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Empirical Analysis of Sector-level Trade and Welfare Effects of Reciprocity under an Economic Partnership Agreement with the EU: Evidence from Malawi and Tanzania[1]

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by

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Abstract

Earlier EPA impact studies have mostly been concerned with highly aggregated results and focussed on selected agriculture commodities for various reasons. This study presents six-digit HS trade, tariff revenue and net welfare effects of Malawi and Tanzania reciprocating EU's preferential duty-free treatment under an EU-ACP Economic Partnership Agreement (EPA). A partial equilibrium model is applied to the most recent trade and elasticities data computed by the World Bank to measure the effects under full and less than full reciprocity. Our findings show that there will be welfare-enhancing consumption and trade creation effects but these will be swamped by strong welfare-lowering trade diversion and tariff revenue losses leading to non-negligible net welfare losses. Further, the overall increase in imports from the EU will pose a real threat to domestic and regional import-competing production, and thus undermine intra-regional trade.

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1. Introduction

Trade relations between the European Union (EU) and the African, Caribbean and Pacific (ACP) countries have long been characterized by the EU's non-reciprocated discriminatory preferential access (duty free or preferential tariff rates for certain products, quotas and ceilings for others) for export commodities originating from ACP countries. Thus, non-reciprocity gave exports originating from ACP countries a competitive edge over their rivals from the rest of the world in EU domestic markets. To implement this arrangement required a special renewable waiver of the General Agreement on Tariffs and Trade (GATT) as its discriminatory nature is incompatible with Article XXIV of GATT.

Non-ACP developing countries and others successfully challenged non-reciprocity at the World Trade Organisation (WTO) and as a result non-reciprocity in the EU-ACP trade agreement will be discontinued from 2020 with a transition period starting from 1 January 2008. Besides incompatibility with WTO rules, non-reciprocity was bound to be reconsidered because it has been ineffective in addressing prevent marginalization of ACP countries in the EU/world trade and integration into the world trading system (Panagariya, 2002). At the 2000 EU-ACP Convention in Cotonou, Benin, both sides agreed to a new WTO-compatible trade and development framework, the Economic Partnership Agreement (EPA), which is being negotiated at regional grouping level in ACP countries. EPAs entail Free Trade Areas (FTA), hence, reciprocity of duty free trade between contracting EU and ACP countries, among other things. In line with the provisions of Article XXIV of the GATT, EPAs are required to cover "substantially all trade" (the European Commission interprets it to mean 90% of bilateral trade) covering all sectors and must be implemented over a 10-year transition period (though in some cases a 12-year period may be allowed).

Currently, most ACP exports to the EU, except most agricultural commodities of greatest interest to both the EU and ACP countries, already enjoy duty free market access. Moreover, most ACP countries have limited export capacity and the ability to expand export production to take advantage of the 'greater' access to EU internal markets. With mostly underdeveloped and less efficient import-competing sectors, ACP producers will face considerable competition posed by greater volumes of arguably more efficiently produced EU commodities. This has adjustment implications which (mainly) producers will have to deal with. It is for this reason that most empirical analyses of the effects of EPAs between the EU and ACP countries have tended to be concerned with the import-side effects in ACP countries. However, the focus of most previous country-level studies has been on selected commodities (mostly agricultural) or highly aggregated sectors, and none has considered the case of less than full reciprocity. Cali and te Velde (2006) observe that all the previous studies using quantitative models do not have the level of details that would lead them to identifying or analysing sensitive sectors. This study contributes to filling this gap by analysing the effects of (both full and less than full) reciprocity at the product level.

1.2. Objectives of the Study

This study is motivated by the gap in knowledge regarding the detailed effects of full and less than full reciprocity which can inform EPA negotiations on such policy issues as determining the reasonable coverage of reciprocity, identifying sectors upon which to targeting adjustment assistance or for excluding from the EPA negotiations. Indeed, no earlier study has analysed the implications of less than full reciprocity for Malawi and Tanzania (and for many other countries). The study also seeks to improve on the measurement of net welfare by incorporating the influence of trade creation and trade diversion which are ignored in one of the leading EPA studies for the Sub-Saharan African region (i.e. Karingi, *et al*., 2005). This resulted in Karingi *et al*. (2005) predicting net welfare gains when in our case we find net welfare losses for both countries.

The effects of reciprocity analysed in this study are: (a) growth of imports from the EU being the result of: (i) direct increase of existing imports due to cheaper (duty-free) prices,

(ii) switching of imports from the ‘preferential’ regional partners (which brings about welfare-enhancing effects under the assumption that the EU is a more efficient producer than regional preferential partners who export to Malawi/Tanzania on preferential import tariff terms) and, (iii) switch of imports from the ‘rest of the world’ (RoW) (which tends to bring about welfare-lowering ‘trade diversion’ under the assumption that the RoW which successfully exports to Malawi/Tanzania under the generally higher Most-Favoured Nation (MFN) import duty rates is a more efficient producer than the EU); (b) tariff revenue and (c) net-welfare associated with the above components of import effects.

In the earlier stage, we presented the preliminary findings of this study to a number of policymakers and stakeholders for consultation purposes. It is interesting to note that most of the stakeholders views were agreeable with our findings regarding the identified sensitive sectors. Furthermore, the two countries have lists of sensitive products which formed part of their tariff reduction offers in SADC. However, these were not arrived at in any systematic way (e.g. based on the import, tariff revenue and welfare effects, *inter alia*).

The rest of the paper is organised as follows. Section 2 presents a brief overview of the literature on the effects of EPAs on ACP countries. Section 3 gives a descriptive analysis of the structure of imports and tariff revenue of the study countries. The partial equilibrium methodology and model applied are explained in Section 4. Section 5 presents and discusses the results. Finally, we draw some conclusions and implications in Section 6.

2. Literature Review

There is a growing body of literature on the effects of preferential trading agreements for the case of a small developing country. Analytical frameworks have been developed on the bases of the works of Viner (1950), Laird and Yeats (1986) and later extended in Panagariya (1998) and Milner, Morrissey and McKay (2005), among others. We do not intend to dwell on the intricacies of the analytical framework, but hasten to consider some of the available empirical evidence on the potential effects of economic partnership agreements between the EU and (regional groupings of) African, Caribbean and Pacific countries. Introducing reciprocity would have both dynamic and static effects through processes expounded in international trade theories. That is, eliminating tariffs on goods imported from the EU implies that EU exports to EU-ACP EPA signatory countries become cheaper relative to intra-region and extra-region exports, *ceteris paribus*. Consequently, product and factor markets within and between economies would respond to the new price signals and in the process affect production and consumption substitution with implications for tariff revenue and welfare, *inter alia*.

Measuring the dynamic (multi-country and multi-product) effects for ACP countries is a difficult exercise principally because of data-constraints. Typically a general equilibrium framework is suitable for this purpose. There are few studies that assess the dynamic effects of EPAs on ACP countries by applying computable general equilibrium (CGE) models. However, some of the simplifying assumptions that have to be made in this process are open to debate. Static effects of reciprocity can be more easily analysed as one can focus on a specific economies and sectors in isolation, thereby assuming others remaining constant. This is, however, its major drawback. Nevertheless, the analyses are quite robust and useful for policymaking (Milner *et al*. 2005). Static effects can be measured using less data-intensive partial equilibrium frameworks such as those presented in Laird and Yeats (1986), Panagariya (1998), Milner, *et al*. (2005) and Karingi *et al*. (2005). Most of the studies on the implications of EPAs on ACP countries measure static effects because they do not require elaborate amounts of data as stated above. Our study follows Milner, *et al*. (2005) to some extent but differ from it by relaxing the assumption of perfect substitutability between goods. Regardless of which approach is taken, measuring the effects of EPAs is difficult because of the uncertainties over the exact detail of content and implementation hence, the need to interpret such conclusions with caution because of this and methodological reasons.

