



Rapport de recherche

2013

Public access

This version of the publication is provided by the author(s) and made available in accordance with the copyright holder(s).

Revenue and Welfare Implications for Rwanda and Uganda from an Economic Partnership Agreement with the EU

De Melo, Jaime; Regolo, Julie

How to cite

DE MELO, Jaime, REGOLO, Julie. Revenue and Welfare Implications for Rwanda and Uganda from an Economic Partnership Agreement with the EU. 2013

This publication URL: <https://archive-ouverte.unige.ch/unige:47262>

© This document is protected by copyright. Please refer to copyright holder(s) for terms of use.

Last deposit update in Archive ouverte UNIGE on 14.03.2023 23:55

Working paper

Revenue and Welfare Implications for Rwanda and Uganda of Finalizing an Economic Partnership Agreement with the EU

Jaime de Melo
Julie Regolo

January 2014

IGC

International
Growth Centre



DIRECTED BY



FUNDED BY



**Revenue and Welfare Implications for Rwanda and Uganda of Finalizing
an Economic Partnership Agreement with the EU***

by

Jaime de Melo
FERDI and University of Geneva

Julie Regolo
University of Geneva

November 15, 2013

* This paper was prepared by the International Growth Center at the request of the governments of Rwanda and Uganda. We thank Richard Newfarmer for guidance and Linda Calabrese for comments.

Executive Summary

Table of Contents

1. Introductory background: what has been negotiated so far	6
2. Rationale and Expected benefits of the EPAs	8
2.1. Background.....	8
2.2. The importance of European Union trade in EAC members' imports and tariffs revenue.....	11
3. Customs-based Estimates of Revenue effects of finalizing the EPA	14
3.1. Applied Levies at Customs in Rwanda and Uganda	15
3.2. Revenue and Welfare Estimates	18
3.3 Likely Long-term Effects	23
4. Sectoral Effects and Rules of Origin.....	24
4.1 Sectors Most Affected by the full EPA	24
4.2 Negotiations on the Product-specific Rules of Origin (PSRO)	27
5. The Way forward: Concentrate on removing NTMs, and deepen Integration by Opening Services Sectors.	30

Tables

Table 1: The Phasing of Tariff Elimination and Product exclusion in the IEPAs . . .	10
Table 2: EU-EAC Trade by Country, 2011.	12
Table 3 : Revenue Loss Estimates from the Phasing of Tariff eliminations (using statutory tariffs)	13
Table 4: Border Levies at Customs: Rwanda (2012) and Uganda (2011). (1'000 current dollars)	16
Table 5: Distribution of applied Tariffs on Trade with the EU (by statutory tariff band)	17
Table 6: Revenue Estimates of full EPA with and without exclusion lists (Rwanda and Uganda)	19
Table 7: Most Affected Sectors with EAC exclusion list (ranked by price change in descending order).	25

Figures

Figure 1: Welfare effects of EPA on Rwanda and Uganda	20
Figure 2 : Change in EU imports, Trade creation and Trade diversion following the implementation of the EPA in Rwanda and Uganda	21
Figure 3: Distribution of Trade diversion across main partners.	22

Revenue and Welfare Implications for Rwanda and Uganda from an Economic Partnership Agreement with the EU

Jaime de Melo and Julie Regolo¹

- Because EU imports and associated tariffs are relatively low, revenue losses and consumption gains are likely to be negligible and spread over a long time span.
- EPA will entail small short-term losses, but dynamic effects of the EPA -- inducing competition and productivity growth in the region -- are likely to turn these positive.

At the end of the Cotonou Partnership Agreement, its members agreed to put in place a WTO-compatible free trade area. WTO-compatibility implies that 90% of the bilateral trade between the European Union (EU) and the Africa-Caribbean-Pacific (ACP) countries would have to be duty free and quota free within a reasonable (unspecified) period (e.g., 80% duty-free for ACP partners and 100% for the EU). The East African Community (EAC) negotiating group is in the process of finalizing its Economic Partnership Agreement (EPA) with the EU. The EU accounts for around 15% of Rwanda's and for 14% of Uganda's imports, and the share of the EU import in tariff revenue is around 14% for these two countries. This paper explores the effects of an EPA on Rwanda's revenues, benefits to consumers and producers, net welfare effects and probable dynamic benefits.

The revenue effect is likely to be minimal

Under the EPA, revenues from tariffs on imports from the EU will decrease. However, this will not be as much as lowering statutory rates would suggest. Using statutory rates and 2011 imports as a starting point, a simple estimation forecasts a loss of initial revenues from the EU for of around 37% for Rwanda and 40% for Uganda during Phase 2 and 3 of tariff elimination. However, because of tariff exemptions to selected activities and importers, actual tariff collections are only about half those suggested by statutory rates (that is, US\$78 million instead of \$135 million for Rwanda, and US\$147 million instead of \$267 million for Uganda). Using actual payments and taking into account the increase in imports resulting from the tariff decline, a more detailed analysis finds that Rwanda's imports would increase by 0.1% because of the small reduction (3.5%) in the average applied tariffs on all imports, and actual tariff revenue would decrease by 3.2%. Excise taxes and VAT levied at the border account for around 80% of total border levies, and these would not be affected (except for the increase in tax base resulting from the increase in imports). Therefore, total border levies (including tariffs and taxes) would decline by only 0.8% in Rwanda. This amounts to a net decline of about US\$2.5 million out of US\$325 million collected in tariffs and taxes in 2012. For Uganda, estimates are also negligible though slightly larger as the impact on imports is of 0.2% and the predicted

¹ University of Geneva.

change of tariff revenue is of 8.1%. The decrease of total border levies is of 1.3%, for a total revenue loss of US\$12 million in 2011. Moreover, the losses are scheduled to be spread over the two decades of phasing in the EPA agreement. These amounts of lost revenues are unlikely to produce noticeable impact.

Effects of EPAs: Revenue Estimates

	Rwanda		Uganda	
	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)
	(1)	(2)	(3)	(4)
% change in imports	0.1%	0.5%	0.2%	0.4%
% change in tariff revenue	-3.2%	-13.2%	-8.1%	-15.0%
% change in total border levies revenue ^{a/}	-0.8%	-3.3%	-1.3%	-2.5%
% change in collected applied tariff rate	-3.3%	-13.6%	-8.3%	-15.4%

a/ Includes excise taxes, VAT and customs duties. Source: Authors' simulations from TRIST, 2011 for Uganda, 2012 for Rwanda.

If all exclusions from the EPA agreement were eliminated (that is, if all tariff lines were included in the liberalization schedule), the cost to the Rwandan and Ugandan treasury would still be quite small, only of respectively 3.3% and 2.5% of total border levies. High tariffs (like those that were in place before the EPA, particularly on the Sensitive Items list) cause distortions that undercut economic growth and foster inequality (see Frazer, 2012) and they can cause greater damage than the revenue loss originating from their elimination. In summary, the minor losses deriving from the EPA are manageable and would not impede Rwanda and Uganda from eventually undertaking a tariff reform to stimulate exports.

Gains to consumers and producers are also likely to be limited

Eliminating EU tariffs under the EPA will lower prices of final goods to consumers and inputs to producers in Rwanda and Uganda. Gains to consumers and producers would also be low, estimated to be only 0.1% of initial (total) import expenditures for Rwanda and of 0.2% for Uganda. These gains would not completely offset the tariff revenue loss. As a net result, the EPA could have slightly negative effects on the total welfare of both economies. In the case of a “full liberalization”, gains for the consumers would be higher, but so would be the revenue loss, resulting in slightly higher static welfare losses. These static estimates however do not take into account the likely dynamic effects coming from increased competition and improved productivity throughout the economy.

The EPA will promote import of intermediate and semi-processed goods

Intermediate or semi-processed goods would be among the most affected sectors by the EPA. A fall in the price of these goods would raise the value-added price, and hence the profitability, of downstream sectors. Other affected sectors would mainly be high and middle technology manufactures.

Dynamic effects will promote increases in productivity in the region

Although the static effects of the EPAs might be almost neutral, the gains deriving from liberalization will become evident in the long run, as dynamic effects unfold. A large number of studies has shown that trade liberalization has beneficial effects in terms of stiffer competition on internal markets, increased productivity, and the realization of economies of scale. In the case of the EAC, it is expected that increased competition to local import-competing industry will promote productivity and growth. The dynamic gains are thus likely to more than offset any short-term static welfare losses. The bolder are the reforms in tariff rate reduction and line coverage, the greater will be the potential dynamic gains.

Policy implications

The beneficial short-term impacts of the EPA agreements, however small, will become evident only in the longer term. The effects are likely to be stronger the more the eventual deal approximates a “full liberalization”. Beyond, tariffs on goods, however, other companion policies would help bolster the probabilities of greater positive impacts:

- The long and complex EU-EAC protocol on Rules of Origin (RoO) should be simplified to avoid product-specific rules of origin (present in the ongoing EAC-EPA negotiations). In general, RoO should be made more compatible with the multilateral trading system.
- EPAs at present ignore the services sector. A services sector that is open to the world market and well regulated should attract the investments needed to compete in goods markets. Literature focusing on East African countries has shown that gains from successful opening of the services sector are larger than potential gains from removing remaining tariffs in the EPA.
- In these final stages, the EPA negotiations should focus on providing the necessary aid-for-trade resources to support the creation of an appropriate supportive regulatory framework in the EAC. The CARIFORUM EPA is a good example of how to pursue a cooperative approach to remove the constraints in the services sectors.
- The phasing of tariff elimination under the EPAs is extremely long. The EAC does not start reducing tariffs on EU imports before 2020, with tariff reductions ending in 2038. In general tariff-reduction negotiations (NAFTA, MERCOSUR) are spread over less than 10 years. In view of the very small changes in revenue and welfare estimates, the EAC should consider moving the removal of tariffs to a closer date, perhaps to 2020.

1. Introductory background: what has been negotiated so far

At the concluding days of the Doha negotiations in November 2001, WTO members signed a waiver extending the Cotonou Partnership Agreement (CPA) which allowed Cotonou trade regime to be extended provided that it became a reciprocal Free Trade Area (FTA). Negotiations were to be concluded by December 2007. Among these, the new regime would make the new preferential trade regime between the EU and the 77 ACP members WTO-compatible. WTO compatibility implies that 90% of bilateral trade between the EU and the regional ACP partners would have to be duty-free, quota-free (DFQF) within a reasonable (but not specified) amount of time. There is no firm understanding about 'reasonable amount of time' although a 10-20 year span appears acceptable. Given that the EU would provide 100% duty free to ACP partners, fulfilling the 90% DFQF bilateral trade could be achieved with 80% duty-free trade on the ACP side for each regional grouping under which the FTA negotiations would be carried out. For the purposes of negotiating, the ACP group was divided into 7 negotiation groups whence it was expected that these regional groupings would correspond to ongoing regional integration among ACP members, each group forming an FTA or a Customs Union prior or while negotiating an FTA with the EU.

Successful negotiations between the EU and 15 CARIFORUM countries of the Caribbean resulted in a full EPA. For the other negotiating groups, ultimately, a series of Interim Agreements (IEPAs) were signed either individually (in the majority of cases) or with a group (e.g. the EAC EPA group). Given that the EU chose not to request an extension at the WTO, the negotiation process avoided the disruption in trade that would have arisen beyond the expiry date if no interim agreements had been signed.

To keep the objective of the Cotonou agreement (enhancing regionalization and being beneficial for development), EPAs are negotiated by regions, and ACP countries should engage 80% of their imports under free trade whereas the EU gives full tariff-free and quota-free access to the ACP countries. Moreover, the period of time during which the ACP countries engage to reduce their barrier is much longer than that of the EU.

By end 2007, 35 ACP countries had concluded negotiations on an EPA or interim agreement that give them Duty-Free Quota-Free access to the European market. The negotiations also yielded additional partial market access via the relaxation of some Rules of Origin (RoO) requirements. As WTO-compatible free trade deals, the interim EPAs can now be extended and concluded as full-fledged EPAs. The European Commission is now about to conclude full EPAs, and so far none of the partners have abandoned the negotiations.

All EAC members except Kenya benefit from the Everything But Arms (EBA) sub-regime. Therefore, the decrease in the barriers under EPA negotiations should not

have a significant effect on EAC exports, except for Kenya who will have a chance to access the European market tariff and quota free. On the other hand, the lowering of tariff for European imports will result in decreasing tax revenue for the least developed EAC countries and will increase competition on these markets. There will also be efficiency effects through trade creation and trade diversion effects. As the estimates in this paper show, in spite of being members of a customs union (and hence having a common external trade policy), efficiency and revenue effects are likely to be different across countries because of differences in the composition of their trade with the EU and differences in their exemptions (at least for Rwanda and Uganda).

This paper provides estimates for two countries, Rwanda (2012) and Uganda (2011) for which we have recent customs data (years of latest available data in parenthesis). We first estimate revenue effects for all EAC members using CEPII's bilateral trade database and tariffs from the TRAINS database for 2011.² The estimates take into account the list of excluded products from negotiations as well as the list of products in each phase of liberalization at the HS6 level directly from the most recent version of EPA negotiations. Finally, we point out the importance of opening the markets for services which have become increasingly tradable in the last decades and provide essential complementary inputs for the production of goods.

These first assessments follow the usual approach in which countries are assumed to apply the statutory tariffs to trade flows from and to their partners. As shown by the difference in estimates, this approach has its shortcomings but it is easily implementable for a large number of countries. However, a vast literature has shown that effectively collected tariffs may be substantially different from the statutory ones given the wide range of tariffs exemptions (Pritchett and Sethi (1994), Brenton et al. (2011)). Therefore, we use customs data of Rwanda and Uganda to evaluate more precisely the effect of the EPA on tariff revenue even though we are well aware that any projections of revenue losses--however sophisticated the model they are drawn from-- are constrained by data availability since using import data of 2011 to estimate tariff revenues from imports over the 2020-38 period are likely to have a wide margin of error. Another advantage of using customs data is that it provides information on the applied VAT and excise rate at a very disaggregated level (HS8). We are then able to estimate also the effect of tariffs reduction on VAT and excise rate revenues, as the base of these taxes include the import duties.

Section 2 provides background on expected benefits of full EPAs for EAC members. Section 3 focuses on 'traditional' estimates based on statutory revenues. Section 4 then turns to the more accurate estimates based on customs data. Section 5 concludes

² The advantage of this database is that it extends the COMTRADE data by reconciling the declarations of the exporter and the importer. As compared with the original COMTRADE data, it has a greater number of countries with trade data (the most recent COMTRADE data on bilateral imports are not available for Kenya and Burundi at this level of disaggregation). We merge these trade data with the tariffs database TRAINS (Trade Analysis and Information System) provided by UNCTAD.

by discussing the importance of removing barriers created by Non-Tariff Measures (NTMs) and of deepening integration by opening Services sectors.

