-554.24
8 NAmerica	-174.05	0	0	-705.5	-639.86	-1519.43
9 SCAmerica	-28.64	-70.68	0	-142.95	-13.61	-255.89
10 EU_25	3329.28	1833.05	0	2793.26	-187.7	7767.88
11 BRIC	-143.59	-430.41	0	-844.59	-137.94	-1556.52
12 AsiaDev	-14.79	-60.68	0	-186.97	12.6	-249.85
13 JapAsiaTiger	-18.08	0	0	-621.86	10.14	-629.8
14 AustraNZ	-20.09	0	0	-132.42	-28.79	-181.29
15 RestofWorld	-51.98	-200.9	0	-474.03	-61.29	-788.21
Total	5360.47	4719.89	0	0	0	10080.37

(4d) Net welfare gain from halving bilateral tariff equivalent on services between the ACP and the EU

WELFARE	1 alloc_A1	2 endw_B1	3 tech_C1	5 tot_E1	6 IS_F1	Total
1 ESoAf	113.53	304.15	0	98.64	21.54	537.86
2 EastAf	74.34	160.19	0	180.56	59.23	474.33
3 WestAf	212.55	457.2	0	37.26	-1.24	705.76
4 CentAf	22.66	71.65	0	-60.28	245.46	279.48
5 SADC	245.84	412.92	0	376.25	4.34	1039.35
6 PacCar	752.99	1036.59	0	1081.69	310.99	3182.26
7 MENA	-24.49	-55.82	0	33.88	-16.87	-63.3
8 NAmerica	-93.66	0	0	-455.64	-263.97	-813.28
9 SCAmerica	-4.21	-21.04	0	-25.49	-12.95	-63.71
11 BRIC	3.34	-114.31	0	-130.04	-133.86	-374.87
12 AsiaDev	1.8	-42.24	0	-20.96	-5.34	-66.74
13 JapAsiaTiger	42.75	0	0	-405.96	-14.01	-377.23
14 AustraNZ	-6.78	0	0	-28.41	-14.1	-49.3
15 RestofWorld	-87.35	-178.2	0	-170.53	-36.2	-472.28
Total	1745.66	2566.69	0	0	0	4312.35

Table 5. Trade Impacts of Halving the Bilateral Tariff Equivalent on ACP-EU Services Trade

(5a). Changes in ACP Export to the EU (volume percentage points)

	Construction	Finance Business	Transport and Communication	Recreation
Source				
ESoAf	35.15	72.32	72.25	-3.61
EastAf	31.09	68.49	68.36	-6.92
WestAf	37.03	75.58	74.56	-0.74
CentAf	39.43	78.14	76.39	2.93
SADC	35.4	73.09	72.48	-2.13
PacCar	29.54	67.25	67.28	-8.62

(5b). Changes in EU Services Exports to ACP (percentage points)

	Construction	Finance Business	Transport and Communication	Recreation
Destination				
ESoAf	31.01	30.74	29.39	0.9
EastAf	32.95	31.18	31.26	2.72
WestAf	28.94	26.86	28.25	0.35
CentAf	30.99	25.11	29.17	-1.87
SADC	31.85	29.47	30.07	1.04
PacCar	30.19	32.74	34.38	2.86

Table 6. Equivalent Employment Income of the Net Welfare Gain due to Halving Bilateral Tariffs on Services

(6a) Equivalent employment income gain by regions (million USD)

	1 ESoAf	2 EastAf	3 WestAf	4 CentAf	5 SADC	6 PacCar	Total ACP	EU
Unskilled labour (value million USD)	542.0	483.3	488.2	-71.4	900.7	2863.0	5205.8	82.9
Skilled Labour (value million USD)	226.0	221.1	183.6	-90.4	545.6	1571.1	2657.1	-50.7

(6b) Equivalent employment income gain by sector (in million USD)