Some of the studies on the effects of reciprocity in EPAs are summarized in Table 2.1. Some studies measured dynamic effects only (denoted by ‘e’ and ‘f’ in the table) models, others covered static effects only (denoted by 'c' and 'g') only, and others that analysed both effects (e.g. those denoted by 'a' in Karingi, *et al*. 2005). The studies have been concerned with determining the gains and losses to the ACP countries in respect of trade created, trade diverted, tariff revenue and welfare effects. Except for a few studies the analyses have focused at aggregate sector and economy level. Most of the studies indicate the trade impact of EPA to be broadly positive (that is, trade creation to outweigh trade diversion), negative fiscal effects and welfare gains to some and welfare losses to others (Karingi *et al*. (2005) report welfare gains to Malawi and Tanzania). In contrast as is shown in Section 5 our study finds significant trade diversion effects outweighing trade creation and in the process fashioning tariff revenue and net welfare losses to both Malawi and Tanzania. These findings correspond to those presented in Zgovu and Milner (2006) for Kenya, Tanzania and Uganda in the East African Community entering an EPA with the EU.[2] It would appear plausible to contend that for small and poor economies with insignificant intra-regional trade with their preferentially treated partners and heavily dependent on the rest of the world more than they depend on the EU for imports there are relatively small opportunities for new trade to be created but larger opportunities for switching the sources (i.e. trade diversion) of imports from non-EU to EU producers when relative prices change, other things remaining the same. In a multilateral liberalisation setting, trade creation tends to exceed trade diversion (where some preferential tariffs remain); trade diversion falls to zero with complete liberalisation. Specific country experiences are enumerated below.

Keck and Piermartini (2005) used a CGE model of 15 regions and 9 sectors within the GTAP framework to simulate the impact of EPAs for SADC countries. Their simulation results showed that an EPA with EU will be welfare-enhancing given the increase in real GDP and further gains through increased intra-SADC liberalisation. Most gains will occur in such sectors as animal agriculture and food processing.

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[2] The same study (funded by ILEAP) also experiments the effects on the EAC countries of WTO multilateral liberalisation under non-agricultural market access (NAMA) negotiations of the Doha Round.

Table 1: Economic effects of EPAs on ACP regions

Region/Source	Trade creation (TC)/diversion (TD)	Fiscal effects	Welfare effects	Major gainers and losers
Sub-Saharan Africa[a]			Negative (EPA with no regional integration) Positive (removal of intra-SSA barriers or EU-SSA Free Trade Area)	
West Africa [b]	TC larger than TD	Negative	Positive	Nigeria and Ghana (gainers); Cape Verde and Gambia (losers)
West Africa (Gambia) [c]	TC smaller than TD	Negative	Net welfare losses	Gambia loser
Central Africa [a]	TC larger than TD	Negative	Positive	Cameroon, Gabon and DRC (gainers)
EAC [d]	TC smaller than TD for Tanzania and equal to TD for Uganda	Large negative	Small negative for Tanzania; negligible for Uganda	Tanzania (loser)
EAC [e]	TC smaller than TD for all EAC countries	Large negative for all EAC	Large net welfare losses for all EAC countries	All EAC (Kenya, Tanzania and Uganda) losers
COMESA [a]	TC larger than TD	Negative	Positive	Kenya, Mauritius, Sudan and Ethiopia (gainers)
SADC [f]	TC larger than TD	Large negative	Large positive (EPA with regional integration) Small positive (EPA with no regional integration)	South Africa, Zimbabwe and Mauritius (gainers); Zambia, Tanzania, Mozambique, Swaziland (losers)
Caribbean [g]	TC smaller than TD (for simultaneous MFN Tariff cuts < 50%) and TC Larger than TD (for simultaneous MFN tariff cuts > 50%)	Small negative	Small negative (for simultaneous MFN Tariff cuts < 20%) Small positive (for simultaneous MFN Tariff cuts < 20%)	
Pacific [h]	TC larger than TD	Small negative	Small positive	Papua New Guinea and Fiji (gainers)

Source and Notes: Adapted from Calì and te Velde (2006), Table 1; information of which is based on: [a] Karingi, S. *et al.* (2005); [b] Busse M. and H. Großmann (2004); [c] Zgovu, E., C. Milner and D. Mendy (2004); [d] Milner C., *et al*. (2005); [e] Zgovu, E. and C. Milner (2006); [f] Tekere, M and D. Ndlela (2003); and, Keck A. and R. Piermartini (2005); [g] Evans D. *et al.* (2006); Gasiorek M. and A.L. Winters (2004), and Greenaway, D. and C. Milner (2003); [h] Roza, V. and S. Szepesi (2003). Our additions are [c] and [e].

Studying the three African countries of Cameroon, Ghana and Benin, EUROSTEP (2004) found that 20-30% of Cameroonian revenue would be lost following reciprocal free trade with the EU given job losses, tax shortfalls and lower growth rates. Ghana would experience 20% reduction in cocoa exports; but results are based on opinions from industry and not technical analysis. COMESA (2002) study concluded that the cost of EPA could be the loss of 25% trade tax revenue and about 6% of total tax revenue. In addition, the study found that EPA will not enhance technological capacity of COMESA countries, but its competition aspects can enhance productivity with COMESA countries especially because of the potential dynamic gains and non-reversibility of the agreements.

Tekere and Ndlela (2003) examined the effects of SADC-EU EPA on SADC countries using partial equilibrium analysis and showed that EPA would lead to significant loss of government tax revenue given the significant imports from EU to these countries. The study showed that Tanzania and Namibia may incur loss of up to 37% and 24% decline in tariff revenue, respectively. However, the study also showed that trade creation would outweigh trade diversion effects – as shown in Section 5 our study finds the contrary is likely happen; and that consumers are likely to benefit in terms of cheaper imports from the EU. But, EPAs are likely to replace regional with EU suppliers, thereby likely to hurt intra-African trade (similar conclusion is reached by the COMESA study). For instance trade diversion effect for Tanzania is estimated to amount to US$79 million.

McKay *et al.* (2000) and Milner *et al*. (2005) considered the possibility of an EPA between the EU and the East African Community (EAC) and concluded that trade diversion with the EAC would negate not only the integration efforts but would at the same time accelerate de-industrialisation. Furthermore, the study found that Kenya would significantly lose its Tanzanian and Ugandan markets. Busse *et al.* (2004)'s study on the potential impacts of EPA on ECOWAS countries found that ECOWAS countries would experience an absolute decline of US$2.2 million. This include, for instance, 487.8 million in Nigeria and loss of tariff revenue of up to 20% for Gambia and 80% in Cape Verde, thus putting the fiscal budget position of ECOWAS countries under stress. The study also concludes that EPA will have significant trade diversion effects.

So far there have been EPA impacts studies in Malawi and Tanzania supported by the EU under the EU capacity-building initiative aimed at assisting ACP countries prepare for EPA negotiations. In addition to finding contrasting results (i.e. consistently trade diversion swamping trade creation and net welfare losses) mentioned above our makes further contributions to the literature in several other respects. As will be shown below, there is no comprehensive analysis on Malawi of the quantitative effects of reciprocity. Furthermore, we estimate (see Section 5) that Tanzania is likely to record greater trade diversion effects, smaller trade creation, and larger net welfare losses than in the previous studies. We also analyse and present the effects of reciprocity at the six-digit HS product line level which has not been done in any previous studies. This output has already enriched policymaking (through the consultations we had) in both countries in so far as constructing or improving the lists of sensitive products is concerned, based on the predicted severity of the effects on imports, tariff revenue and net welfare, *inter alia*. The studies for Malawi and Tanzania are considered in brief below.

Imani Development (2005) undertook a "Study On Capacity Building in Support Of Preparation Of Economic Partnership Agreement: Malawi and The European Union" on behalf of the Government of Malawi supported by the EU. One of the main objectives was "to assess and analyse the fiscal, economic and social effects of an EPA on Malawi …." However, the study was unable to measure these effects reportedly because "the statistical data-base is limited with a number inaccuracies and limitations" (Imani Development, 2005, page xii). Instead the study provided a qualitative assessment of the implications of an EPA on Malawi. The lack of quantitative estimates of the effects of reciprocity on trade and welfare effects (which are of even greater importance to inform EPA negotiations), is a significant knowledge gap that this study has attempted to fill.

A similar study was conducted in Tanzania. It adopted a quantitative approach. Despite this advantage, the study's coverage of reciprocity effects is limited on broader revenue implication, and therefore with no guidance on the implication of the other trade and net welfare effects at product level to assist determination of tariff lines that can be excluded from EPA liberalisation. The study derived the estimates of revenue losses if Tanzania liberalized all trade by 90%, 85% and 80% margins. The results showed that the revenue loss range between 14% and 28%. Our study estimates larger effects.

Finally, as pointed out at the beginning none of the studies above consider the effects of less than full reciprocity like our study does, and at a level of details like does ours.