2. Rationale and Expected benefits of the EPAs

2.1. Background.

The Cotonou Partnership Agreement (CPA) set out the following four core elements around which to build the EPAs:

1. *Differentiation*: Keep differential and special treatment (SDT) taking into account the level of development using asymmetry to benefit especially vulnerable, landlocked and small island economies;
2. *Reciprocity*: ensuring WTO-compatibility represents a radical departure from previous EU-ACP relations whose rationale is to liberalize ACP markets, foster competition, better resource allocation and enhanced investment, both foreign and domestic;
3. *Regionalism*: only in exceptional circumstances would negotiations be envisaged with individual countries, the conviction being that regional integration for ACPs is the stepping stone towards a successful integration in the World Trading System;
4. *Development*: EPAs are to be “economically meaningful, politically sustainable, and socially acceptable”.

Apart from South Africa, which continues to export under its own FTA with the EU (the Trade, Development and Cooperation Agreement, TDCA), the remaining African, Caribbean and Pacific (ACP) countries now export to the European market under one of the following schemes :

- the EU Generalized System of Preferences (GSP);
- its favorable Everything But Arms (EBA) sub-regime in the case of LDCs;
- the less favorable standard GSP for Nigeria, Republic of the Congo, Gabon and seven Pacific countries (Cook Islands, Federated States of Micronesia, Nauru, Niue, Palau, Marshall Islands and Tonga).³

Except for CARIFORUM for which a full EPA was initialed and approved by the participating Caribbean countries in 2008 (pending entry into force), all other interim EPA negotiations concentrated on Trade-in-Goods issues with much

³ The three non-LDCs that have not signed interim EPAs could in principle apply for the slightly better GSP+ status (and Nigeria has already done so). However, certain conditions have to be met (governance and environmental criteria, vulnerability) and applications have to be submitted by October 31, 2008. This essentially excludes those among the non-LDCs who are negotiating the follow-up to the current interim agreements which would only amount to marginally better access if the special regime products were included (as they are currently not). See Stevens et al. (2008) appendix 6 for further discussion.

negotiating energy going to draw the exclusion list so as to reach the 80% tariff-free imports from the EU along with the corresponding timetable to reach that objective.

As expected, a large number of LDCs (26 out of 50) that have DFQF access for their exports to the EU opted not to enter into an EPA agreement reflecting their desire to keep the status quo and therefore not to take up this opportunity to liberalize domestic trade bilaterally which might be more easily done politically than if it were to be on a unilateral or multilateral basis. In the end, it is the countries that were relatively advanced in their own regional integration with a non-LDC partner (i.e. the EAC and SACU) that opted to enter IEPAs, an indication that these countries value their regional integration efforts and they potentially are more reform-minded.

Table 1 summarizes what has been negotiated and the phasing in of tariff reductions among ACP signatories. It reveals large differences in the timing and patterns of negotiations as well as in estimates depending on data sources.

An inspection of columns 1-3 reveals the great diversity in the outcome of the different negotiations with respect to timing, the speed of tariff reduction, and products excluded from liberalization. At one extreme, Mozambique and Ivory Coast started to liberalize immediately in 2008 with most liberalization up-front (the 'cold-shower' approach). At the other extreme, EAC does not start reducing tariff on EU imports before 2014, with tariff reductions taking place over 19 years ending in 2033. These large differences in the timing of liberalization across groupings probably reflect a combination of several factors: the relative negotiating power/knowledge across negotiating teams; last minute haste on both sides; different development agendas across countries? Perhaps the most important factor is a weak public sector in the face of private sector interests that want to maintain a status quo that is favorable to them.

In any event, the negotiated schedules lack credibility. In general tariff-reduction negotiations for all barriers to trade (tariffs and non-tariff measures) are spread over a less-than 10 year period (NAFTA, MERCOSUR, various enlargements of the EU). Here negotiations are usually spread over twice as long a period while, at the same time excluding a good chunk of bilateral trade. It is highly probable that these schedules will be interpreted as 'the indefinite future' while for Ivory Coast and Mozambique, once it will be known that others have negotiated a 'better deal', they too, will renegotiate for longer time delays.

Table 1: The Phasing of Tariff Elimination and Product exclusion in the IEPAs

Members	Phase 1	Phase 2	Phase 3	Exclusions
(1)	(2)	(3)	(4)	(5)
Cameroon	2010-13 (24.5%)	2011-17 (24.3%)	2014-23 (30.2%)	1217 (21%)
Ivory Coast	2008-12 (59.5%)	2013-17 (10.6%)	2018-22 (9.9%)	517 (20%)
Ghana	2009-13 (28.8%)	2013-17 (42.6%)	2018-22 (8.3%)	1085 (20.3%)
EAC ^{a/}	2010-14	2015-23	2020-33	1323
Burundi		(29.7%)	(28.1%)	(23%)
Kenya		(18.3%)	(4.2%)	(19.4%)
Rwanda		(18.6%)	(3.2%)	(25.4%)
Tanzania		(17.6%)	(2.4%)	(20.2%)
Uganda		(20.4%)	(2.5%)	(17.3%)
EAS				
Comoros	2013 (21.5%)	2014-22 (25%)	2014-22 (34%)	93 (19.3%)
Madagascar	2013 (37.0)	2014-22 (26.1%)	2014-22 (17.6%)	575 (19.3%)
Mauritius	2008 (24.5%)	2013-17 (29.1%)	2013-22 (42%)	185 (4.4%)
Seychelles	2013 (62.1%)	2013-17 (15.1%)	2013-22 (20.4%)	131 (2.5%)
Zimbabwe	2013 (44.9%)	2015-23 (14.7%)	2015-22 (20.3%)	716 (20.1%)
SACU	2008 (55%)	2008-12 (12.4%)	2011-14 (0.8%)	181 (16.7%)
Mozambique	2008 50.8%	2018 (2.6%)		(37.8%)

Source: Carrère and de Melo (2008)

Notes: Phases refer to those agreed at the signing of the IEPA in 2007. For the ESA EPA, data on imports are provided in the EPA schedule. For Cameroon and Ivory Coast COMTRADE data as reported by these countries. For all others countries (group of countries) 'mirror data' estimates. In all cases: average value of imports over 2004-06.

Columns: Columns (2) to (4) give the length of each phase with the percentage of EU imports moving to zero tariffs in parenthesis. In some cases, there is overlap in the phases indicating that some tariffs in a previous phase are still being reduced while new tariff reductions have started in the next phase. Column (5) gives the number of excluded tariff lines counted at HS-6 level followed by the percentage of imports from the EU in parenthesis. So for Cameroon, tariff elimination is over 13 years with phase I taking place during the period 2010-13 and involving 24.5% of imports from the EU. There are 1217 excluded tariffs lines at the (HS6 level) which count for 21% of imports from the EU (over 2004-2006).

a/ All countries have identical schedules;

b/ Phase I only involves goods with a CET of 0% so any liberalization involves moving to the CET;

NB. Out of 5429 lines in the IEPA, 1390 were excluded from tariff reductions by EAC partners (25.6% of lines at HS-8 level)

EAC has already signed an interim EPA in 2007 and the full EPA is nearly completion. However, in addition to the delay in reaching an agreement between EAC countries and the European Union, the beginning of trade liberalization that will follow the signature of the full agreement will only take place seven years later. The full EPA includes three phases. The first one is the full implementation of the EAC's CET which includes tariff liberalization for around 50% of EU imports in 2011. This liberalization is now already implemented as the five EAC countries are full members of the EAC customs Union since 2010. The second phase includes the liberalization of some goods starting seven years after the signature of the agreement and the third one should start twelve years after the ratification. In short, if the agreement were signed this year, the liberalization of 80% of imports from the European Union (among which 50% are already free-traded) would start in 2020 and in should end in 2038. The next section describes the structure of trade for EAC members and provides a first set of revenue loss estimates based on statutory tariffs.

2.2. The importance of European Union trade in EAC members' imports and tariffs revenue.

Subject to limitations inherent in any long-term projections, the objective of this exercise is to give as accurate as possible first-order estimates (i.e. estimates that only take into account import and consumer responses to tariff changes). As said in the introduction, this requires customs data which was only available to us for Rwanda and Uganda. To get a broad picture for the EAC as a whole, this section gives estimates that take into account the phasing of tariff reductions and of products excluded from tariff elimination based on statutory tariffs.

The EAC is now a full custom union since 2010 even if there are still some yearly exceptions for some countries and products. That is, all official tariffs are equal to zero within the community and countries have a common external tariff (CET). The CET includes Schedule 1 with duty rates under the three-band tax structure, i.e. rates applied for raw materials (0%), intermediate products (10%) and finished goods (25%) and Schedule 2 with duty rates of sensitive items (the so-called 'SI list') in the range of [35%;100%]. Except for a few exemptions for some products of importers, the tariffs of EAC vis à vis the EU is the CET. Under this CET, a substantial part of the imports from EU already benefit of 0% tariffs (see table 3).

Table 2 shows the close link between the diversity of each member's import basket and per capita income. Burundi only has positive imports for 1'566 lines while Kenya, the biggest country of the region imports 3'880 products. The share of EU in imports and imports revenue also varies across members presaging different results from moving to the EPA across countries. For the 5 countries, around 60% of their imported products involve some imports from the EU. In terms of import value, the European Union represents 30.4% of imports of Burundi while it is only 12.8% of

Uganda's imports (row 5). Accordingly import duty revenue from the EU is also much higher for Burundi (37.6%) and Rwanda (24.1%) than for Tanzania, Kenya and Uganda (row 11).

Table 2: EU-EAC Trade by Country, 2011.

			Burundi	Kenya	Rwanda	Tanzania	Uganda
(i) Number of HS6 lines with positive imports 2011	Total	(1)	1'566	3'880	2'988	3'984	3'658
	From EU	(2)	930	2'702	1'462	2'589	2'159
	Excluded	(3)	553	1'116	977	1'119	1'090
(ii) Imports	Total (\$ thousand)	(4)	332'009	10'705'526	1'407'440	10'572'156	5'331'288
	EU import share	(5)	30.4%	18.4%	18.8%	15.8%	12.8%
	Share of imports excluded from the EPA (% of EU Imports)	(6)	24.3%	22.8%	22.1%	14.8%	18.1%
	Share of EPA (% of Total Imports)	(7)	23.1%	14.2%	14.7%	13.5%	10.5%
(iii) Import Revenue*	Average Applied Statutory Tariff (weighted by the import value)	(8)	5.5%	9.5%	5.8%	6.8%	6.4%
	Total tariff Revenue (% of GDP)[share of government spending]	(9)	0.8%	3.0%	1.3%	3.0%	2.0%
	Tariff Revenue (% of government spending) ^a	(10)	2.8%	18.1%	14.2%	18.4%	17.8%
	From EU (% of import revenue)	(11)	37.6%	14.0%	24.1%	11.8%	11.4%

Source: Authors' calculations using BACI database /TRAINS trade data (2011)

* Computed at the HS-6 level on the basis of statutory tariffs

^a Source: WDI indicators

While the list of excluded goods should represent 20% of imports from the EU, since it is the same for all countries but EU trade shares differ across countries, the share of excluded imports will be different across countries ranging from 14.8% for Tanzania and 24.3% for Burundi (row 6). This estimate based on 2011 imports shows a large difference across countries and will most likely be different by the time the EPA is fully implemented. However, even though this exclusion was negotiated on the basis of average imports over 2004-06, in 2011, excluded goods represent 19.3% of EAC imports from the EU (not shown in table 2). The differences in shares shown in row 6 reflect differences of trade patterns and differences in bargaining power across EAC members result in a much higher share of product under negotiation in the EPA for Burundi (around 23.1%) than for example, for Kenya and Uganda (of respectively 14.2% and 10.5%).

Table 3 summarizes revenue estimates for all EAC countries of implementing what had been negotiated in the IEPA in December 2007. The dates reported in the table correspond to the years of each phase of liberalization under the assumption that the agreement is signed in 2013. The bottom of the table also gives a ‘direct’ estimate (i.e. based on 2011 imports and assuming no change in imports across partners in response to tariff changes) of the loss in government revenues. The estimates are computed as the product of the statutory tariff and the 2011 import values for the non-excluded goods.

In the table, in line with the agreement negotiated under the IEPA, we put under “Phase 1” of liberalization the products where EAC countries have already a 0% MFN tariff since 2010 following the adoption of the CET. These products represent a share between 41% and 56% of imports from the European Union for each EAC country. Phase 2 liberalization is the most important as it involves approximately between 18% (Rwanda) and 29% (Burundi) of the countries’ imports from the EU while phase 3 only affects 3% to 6% of imports.

However, the revenue loss estimates (based on 2011 imports for all periods) at the bottom of the table reveal that the two phases of liberalization represent approximately the same share of imports duty revenue for countries, each phase counting for around 20% of their revenue from the EU. Therefore the total import revenue losses for all EAC countries are of around 40% (ranging from 37% for Rwanda to 50% for Tanzania). In conclusion, the outcome of the negotiations with respect to the speed of tariff reduction and share of import revenue liberalized is therefore similar across countries in terms of European import revenue. The only exception is Tanzania for which the first round of liberalization includes 37.9% of its import revenue from the EU while the second round is only of 12%. Tanzania is also the country that should lose the most in terms of import duty revenue from the European Union. However, as shown in table 2 (row 11), the share of EU in total import duty revenue of this country is of only 11.8%.

Table 3:

Revenue Loss Estimates from the Phasing of Tariff eliminations (statutory tariffs)

			Burundi	Kenya	Rwanda	Tanzania	Uganda
Duty-free import share per phase	Phase 1	2013 (tariff already=0%)	41.2%	48.1%	53.3%	56.5%	49.2%
	Phase 2	(2020-2028)	28.6%	23.5%	18.3%	25.7%	25.9%
	Phase 3	(2025-2038)	6.0%	5.5%	6.4%	3.0%	6.8%
	Exclusion		24.3%	22.8%	22.1%	14.8%	18.1%
Revenue loss (using statutory tariffs)	Phase 2	In thousand \$	1'478	30'481	3'247	32'291	7'487
		% of initial revenue	21.5%	21.5%	16.5%	37.9%	19.4%
	Phase 3	In thousand \$	1'139	21'289	4'111	10'275	8'098
		% of initial revenue	16.6%	15.0%	20.9%	12.1%	21.0%
	Total	In thousand \$	2'617	51'770	7'358	42'566	15'585
		% of initial revenue	38.1%	36.5%	37.3%	50.0%	40.4%

Source: Authors’ calculations based on BACI and TRAINS (for statutory applied tariffs).

These first-order loss estimates have the advantage that they are easy to obtain since they only require import data and statutory tariffs and they assume no response of imports to the elimination of tariffs of EAC members on their imports from the EU. Import response will affect both the tariff revenue estimate, but also the revenue from other taxes (VAT and excise) that are collected at customs. Neither do these estimates recognize the many exemptions at customs in developing countries (e.g. Brenton et al. 2011 report that typically no more than 70% of the revenue estimated on the basis of statutory tariff rates are actually collected by customs). In the next section, we use customs data for Rwanda and Uganda to get more accurate estimates of the full EPA implementation.