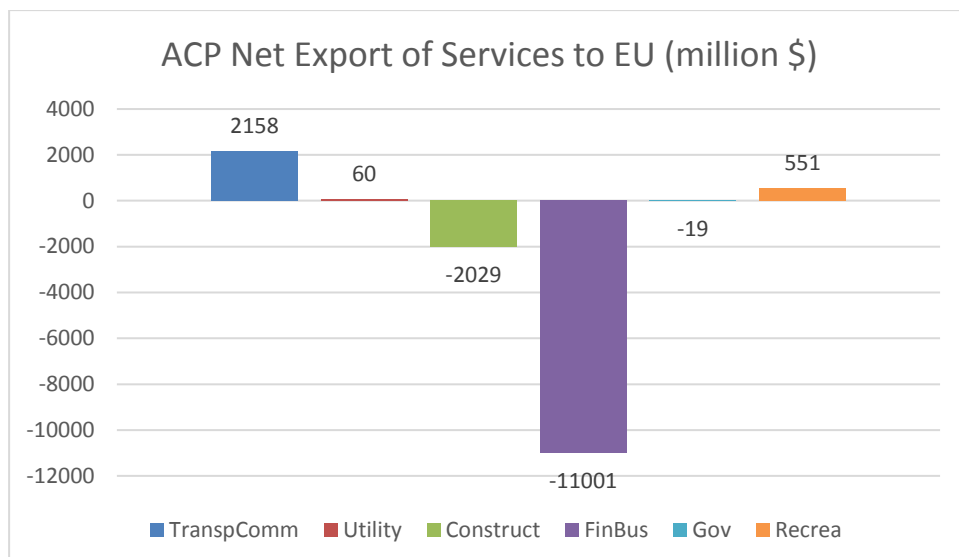|	ACP		EU	
Sector	Unskilled	Skilled	Unskilled	Skilled
1 AgFood	116.9	27.7	95.6	11.3
2 Extraction	-40.8	4.6	6.1	-0.1
3 TextWapp	-50.8	-10.4	-2.1	1.0
4 Manufact	-74.6	-38.5	302.6	177.8
5 TranComSer	1219.4	352.0	-271.3	-130.4
6 UtilServ	41.6	16.1	2.8	8.5
7 ConsDewSer	785.9	124.0	233.3	86.3
8 FinBusInsSer	2035.4	718.4	187.6	284.6
9 GovSer	1053.6	1397.7	-480.4	-511.4
10 RecSer	119.1	65.4	8.6	21.7
11 CGDS	0.0	0.0	0.0	0.0
Total	5205.8	2657.1	82.9	-50.7

Table 7. Net Effects on Production and Prices of Halving Bilateral Tariffs on Services trade

(7a). Change in wages and prices (in percentage points)

	ESoAf	EastAf	WestAf	CentAf	SADC	PacCar	EU_25
Land	0.28	0.67	0.02	-1.28	0.04	-0.26	0.34
UnSkLab	0.47	1.27	-0.07	-0.52	0.4	1.75	1.29
SkLab	1.72	3.35	0.92	-0.69	1.1	3.52	-1.09
Capital	1.56	2.59	0.7	0.19	0.97	3.32	0.3
NatRes	-2.32	-4.04	-1.08	1.2	-2.77	-9.36	1.92
AgFood	0.62	1.56	0.07	-0.51	0.51	1.68	0.12
Extraction	0.07	0.15	0.03	0	0.05	0.03	0.02
TextWapp	0.56	1.2	0.07	-0.54	0.47	1.67	0.36
Manufact	0.55	1.25	0.1	-0.48	0.46	1.39	-0.42
TranComSer	0.61	1.64	0	-0.48	0.55	1.91	-0.08
UtilServ	0.75	1.52	0.07	-0.3	0.52	1.65	-0.02
ConsDewSer	0.7	1.76	0.2	-0.43	0.63	2.18	0.42
FinBusInsSer	0.83	1.84	-0.03	-0.7	0.63	2.17	0.24
GovSer	1.08	1.79	-0.01	-0.72	0.66	2.3	0.03
RecSer	0.94	1.82	0.19	-0.77	0.55	2.26	0.28
CGDS	0.43	1.21	-0.06	-0.96	0.4	1.53	0.22

(7b). Change in output (in percentage points)

qo	ESoAf	EastAf	WestAf	CentAf	SADC	PacCar	EU_25
AgFood	-0.30	-0.69	-0.06	-0.58	-0.40	-1.51	0.03
Extraction	-0.48	-1.20	-0.26	0.17	-0.58	-1.98	0.02
TextWapp	-2.09	-3.42	-0.20	-0.43	-0.73	-5.05	0.00
Manufact	-0.79	-3.59	0.35	1.93	-1.13	-4.46	0.03
TranComSer	3.86	6.18	3.93	1.17	2.40	4.21	-0.10
UtilServ	-0.06	-0.85	0.26	-0.03	-0.44	-0.98	0.00
ConsDewSer	0.83	1.25	1.59	1.86	0.84	2.83	0.05
FinBusInsSer	0.91	0.77	0.22	-0.39	0.37	1.26	0.02
GovSer	0.64	1.98	0.88	-1.11	0.55	0.92	-0.03
RecSer	-0.04	-0.68	-0.13	-0.89	-0.28	-0.77	0.01
CGDS	1.37	1.65	2.06	4.32	1.36	4.44	0.03

ACP Net Export of Services to EU (million $)

Source: GTAP 8

Figure 1. ACP net export of services to the EU