3. Patterns of Imports and Tariff Revenue

Malawi imports

Table 3.1 showing import product categories indicate that Malawi spent a total of 76,650.1 million Malawi Kwacha (or US$999.524 million) at 2003 prices. The import bill was 44% of GDP, which indicates high trade dependence. A total of 3,609 six-digit HS products were involved. There was a high concentration in a few major import goods; 73% of the import bill was on 180 out of the 3,609 six-digit HS products. The shares of imports from the EU and ESA countries were about 12% apiece, and the rest of the world (RoW) supplied the remainder 76% (MK58,299.7 million). Within RoW is South Africa, Malawi's main traditional import source, which supplied 53% of the RoW share and 40% of Malawi's total imports. The main commodities imported from South Africa were other motor spirit, goods vehicles, fertilizers, flat-rolled steel/iron, and other cereals. South Africa has some comparative advantage in these products enhanced by its geographic proximity to Malawi vis-à-vis the EU; hence, displacement of its exports would be welfare-lowering.

Up to 53% of imports from EU and 65% from ESA entered Malawi duty free; for RoW the proportion is significantly lower at 24%. A further 38% of imports from the EU were charged a tariff of less than 5%; the corresponding share for RoW is 37%. Since the bulk (91%) of imports from the EU already face generally very low tariff rates the effect of reciprocity on imports (and tariff revenue) from the EU will be less dramatic, *ceteris paribus*. However, the relative importance of RoW means that there will be greater trade diversion than trade creation, *ceteris paribus*.

Table 3.1: Malawi and Tanzania Imports by range of Import duty collection rates (millions of local currencies)

Range of duty rate	from EU	Share	from REGION	Share	from R.O.W.	Share	Total imports	Share
Malawi								
Duty free	4,885.6	53%	5,888.1	65%	14,116.2	24%	24,889.9	32%
0.01%-4.99%	3,502.4	38%	3,027.9	33%	21,383.0	37%	27,913.2	36%
5.0% - 9.99%	358.6	4%	103.0	1%	15,343.2	26%	15,804.8	21%
10% - 19.9%	158.8	2%	26.5	0%	4,137.5	7%	4,322.8	6%
20% - 29.9%	332.9	4%	63.1	1%	3,296.1	6%	3,692.1	5%
30% - 39.9%	1.4	0%	1.1	0%	18.6	0%	21.1	0%
40% + above	0.4	0%	0.7	0%	5.2	0%	6.3	0%
Total	9,240.0	100%	9,110.4	100%	58,299.7	100%	76,650.1	100%
Tanzania								
Duty free	115,190.7	33%	52,010.4	26%	143,287.5	14%	310,488.6	20%
0.01%-4.99%	106,421.7	30%	53,977.9	27%	433,575.6	42%	593,975.2	38%
5.0% - 9.99%	57,267.4	16%	28,808.2	15%	132,141.6	13%	218,217.2	14%
10% - 19.9%	40,128.5	11%	46,286.4	23%	190,791.2	19%	277,206.1	18%
20% - 29.9%	29,202.0	8%	14,238.5	7%	118,941.0	12%	162,381.6	10%
30% - 39.9%	269.2	0%	653.6	0%	8,602.4	1%	9,525.3	1%
40% + above	666.8	0%	1,067.2	1%	661.4	0%	2,395.3	0%
Total	349,146.2	100%	197,042.2	100%	1,028,000.7	100%	1,574,189.1	100%

Source: Authors' calculations.

From table 3.2 Malawi imported almost equal shares of capital goods (29%), intermediate goods (28%) and raw materials (24%); final goods accounted for 19% (see column (h)). On the basis of the absolute values, RoW supplies the largest proportions of all types of import goods. Imports from the EU are predominantly capital goods (worth MK4,060.6 million), which account for 44%; only 5% are raw materials. ESA countries supplied almost equal shares of intermediate goods (30%), raw materials (29%), and final goods (28%). Except for capital goods of which ESA supplies MK1,118.2 million, ESA countries out-supplied the EU for all the other import categories. Reciprocity is likely to increase EU's supply of more efficiently produced capital, intermediate final goods which will be recorded as trade creation. Reciprocity will also lead to diversion of these goods from RoW to the EU.

The distribution of imports product category according to the ranges of import duty collection rates is shown in table 3.3. Generally, the largest shares of all imports were subjected to zero or low tariffs less than 10%. Except for final goods all others have relatively insignificant proportions charged a minimum tariff of 10%. Given the low tariffs across different import categories, changes in import volume will play a more important role than changes in tariffs in so far as the consumption effects are concerned and the limited rise in the relative price of ESA and RoW imports (post-EPA) will imply lower import source substitution, *ceteris paribus*.

Table 3.2: Malawi and Tanzania Imports (millions of local currencies) by End-Use

Category	EU	Share	REG	Share	ROW	Share	Total	Share
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Malawi								
Capital goods	4,060.6	44%	1,118.2	12%	16,885.0	29%	22,063.7	29%
Raw materials	456.6	5%	2,653.6	29%	15,642.6	27%	18,752.8	24%
Intermediates	1,999.2	22%	2,745.4	30%	16,610.5	28%	21,355.0	28%
Final goods	2,723.6	29%	2,593.2	28%	9,161.7	16%	14,478.6	19%
Total	9,240.0	100%	9,110.4	100%	58,299.7	100%	76,650.1	100%
Region shares	12%		12%		76%		100%	
Tanzania								
Capital goods	194,570.3	56%	74,181.9	38%	350,817.7	34%	619,569.9	40%
Raw materials	20,754.2	6%	24,668.7	13%	273,595.2	27%	319,018.1	20%
Intermediates	80,579.4	23%	70,406.1	36%	257,915.8	25%	408,901.3	26%
Final goods	53,242.3	15%	27,785.5	14%	145,672.0	14%	226,699.9	14%
Total	349,146.2	100%	197,042.2	100%	1,028,001	100%	1,574,189	100%
Region shares	22%		12%		66%		100%	

Source: Authors' calculations.

Table 3.3: Import categories by range of Import duty collection rates

Range of Duty Rate	Capital Goods	Raw Materials	Intermediate Inputs	Final Goods	Total
Malawi					
Duty free	25%	23%	45%	37%	32%
0.01%-4.99%	45%	32%	31%	37%	36%
5.0% - 9.99%	19%	43%	12%	6%	21%
10% - 19.9%	8%	2%	7%	5%	6%
20% - 29.9%	3%	0%	4%	15%	5%
30% - 39.9%	0%	0%	0%	0%	0%
40% + above	0%	0%	0%	0%	0%
	100%	100%	100%	100%	100%
Total value	22,063.7	18,752.8	21,355.0	14,478.5	76,650.1
Category share	29%	24%	28%	19%	100%
Tanzania					
Duty free	25%	23%	19%	4%	20%
0.01%-4.99%	39%	68%	23%	16%	38%

5.0% - 9.99%	17%	2%	13%	25%	14%
10% - 19.9%	15%	3%	34%	14%	18%
20% - 29.9%	4%	1%	11%	40%	10%
30% - 39.9%	0%	3%	0%	0%	1%
40% + above	0%	0%	0%	1%	0%
	100%	100%	100%	100%	100%
Total value	619,569.9	319,018.1	408,901.3	226,699.9	1,574,189.1
Category share	40%	20%	26%	14%	100%

Source: Authors' calculations.

Tanzania's imports

Tanzania's spending on imports was measured at 1,574.189 billion Tanzanian Shillings (US$1.445 billion) at 2004 prices (see lower half of table 3.1), and involved 4,236 six-digit HS products. The import bill represented 13% of its GDP, showing indications of a high degree of self-reliance; the average for ACP countries at 25% is over twice as much. Typical for a non-oil producing least developing country, there was a high import concentration in a few (principally manufactures and petroleum) products; 72% of the import bill spent on 5% of the 4,236 six-digit HS products. Nearly a quarter (22%) of the import bill was on imports from the EU, 12% on imports from SADC and the remainder 66% on imports from RoW. Tanzania sources relatively more imports from the EU than Malawi, thus making it more susceptible to the effects of reciprocity with the EU, *ceteris paribus*, than Malawi. Imports from the EU covered 3,040 six-digit HS products, but only 5% of these accounted a large share (69%) of the EU exports to the country. Saudi Arabia exporting petroleum products was one of the principal RoW countries.

From table 3.1 about a third (33%) of imports from the EU already enter Tanzania duty free though this is a far smaller share compared to Malawi's 53% seen above. A share of 27% from SADC enter Tanzania duty free – this is likely to improve when the SADC free trade area planned for 2008 will be in place. The share of duty free imports from RoW stood at 14%. Like Malawi, Tanzania has a high proportion of imports from the EU charged (and other sources) charged generally low tariffs, therefore impact of reciprocity on imports (and tariff revenue) will be less dramatic, *ceteris paribus*. The relative importance of RoW means that there will be greater trade diversion than trade creation, *ceteris paribus*.