3. Customs-based Estimates of Revenue effects of finalizing the EPA

The estimates are based on the highly disaggregated trade data reported by customs at the HS8 level for all transactions with each partner and for all levies actually collected on each transaction using the TRIST (for Tariff Reform Impact Simulation Tool) simulation package (see Brenton et al., 2011). To explain how TRIST works, let $vcif_i^j$ be the border value for a transaction prior to applying any border levies. For each import transaction a revenue is collected, call it “levy x”. In most instances, the levy is zero either because the levy does not apply to that transaction or because there is no transaction with that partner, possibly because of this impediment to trade. That revenue can be collected on an ad-valorem basis (the usual case) or on a specific basis (per unit). Whatever the type of revenue that is collected, TRIST generates the implied ad-valorem rate $tratex_i^j$ on that transaction. Assuming the levy is applied on the CIF value, the computed rate is then:

$$tratex_i^j = \frac{revx_i^j}{vcif_i^j}$$

where $vcif_i^j$ is the CIF value and $revx_i^j$ is the revenue collected by levy instrument “x”. This computed rate thus reflects waivers (or exemptions). Having converted all levies to an applied ad-valorem equivalent, TRIST will first provide an actual applied tariff which takes into account all exemptions (for examples imports of vehicles for the government, embassies and NGOs are typically exempt of import duties) that can then be compared to the official statutory tariff. The model can also be used to calculate the revenue and welfare estimates of tariff changes like those that will take place under the EPA going beyond first-order effects by taking into account that a preferential tariff reduction will lead to a substitution of imports across partners as well as to a volume effect on aggregate imports as a result of the change in the average price of imports.

3.1. Applied Levies at Customs in Rwanda and Uganda

Unlike SMART, another partial-equilibrium package available from WITS (World Integrated Trade Solution) using statutory taxes, the estimates derived in TRIST are from user-entered data gathered directly from customs, i.e. from applied rather than statutory tariffs. Insofar as customs data on tariff revenues are the best available, TRIST-generated estimates of tariff revenue implications of tariff reforms will provide more reliable estimates than those generated from SMART. However, data must be prepared to classify correctly the different sources of levies collected at the border.

The following estimates rely on the customs data for Rwanda (2012) and Uganda (2011) on import transactions at the HS-8 level of disaggregation. For each transactions, these data include the CIF value of imports, the statutory tariffs, the import revenue collected (taking into account waivers), the revenue from the VAT tax and from the additional excise tax. In Rwanda and in Uganda, the standard VAT tax is either of 18% or of 0%. The excise tax is levied on some specific goods (including cigarettes, gasoil, liquors, etc.) and when expressed in ad-valorem Equivalents (AVEs), they are in the range [5%; 150%]. The lists and the rates of the excise tax are shown in tables A2.1 and A3.1 of Annexes 2 and 3. How this was done for the estimates reported here is described in Annexes 2 and 3.

Before carrying out simulations we used TRIST to describe that actual levies collected at the border and compare them with those in the statutory schedules (table 4). We also report in table 5 the distribution of applied tariffs for each one of the 4 categories in the CET [0%, for raw material, capital goods, agricultural inputs, certain medicines and medical equipment, 10% for intermediates and other essential industrial input, 25% for consumer goods] and for the excluded category.

Table 4 shows the total and average value of statutory tariffs, applied tariffs, excise taxes and VAT taxes. As expected, for both Rwanda and Uganda the import weighted average tariffs are lower than the simple tariffs (compare rows 3 and 4). Also the collected tariff is lower than the simple tariff for Uganda (10.4% instead of 12.6%) but not for Rwanda. However, when average applied tariffs are import-weighted, they are lower than the corresponding import-weighted statutory tariffs indicating that exemptions are higher for tariff lines with higher tariffs. For both Rwanda and Uganda the import-weighted applied tariff is much lower (respectively 4.3% and 3.3%) than the corresponding average statutory tariff (of respectively 7.5% and 5.9%). Correctly accounting for these waivers is important to improve the accuracy of the revenue implications of moving to the EPA.

Table 4:

Border Levies at Customs: Rwanda (2012) and Uganda (2011). (1'000 current dollars)

		Statutory tariff	Collected tariff	Excise tax	VAT
RWANDA(2012)					
Total Customs Revenue	(1)	134'632	77'940	87'148	160'315
Share of Border Levies	(2)		24.0%	26.8%	49.3%
Simple Average	(3)	11.2%	11.2%	0.8%	12.8%
Import Weighted Average	(4)	7.5%	4.3%	4.6%	8.1%
UGANDA(2011)					
Total Customs Revenue	(5)	267'050	146'786	349'860	410'809
Share of Border Levies	(6)		16.2%	38.6%	45.3%
Simple Average	(7)	12.6%	10.4%	0.4%	13.0%
Import Weighted Average	(8)	5.9%	3.3%	7.5%	8.2%

Source: authors' calculations based on Rwanda's and Uganda's custom data on import transactions respectively in 2012 and 2011. The total number of exporter-product lines is of 4'139 for Rwanda and of 4'262 for Uganda and the data includes 170 partners for Rwanda and 152 partners for Uganda. The total imports are of USD 1'804 million for Rwanda and 4'514 million for Uganda.

Table 4 also shows that excise tax and VAT rates collected at the border account for close to 75% of all border levies in Rwanda and 85% for Uganda. Since these taxes are levied on the CIF price augmented by the tariff, it is important to take into account the changes in these receipts that result both from the change in tariffs and from the induced change in imports. In the case of the reduction in tariffs implied by the EPA, the effect on revenue collected from the VAT and excise border taxes can be either be negative (lower tariff-inclusive price) or positive because of the dominating effect resulting from a larger tax base.

Annex tables A5.3.a and A5.3.b complete the picture of trade of these two countries by reporting comparable statistics for Rwanda's and Uganda's other main partners. Almost a quarter of Rwandan imports come from the other member of the EAC Custom Union. The EU account for just 15% of Rwandan imports. COMESA countries are relatively small suppliers of the Rwanda's market and the Rest of the World contributes the majority of imports. The second row shows that the share of the EU in tariff revenue is 12.8% and thus less than its share in imports, with the opposite being the case for imports from the rest of the world. When VAT and excise taxes levied on imports are taken into account, imports from the EU contribute 10.3% of tax revenues while imports from EAC provide 22.7% only with VAT and excise taxes (as tariffs are of 0% within the custom union) and the rest of the word (including China) provides the majority of the import taxes revenue (64.8%).

The trade weighted average applied tariff is 3.7% for the EU, below the overall average of 4.3%. Conversely, the tariff actually levied on imports from COMESA countries not involved in the FTA and the rest of the world is above the overall applied average. It should be noted that these are trade-weighted tariff averages, so a higher number may reflect that imports are concentrated on products with a high level of protection. The tariff collection rate (the ratio of actual to theoretical tariff

revenue given the statutory tariff) is 48.8% for import from EU which is below the average for all imports (57.9%) and highlights the importance of taking account exemptions when analysing trade policy changes with the EU. Note that this is especially the case for Rwanda and Uganda as the tariff collection rates are much lower for these countries than those found by Brenton et al (2011) for Ethiopia (of 71.5%).

Table 5:
Distribution of applied Tariffs on Trade with the EU (by statutory tariff band)
5a: Rwanda

Statutory and excluded	Number of products	CIF import value (USD million)	Import share	Share of tariff revenue	Simple average applied tariff ^b	Weighted average applied tariff
0%	665	161	59.4%	0.0%	0.00%	0.0%
10%	425	38	14.0%	15.7%	7.5%	4.2%
25%	297	17	6.2%	8.4%	17.1%	5.1%
Excluded ^a	664	56	20.5%	75.9%	20.1%	13.6%
Total	2'051	271	100%	100%	10.6%	3.7%

5b: Uganda

Statutory and excluded	Number of products	CIF import value (USD million)	Import share	Share of tariff revenue	Simple average applied tariff ^b	Weighted average applied tariff
0%	924	441	69.6%	0.0%	0.00%	0.0%
10%	523	79	12.5%	21.3%	7.2%	5.7%
25%	371	39	6.2%	32.8%	17.0%	18.0%
Excluded ^a	761	75	11.8%	45.9%	17.8%	13.1%
Total	2'579	635	100%	100%	9.0%	3.4%

Source : Authors' calculations from Customs data

^a Number of lines excluded from tariff removal. Excluded goods include all sensitive items of the CET imported by Rwanda and Uganda. Taking apart the specific tariff, the average statutory tariff on excluded goods is of 24.7% for Rwanda and 12.8% for Uganda

^b Average applied tariff from customs data for the corresponding tariff lines

Table 5 shows import statistics and average applied tariffs for imported products from the European Union classified according to their statutory rates. In the table goods excluded from the negotiations are taken apart. Among the 2'051 HS8 products imported from the EU, 664 are excluded from the negotiations (according to the official exclusion list at the HS6 level⁴) and 665 have already a statutory tariff of 0%. The share in EU imports of each type of goods in custom data of 2012 shown in this table are consistent with and of similar amplitude to the one found in the previous section using HS6 trade data for 2011.

⁴ This list has to be taken at the HS6 level although it exists at the HS8 level because the HS classification used in the official list (HS2002) is different from the one used in customs data (HS2007 and HS2012) and correspondence tables are only available at the HS6 level.

In the EAC-EPA, 25.6% of tariff lines among EAC countries are excluded. The large majority of sensitive products which have the highest tariffs appear in the list of excluded goods. Unsurprisingly, most sensitive items (SI) with especially high tariffs are excluded from the negotiation. Actually, for Rwanda and Uganda, all imported sensitive items are in the list of excluded goods (there are 29 and 30 products imported from EU by respectively Rwanda and Uganda under the special SI regime as shown in tables A5.1.a and A5.1.b in annexes)⁵. Moreover, most other excluded goods incur a MFN tariff of 25% (see table A5.4 in the annex). The import weighted average statutory tariff on excluded goods is of respectively 24.7% and of 12.8% in Rwanda and Uganda. However actual weighted average collected tariffs on these goods are substantially lower in Rwanda (of 13%) which reflects the common observations that higher statutory tariffs are accompanied by a lower implementation rate. Therefore it seems that the higher is the MFN rate of EAC, the higher is the probability the good is in the exclusion list. Similarly, Damuri (2012) reports that for 15 bilateral agreements involving the QUAD, 7% of the products in the sample involving 11,000 lines are excluded either temporarily or permanently and are concentrated in the food and agricultural sectors where political economy motivations for maintaining protection are high.

Most goods under negotiation in phase 2 and 3 face either a statutory tariff of 10% or a statutory tariff of 25%. Importantly, as we used new applied tariffs which is much lower than the statutory tariffs, table 5 shows that the share in import duty from the European Union of the goods under negotiations is now lower than a quarter (excluded represent 75.9% and 45.9% of respectively Rwanda's and Uganda's import revenue). This suggests that most exemptions on imports from the EU are already on goods non-excluded from the negotiations. This also clearly suggests that the impact of EPA on tariff revenue from the EU will be relatively low. If we combine this with the fact that EU trade taxes only count for 10.3% of Rwanda's total revenue from trade, we can conclude that the impact of the EPA on Rwanda in terms of tax revenue should be very low.

3.2. Revenue and Welfare Estimates

We now turn to estimates of the likely revenue and efficiency effects comparing two scenarios: the more realistic one in which the negotiated exclusion list applies and one in which tariffs are eliminated on all import from the EU (we call this "full FTA").

Table 6 reports the results of these two EPA scenarios for imports, tariff revenue and revenue from all border levies (i.e. tariffs, VAT and excise taxes). Columns (1) and (3)

⁵ Note that sensitive items have statutory ad valorem tariffs between 35% to 100% and some have specific tariffs (for example, tariff on worn clothing is : « 35% or USD 0.20/kg whichever is higher »). Specific tariffs affect only 2 products HS8 imported from the EU. For these products as for the other product, TRIST computes the corresponding applied tariff using the ratio between import revenues and CIF value.

show the results for Rwanda and Uganda respectively of the planned EPA and columns (2) and (4) for the full liberalization of imports of all goods from the EU. The effect of the “realistic” version of the EPA is very low on Rwanda’s imports and tariffs revenue. The estimates suggest that Rwanda’s imports would increase by 0.1% after the implementation of the EPA because of the small reduction (3.5%) in the average applied tariffs on all imports. Tariff revenue would decrease by 3.2% but the cumulated decrease of tariffs, VAT and excise tax revenues represents only 0.8% of the initial border levies revenue because of the tax base increase. For Uganda, estimates are still negligible though slightly larger as the predicted change in tariff revenue is of 8.1% and the decrease of total border levies is of 1.3%. The impact on imports is twice as high as this on Rwanda but very small (0.2%). This slightly higher effect of EPA on Uganda is due to the higher applied tariffs on goods liberalized in Uganda (see table 5).

Table 6:
Revenue Estimates of full EPA with and without exclusion lists (Rwanda, Uganda)

	<u>Rwanda</u>		<u>Uganda</u>	
	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)
	(1)	(2)	(3)	(4)
% change in imports	0.1%	0.5%	0.2%	0.4%
% change in tariff revenue	-3.2%	-13.2%	-8.1%	-15.0%
% change in Total Border levies revenue	-0.8%	-3.3%	-1.3%	-2.5%
% change in collected applied tariff rate	-3.3%	-13.6%	-8.29%	-15.39%

Source: Authors’ simulations from TRIST

* 2011 for Uganda, 2012 for Rwanda.

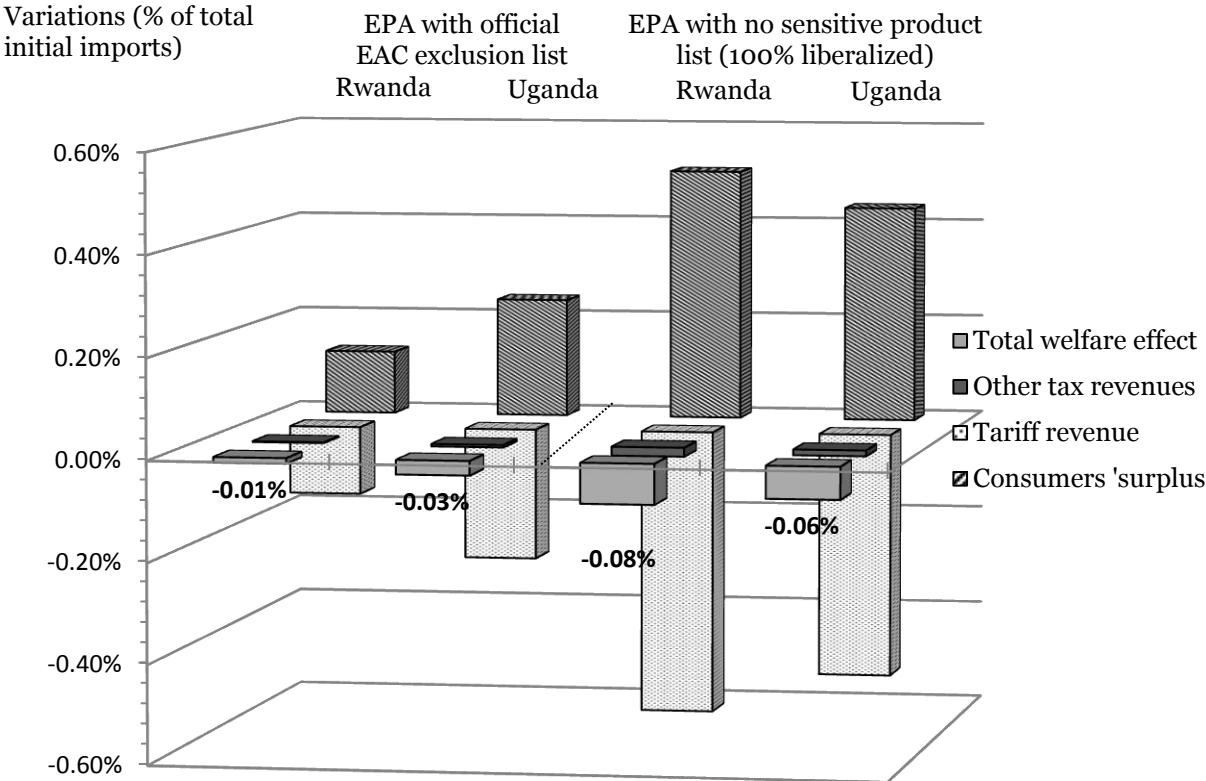
Note: Figures reported here are results of simulated an EPA with/without exclusion list (respectively columns (1) and (3), and (2) and (4)) on total imports; total tariff revenue and total tax revenue from all partners (included the EU).