From table 3.2 (column (h)) imports of capital goods accounted for the largest share of 40%; others, intermediate inputs, raw materials, and final goods accounted for 26%, 20% and 14%, respectively. RoW supplied the largest absolute amounts of all types of imports whilst imports of capital goods (TZSH194,570.3 million) accounted for the largest share (56%) of imports from the EU. The EU out-supplied SADC countries on all products except raw materials; post-EPA the EU's dominance over SADC will increase thereby reducing SADC's exports to Tanzania.

In terms of the distribution of imports product category according to the ranges of import duty collection rates table 3.3 shows that the majority of capital goods and raw materials were subjected to zero or low tariffs less than 10%, but for intermediate and final goods 45% and 55%, respectively, were charged tariffs not less than 10%. More precisely, 40% of final goods were charged tariffs ranging between 20 and 30%. One can therefore expect reciprocity-induced rise in the relative prices of SADC and RoW goods to cause proportionately greater import source substitution in Tanzania than in Malawi, other things being equal.

Malawi's Tariff revenue

Malawi collected a total of MK3,044.2 million (US$39.697 million) which contributed 21% to international trade tax revenue and 8% to total fiscal revenue. International trade taxation generated 39% of total fiscal revenue, which shows considerable reliance foreign trade taxation. Of the total tariff revenue amount, 5% was collected on imports from the EU, 1% on imports from fellow ESA countries and the remaining overwhelming share (94%) on imports from RoW. Thus, it is likely that import source switch away from MFN-paying RoW to duty-free EU post-EPA will be the main source of tariff revenue losses, *ceteris paribus*. Tariff revenue from the EU was generated on 806 six-digit HS products; for ESA and RoW there were 614 and 2,896 six-digit HS products. Some of the major tariff revenue generating products imported from the EU included textiles, motor vehicles, machinery and equipment, electrical machinery and apparatus and food products and beverages. It is interesting to note that except for refined petroleum, motor vehicles and machinery products the rest are commodities in which there are significant domestic and regional production interests.

About half of tariff revenue on imports from the EU and more than 40% of tariff revenue on imports from the ESA is associated with relatively high import tariff rates ranging between 20% and 29.9%. For the rest of the world and total revenue this range of import tariff rates generates 27% and 29%, respectively, of tariff revenue. Taking a lower mark of 10% ('10%+ above') raises the respective shares to 61%, 53% and 49%. When combined with the relatively smaller shares of import values (seen in Table 3.1) associated with these 'high' ranges of import tariff rates this suggests there was high incidence of nominal protection of the few tariff lines involved in the tariff rate range '10%+ above'. Naturally these few tariff lines are of interest in determining the 'sensitive list' for the country, among other criteria.

Tanzania's Tariff revenue

The government of Tanzania collected tariff revenues amounting to TZSH106.039 billion (US$97.3 million) on 3,226 six-digit HS products. This amount accounted for 10% of total fiscal revenue and 26% of international trade taxation. International trade taxation contributed a considerable share of 41% to total fiscal revenue. Thus Tanzania too shows a high dependence on foreign trade taxation. Like in Malawi's case (21%), tariff revenue's small share of 26% in total international trade suggests a considerable reliance on alternative non-tariff instruments of trade taxation, which will not be subject to liberalisation. In terms of the distribution of tariff revenue by source of imports, we find that imports from the EU brought in TZSH18.804 billion representing 18% of the total tariff revenue and involved 1,986 tariff lines. A smaller share of 12% was collected on imports from fellow SADC, whilst RoW contributed the remaining largest share of 70% (TZSH74.753 billion).

The major tariff revenue generating commodities imported from the EU included machinery and equipment, electrical machinery and apparatus, motor vehicles, trailers and semi-trailers, food products and beverages, textiles, chemical and chemical products, paper and paper products and rubber and plastics. From this list, textiles, food products and beverages, paper and paper products and textiles have significant domestic production interest. Although the tariff revenue generated depend on import volume, it is also most likely that the amounts collected reflect some level of domestic industry protection. Such products would therefore be potential candidates for the 'sensitive' list. The structure of nominal protection in relation to the value of imports and tariff revenue is presented in the next sub-section.

4. The Empirical Methodology

Under the existing and past trade agreements between the EU and ACP countries a large number (but not all) of ACP's exports entered the EU's domestic markets duty free, others were imported on preferential lower-than-MFN rates under special product protocols, e.g. sugar. EPAs will introduce reciprocity of trade preferences between the EU and ACP countries to make the preferential treatment compatible with the WTO rules (Article XXIV). This will have implications on ESA and SADC for a number of things: static effects including increase in existing imports (the 'consumption effect') as tariffs are reduced or eliminated; a fall in the relative price of EU goods in a given ACP country which will lead to import source substitution away from: (a) fellow regional trade blocs members that hitherto exported to this country on preferential non-zero tariff terms (also called the 'trade creation effect'); and (b) from the rest of the world countries whose goods enter a given ACP country under MFN tariff terms (also called the 'trade diversion effect').

Import tariffs generate tariff revenue which is an important element of fiscal revenue in some developing countries. Clearly tariff reduction or elimination on imports from an import source like the EU for some ACP countries, and the reduction of import volumes from tariff paying sources (the relevant regional trade blocs and rest of the world) will tend to reduce tariff revenue unambiguously. There would also be welfare increases from the increase in consumers' surplus (due to lower tariff-free import prices) and resource-saving from substituting import source from inefficiently produced domestic and regional goods to efficiently produced EU goods, but welfare decreases from decreased consumption of least-cost goods produced by the rest of the world which become relatively dearer than EU goods because of the EPA.

Import Source Substitution, Tariff Revenue and Welfare Effects

Granting duty free entry to affected imports originating from the EU while maintaining tariffs on imports from the rest of the world reduces the price of goods that might be imported from the EU relative to the price of similar goods produced within the region or imported from the rest of the world, other things being equal. Where the EU already exports to the region, the introduction of an EPA will lead to an expansion of these imports by regional (ESA or SADC) members. What entered the regions subject to a tariff will be able to enter duty free after the operation of the EPA. Consumers will benefit from the lower prices of these imports; they will be able to buy more at this lower price. This trade effects is unambiguously welfare-raising for Malawi and Tanzania. However, the consumers' gain comes in part at the expense of the government of the importing country whose tariff revenue is lost completely on the existing imports and forsaken or the additional imports brought about by the EPA.

Of course Malawi and Tanzania import goods from other than the EU before the EPA comes into operation. The alternative sources are obviously fellow regional partners and from the Rest of the World (RoW). Let us assume, not too unrealistically, that the regions (ESA and SADC) producers are less efficient than the EU and that RoW producers may be more efficient than EU producers. In this case any source-substitution of imports by the ESA and SADC towards the EU will be resource-saving (welfare-raising) if it displaces ESA and SADC imports (and home production) in Malawi and Tanzania, and resource-costing (hence, welfare-lowering) if it displaces imports that previously came from the RoW.

Displaced imports from ESA and SADC sources will not involve any tariff revenue loss for Malawi and Tanzania if no tariff was imposed pre-EPA. It would, however, if tariffs (albeit at lower or preferential rates) applied on intra-regional trade before the EPA. For imports shifted away from RoW to EU sources of supply because of the EPA there is no ambiguity about the tariff revenue effect; it must be negative; a tariff-liable import from RoW is being replaced by a tariff-free import from the EU.

4.1. The Model

EPAs will bear both static and dynamic effects within and between the countries involved. The first-best modelling framework for this purpose is the general equilibrium model. One of the popular general equilibrium models applied in such analyses is the General Trade Analysis Project (GTAP) which is a multi-product and multi-country computable general equilibrium (CGE) model. However, due to lack of data disaggregation the majority of African countries are not captured (Karingi, *et al*. 2005). This means that within a regional trade bloc there could be some countries whose information is lumped together as 'rest of the bloc'; obviously one cannot adequately take into account 'second round' intra-regional effects in GTAP models where this problem exists. Milner *et al*. (2005) correctly points out that the database for CGEs lacks commodity detail to take account of the specific sensitive and special products of special interest to both ACP countries and the EU in the context of EPAs. The level of detail (six-digit HS tariff line) that this study deals with clearly renders CGEs unsuitable.