As expected, effects are larger under the full liberalization scenario (columns 2 and 4) Tariff revenues fall by 13.2% and 15% for Rwanda and Uganda along with a stronger increase of imports (by 0.5% and 0.4% respectively). This confirms that the exclusion list shields the two countries from the expected loss of tariff revenue. However, this exclusion list also leads to a lower reduction in average tariffs and consequently to a lower positive effect on the consumer’s purchasing power.

Figure 1 shows the impact of each scenario on the consumer’s surplus, on tariffs revenue and on other border levies revenue. The summed variations of these three components provide the total welfare effect. As the effect on imports and collected tariffs of the negotiated EPA is low on Rwanda, the increase in consumer surplus is

also low accounting for only 0.1% of initial (total) import expenditures. Similarly, the gain of Ugandan consumers is of only 0.2% of the initial imports. These gains are too low to compensate the tariff revenue loss and therefore the EPA has negative effects on the total welfare of Rwandan and Ugandan economies (under the assumption that income to the government has the same value for society as income to the private sector so that income transfers between the two are additive). Adding the two, the total welfare effect in terms of total import expenditures is almost zero (equal to \$191,000 and \$1.287 million respectively for Rwanda and Uganda (see table A5.7 in the Annexes).

Figure 1: Welfare effects of EPA on Rwanda and Uganda

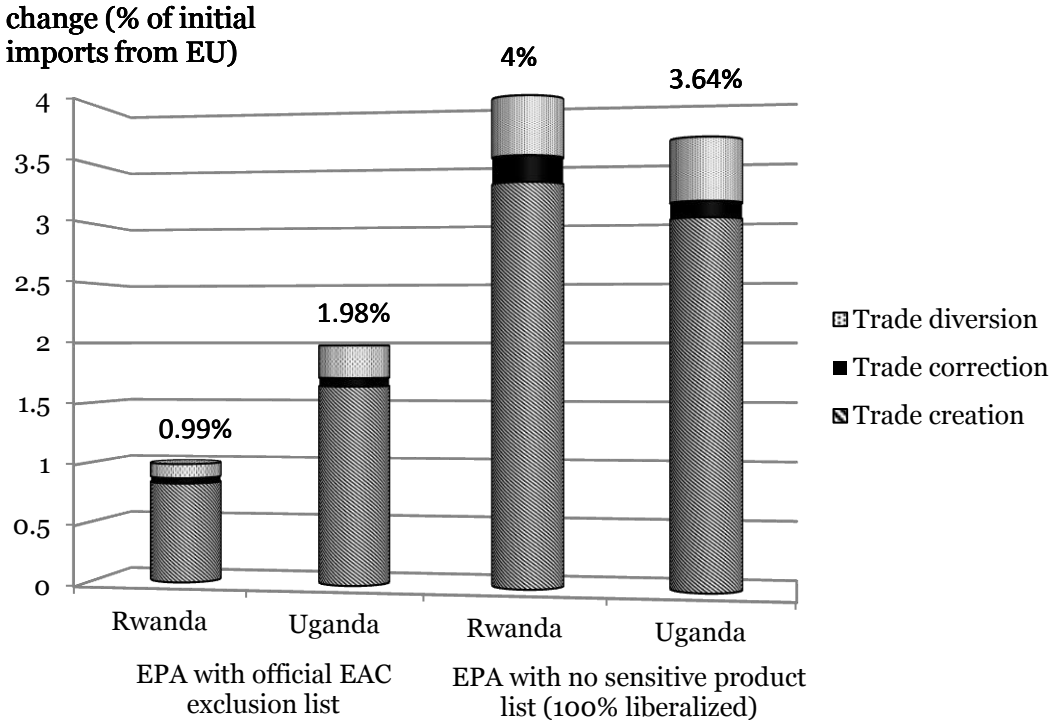


Source: Authors' calculations using results of simulations from TRIST
 From front to back: Total welfare effect, Other tax revenue, Tariff revenue and Consumer's surplus.
 Note: The consumers' surplus represents the extra welfare that the consumer obtains from consuming her original import bundle at the lower new price and from the extra imports she can afford at the new price. The Total welfare impact of the liberalization is the difference between the loss in tariff and taxes revenues and the gain in consumer surplus (see Appendix 4 for further explanation).

The results in the annexes suggest that the welfare losses would be higher if all tariff lines were included in the EPA liberalization schedule (by \$1.440 million and \$2.898 million for Rwanda and Uganda respectively). Under this scenario, the higher tariffs are also preferentially liberalized which implies a sharp decrease in tariff revenues. Meanwhile, total imports from the EU increase but the extent of trade diversion is also significantly higher so that even if consumers benefit much more under this

scenario (due to the greater price decrease coming from the elimination of tariff for previously excluded products), this discriminatory liberalization results in slightly larger welfare losses.

Figure 2 :
 Change in EU imports, Trade creation and Trade diversion following the implementation of the EPA in Rwanda and Uganda



Source: Authors’ calculations using results of simulations from TRIST
 Note: Trade creation is the share of increase of imports from EU which has not been diverted from other partners; Trade diversion is the share of increase of imports from EU which was previously imported from other partners with an applied tariff higher or equal to the previous applied tariffs from EU; Trade correction is the share of increase of imports from EU which was previously imported from partners who were benefitting from preferential applied tariffs compared to the EU. See appendix 4 for detailed computation and explanations.

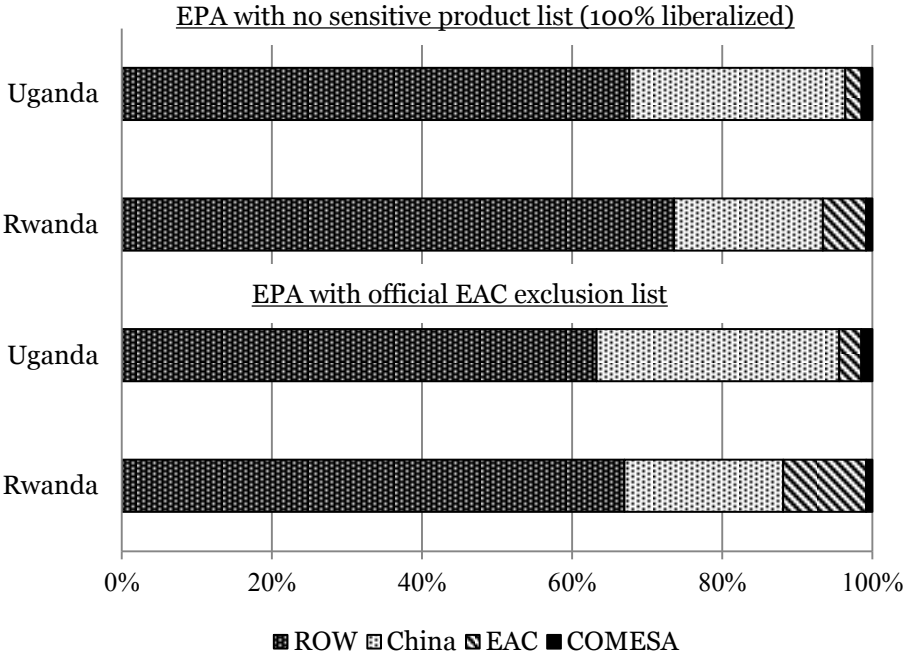
Figure 2 shows the extent of trade creation, trade diversion and trade correction in the increase of imports from EU following the liberalization under both scenarios. The free tariffs on import from the EU generate a decrease of EU product price and therefore an increase of imports from this partner. One component of this increase is pure trade creation, i.e. an increase in the volume imports from the EU, and another component is the replacement of imports from other partners by imports from the EU.⁶ Following Brenton et al. (2011), we decomposed this last component in two parts: “trade diversion” if the good imported is produced less efficiently in the EU

⁶ Note that in these simulations, the increase in imports is at the extensive margin since they only pertain to existing products imported from the EU while it is clear that some new products would be generated by the EPA leading to another source of welfare-increasing trade creation, this time at the intensive margin.

than in countries subject to the MFN tariff, and “trade correction” when deviated imports were previously originating in countries which already benefited from preferential access prior to the EU being granted the tariff reduction. This last element is not trade diversion as it actually reflects a move of consumption towards a more efficient producer that was previously disadvantaged in terms of market access. Contrary to trade diversion, trade correction is not welfare reducing.

Figure 2 shows that the increase of imports from the EU in each scenario is largely dominated by trade creation (which represents approximately 83% of the import increase). However, trade diversion is substantial (around 13%) and slightly higher under the full liberalization. Under the EPA with the list of excluded goods, Rwandan imports from the EU increase by 0.99% with 12% of this increase being due to trade diversion from more efficient partner (mainly China and the Rest of the World, as shown in figure 3). Trade diversion is slightly higher in Uganda (of 13.5%).

Figure 3:
Distribution of Trade diversion across main partners.



Source: Authors’ calculations using results of simulations from TRIST

Finally, the EPA has low effects on imports and tariff revenue in Rwanda and Uganda and generates a low reduction of total welfare. The reason is that excluded goods represent a substantial share of tariff revenue so that the full liberalization would imply larger welfare losses and would give a greater subvention to EU exports relative to other most efficient partners (e.g. China).

The estimates reported above were carried out using “MIDDLE” values for the elasticities (i.e. an assumed elasticity of substitution between partners of -1.5 and price import demand elasticities of -1). Table A5.7 reports estimates for sets of “HIGH” (all elasticity values doubled) and “LOW” (all elasticities cut in half) elasticities. In the “HIGH” scenario, total imports respond more to the tariff cuts and there is a strong substitution between imports from other partners and imports from the EU. This translates into a larger increase of the consumers’ surplus but also the higher are tariff revenue losses (as the replacement of imports from partners with positive tariffs towards a partner with tariffs equal to zero is now higher). As the effect of higher aggregate imports dominates, revenues from the VAT and excise taxes become positive as the tax base increases. This positive effect combined with the higher consumer surplus overcomes tariff losses so that, with high elasticity values, the welfare effect of the EPA becomes positive.

3.3 Likely Long-term Effects

The above estimates are static and short-run. Extensive evidence now gives strong empirical support to the predicted gains from a reduction in protection emphasized by theories recognizing that trade takes place in markets that are not perfectly competitive (a situation particularly relevant for the small EAC markets), none of which are taken into account in estimates provided here. The first is the pro-competitive effect of greater competition as imports remove market power for incumbent domestic firms. Lower price-cost margins raise welfare. The second effect is increased efficiency as low-productivity firms exit the market. The third is increased scale efficiency as incumbent firms move down their cost curves. With increasing availability of census data, these effects have been estimated for an expanding set of countries (see Tybout et al. (1991) for early estimates and Tybout (2000) for a review of the literature).

Most recently, the availability of firm-level data has permitted the estimation of the welfare effects-- particularly those relating to increased productivity and reduced costs resulting from a greater number of better-suited varieties. For the Canada-US FTA, Trefler (2004) finds that productivity gains within plants in Canadian manufacturing are high: productivity for firms shifting to export is estimated to rise by 4.8%. In the case of MERCOSUR, Bustos (2011) finds that firms that entered into exporting following the reduction in tariffs upgraded their technology and entered the export market in response to their loss of revenues on domestic sales resulting from competition by partners’ imports, an effect one might expect would operate in the EAC.

More and better suited varieties are to be expected from the implementation of a full EPA as European products are close to the frontier in terms of costs and quality. An order of magnitude is provided by Goldberg et al. (2009) estimates from India’s trade

liberalization. They show that 65% of the increase in Indian imports following trade liberalization was for new HS products with 82% coming from new varieties concentrated on intermediate inputs with 70% coming from OECD countries. They estimate that the new varieties generated an additional 4.7% decline in the imported input price index and that firms developed new products.

These large long-term gains associated with trade liberalization are incorporated in the simulation-based estimates of Balisteri and Tarr (2011) for a liberalization of Kenya's services sectors and by Tarr and Rutherford (2010) for Tanzania. Both sets of estimates are discussed in section 5.

4. Sectoral Effects and Rules of Origin

This section discusses the likely effects at the sector level to see how different the patterns are across the Rwandan and Ugandan economies. We discuss also Rules of Origin (RoO), typically the subject of intense negotiations in all FTAs and still under debate for a few cases in the EPA-EAC negotiations.

4.1 Sectors Most Affected by the full EPA

Collecting all sectors predicted to experience a drop in price following the implementation of the full EPA (in which the list of excluded goods maintain their MFN tariff). Tables 7 a. and b. rank the sectors (in ISIC classification) from the most to the least affected by the implementation of the "realistic" EPA (with the official list of excluded goods). In these tables, only sectors which are affected by the tariff reduction are shown (those with a price change higher than 0.1%). Over the 72 ISIC sectors, there are only 24 which incur a price decrease in Rwanda and 33 in Uganda. Sectors for which the trade liberalization has no impact on prices are sectors including a large majority of goods for which the CET is already equal to zero or which are excluded from the EPA, or simply sectors whose products are not imported from the EU.

In Tables 7 a and b, the domestic price change of the initial bundle of imports (in 2011 or 2012) from all partners is equal to the variation of applied tariffs. Therefore, even if the tariff liberalization implied by the EPA is the same for Rwanda and Uganda, price changes are different across sectors in the two countries because they vary according to the share of imports from the EU and the initial extent of tariff exemptions (which lead to lower applied tariffs). For example, the sector ISIC 319 (manufactures of other electrical equipment) would be the most affected sector in Rwanda as it is predicted to incur a price change of 3.9% (the applied tariff go from 6.2% to 1.8%) while it is much less affected in Uganda as the price decreases by only 1.1% (from 7.3% to 6%). Of course, the final effect depends on the pattern of price elasticities of supply across sectors. The difference in price changes reflects a higher share of non-exempted imports of "Manufacture of electrical equipment" from the EU in Uganda than in Rwanda.