In light of the above problems this study uses a partial equilibrium model as they are not data-intensive, and just like CGEs are versatile to capture static effects on import, tariff revenue and welfare. The major shortcoming of the partial equilibrium models is they cannot measure the dynamic effects or second-round effects such as interactions between sectors, macroeconomic adjustments, *inter alia*. A couple of partial equilibrium models have been used in empirical trade analyses; for example, the WITS/SMART model applied in Karingi *et al*. (2005) and the Milner *et al*. (2005) model. Both models have the same Vinerian theoretical model. This study follows the recently published Milner *et al*. (2005) model which builds on Greenaway and Milner (2002). Import and tariff revenue effects are principally measured in the same way in both models, but welfare effects in Karingi *et al*. (2005) captures welfare associated with consumption effects only, and is therefore predictably positive. In Milner *et al*. (2005) welfare effects is as expected an ambiguous result of the summation of, on one hand, welfare-raising effects of increased consumption of cheaper imports and resource-saving import source substitution from the inefficient regional partners to the more efficient EU producers, and, on the other hand, welfare effects due to resource-loss from import source substitution away from the least-cost producers in the rest of the world to relatively inefficient EU producers.

Milner *et al*. (2005) examines the EPA effects for the case of a small home country *j* which is a member of an initial two-country preferential trading area (PTA). Markets are assumed to be perfectly competitive and country *j*'s domestically produced import substitutes are treated as perfect substitutes of imports and there is also perfect substitutability between imports from alternative outside sources (in this case the EU and the rest of the world). In this PTA the partner country supplies *j* at increasing cost conditions while the outside countries (the EU and RoW) supply using different constant cost technologies with the RoW being the least-cost producer.

The import, tariff revenue and welfare effects outlined above can be estimated as set out below. The consumption effect component of import effects is measured by reference to the existing import levels from the EU as follows:

$$\Delta M_C = \left(\frac{-t^{EU}}{1+t^{EU}}\right).e_M^D.M_0 \qquad (1)$$

where t_i^{EU} is MFN tariff rate imposed on imports from the EU pre EPA, e_M^D is elasticity of demand for imports, M_{EU} is imports from EU pre EPA.

Import substitution effects can be estimated using an imperfect substitution approach:

$$\Delta M^{k} = (-1)^{h}.\left(\frac{t^{EU}}{1+t^{EU}}\right).\sigma_{k}^{EU}.M^{k} \qquad (2)$$

where $0 \le \sigma_{k}^{EU} \le 1$ is elasticity of substitution between imports from the EU and those from the region (*k* = *REG*) and the rest of the world (*k* = RoW)[3], and M^{k} is the quantity of imports from region *k*. In Eq.(2) *h* takes values of 0 and 1 as follows: *h* = 0 for *k* = *REG*, hence, Eq.(2) measures potentially welfare-raising import-substitution; *h* = 1 for *k* = *RoW*, hence, Eq.(2) measures potentially welfare-lowering source substitution.

The total tariff revenue effect can be estimated as the summation of tariff revenue losses due to removal of tariffs on existing imports from the EU, and on the imports shifted from the region (*REG*) – if *REG* members impose tariffs on each other's exports - and *RoW*, given by:

$$\Delta R = -t^{EU}.M^{EU} - t^{REG}.\Delta M^{REG} - t^{RoW}.\Delta M^{RoW} \qquad (3)$$

For some tariff lines $t^{EU} > 0$ (especially 'sensitive tariff lines) during the EPA transition phase, otherwise $t^{EU} = 0$ post-EPA. Hence, tariff revenue losses can be expected to be smaller depending on the number of tariff lines liberalized.

The welfare effects associated with the above import and revenue effects are estimated using equation (4):

$$\Delta W = (\tfrac{1}{2}.t^{EU}.\Delta M_{C}) \quad + \quad t^{EU}.\left|\Delta M^{REG}\right| \quad + \quad t^{EU}.\left|\Delta M^{RoW}\right| \qquad (4)$$

where the first term captures the welfare-raising effects of consumption effects due to cheaper duty-free prices; the second term measures the welfare-improving effects of

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[3] There is bound to be high but not perfect substitution between goods from different sources because of differences in technology endowments, product differentiation, market imperfections including imperfect price transmission. Allowing for less than perfect substitution in empirical work reduces the risk of bias. Milner et al. (2005) argue that one can assume perfect substitution given the large and diverse production structures of EU and RoW, competitive and product homogeneity in agriculture and primary products are appropriate, and where a high level of disaggregation is used in empirical analysis.

import source substitution away from the relatively inefficient preference-receiving regional partners to the relatively efficient EU producers; and, the last term captures the welfare-reducing effect of import source substitution away from the least-cost producers from the rest of the world to the preference-receiving EU producers (with respect to ESA and SADC).

The degree of the above effects could be smaller even in the short-term for a number of reasons. Firstly, not all tariff lines will be liberalised. Some so-called 'sensitive' products accounting for 19% (for Malawi) and 15% (for Tanzania) of imports from the EU will be exempted from liberalisation – the ratios indicate EPA coverage ratios of 81% and 85%, respectively. Furthermore, considerable shares of import bills are for capital and intermediate input imports in which most ACP countries do not have existing or potential comparative advantage. Such products imported from various sources are currently imported duty free or face very low tariffs of less than 5%. Over the past decades some developing countries have undertaken substantial bilateral tariff liberalisation. Thus an EPA can be expected to bring about lesser effects except perhaps where there are significant import volume surges and the EU is the major source of imports, among other things.

5. Empirical Results

The methodology set out in Section 4 was applied to HS six-digit import and tariff (collection rates) data for 2003 and 2004 for Malawi and Tanzania, respectively. We also used country-specific trade elasticities (import demand and substitution elasticities) estimated by the World Bank (2005), and augmented by further information from Hertel (1997) and Stern et al. (1976). Import, tariff revenue and welfare effects were estimated at six-digit tariff line level and aggregated for final reporting purposes at either ISIC two-digit or the broad sectors (agriculture, fishing, mining and quarrying and manufacturing). HS six-digit level results were circulated to policymakers to inform them on the likely effects of reciprocity at the product line level.[4] Summary results tables presented here are extracted from the detailed tables set out in appendix A; reporting the import, tariff revenue and welfare effects in tables A1, through A6.

The analyses assume instantaneous rather than phased introduction of tariff elimination on imports from the EU under existing 2003 or 2004 conditions. However, we distinguish between tariff changes imposed instantaneously for all goods and a similar instantaneous tariff change applied to only non-sensitive products. The sensitive products were identified on the basis of the tariff reduction schedules submitted by both countries to SADC in fulfilment of Article 4 ("Elimination of Import Duties") of the SADC Protocol on trade in goods. The lists of tariff reduction offers to SADC may differ from those submitted for purposes of EPA negotiations. In the absence of lists for EPA negotiations the submissions to SADC serve, however, as reasonable first approximations of the sensitive products.[5]

5.1. Import effects

Table 5.1 shows that Malawi's imports from the EU are estimated to increase by 5,962.454 million Malawi Kwacha (MK) over 2003 imports of MK 9,239.989 million if applied to all products. This represents a 65% increase. Excluding sensitive products leads to a relatively smaller increase by MK 3,782.66 million or 41%.[6] The bulk of the increase, however, is due to source substitution from the rest of the world (MK 5,405.9 million representing 9%) and from regional sources (MK 345.7 million – or US$ 4.51 million - representing 4%). Karingi *et al*. (2005, p65) estimate higher trade creation of US$15.12 million for Malawi but like this study trade creation will be far less than trade diversion. The increase in imports of MK 210.9 million (if all products are applied) over

[4] This has already been welcomed as a useful contribution to the process of determining products that should be listed as sensitive for exclusion from immediate liberalisation in EPAs.

[5] As noted already, the lists of offers to SADC together with the lists prepared at an earlier stage of this study (showing the likely EPA effects at tariff line level) are currently being used in both countries to determine offers to the countries' regional EPA-groups to which they belong for EPA negotiations.

[6] Using only the set of trade elasticities from Hertel (1997) does not change the conclusion regarding the relative effects of reciprocity. However, the current estimates (using more recent trade elasticities from World Bank, 2005) show slightly larger effects of reciprocity.

existing total imports (MK 76,650.1 million) is small (a 0.3% rise); it is even smaller at 0.1% if sensitive products are excluded.