Table 7:
Most Affected Sectors with EAC exclusion list (ranked by price change in descending order).
7.a. Rwanda

ISIC Rev. 3 industry	Applied tariff		Price Change	Import change
	Pre	Post		
319 - Manufacture of other electrical equipment n.e.c.	6.2%	1.8%	-3.9%	4.0%
333 - Manufacture of watches and clocks	24.8%	21.9%	-2.1%	2.1%
312 - Manufacture of electricity distribution and control apparatus	4.0%	2.2%	-1.7%	1.7%
343 - Manufacture of parts and accessories for motor vehicles and their engines	5.9%	4.7%	-1.1%	1.0%
221 – Publishing	1.7%	0.5%	-1.0%	0.9%
182 - Dressing and dyeing of fur; manufacture of articles of fur	10.9%	9.5%	-1.0%	1.1%
332 - Manufacture of optical instruments and photographic equipment	3.8%	2.5%	-1.0%	1.1%
323 - Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods	8.1%	6.9%	-0.9%	1.0%
293 - Manufacture of domestic appliances n.e.c.	10.3%	9.5%	-0.7%	0.7%
342 - Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	1.4%	0.8%	-0.5%	0.5%
369 - Manufacturing n.e.c.	15.2%	14.6%	-0.5%	0.5%
300 - Manufacture of office, accounting and computing machinery	0.8%	0.3%	-0.4%	0.5%
291 - Manufacture of general purpose machinery	1.9%	1.5%	-0.4%	0.4%
289 - Manufacture of other fabricated metal products; metal working service activities	8.3%	7.9%	-0.3%	0.4%
142 - Mining and quarrying n.e.c.	3.4%	3.0%	-0.3%	0.3%
313 - Manufacture of insulated wire and cable	12.6%	12.3%	-0.3%	0.2%
251 - Manufacture of rubber products	12.8%	12.5%	-0.2%	0.3%
272 - Manufacture of basic precious and non-ferrous metals	6.5%	6.4%	-0.2%	0.1%
315 - Manufacture of electric lamps and lighting equipment	19.2%	18.9%	-0.2%	0.2%
292 - Manufacture of special purpose machinery	0.7%	0.6%	-0.2%	0.2%
402 - Manufacture of gas; distribution of gaseous fuels through mains	1.7%	1.5%	-0.2%	0.2%
321 - Manufacture of electronic valves and tubes and other electronic components	0.6%	0.4%	-0.2%	0.2%
191 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness	14.0%	13.8%	-0.1%	0.2%
361 - Manufacture of furniture	15.8%	15.6%	-0.1%	0.1%

Source: Authors' calculations using TRIST

7.b. Uganda

ISIC Rev. 3 industry	Applied tariff		Price Change	Imports change
	Pre	Post		
402 - Manufacture of gas; distribution of gaseous fuels through mains	10.0%	0.0%	-9.1%	9.1%
313 - Manufacture of insulated wire and cable	14.9%	9.6%	-4.2%	4.2%
221 - Publishing	6.5%	2.6%	-3.3%	3.1%
323 - Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods	14.1%	10.6%	-2.8%	2.7%
050 - Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing	20.2%	16.6%	-2.8%	2.6%
343 - Manufacture of parts and accessories for motor vehicles and their engines	9.0%	6.5%	-2.2%	2.2%
314 - Manufacture of accumulators, primary cells and primary batteries	20.9%	18.9%	-1.6%	1.6%
333 - Manufacture of watches and clocks	23.9%	21.7%	-1.6%	1.5%
312 - Manufacture of electricity distribution and control apparatus	6.3%	4.7%	-1.4%	1.4%
319 - Manufacture of other electrical equipment n.e.c.	7.3%	6.0%	-1.1%	1.1%
293 - Manufacture of domestic appliances n.e.c.	11.7%	10.5%	-1.1%	1.0%
291 - Manufacture of general purpose machinery	3.0%	1.9%	-1.0%	1.0%
332 - Manufacture of optical instruments and photographic equipment	5.0%	4.0%	-0.9%	0.9%
921 - Motion picture, radio, television and other entertainment activities	13.7%	12.6%	-0.9%	0.9%
369 - Manufacturing n.e.c.	16.2%	15.2%	-0.7%	0.7%
322 - Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	0.8%	0.1%	-0.6%	0.6%
272 - Manufacture of basic precious and non-ferrous metals	3.8%	3.2%	-0.5%	0.5%
321 - Manufacture of electronic valves and tubes and other electronic components	1.3%	0.7%	-0.5%	0.5%
315 - Manufacture of electric lamps and lighting equipment	11.1%	10.5%	-0.5%	0.5%
289 - Manufacture of other fabricated metal products; metal working service activities	9.0%	8.5%	-0.4%	0.4%
749 - Business activities n.e.c.	9.9%	9.4%	-0.4%	0.4%
342 - Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	1.3%	1.0%	-0.3%	0.3%
269 - Manufacture of non-metallic mineral products n.e.c.	5.2%	5.0%	-0.2%	0.2%
292 - Manufacture of special purpose machinery	0.4%	0.2%	-0.2%	0.2%
300 - Manufacture of office, accounting and computing machinery	0.3%	0.2%	-0.2%	0.2%
242 - Manufacture of other chemical products	1.7%	1.6%	-0.1%	0.1%
261 - Manufacture of glass and glass products	8.2%	8.0%	-0.1%	0.1%
251 - Manufacture of rubber products	12.0%	11.8%	-0.1%	0.1%
201 - Sawmilling and planing of wood	10.5%	10.4%	-0.1%	0.1%
361 - Manufacture of furniture	18.4%	18.2%	-0.1%	0.1%
210 - Manufacture of paper and paper products	4.0%	3.9%	-0.1%	0.1%
103 - Extraction and agglomeration of peat	0.1%	0.0%	-0.1%	0.1%
271 - Manufacture of basic iron and steel	3.0%	3.0%	-0.1%	0.1%

Source: Authors' calculations using TRIST

The most affected sectors in Rwanda are “Manufacture of electrical equipment”, “Manufacture of watches and clocks” and “Manufacture of electricity distribution and control apparatus”. A drawback of the estimates here (i.e. the price to pay for having very disaggregated estimates) is that inter-industry linkages are not taken into account. These goods are mostly intermediates or semi-processed, so a fall in their price will raise the value-added price, and hence the profitability, of downstream sectors. Also, not surprisingly, the price decreases are concentrated in intermediate producing products rather than final products which are produced locally and for which lobbying activities would oppose tariff reductions. This also means that the EPA will more impact on local firms’ costs (e.g. lower cost of electricity) than on the purchasing power of households where a large share of household expenditures is dedicated to food. Other affected sectors are mainly high and middle technology manufactures. For example, the sector of “Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods” incur a price decrease of almost 1% and are projected to have an increase in imports of 1%.

In Uganda, the energy sector is also significantly affected, as the “Manufacture of gas” incurs a price drop of almost 10%. This should have substantial effects on the Uganda economy where the high energy price is one of the main reasons for the low competitiveness of the native industry. It is followed by “Publishing”, “Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods” and “Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing” where the decrease in price is of around 2.8%. For most other sectors the competition effect is likely to be milder with price changes of imports of less than 2%.

4.2 Negotiations on the Product-specific Rules of Origin (PSRO)

These estimates assume full utilization of preferences. While rates of preference utilization are on the rise in spite of the fall in the value of preferences—estimated at one percentage for Africa once preferences granted by OECD countries are adjusted for the preferences they give to other partners—RoO can still represent a strong barrier to entry for a few sectors and, as in all RTA negotiations since NAFTA, the subject of intense negotiations largely driven by private sector interests. Of interest to EAC in the EPA negotiations are the apparel and fish sectors where EU MFN rates are over 10%, implying substantial potential market access if RoO are not too strict.

In this regard, the game changer was the move by the US under AGOA to abandon the ‘triple transformation rule’ (cotton→yarn→textile →apparel) to a move to a ‘single-transformation’ rule (the so-called “special rule”) conferring duty-free access to apparel regardless of the origin of fabric. Melo and Portugal-Perez (2013) estimate that this change increased apparel exports to the US by about 168% for the top 7 (out of 22) qualifying African exporters in the AGOA group, attributing the lack of supply

response in the other countries receiving the AGOA's Special Rule to institutional weakness.

For the EU, the corresponding product-specific RoO required that apparel also be manufactured from qualifying yarn (i.e. yarn originating in the country or in the EU) following a double transformation process (yarn→textile→apparel) in the beneficiary country. The EU's decision to move to the single-transformation rule when it revised its rules of origin in 2010 is a welcome move in the direction of simplifying RoO. Since, in the end, the objective of granting market-access is to favor the partner, the RoO that are necessary to prevent trade-deflection should be kept simple, i.e. they should be 'business-friendly' rather than 'business-owned' as evidenced by the complicated RoO currently in place across Preferential Trade Arrangements around the world. Reviewing the literature, Cadot and de Melo (2008) estimate that the paperwork related costs of fulfilling origin requirements could amount to 2-4% of the value of shipments.

Table 8 shows that 372 products are under negotiation for product-specific rules. While, in a few cases, Product- Specific Rules of Origin (PSRO) might be justified on the grounds of preventing trade deflection, this is unlikely to be the case for the majority of products. For example, in their highly trade promoting FTAs, Asian FTAs have usually avoided PSRO with two broad categories: wholly obtained for agricultural products and a single threshold of non-originating materials of less than 60% of the FOB price (Cadot et al. 2007). This is considerably simpler than the regime-wide rules cum over 500 PSRO in the EU case (Cadot et al. 2006).

Table 8 also shows that there are few (5) products on which there are disagreements among the negotiating parties. Where they differ between partners, PSRO are tougher for the EU for 70 products and only for 4 products for the EAC. One way to interpret this pattern is to conclude that the EAC has potentially obtained extra protection from these more stringent rules for 70 products.

On RoO, the extensive evidence on the cost-raising effects of RoO suggests that the way ahead is not to haggle over the particular content of the PSRO as in the ongoing EAC-EPA negotiations, but to push for making the RoO more compatible with the multilateral trading system as proposed by Estevadeordal et al. (2009). The EU-EAC protocol (July 2013) is made of 78 pages and the corresponding list of proposed Rule of origin has 180 pages! Multilateralizing RoO would imply adopting rules that would ensure that at least the qualifying production methods in a given sector would remain relatively similar across export markets. ⁷

⁷ WTO(2011, box E2) elaborates on rules that could be negotiated at the WTO. Convergence in rules would be helped by capping cumulation zones as the restrictiveness of the current RoO across RTAs are positively correlated with the cumulation zone.

Table 8: Product Specific Rules of Origin (PSRO) under negotiation

	Number	Product classification	Comments
# Products with a RoO*	372	HS4, or chapters or product level (HS6)	
# Products with a disagreement between parties	5	<ul style="list-style-type: none"> - Olive oil and its fractions (1509, 1510) - Copolymer, made from polycarbonate and acrylonitrile-butadiene-styrene copolymer (ABS) (3907) - Polyester (3907) - Glassware of a kind used for table, kitchen, toilet, office, indoor decoration or similar purposes (7013) 	<ul style="list-style-type: none"> ⇒ EAC wants less restrictive RoO for its exports. ⇒ EAC to consult. ⇒ EAC to consult. ⇒ EAC wants less restrictive RoO for its exports. Both Parties agreed to refer this matter to the Senior Officials
# Products with same RoO for EU and for EAC	297		
# Products where RoO are tougher on EU exports	70		
# Products where RoO are tougher on EAC exports	4	<ul style="list-style-type: none"> - Yams, sweet potatoes and similar edible parts of plants containing 5 % or more by weight of starch, prepared or preserved by vinegar or acetic acid (2001) - Potatoes in the form of flour, meal or flakes, prepared or preserved otherwise than by vinegar or acetic acid (2004-2005) - Nuts, not containing added sugar and spirit (2008) 	<p style="text-align: center;">These goods are in the list of product excluded from tariffs reduction of EAC imports from the EU.</p>

Source: Authors computation and selection using the Annex II of EAC and EU comments on EU proposed rules of origin

5. The Way Forward: Concentrate on removing NTMs, and deepen Integration by Opening Services Sectors.

The estimates in this paper are narrowly-based, only taking into account the response of imports to the reductions in tariffs that will take place when a full EPA is implemented. The small estimates on revenue and welfare are attributable to the already relatively low tariffs embodied in the EAC's CET and the relatively small share of EU imports. However, in the long-run, other efficiency-raising effects are likely to occur. Estimating these is beyond the scope of this report although a range of orders of magnitude from other studies have been mentioned. Probably more important is what has only been marginally addressed in the EPA negotiations.

The African paradigm for regional integration is one of linear integration, following stepwise integration of goods, labor and capital markets, and eventually monetary and fiscal integration. This has been the route followed by the EAC, the most advanced regional integration arrangement as it moved to a customs union in 2005 and then to a common market in 2010 with the next planned step being a monetary union for 2015. In this linear integration model, trade in services only gets attention when the common market stage is reached.

This focus on goods markets also applies to the EPA negotiations where there is reluctance to put proper emphasis on liberalizing the services market. It is ironic that trade in services has been largely missing in EAC's regional integration agenda, at least until recently. Yet, in a world where the production chain is increasingly delocalised, a well-functioning regulatory environment and a relatively open services sector is required to attract the FDI needed to provide the backbone services to compete in goods markets.

While caution is called for opening services sectors, gains from successful opening of the services sector are large relative to the gains from removing remaining tariffs.⁸ As an example, in a series of papers using simulation methods similar to TRIST but in full general equilibrium models of the economy, Tarr and co-authors have estimated the ex-ante welfare effects of liberalization of services sectors in Tanzania and in Kenya, two EAC members. In their model, goods-producing sectors are protected by

⁸ Liberalization of services sector is essential, but difficult to carry out. As discussed in Brenton et al. (2010), it requires considerably technical capacity and there is the risk that the gains from greater competition by giving market to foreigners will run against the social objective of providing services to the poor as the foreigners eschew servicing them because they are the least profitable to serve. Regulatory reform should also accompany trade liberalization. Pitfalls in harmonizing standards to EU (or Northern norms in general) should be clearly weighed to avoid premature harmonization to Northern standards (Disdier et al. (2012)) or errors like the harmonization of milk standards (Jensen and Keyser (2012)).

tariffs, as are services sectors where in some cases, services by foreigners are not provided under protection because the market is closed. Opening the market attracts FDI which in turn lowers the cost of producing goods because a greater number of varieties of intermediate goods become available and the cost of services fall. In their simulations, the gains from reducing barriers in services trade are a multiple of the gains from eliminating protection. Furthermore, their simulations show that there are complementarities between reduction in barriers to trade in services as lower barriers to services trade reduce the costs for the production of goods.

As examples, in the case of Tanzania, Tarr and Rutherford (2010) estimate that gains from service reform could reach 5% of consumption (4.5% of GDP) in the medium term. They also find that productivity gains from the net introduction of new varieties of service providers and from additional varieties of goods could raise the gain from services reform to 14.1 % in the long term. According to their findings, the largest gains come from regulatory reforms would be the water transport, road transport and banking sectors.

In the case of Kenya, Balisteri and Tarr (2010) contrast the results from an opening of services sectors unilaterally to all partners on a non-discriminatory basis, regionally with African partners, and also with the EU as would be the case under the EPAs. They find that the preferential arrangement with the EU that includes both goods and services would generate gains for Kenya of 0.5 % of consumption, gains coming primarily from the preferential liberalization of services (0.3%). This gain is three times larger than the effect of the preferential liberalization of services with the Africa region (of 0.1%). They also estimate that wider liberalization, with more partners, i.e. multilaterally will yield much larger gains due to providing access to a much wider set of services providers. The main reason is that trade with, and incoming, FDI from large technologically advanced regions are assumed to lead to larger technology diffusion and total factor productivity gains. These welfare gains estimates count also for the potential loss of the rent captured by Kenya from the service regulations.

Like the ones in this paper, these simulations are ex-ante, requiring caution in interpretation even though the mechanisms included in the models have strong empirical grounding across a spectrum of environments. In these final stages of the EPA negotiations, it is likely to be detrimental to the EAC to rely on the standard mercantilist approach of exchange of market access used so far in the EPA (and GATS) negotiations. It will not work as there is no new market access for the EAC. In the EU, sectors such as finance, telecommunications and information technology are already open to all service suppliers, including those from Africa. On the other hand, the EU is very restrictive and *not* prepared to make offers in the area of greatest potential benefit for Africa – the temporary movement of unskilled workers.

This means that instead of focusing on the shallow exchanges of market access which this paper show will give negligible effects, the negotiations should focus on providing

the necessary aid-for-trade resources to provide the knowledge platforms and technical assistance learnt from other experiences with integration in services sectors so as to ensure that the appropriate supportive regulatory framework in the EAC is adopted sector by sector. This suggests taking inspiration from the CARIFORUM EPA already in place to pursue a cooperative approach to remove the constraints in the various services sectors (e.g. facilitate cooperation between competition authorities). Second, the EU would support EAC countries in pursuing openness in services whether on a regional or multilateral basis and provide technical assistance that would be delinked from the EPA negotiations.⁹

Regardless of the results of the negotiations in the ‘unfinished’ agenda, in view of the very small revenue and welfare estimates in this report, the EAC should consider moving up the removal of tariffs on EU imports to a closer date, perhaps to 2020, but not to 2033 as is currently the case under the interim agreement.

References

Balistreri , Edward J. & Tarr, David G., 2011. "Services liberalization in preferential trade arrangements: the case of Kenya," Policy Research Working Paper Series 5552, The World Bank.

Brenton, P., N. Dihel, L. Hinkle and N. Strychacz (2010). “Africa’s Trade in Services and the Opportunities and Risks of Economic Partnership Agreements”, Africa Trade Policy note n06, World Bank.

Brenton P., C. Saborowski, C. Staritz And E. Von Uexkull (2011). “Assessing the adjustment implications of trade policy changes using the Tariff Reform Impact Simulation Tool (TRIST)”. *World Trade Review*, 10, pp 249-276.

Bustos P. (2011). “Trade Liberalization, Exports and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms”, *American Economic Review*, 101, 304-40.

Cadot, O. and J. de Melo and Pondard (2006). “Evaluating the Consequences of a Shift to a Value-added method for Determining Origin in the European Union’s GSP Preferential Scheme” report prepared for the EC Commission.

Cadot, O., J. de Melo and A. Portugal-Perez (2007). “Rules of Origin for Preferential Trading Arrangements: Implications for AFTA of EU and US Regimes”, *Journal of Economic Integration* (2007), 22(2), 288-319.

⁹ The lessons from the CARIFORUM EPA suggest that the EAC could push for a cooperation between competition authorities especially in the specific commitments in tourism which would discipline anti-competitive behaviour by EU firms in African markets. Brenton et al. (2010) provide further suggestions .

Cadot, O. and J. de Melo (2008). "Why the OECD Countries Should Reform their Rules of Origin", *The World Bank Research Observer* 2008 23(1):77-105.

Carrère, C. and J. de Melo (2008). "Trade Policy Harmonization in EAC: Revenue and Welfare Implication for Burundi and Rwanda, Coordinating Integration with COMESA" mimeo, World Bank.

Disdier, A-C, L. Fontagné and O. Cadot (2012). « Standards Harmonisation and Sout-South Trade », in O. Cadot and M. Mallouche eds.

Damuri, Y.K. (2012). "How Preferential are Preferential Trade Agreements?: Analysis of Product Exclusions in PTAs", CTEI #2012-3.

Estevadeordal, A, J. Harris and K. Suominen (2009). "Multilateralizing preferential rules of origin around the world", WPS #IDB-WP-137.

Goldberg P., A. Khandelwal, N. Pavnick and P. Topalova (2009). "Trade Liberalization and New Imported Inputs", *American Economic Review, Papers and Proceedings*, 99(2), pp. 494-500.

Jensen, M. and J. Keyser (2012). "Standards Harmonisation and Trade: The Case of the East African Community", in O. Cadot and M. Mallouche eds.

Melo, J. de and A. Portugal-Perez (2013). "Preferences and Rules of Origin in Apparel: African Exports to the US and to the EU", *World Bank Economic Review*.

Pritchett, L. and Sethi G., (1994). "Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts". *World Bank Economic Review*, World Bank Group, vol. 8(1), pages 1-16.

Stevens, C., M. Meyn, J. Kennan, S. Bilal, C. Braun-Munzinger, F. Jerosch, D. Makhan and F. Rampa, (2008). "The New EPAs. Comparative Analysis of their Content and the Challenges for 2008", joint ODI/EPCDM report.

Tarr, David & F. Rutherford, Thomas, 2010. "Modeling Services Liberalization: The Case of Tanzania," *Journal of Economic Integration*, Center for Economic Integration, Sejong University, vol. 25, pages 644-675.

Trefler D. (2004). "The Long and Short of the Canada-U. S. Free Trade Agreement". *American Economic Review*, American Economic Association, vol. 94(4), pages 870-895

Tybout, J. (2000). "Manufacturing Firms in Developing Countries: How Well Do they Do and Why", *Journal of Economic Literature*, 38(1), 11-44

Tybout, J., J. de Melo and V. Corbo (1991). "The Effects of Trade Reforms on scale and Efficiency: New Evidence from Chile", *Journal of International Economics*, 32(3-4), 231-50

WTO. World Trade Report (2011). *The WTO and preferential Trade Agreements: From co-existence to coherence*, Geneva

Annexes To

Revenue and Welfare Implications for Rwanda and Uganda of Finalizing an Economic Partnership Agreement with the EU

Annex 1: Methodology of TRIST simulations

TRIST estimates rely on standard consumer demand theory and on stage budgeting, with expenditures at each stage holding expenditures constant. Estimates are based on elasticities so that zero trade flows remain zero after the tariff change and no trade flow disappears.¹⁰ There are two short-term impacts of reducing tariffs that we study using TRIST. The decrease of tariff will decrease the price of products imported from the European Union. First, assuming that total imports remain constant, this decrease in price will result in the replacement of imports from other countries with imports from the European Union. The size of this effect is determined by the exporter substitution elasticity (assumed to be equal to 1.5). Second, the decrease of the average price of imports leads to a revenue effect, i.e. to an increase of imports from all partners. The size of this effect is determined by the demand elasticity (assumed to be equal to 1)¹¹. All this is done in a partial equilibrium framework, which means that importing is analysed in isolation from the rest of the economy and no long term effects such as growth or reallocation of production factors are taken into account.

In the simulations, each scenario computes changes in import volumes using as a basis imports reported by Customs in 2012 for Rwanda and 2011 for Uganda.

Changes in government revenue come from two sources:

- Changes in import duty revenue for those goods for which the applied import tariff is changed, the change in revenue coming from the combination of a change in volume and a change in the tariff rate;
- A change in the basis on which the other unchanged levies (the VAT and the excise taxes) are applied (the tax basis of the excise rate is the import value included the import duty and the VAT duty while the VAT is computed on the basis of the import values included the tariffs).

¹⁰ This assumption is also standard in general equilibrium simulation models. It is an acceptable assumption although at a disaggregate product level, large tariff reductions could lead to new products being imported.

¹¹ TRIST also captures the substitution effect between domestic consumption and imports following the decrease of the average price of imports. However, we cannot take this effect into account as we do not have data on domestic consumption. The formulas are given in the appendix to Brenton et al. (2011).

Annex 2: Data preparation for TRIST: Rwanda

The original database is the customs data on import transactions for 2012. This database contains 479'951 import transactions (observations), which come from 179 trade partners and include 4'390 products (at the HS8 level of disaggregation).

Import flows and Customs Codes Among imports flows at the transaction level reported by customs, we remove import flows in transit, re-imports as well as “Declaration for Customs Warehousing procedure” and “Warehousing procedure after inward transit”, temporary imports and “Destruction under customs supervision”. Note that temporary imports and re-imports represent only 2% of import flows (after removing transit and Warehousing procedure). Therefore, we only keep in the database flows which are reported, according to the custom codes, to be “Importation for Home Consumption” (as this or after inward transit, after Customs Warehousing Procedure or after same state Temporary Import).

VAT rate. According to the Rwanda Revenue Authority (RRA), there are two rates of VAT: a standard rate of 18% and a zero rate¹². Whereas we didn't find any clear information on the tax basis, the most consistent tax basis in the data for the vat is the CIF values including imports duties and excise taxes. In the sample, around 26% of observations have an applied vat of 0% and around 70% have a VAT rate of 18% or 19% (we keep applied tax rate of 19% as this is close to 18%). Among the 4% lines where the applied vat rate are different from 0%, 18% or 19%, we assume that the 349 transactions with an applied vat rate below 18% are partly exempted or are measurement errors (only 17 transactions are below 16%); and we recomputed the vat revenue based on the standard rate of 18% when the applied vat rate is higher than 19% (approximately 3.5% of observations).

Excise rate: In the data, the tax basis the most consistent with the last official list of excise tax rate reported in table A2.1. is the value of imports (CIF) including the tariff.

¹² Article 86 of law No.06/2001 categorizes exempt goods and services which includes; Agricultural products such as; livestock, unprocessed animal products, Fish, fresh vegetables and fruits Pesticides and fertilizers used in agriculture Health services and supplies e.g. drugs, medicines and material for use by the blind or disabled Education services and the supply of education materials to learning institutions, books, journals, cassette discs, Transport services by bus or coaches, Water supplies to rural areas, Goods imported under the Investment Registration Certificate. Others include: funeral services and jewels, paraffin, financial and life Insurance services, Trade unions Subscription.

Table A2.1.: Rwanda’s excise tax rates.

Product	Tax rate
Fruit juices	5%
Lemonade, soda and other juices	39%
Mineral Water	10%
Beer	60%
Wine	70%
Brandies, liquors and whisky	70%
Cigarettes	150%
Fuel Premium (excluding Benzene) and Diesel	183 (around USD cents 30) RWF
Diesel and Gasoil	150 RWF (around USD cents 24)
Lubricants	37%
Vehicles with an engine capacity of less than	5%
Vehicles with an engine capacity of between 1500	10%
Vehicles with an engine capacity of above 2500 cc	15%
Powdered Milk	10%
Telephone communications	8%

These excise tax rate reported here are in accordance with the 2010 Law No 28/2010 which modifies the 2006 Law No 26/2006 and have been updated using the “guide of fiscal information” of 2012/2013 of Deloitte (http://www.deloitte.com/assets/Dcom-SouthAfrica/Local%20Assets/Documents/Fiscal_Guide_2012_2013.pdf)

Applied tariffs, statutory tariffs, exemptions and specific tariffs. We use statutory rates as reported in the customs data and we check for consistency according to Rwanda RTA’s partners and Rwanda external tariff schedule.

Rwanda is a member of the EAC customs union, which includes a Common External Tariff (CET) on imports from third countries, a duty-free trade between the member states (other members are Tanzania, Uganda, Kenya and Burundi) and common customs procedures. Rwanda is also a member of the Common Market for Eastern and Southern Africa (COMESA). This agreement includes members who have duty-free trade with Rwanda (Burundi, Djibouti, Egypt, Kenya, Madagascar, Mauritius, Malawi, North, Sudan, Seychelles, Comores, Zambia and Zimbabwe) and member countries at various stages of joining the FTA (Democratic Republic of Congo, Eritrea, Swaziland, Uganda, Ethiopia and South Sudan).

The CET includes Schedule 1 with duty rates under the three-band tax structure, i.e. rates applied for raw materials (0%), intermediate products (10%) and finished goods (25%) and Schedule 2 with duty rates of sensitive items. All duty rates are specified for goods disaggregated at the HS8 level. The CET is available at:

http://www.rra.gov.rw/rra_section112.html.

In the customs data, most statutory tariffs are consistent with the CET. However, we made some adjustments. First, on a small number of lines (less than 1%), the exempted (applied) tariff is reported rather than the statutory one, which results in several statutory rates for the same product. We have corrected for this error. Second, CET statutory rates are reported for RTA’s partners. We replace those rates by 0%.

In the CET, some duty rates for sensitive items (schedule 2) could be either ad valorem rates or specific taxes. For example, for worn clothing and other worn article,

the schedule rate is “35% or \$0.2 cents by kg whichever is higher”. In the data, a large majority of transactions for this good have an applied rate of 35% and some have the specific tariff. For the simulation, TRIST computes the resulting average applied tariff.

Once taking apart the goods with specific tariffs, for the large majority of transactions (around 96%), the applied tariffs are equal to the statutory tariffs or are in a reasonable interval around the statutory tariffs (+/-2%). In the other transactions, 3% have applied tariffs equal to 0 and 0.9% have an applied tariffs lower than the statutory. As we do not have clear data on exemptions and losses given in the customs data, we assume that these lines reflect the exemptions. Finally, around 0.1% of observations have an applied tariff higher than the statutory. To deal with this surprising fact, we remove the lines where the applied tariff is higher than the statutory+5% and for all remaining lines with an applied tariff higher than the statutory, we replace the applied tariff by the statutory.

Completing the data cleaning leaves 324'754 import transactions. These transactions are aggregated into a final database which includes the sum imports duties, statutory tariffs revenue, excise revenue, CIF import values and vat revenue for each exporter-product line in 2012. In this database, there are 170 exporter countries and 4'139 products (at the HS8 level).

Annex 3: Data preparation for TRIST: Uganda

The original database is the customs data on import transactions for 2011. This database contains 552'118 import transactions (observations), which come from 149 trade partners and include 3'922 products (at the HS8 level of disaggregation).