Estimates for Tanzania show a similar pattern albeit the magnitudes are higher. For example, table 5.2 reports that Tanzania's imports from the EU will increase by 79% (or 275,990.9 million Tanzanian Shillings (TZSH) relative to existing 2004 imports from the EU worth TZSH 349,146.2 million at 2004 prices) with sensitive products included but by a lower proportion of 46% if sensitive products are excluded. Like for Malawi, a large proportion of this increase will be accounted for by substitutions away from existing sources in the region (worth TZSH 27,833.1 million) and the rest of the world (estimated at TZSH 227,258.4 million) rather than additional new trade (estimated at TZSH 20,899.5 million). Imports rise by only 1% for both cases. Like in the case of Malawi, Karingi *et al*. (2005)'s estimates of trade creation for Tanzania are optimistic – US$ 65.5 million - but they also find that trade diversion will be greater than trade creation.

Import effects according to product category are recorded in table 5.3. For both countries, the absolute values show that large proportions of consumption effects (i.e. increase over existing imports from the EU) and trade diversion will concern capital goods, whilst for trade creation intermediate and final goods will account for the largest shares. Raw materials will be the least affected in relation to the other products. The largest growth of existing imports over total pre-EPA imports will be of capital goods for Malawi (0.6%) but for Tanzania it will be final goods (3%) – see column (b), these are ratios of column (a) in table 5.3 to column (g) in table 3.2.

Adding increases in existing imports and substitutions away from the region and RoW yield the predicted overall imports from the EU post-EPA (column (g)) which when compared against existing imports from the EU (column (a) in table 3.2) shows that the fastest growth will concern raw materials (119%) for Malawi, final goods (135%) and raw materials (120%) for Tanzania.

Table 5.1: EPA Effects on Imports in Malawi (millions of local currency)

	Total EU imports rise

	Consumption Effects	Trade Creation	Trade Diversion	Including Sensitive Products	Excluding Sensitive Products
Agriculture					
(a) Pre-EPA imports	155.150	1,735.617	4,666.283	6,557.050	6,557.050
(b) Import effects	**0.031**	**0.000**	**0.216**	**0.247**	**0.003**
(c): *(b)/(a)*		*0%*	*0%*		
Fishing					
(a) Pre-EPA imports	1.327	0.863	59.334	61.524	61.524
(b) Import effects	**0.264**	**0.000**	**17.853**	**18.117**	**18.101**
(c) : *(b)/(a)*		*0%*	*30%*		
Quarrying & Mining					
(a) Pre-EPA imports	33.361	968.122	696.049	1,697.532	1,697.532
(b) Import effects	**0.121**	**11.205**	**105.199**	**116.525**	**116.525**
(c) : *(b)/(a)*		*1%*	*15%*		
Manufacturing					
(a) Pre-EPA imports	9,050.151	6,405.830	52,878.012	68,333.993	68,333.993
(b) Import effects	**210.446**	**334.449**	**5,282.669**	**5,827.564**	**3,648.031**
(c) : *(b)/(a)*		*5%*	*10%*		
All Sectors					
(a) Pre-EPA imports	9,239.989	9,110.432	58,299.678	76,650.100	76,650.100
(b) Import effects	**210.863**	**345.654**	**5,405.937**	**5,962.454**	**3,782.660**
(c) : *(b)/(a)*		***4%***	***9%***		
Additional imports/current total imports				0.3%	0.1%
Predicted/Current imports from EU %				65%	41%

Source: Authors’ calculations

Table 5.2: EPA Effects on Imports in Tanzania (millions of local currency)

				Total EU imports rise	
	Consumption Effects	Trade Creation	Trade Diversion	Including Sensitive Products	Excluding Sensitive Products
Agriculture					
(a) Pre-EPA imports	11,057.5	1,464.6	60,416.2	72,938.3	72,938.3
(b) Import effects	**14.6**	**60.3**	**4,414.3**	**4,489.2**	**739.0**
(c): *(b)/(a)*		*4%*	*7%*		
Fishing					
(a) Pre-EPA imports	29.9	42.8	57.3	129.9	129.9
(b) Import effects	**6.4**	**12.0**	**30.0**	**48.4**	**45.1**
(c): *(b)/(a)*		*28%*	*52%*		
Quarrying & Mining					
(a) Pre-EPA imports	508.7	1,974.3	9,645.5	12,128.5	12,128.5
(b) Import effects	**5.5**	**3.6**	**924.5**	**933.6**	**808.6**
(c): *(b)/(a)*		*0%*	*10%*		
Manufacturing					
(a) Pre-EPA imports	337,550.2	193,560.5	957,881.7	1,488,992.4	1,488,992.4
(b) Import effects	**20,872.9**	**27,757.1**	**221,889.7**	**270,519.7**	**159,771.8**
(c): *(b)/(a)*		*14%*	*23%*		
All Sectors					
(a) Pre-EPA imports	349,146.2	197,042.2	1,028,000.7	1,574,189.1	1,574,189.1
(b) Import effects	**20,899.5**	**27,833.1**	**227,258.4**	**275,990.9**	**161,364.5**
(c): *(b)/(a)*		***14%***	***22%***		
Additional imports/current total imports				1.3%	1.0%

Predicted/Current imports from EU %	79%	46%

Source: Authors' calculations

Table 5.3: Malawi and Tanzania Import Effects (millions of local currency) by Import End-Use under full reciprocity

Import Category	Consump-ption effect	Change	Trade Creation	Change	Trade Diversion	Change	Overall Effect	Change
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Malawi								
Capital goods	123.0	0.6%	61.4	5%	2,199.5	13%	2,383.9	59%
Raw materials	5.3	0%	16.0	1%	520.0	3%	541.2	119%
Intermediates	17.5	0.1%	146.0	5%	1,549.7	9%	1,713.2	86%
Final goods	65.0	0.4%	122.3	5%	1,136.8	12%	1,324.1	49%
Total	210.9	0.3%	345.7	4%	5,405.9	9%	5,962.5	65%
Tanzania								
Capital goods	8,424.4	1%	8,996.9	12%	92,315.0	26%	109,736.3	56%
Raw materials	252.4	0%	675.8	3%	24,060.5	9%	24,988.7	120%
Intermediates	5,490.6	1%	11,106.2	16%	52,803.9	20%	69,400.7	86%
Final goods	6,732.1	3%	7,054.2	25%	58,079.0	40%	71,865.2	135%
Total	20,899.5	1.3%	27,833.1	14%	227,258.4	22%	275,990.9	79%

Source: Authors' calculations.

The detailed results in appendix tables A1 (for Malawi) and A2 (for Tanzania) show that substitution away from RoW of manufacturing imports will account for the largest import effects. The specific manufacturing sectors involved include motor vehicles, textiles, machinery and equipment, and rubber and plastic products if all products are modelled. Once sensitive products are excluded only machinery and equipment, and rubber and plastic products record the largest diversions from RoW for Malawi, and motor vehicles, machinery and equipment, electrical machinery and food products and beverages for Tanzania. Some important substitutions away from the regions (i.e, ESA and SADC) are recorded in food products and beverages, chemicals and chemical products, electrical machinery, rubber and rubber products, footwear, luggage and handbags, machinery and equipment, paper and paper products, and textiles. Tanzania and the regions have potential to develop competitive production for regional and extra-regional markets in most of the above sectors.

Our analytical framework and methodology assume that substitution away from the rest of the world (RoW) to be welfare-lowering ('trade diversion) and from the region to be welfare-raising ('trade creation'). Thus, the comparatively large trade diversion effects over consumption and trade creation effects tend to depress tariff revenue and net welfare as shown below.

5.2. Tariff revenue effects

Existing (and new) imports from the EU are duty-free post-EPA. Consequently there is a 100% loss of tariff revenue on all non-sensitive imports from the EU as recorded in tables 5.4 and 5.5. Further revenue losses by margins of 11% (Malawi) and 25% (Tanzania) are recorded on imports switched from regional suppliers (subjected to preferential tariffs). The respective Malawian and Tanzanian margins of revenue loss on imports switched away from the rest of the world (previously charged MFN tariffs) are estimated at 21% and 44%. The bulk of the imports involved in both cases are manufacturing products – effects on agricultural imports are important in Tanzania.

Tanzania records a substantial overall tariff revenue loss by 52%, being a reduction by TZSH 54,811.3 million or the equivalent of US$ 50.317 million (if all products are treated as non-sensitive) on the existing amount of TZSH 106,039.3 million. Tekere *et al*. (2003) using a different year's data estimated that the Government of Tanzania's tariff revenue fall by a smaller margin of 37%. A smaller (but still significant) fall by 24% was recorded for Namibia by Tekere *et al*. (2003). Malawi records a comparatively smaller (26%) fall by MK 776.6 million (or US$ 10.127 million) – Karingi *et al*. (2005) predicted smaller 'optimistic' tariff revenue losses of US$ 7.09 million for Malawi and US$ 32.49 million for Tanzania. For both Malawi and Tanzania these are substantial losses of what is a significant element in the governments' overall tax revenue. For both countries the losses are nearly halved (down to 30% and 14%) if sensitive products are modelled. The heavier rate of tariff revenue loss for Tanzania than Malawi's is partly because of its higher tax incidence on imports from the EU – Tanzania has a larger proportion (20%) of its imports from the EU charged applied tariff rates of '10%+above' than Malawi's 5%.

Table 5.4: Effects on Tariff revenue associated with import effects in Malawi (millions of local currency)

	Consumption Effects	Trade Creation	Trade Diversion	Tariff revenue increase: Including Sensitive Products	Tariff revenue increase: Excluding Sensitive Products
Agriculture					
(a) Pre-EPA revenue	0.082	0.579	36.993	37.654	37.654
(b) Tariff revenue effect	**-0.082**	**0.000**	**-0.022**	**-0.104**	**-0.001**
(c): *(b)/(a)*	*-100%*	*0%*	*0%*	*0%*	*0%*
Fishing					
(a) Pre-EPA revenue	0.292	0.022	9.580	9.895	9.895
(b) Tariff revenue effect	**-0.292**	**0.000**	**-4.475**	**-4.768**	**-4.758**
(c): *(b)/(a)*	*-100%*	*0%*	*-47%*	*-48%*	*-48%*
Quarrying & Mining					
(a) Pre-EPA revenue	0.117	0.721	15.399	16.237	16.237
(b) Tariff revenue effect	**-0.117**	**-0.155**	**-4.187**	**-4.460**	**-4.460**
(c): *(b)/(a)*	*-100%*	*-22%*	*-27%*	*-27%*	*-27%*
Manufacturing					
(a) Pre-EPA revenue	162.080	34.743	2,783.587	2,980.410	2,980.410
(b) Tariff revenue effect	**-162.080**	**-3.754**	**-601.435**	**-767.269**	**-413.463**
(c): *(b)/(a)*	*-100%*	*-11%*	*-22%*	*-26%*	*-14%*
All Sectors					
(a) Pre-EPA revenue	162.572	36.066	2,845.559	3,044.196	3,044.196
(b) Tariff revenue effect	**-162.572**	**-3.909**	**-610.120**	**-776.600**	**-422.682**
(c): *(b)/(a)*	*-100%*	*-11%*	*-21%*	*-26%*	*-14%*

Source: Authors' calculations

Table 5.5: Effects on Tariff revenue associated with import effects in Tanzania (millions of local currency)

	Consumption Effects	Trade Creation	Trade Diversion	Tariff revenue increase: Including Sensitive Products	Tariff revenue increase: Excluding Sensitive Products
Agriculture					
(a) Pre-EPA revenue	23.9	145.2	6,230.4	6,399.4	6,399.4
(b) Tariff revenue effect	**-23.9**	**-13.8**	**-802.3**	**-839.9**	**-101.2**
(c): *(b)/(a)*	*-100%*	*-9%*	*-13%*	*-13%*	*-2%*
Fishing					
(a) Pre-EPA revenue	7.1	10.6	9.1	26.9	26.9
(b) Tariff revenue effect	**-7.1**	**-3.0**	**-5.8**	**-16.0**	**-12.2**
(c): *(b)/(a)*	*-100%*	*-28%*	*-64%*	*-59%*	*-46%*
Quarrying & Mining					
(a) Pre-EPA revenue	6.8	103.3	636.2	746.3	746.3

(b) Tariff revenue effect	**-6.8**	**-0.7**	**-58.6**	**-66.0**	**-32.2**
(c): *(b)/(a)*	*-100%*	*-1%*	*-9%*	*-9%*	*-4%*
Manufacturing					
(a) Pre-EPA revenue	18,765.9	12,878.8	67,221.9	98,866.7	98,916.7
(b) Tariff revenue effect	**-18,765.9**	**-3,259.0**	**-31,864.4**	**-53,889.4**	**-32,022.3**
(c): *(b)/(a)*	*-100%*	*-25%*	*-47%*	*-55%*	*-32%*
All Sectors					
(a) Pre-EPA revenue	18,803.7	13,137.9	74,097.7	106,039.3	106,089.3
(b) Tariff revenue effect	**-18,803.7**	**-3,276.5**	**-32,731.1**	**-54,811.3**	**-32,167.9**
(c): *(b)/(a)*	*-100%*	*-25%*	*-44%*	*-52%*	*-30%*

Source: Authors' calculations

After almost two decades of import tariff reforms there is a heavier reliance on alternative non-tariff instruments of foreign trade taxation in both countries as shown in Section 3. The above revenue losses increase the pressure on these non-tariff instruments. However, as part of the drive to free trade flows with the EU and indeed in the WTO context non-tariff instruments of trade taxation are increasingly becoming the subject of major non-tariff barrier reforms. The fiscal revenue implications for both countries will undoubtedly be significant. That will require shifting the tax base from trade to non-trade activities particularly those activities that could also be revenue-neutral or revenue-enhancing.

In line with the import effects, large revenue effects are estimated to occur in these sectors: food products and beverages, motor vehicles, electrical machinery, machinery and equipment, textiles, and rubber and plastic products if all products are modelled (see appendix table A3). The sectors contributing the largest reductions to tariff revenue losses (hence, seen as some of the major sensitive sectors) are motor vehicles, textiles and food products and beverages if sensitive products are excluded; motor vehicles being listed as sensitive for revenue generation reasons, and the other two for the infant industry protection argument.

5.3. Welfare effects

Welfare effects are reported in table 5.6. The study estimates net welfare losses of MK792.866 million in Malawi and TZSH 29,003.1 million in Tanzania. The losses are mainly influenced by the relatively large substitution of imports away from the lowest cost producer RoW to the EU outweighing the welfare-raising consumption effects of

MK13.957 million and TZSH 34,628.2 million (due to cheaper duty-free imports from the EU) and substitution away from the relatively high cost regional producers (relative to EU producers) worth MK61.826 million at 2003 prices and TZSH 3,917.6 million at 2004 values in Malawi and Tanzania, respectively. Excluding sensitive products significantly reduces net welfare loss but there will still be net welfare losses of MK426.436 million in Malawi and TZSH 14,438.9 million in Tanzania.

Table 5.6: Effects on Welfare associated with trade effects in Malawi and Tanzania (millions of local currency)

				Net welfare	
	Due to Consumption Effects	Due to Trade Creation	Due to Trade Diversion	with Sensitive Products	Excluding Sensitive Products
Malawi					
Agriculture	0.001	0.000	-0.032	-0.030	0.000
Fishing	0.033	0.000	-4.463	-4.430	-4.428
Quarrying & Mining	0.006	1.121	-10.520	-9.393	-9.393
Manufacturing	13.916	60.706	-790.633	-716.012	-415.615
All Sectors	13.957	61.826	-805.648	-729.866	-429.436
Tanzania					
Agriculture	1.7	15.2	-676.2	-659.2	-157.6
Fishing	0.8	3.0	-7.5	-3.7	-4.1
Quarrying & Mining	0.5	0.5	-95.6	-94.6	-70.2
Manufacturing	1,704.6	3,898.8	-33,848.9	-28,245.5	-14,206.9
All Sectors	1,707.6	3,917.6	-34,628.2	-29,003.1	-14,438.9

Source: Authors' calculations

Karingi *et al*. (2005) report that reciprocity will bring welfare gains to Malawians estimated at US$ 2.106 million and US$ 8.18 million to Tanzanians. As stated Section 4.1, this finding is based on welfare effects associated with consumption effects only which in our study is estimated to be a small equivalent US$ value of US$ 0.2 million for Malawi and US$ 1.6 million for Tanzania mainly because of the limited scale of trade creation that reciprocity will bring about for Malawi.

From appendix tables A5 and A6 some of the major net welfare losses are recorded for food products and beverages, motor vehicles, electrical machinery, and footwear, luggage and handbags in Tanzania; textiles, motor vehicles, rubber and plastic products, machinery and equipment, and footwear, luggage and handbags in Malawi.