Import flows and Customs Codes. As for Rwanda, among import flows at the transaction level reported by customs, we remove import flows in transit, re-imports and temporary imports. Therefore, we only keep in the database flows which are reported, according to the custom codes, to be “Importation for Home Consumption”.

VAT rate. According to the Uganda Revenue Authority (URA), there are two rates of VAT: a standard rate of 18% and a zero rate. The tax basis for the VAT is the CIF values including imports duties and excise taxes. In the sample, around 29% of observations have an applied vat of 0% and around 71% have a VAT rate of 18%. For the very few lines (less than 0.01%) which have an applied vat rate different from 0% or 18%, we recomputed the vat revenue based on the standard rate of 18%.

Excise rate: The tax basis of excise taxes is the value of imports (CIF) including the tariff. The table A3.1 shows the official list of excise tax rate.

Table A3.1.: Uganda's excise tax rates.

Product	Tax rate
1. Cigarettes	
(a) Extracts, essences and concentrates	10%
(b) Cigars, cheroots, cigarillos containing tobacco	150%
(c) Soft cup (whose local content is more than 70% of its constituents)	Shs. 22,000 per 1000 sticks
(d) Other soft cup	Shs. 25,000 per 1000
(e) Hinge Lid	Shs. 55,000 per 1000
(f) Other	160%
2. Beer	
(a) Made from malt	60%
(b) Whose local raw material content, excluding water is at least 75% by weight of its constituents	20%
3. Spirits	
(a) Made from locally produced raw materials	45%
(b) Other	70%
4. Wines	
(a) Made from locally produced raw materials	20%
(b) Other	70%
5. Soft drinks e.g. soda, Juices, Water including mineral waters and aerated waters, containing sweetening matter or flavored	13%
6. Drinking water Mineral water, bottled and other water purposely for drinking	10%
7. Airtime/Service fee on cellular phones	12%
8. Landlines and public payphones	5%
9. Cement	Shs. 500 per 50kg
10. Fuel	
(a) Motor Spirit (gasoline)	Shs. 850/- per litre
(b) Gas Oil (automotive, light, amber for high speed engine)	Shs. 530/- per litre
(c) Other gas oils	Shs. 530/- per litre
(d) Gas oil for thermal power generation to national grid	Nil, effective 1st March
(e) Illuminating kerosene	Nil
11. Sugar Cane or beet sugar and chemically pure sucrose in solid form	Shs. 25 per kg
12. Cane or beet sugar for industrial use	0%
13. Sacks and bags and other plastics	120%

Source : Taxation Handbook, Uganda Revenue Authority.

Applied tariffs, statutory tariffs, exemptions and specific tariffs. We use statutory rates as reported in the customs data and we check for consistency according to Uganda RTA's partners and external tariff schedule. As Rwanda, Uganda is a member of the EAC customs union (we put the statutory tariff towards EAC members equal to zero). Uganda is also a member of the Common Market for Eastern and Southern Africa (COMESA) but is not a member of the FTA zone.

Once taking apart the goods with specific tariffs, for the large majority of transactions (around 84%), the applied tariffs are equal to the statutory tariffs or are in a reasonable interval around the statutory tariffs (+/-2%). In the other transactions, 10.6% have applied tariffs equal to 0 and 0.8% have an applied tariffs lower than the statutory. The other transactions are transaction with EAC members where the CET has been applied rather than the preferential tariff.

Once the data cleaning done, it remains 459'445 import transactions. These transactions are aggregated into a final database which includes the summed imports duties, statutory tariffs revenue, excise revenue, CIF import values and vat revenue for each exporter-product line in 2011. In this database, there are 142 exporter countries and 3'549 products (at the HS8 level).

Annex 4: Calculating welfare effects in TRIST

The tariff scenarios in the text were obtained using TRIST, a partial equilibrium Package available at:
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/TRADE/o,,contentMDK:21537281~pagePK:210058~piPK:210062~theSitePK:239071,00.html>.

Figure A4.1. below explains the mechanisms that determine how a preferential tariff reduction gives rise to trade re-sourced (TD), trade creation (TC), government revenue effects and changes in consumer surplus (ΔCS). We consider that all partners have infinite export supply elasticities. In the case of the EPA, tariffs on some product (not in the exclusion list) are reduced to zero. For each of these products, this decrease of tariff leads to trade creation, i.e. an increase of total imports due to the decrease of the average import price and to “trade re-sourced”, i.e. that imports from other partners are replaced by imports from the European Union due to the decrease of the import price from the EU.

Notation:

P_B^0 and P_B^1 are respectively the supply price in B (the EU) before and after the trade policy

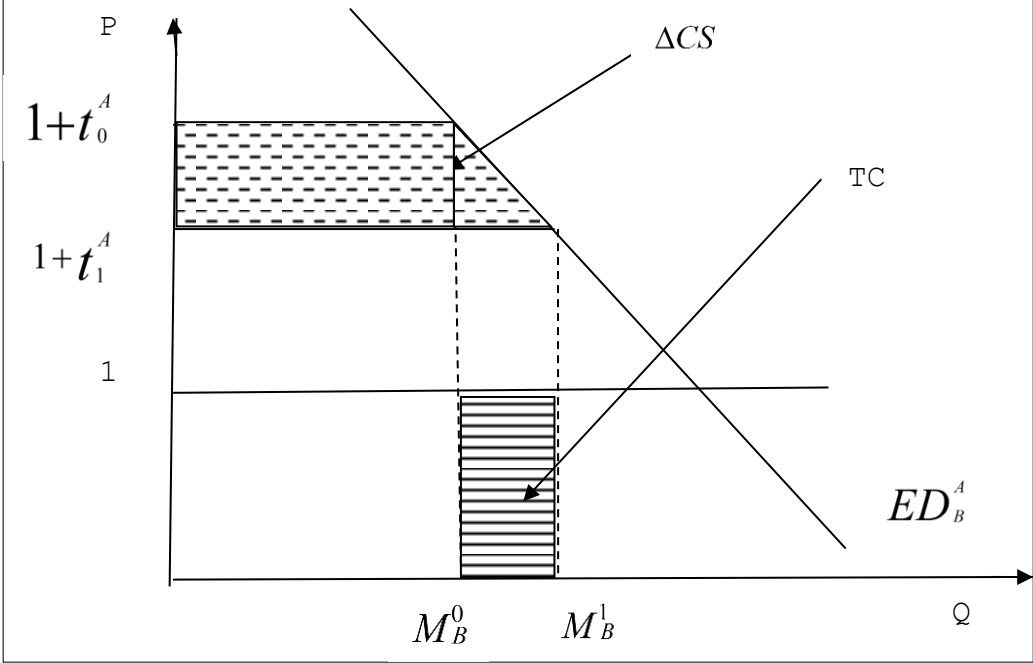
t_0^A and t_1^A are respectively tariff rates in A (EAC country) toward B product before and after the preferential policy.

M_C^1 and M_B^1 are respectively import from C and from B after the policy

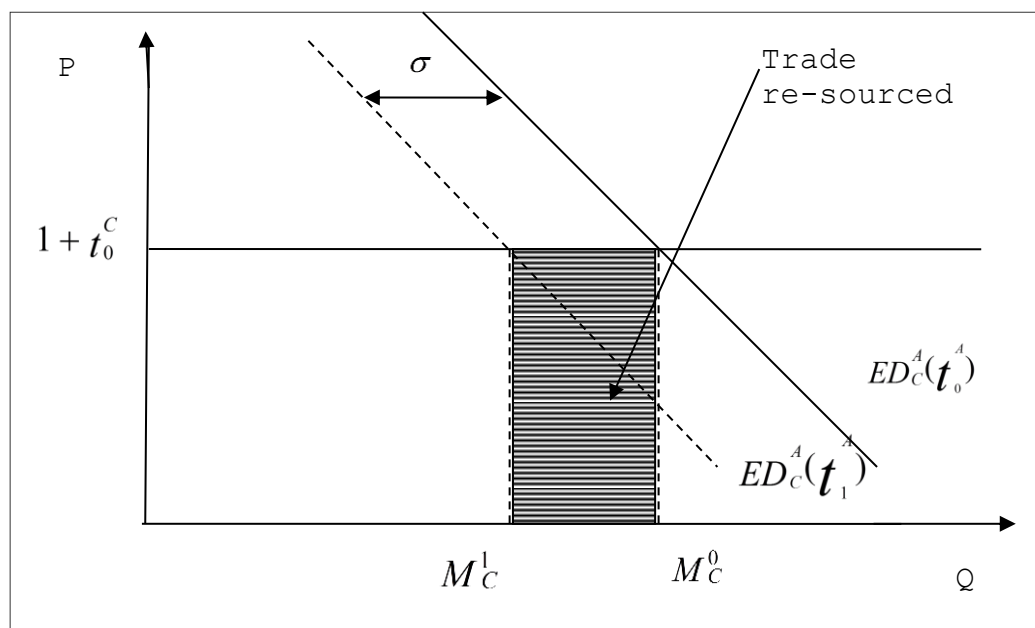
M_C^0 and M_B^0 are respectively import from C and from B before the policy

$ED_C^A(t, P)$ is the import demand curve in A, for the C product relevant to the tariff (t) in A and the supply price (P) in C.

Figure A4.1. Trade creation, trade diversion and consumers’ surplus
Figure 1a) Total imports.



1b) Import from ROW (C).



In both cases, the figures show the effects of preferential tariff preferences by country A towards partner B (the EU), under the (very plausible) assumption that the rest-of-the-world (C) has an infinite supply elasticity (i.e. it can satisfy the entire demand of country A at the prevailing world price). In both cases, the figures analyze the effect of a change in tariffs towards B (the EU) while maintaining the tariffs to C, the Rest of the World (ROW), unchanged.

TRIST uses the following inputs. An overall elasticity of demand for imports (assumed to be equal to one) determines the equation slopes of the import demand curves for B and C (here given by ED_B^A and ED_C^A). The elasticity of substitution, σ (assumed to be equal to 1.5), between imports of the given product across partners determines the extent of inward shift of the demand curve from the ROW following a reduction in tariffs on imports of the product from the EU.

Figure 1a) shows the effects of preferential access to the EU for the product, say men's shirts. Lowering the tariff on men's shirts coming from the EU increases imports of shirts from the EU (this is shown in figure 1a). At the same time there is a substitution effect away from imports coming for the ROW. This is trade re-sourced (figure (1b)).

A tariff change in TRIST thus gives rise to estimates of the following at the tariff line level:

- (a) A substitution effect or change in the source of partners via a change in relative price;
- (b) A market effect as the average price aggregated over partner changes (a preferential tariff reduction will give rise to fall in price and hence to an increase in the volume of imports);
- (c) A tariff revenue effect;
- (d) A change in CS .

Since these estimates are carried out independently for each tariff line (there are no intermediate purchases from other sectors and hence no general equilibrium effects via supply-side changes in tariffs), aggregate economy-wide effects are obtained by adding up each estimate obtained at the tariff-line level.

We follow Brenton et al. (2001) and decompose the “trade re-sourced” into two components: trade diversion and trade correction. Trade diversion is the replacement of imports from partners more efficient in producing the good than the EU by EU imports (the preferred partner). The partners are identified as “more efficient” if the tariff they face is higher or equal than the tariff faced by the EU before the agreement and if Rwanda was importing from these partners before the agreement. Trade correction is the reversal of trade diversion, i.e. it is the replacement of imports from less efficient partners (which benefited from preferential tariffs compared to the EU before the agreement) by imports from the EU.

For each HS8 line in the custom data used in TRIST, we first identify the share of the increase of EU imports which is due to a decrease of imports from the other partners (trade re-sourced). The counterpart is trade creation. Then, we split the trade re-sourced between trade diversion (TD) and trade correction by examining tariffs on the EU and on the partner from which the imports were deviated before and after the agreement and using the following formula:

$$TD = \begin{cases} \frac{(t_{\neq EU}^{after} - t_{EU}^{after})}{(t_{\neq EU}^{after} - t_{EU}^{after})(t_{EU}^{before} - t_{\neq EU}^{before})} \times \text{Trade re-sourced} & \text{if } (t_{\neq EU}^{after} - t_{EU}^{after}) > 0 \text{ and } (t_{EU}^{before} - t_{\neq EU}^{before}) \geq 0 \\ \text{Trade re-sourced} & \text{if } (t_{EU}^{before} - t_{\neq EU}^{before}) < 0 \\ 0 & \text{otherwise} \end{cases}$$

Where $t_{\neq EU}^{after}$ and $t_{\neq EU}^{before}$ are tariffs on the partner from which imports were deviated and t_{EU}^{after} and t_{EU}^{before} tariffs on the EU respectively before and after the agreement. Trade correction is the trade re-sourced which is not trade diversion.

Tables A4.1 decompose the increase of EU imports into (i) trade creation, (ii) trade diversion and (iii) trade correction for the scenarios commented in the text (i.e. the EPA with the exclusion list and the total tariff liberalization).

**Table A4.1:
Trade Creation, Trade diversion and trade correction from Full EPA.**

	EPA with official EAC exclusion list		EPA with no sensitive product list (100% liberalized)	
	Rwanda	Uganda	Rwanda	Uganda
Change in imports from EU (USD thousand), of which ^c :	2'676 (1.0%) ^a	12'557 (2.0%) ^b	10'763 (4%)	23'120 (3.6%)
Trade creation	83.5%	82.9%	82.5%	82.4%
Trade correction	4.6%	3.5%	5.4%	3.6%
Trade diversion	11.9%	13.5%	12.2%	14.0%
<u>Decomposition of sources of trade diversion:</u>				
EAC	1.3%	0.4%	0.7%	0.3%
COMESA (FTA)	0.1%	0.2%	0.0%	0.2%
COMESA (non-FTA)	0.0%		0.1%	
China	2.5%	4.4%	2.4%	4.0%
ROW	7.9%	8.6%	8.9%	9.4%

Source: Authors' calculations using results of simulations from TRIST

Notes:

^a Percentage change from 2012 imports from the EU

^b Percentage change from 2011 imports from the EU

^c Trade creation: share of increase of imports from EU not diverted from other partners;

Trade diversion: share of increase of imports from EU previously imported from other partners with an applied tariff higher or equal to the previous applied tariffs from EU;

Trade correction: share of increase of imports from EU previously imported from partners who were benefitting from preferential applied tariffs compared to the EU.

Table A5.7 in annex 5 provides the changes in government revenue, the change in consumer surplus (ΔCS) and the total change in Welfare. The change in government revenues are given by TRIST and the change in consumers' surplus is computed as the sum over all HS8 of the ΔCS shown in figure A4.1. The total change in Welfare is the sum of variations of the consumers' surplus and of the government revenue.

Annex 5: supplementary tables of simulation on the effect of EPA on Rwanda and Uganda using TRIST.

Table A5.1: Distribution of tariffs on imports from EU
A5.1a Rwanda (2012 Customs data)

Statutory Tariff	Number of lines (exporter-products)	Number of products	CIF import value	Share in EU imports	Import Revenue	Simple average applied tariff	Simple average applied VAT rate
0%	1'537	665	160'876'603	59.4%	0	0%	8%
10%	1'260	493	51'800'815	19.1%	1'741'215	7%	13%
25%	2'057	866	51'138'552	18.9%	6'485'980	20%	14%
30%	5	3	2'585	0.0%	776	30%	18%
35%	22	6	5'921'508	2.2%	1'426'371	23%	12%
50%	2	2	546'806	0.2%	39	25%	9%
60%	19	10	251'615	0.1%	122'150	54%	16%
100%	8	5	41'266	0.0%	1'612	18%	16%
Total ad valorem	4'910	2'050	270'579'751	99.8%	9'778'143	11%	12%
Specific	8	3	505'042	0.2%	231591	45%	14%
Total	4'918	2'053	271'084'793	1	10'009'735	11%	12%

A5.1b Uganda (2011 Customs data)

Statutory Tariff	Number of lines (exporter-products)	Number of products	CIF import value	Import share	Import Revenue	Simple average applied tariff	Simple average applied VAT rate
0%	2'845	924	441'364'097	69.5%	0	0%	10%
10%	2'138	614	98'769'033	15.6%	5'515'957	7%	13%
25%	3'108	1'014	85'267'299	13.4%	12'959'406	18%	13%
35%	39	5	8'492'121	1.3%	2'568'858	16%	9%
40%	1	1	20	0.0%	8	40%	18%
45%	2	1	25'512	0.0%	10'664	23%	9%
50%	7	5	87'916	0.0%	6'773	19%	7%
60%	16	10	486'191	0.1%	291'424	59%	5%
75%	5	2	5'269	0.0%	3'903	60%	0%
100%	10	4	137'127	0.0%	10'507	31%	9%
Total ad valorem	8'171	2'580	634'634'585	100%	21'367'501	9%	12%
Specific	9	2	23025.3239	0.0%	18512	66%	16%
Total	8'180	2'582	634'657'611	1	21'386'013	9%	12%

Table A5.2.: Rwanda and Uganda's 10 top import partners

Rwanda			Uganda		
Top 10 Import partners	Import Value (USD million)	Share Of Total Imports	Top 10 Import partners	Import Value	Share Of Total Imports
Uganda	232	12.9%	India	752	16.7%
China	223	12.3%	Kenya	555	12.3%
India	152	8.4%	China	426	9.4%
Kenya	136	7.5%	United Arab Emirates	341	7.6%
UAR	133	7.4%	Saudi Arabia	213	4.7%
Switzerland	87	4.8%	Indonesia	208	4.6%
Tanzania	74	4.1%	USA	186	4.1%
South Africa	71	3.9%	South Africa	153	3.4%
Japan	57	3.2%	United Kingdom	130	2.9%
Belgium	51	2.8%	Singapore	120	2.7%

Table A5.3: Border levies by Customs by trading partner.
A5.3.a. Rwanda

	EU	EAC	COMESA FTA	COMESA Non-FTA	China	Rest Of the World	Total
Share of imports	15.0%	24.8%	1.7%	0.5%	12.4%	45.6%	100%
Share of total tariff revenue	12.8%	5.3%	0.3%	1.1%	24.2%	56.3%	100%
Share of total trade tax revenue	10.3%	22.7%	1.6%	0.7%	11.6%	53.2%	100%
Trade weighted average applied tariff	3.7%	0.9%	0.7%	9.1%	8.5%	5.3%	4.3%
Trade weighted average statutory tariff	7.6%	0.0%	0.0%	17.7%	13.6%	10%	7.5%
Trade weighted average tariff exemptions	3.9%	-0.9%	-0.7%	8.7%	5.1%	4.7%	3.1%
Tariff collection rate	48.8%	-	-	51.1%	62.4%	53.3%	57.9%

A5.3.b. Uganda

	EU	EAC	COMESA	China	Rest Of the World	Total
Share of imports	14.1%	13.2%	1.6%	9.4%	61.7%	100%
Share of total tariff revenue	14.6%	1.5%	1.7%	31.8%	50.4%	100%
Share of total trade tax revenue	11.2%	12.0%	1.9%	12.5%	62.4%	100%
Trade weighted average applied tariff	3.4%	0.4%	3.4%	11%	2.7%	3.3%
Trade weighted average statutory tariff	5.5%	0.0%	15.1%	12.5%	6.0%	5.9%
Trade weighted average tariff exemptions	2.1%	-0.4%	11.7%	1.6%	3.4%	2.7%
Tariff collection rate	61.7%	-	22.4%	87.5%	44.1%	55%

Table A5.4: Statutory and applied tariffs on goods excluded from the EPA in Uganda and Rwanda imports.

Statutory	Rwanda (24.7%)*		Uganda (12.8%)*	
	Number of HS8 lines**	Import weighted average applied tariff	Number of HS8 lines**	Import weighted average applied tariff
10%	68	1.2%	91	5.0%
25%	569	16.4%	643	12.9%
30%	3	30.0%	-	-
35%	6	25.8%	5	30.4%
40%	-	-	1	40.0%
45%	-	-	1	41.8%
50%	2	0.0%	5	7.7%
60%	10	48.5%	10	59.9%
75%	-	-	2	74.1%
100%	5	3.9%	4	7.7%

Authors' calculations using customs data of 2011 for Uganda and 2012 for Rwanda and the official list of excluded goods.

*Figures in parenthesis are simple average statutory tariffs on excluded goods.

** Only lines with positive imports.

Table A5.5. : Decomposition of EPA with EAC exclusion list.
A5.5.a. Rwanda

	EU	EAC	COMESA FTA	COMESA non-FTA	China	Rest Of the World	Total
Substitution effect	0.6%	-0.1%	-0.1%	-0.0%	-0.2%	-0.1%	0.0%
Import demand effect	0.4%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Total effect on imports	1%	-0.0%	-0.0%	-0.0%	-0.0%	-0.0%	0.1%
Statutory	2%	0.0%	0.0%	-0.0%	-0.1%	-0.1%	0.3%
Collected	-24.1%	0.0%	0.0%	-0.0%	-0.1%	-0.1%	-3.2%
Excise	0.2%	-0.0%	0.0%	-0.0%	-0.01%	-0.0%	-0.0%
VAT	0.2%	-0.0%	-0.0%	-0.0%	-0.1%	-0.1%	-0.0%
Total border levies	-7.1%	-0.0%	-0.0%	-0.0%	-0.1%	-0.0%	-0.8%

Authors' calculations using customs data of 2012 for Rwanda and results from TRIST.

A5.5.b. Uganda

	EU	EAC	COMESA	China	Rest Of the World	Total
Substitution effect	1.1%	-0.1%	-0.2%	-0.5%	-0.2%	0.0%
Import demand effect	0.8%	0.1%	0.1%	0.3%	0.1%	0.2%
Total effect on imports	2%	-0.0%	-0.1%	-0.1%	-0.1%	0.2%
Statutory	6.8%	-	-0.1%	-0.2%	-0.1%	0.7%
Collected	-54.1%	-0.3%	-0.1%	-0.2%	-0.2%	-8.1%
Excise	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VAT	0.2%	-0.0%	-0.1%	-0.2%	-0.1%	-0.1%
total import taxes	-11.2%	-0.0%	-0.1%	-0.2%	-0.1%	-1.3%

Authors' calculations using customs data of 2011 for Uganda and results from TRIST.

Table A5.6: Revenue Estimates of full EPA with and without exclusion lists (Rwanda and Uganda)

column	<u>Rwanda</u>		<u>Uganda</u>	
	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)	EPA with official EAC exclusion list	EPA with no sensitive product list (100% liberalized)
	1	2	3	4
Total Imports (million \$)				
Pre-EPA*	1'805	1'805	4'514	4'514
Post-EPA(2038)	1'807	1'814	4'525	4'533
Change in imports	2	9	10	19
% change in imports	0.1%	0.5%	0.2%	0.4%
Total Tariff Revenue (million \$)				
Pre-EPA*	78	78	147	147
Post-EPA(2038)	75	68	135	125
Change in tariff	-2	-10	-12	-22
% change in tariff	-3.2%	-13.2%	-8.1%	-15.0%
Total Border levies (million \$)				
Pre-EPA*	325	325	907	907
Post-EPA(2038)	323	315	895	885
Change in Total	-2	-11	-12	-23
% change in Total	-0.8%	-3.3%	-1.3%	-2.5%
Collected Tariff rate:				
Pre-EPA*	4.3%	4.3%	3.3%	3.3%
Post-EPA(2038)	4.2%	3.7%	3%	2.8%
% change in collected	-3.3%	-13.6%	-8.3%	-15.4%

Source: Authors' simulations from TRIST

* 2011 for Uganda, 2012 for Rwanda.

Note: Figures reported here are results of simulated an EPA with/without exclusion list (respectively columns (1) and(3), and (2) and (4)) on total imports; total tariff revenue and total tax revenue from all partners (included the EU).

**Table A5.7:
Welfare Estimates from implementing a full EPA
With and without exceptions**

Scenario 1. EPA with official EAC exclusion list

	Consumers' surplus	Tariff revenue	Other tax revenues	Total Welfare effect
Rwanda LOW	2'226 (0.1%)	-2'440 (-0.1%)	-195 (0.0%)	-409 (0.0%)
Rwanda MIDDLE	2'296 (0.1%)	-2'459 (-0.1%)	-28 (0.0%)	-191 (0.0%)
Rwanda HIGH	2'433 (0.1%)	-2'486 (-0.1%)	326 (0.0%)	273 (0.0%)
Uganda LOW	10'368 (0.2%)	-11'729 (-0.3%)	-1'042 (0.0%)	-2'402 (-0.1%)
Uganda MIDDLE	10'784 (0.2%)	-11'852 (-0.3%)	-219 (0.0%)	-1'287 (0.0%)
Uganda HIGH	11'600 (0.3%)	-12'027 (-0.3%)	1'525 (0.0%)	1'099 (0.0%)

Scenario 2. EPA with no sensitive product list (100% liberalized)

	Consumers' surplus	Tariff revenue	Other tax revenues	Total Welfare effect
Rwanda LOW	8'727 (0.5%)	-10'177 (-0.6%)	-1'339 (-0.1%)	-2'789 (-0.2%)
Rwanda MIDDLE	9'175 (0.5%)	-10'296 (-0.6%)	-319 (0.0%)	-1'440 (-0.1%)
Rwanda HIGH	10'060 (0.6%)	-10'422 (-0.6%)	1'915 (0.1%)	1'553 (0.1%)
Uganda LOW	18'790 (0.4%)	-21'785 (-0.5%)	-2'110 (0.0%)	-5'104 (-0.1%)
Uganda MIDDLE	19'691 (0.4%)	-22'074 (-0.5%)	-515 (0.0%)	-2'898 (-0.1%)
Uganda HIGH	21'465 (0.5%)	-22'405 (-0.5%)	2'963 (0.1%)	2'023 (0.0%)

Source: Authors' calculations using results of simulations from TRIST

Notes: Figures are in USD thousand. Estimates refer to changes from the situation prevailing in 2012 (2011).

“MIDDLE” is the simulation using TRIST with intermediate values for the elasticity of substitution between import partners (-1.5) and for the imports demand elasticity to prices (-1).

“LOW” and “HIGH” are simulations obtained by respectively cutting these elasticities by half and by doubling these elasticities.

Figures in parenthesis are changes expressed as shares in total initial imports (across all partners). The consumer's surplus represents the extra welfare that the consumer obtains from consuming her original import bundle at the lower new price and from the extra imports she can afford at the new price. The Total welfare impact of the liberalization is the difference between the loss in tariff and taxes revenues and the gain in consumer surplus. (see Appendix 4 for further explanation)

Table A5.8: Estimates of EPA implementation with official exclusion list, by phase of liberalization.

Table A5.8.a. Rwanda

	Phase 1 (no change)	Phase 2	Phase 3	Total
Impact on imports:				
Imports pre	1'804'744'959	1'804'744'959	1'806'224'669	1'804'744'959
Imports post	1'804'744'959	1'806'224'669	1'806'980'011	1'806'980'011
Change in imports	0	1'479'711	755'342	2'235'052
% change in imports	0.00%	0.08%	0.04%	0.12%
Impact on Revenue:				
Tariff revenue pre	77'940'268	77'940'268	76'351'789	77'940'268
Tariff revenue post	77'940'268	76'351'652	75'481'183	75'481'183
Change in tariff revenue	0	-1'588'616	-870'606	-2'459'085
% change in tariff revenue	0.00%	-2.04%	-1.14%	-3.16%
Total Tax Revenues on Imports				
Total revenue pre	325'403'095	325'403'095	323'814'617	325'403'095
Total revenue post	325'403'095	323'806'624	322'924'101	322'924'101
Change in Total revenue	0	-1'596'471	-890'516	-2'478'994
% change in Total revenue	0.00%	-0.49%	-0.28%	-0.76%
Collected Tariff rate:				
Collected applied tariff rate pre	4.3%	4.3%	4.2%	4.3%
Collected applied tariff rate post	4.3%	4.2%	4.2%	4.2%
% change in collected applied tariff rate	0.0%	-2.1%	-1.2%	-3.3%

Table A5.8.b. Uganda

	Phase 1 (no change)	Phase 2	Phase 3	Total
Impact on imports:				
Imports pre	4'514'205'306	4'514'205'306	4'517'446'005	4'514'205'306
Imports post	4'514'205'306	4'517'446'005	4'524'620'865	4'524'620'865
Change in imports	0	3'240'699	7'174'860	10'415'558
% change in imports	0.0%	0.1%	0.2%	0.2%
Impact on Revenue:				
Tariff revenue pre	146'786'165	146'786'165	143'322'185	146'786'165
Tariff revenue post	146'786'165	143'322'019	134'934'344	134'934'344
Change in tariff revenue	0	-3'464'146	-8'387'841	-11'851'821
% change in tariff revenue	0.0%	-2.4%	-5.9%	-8.1%
Total Tax Revenues on Imports				
Total revenue pre	907'455'141	907'455'141	903'991'161	907'455'141
Total revenue post	907'455'141	903'954'780	895'420'737	895'420'737
Change in Total revenue	0	-3'500'361	-8'570'424	-12'034'404
% change in Total revenue	0.0%	-0.4%	-1%	-1.3%
Collected Tariff rate:				
Collected applied tariff rate pre	3.3%	3.3%	3.2%	3.3%
Collected applied tariff rate post	3.3%	3.2%	3%	3%
% change in collected applied tariff rate	0.0%	-2.4%	-6.0%	-8.3%

The International Growth Centre (IGC) aims to promote sustainable growth in developing countries by providing demand-led policy advice based on frontier research.

Find out more about our work on our website
www.theigc.org

For media or communications enquiries, please contact
mail@theigc.org

Subscribe to our newsletter and topic updates
www.theigc.org/newsletter

Follow us on Twitter
[@the_igc](https://twitter.com/the_igc)

Contact us
International Growth Centre,
London School of Economic and Political Science,
Houghton Street,
London WC2A 2AE

IGC

**International
Growth Centre**

DIRECTED BY



FUNDED BY



Designed by soapbox.co.uk