Table 5.7 summarises the importance of the import, tariff revenue and net welfare effects in relation to gross domestic product (GDP) in the Malawian and Tanzanian economies. Liberalising all products including sensitive products leads to additional imports that are the equivalent of 0.1% and 0.2% of Malawi's (MK173,468.4 million) and Tanzania's (TZSH 12,321,156.7 million) current prices GDP, respectively. Exclusion of sensitive products has some discernible effect in Tanzania but not in Malawi where the ratio remains about the same. On this count reciprocity will have almost the same effect in both countries whether sensitive products are excluded or not. As for the other measures, however, Malawi is likely to recorder greater import source substitution to the EU from non-EU sources and greater net welfare losses in relation to GDP than Tanzania, other things being equal. Tanzania's effects in tariff revenue losses will be almost twice as much as Malawi's losses in relation to pre-EPA tariff revenue. However, in relation to GDP both countries will record almost the same shares of tariff revenue losses.

Table 5.7: Effects of EPA liberalisation As a Ratio of GDP

	Sensitive products included		Sensitive products excluded	
	Malawi	Tanzania	Malawi	Tanzania
Increase in total imports	0.1%	0.2%	0.1%	0.1%
Increase in imports from EU	3.4%	2.2%	2.2%	1.3%
Fall in imports from the Region	0.20%	0.23%	0.15%	0.15%
Revenue effect	-0.4%	-0.4%	-0.2%	-0.3%
Revenue effect as a ratio of Tariff Revenue	-25.5%	-51.7%	-13.9%	-30.3%
Net Welfare effect	-0.4%	-0.2%	-0.2%	-0.1%

Source: Authors' calculations

5.4. Sensitive analysis

Given trade elasticity data reliability and methodological issues the study estimated lower and upper bounds measures around the main results presented in the paper. Lower and upper bound estimates were derived by assuming that the true trade elasticities were perhaps 10% lower or 10% higher than the ones used here. Table A7 in appendix A reports sensitivity results where all products are subject to EPA liberalisation. Reducing trade elasticities by 10% reduces estimates by between 6% and 8% for Malawi and by between 9% and 5% for Tanzania; the respective margins when trade elasticities are raised by 10% are 8% and 5% for Malawi and 8% and 4% for Tanzania. A 10% margin of error can be argued to be conservative and sensible and the resulting deviations from the middle ground results are generally insignificant, thus the middle ground estimates could be within sight of the potential sizes.

5.5. Discussion of results

The estimated displacements of imports from ESA and SADC are smaller than displacements from the rest of the world, but they are significant from the contexts of the existing intra-regional trade flows and specific sectors affected in both countries. The sectors with domestic and intra-region production and export interest in this context (with high increases in absolute terms and relative to pre-EPA levels) include tobacco and tobacco products (363% import rise in Tanzania); food products and beverages; fish and fish products; textiles; chemicals and chemical products (especially for Tanzania); wearing apparel and dressing; footwear, luggage, handbags, leather dressing; and rubber and plastic products (see appendix tables A1 and A2). These are some of the sectors in which the regions have the potential to develop competitive production to meet regional import demands and for extra-regional exports. Already the Investment Promotion Agencies of both countries 'market' the above as some of the potential investment opportunities in the countries. Thus the surge of EU exports of the above commodities, among others, will tend to undermine investment in domestic (and regional) production and intra-region exports of the affected products. Weak intra-region trade in food (and other agriculture-related) products has the potential to undermine food security and poverty reduction in Sub-Saharan Africa (Kweka and Mboya, 2006). The above pressures underscore the need for export diversification. To achieve this Malawi and Tanzania will require adjustment support. Milner (2005) estimates that export diversification (and trade facilitation) in Malawi and Tanzania would require €45 million and €65 million, respectively, adjustment assistance to support the countries cope with EPA-induced adjustment costs[7].

Also noteworthy from the results is the significant reduction in the overall effect on Tanzania's agricultural imports if sensitive products are excluded from EPA liberalisation (from MK0.247 million to MK0.003 million, and TZSH 4,489.2 million to TZSH 739.0 million). Like with other commodities the largest share of agricultural imports increase will be due to switches away from RoW to the EU; where EU producers receive domestic support and export subsidies this would be clearly welfare-lowering. Thus the large reduction in the overall effect as a result of excluding sensitive products can be seen as not only welfare-improving but also useful to allow the development of unsubsidized agricultural production in the both countries and their regions.

With respect to tariff revenue effects, the study finds that reciprocity will have major fiscal adjustment cost implications irrespective of whether or not sensitive products are excluded from liberalisation. The losses will exert greater pressure on non-tariff trade revenue generating instruments but these are already coming under pressure for elimination in both EPA and WTO reforms. Malawi and Tanzania like many other ACP countries in a similar position will have to continue to target non-trade taxable goods and services, particularly those that could also be revenue-neutral or revenue-enhancing. Examples of non-tariff instruments which would assume greater importance in revenue generation include value-added tax (VAT) and excise taxes charged on increased imports from the EU, among other commodities. VAT systems are in their infancy stage in both countries, there are possible other fiscal revenue sources that can be mounted, and in any case revenue generation from the taxation systems in place is not at its optimal level due to lack of resources. All these require resources which Milner (2005) estimates to be €40 million for Malawi and €70 million for Tanzania in fiscal adjustment costs; the ESA region would require €825 million while SADC would require €340 million. It is in the best interest of ACP countries that such and other fiscal reform initiatives are firmly in

[7] The estimated adjustment assistance in this respect for ESA and SADC are €752 million and €261 million, respectively.

place before full implementation of reciprocity. Fiscal reforms could involve initiatives to broadening the tax base, redress major shortcomings in tax administration through investment in human resource and information technology, modernising collection and audit procedures, creating a tax compliant culture, and strengthening the institutional framework for tax enforcement. Detailed analyses of the design, scale and implementation of the fiscal reform programs are beyond the scope of this study.

Both countries record welfare losses irrespective of whether sensitive products are excluded or not, but excluding sensitive products does reduce the severity of net welfare losses. Net welfare losses are largely the result of significant substitution of manufacturing imports (and associated tariff revenues) away from 'least' cost producers (the rest of the world) to relatively high-cost preferential EU producers. This source substitution outweighs the welfare benefits from cheaper duty-free imports from the EU and displaced imports from the regions that are produced at a relatively higher cost than do EU suppliers. There are of course other welfare-related effects of reciprocity (e.g. implications for production and employment, etc) but these have not been estimated in this study because of data constraints. In addition to the export diversification and fiscal adjustment costs of EPAs in ACP countries, Milner (2005) also estimates the level of assistance towards 'production and employment' (P&E) adjustment and 'skills development and productivity' (SD&P) enhancement. The respective amounts of adjustment assistance for P&E and SD&P are €20 million and €30 million for Malawi, €40 million and €65 million for Tanzania.[8]

Malawi's and Tanzania's total adjustment assistance requirements (based on the four areas cited here) are €135 million and €240 million, respectively. These estimates are greater than the import, tariff revenue and net welfare effects estimated in this study expressed in equivalent currency. But for methodological limitations (for example, only static effects considered and inevitable inaccuracies of any model) and the limited scope of the nature of the impacts covered here, *inter alia*, it may well be that the estimated

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[8] The respective estimated amounts of P&E adjustment assistance for ESA and SADC are €415 million and €217 million, while SD&P would require an estimated €695 million and €255 million. The grand total for adjustment assistance required by ACP countries is estimated at €8,995 million.

adjustment assistance is just within or even less than what would be required to address problematic initial conditions and EPA-induced adjustment costs.

In recognition of potential EPA-induced adjustment costs the EU earmarked further development support through the European Development Fund (EDF) which will place even greater emphasis on addressing adjustment costs in ACP regions entering EPAs with the EU. In the Financial Protocol of the Cotonou Agreement the 9th EDF is allocated the sum of €15.2 billion for macro-economic, structural and sectoral policies reforms, and for institutional development and capacity building. In the previous agreements between the EU and ACP countries, the EU financed structural reforms and initiatives specifically intended to promote economic integration among developing countries (e.g. financial and technical aid through the Cross-Border Initiative (CBI) and the *Programme d'Assitance Régionnale Intégré* (PARI)).

Liberalising trade multilaterally (e.g. through the WTO) offers an avenue for minimising trade diversion and its attendant tariff revenue and welfare losses. As Zgovu and Milner (2006) show multilateral trade liberalisation at WTO can also be welfare-enhancing and tariff revenue-raising (for example, when import volumes increase by a proportionately larger margin than the fall in the tariff, and by shifting imports from preferential regional suppliers to MFN tariff paying sources). Current Doha Round multilateral liberalisation negotiations at the WTO cover a wide range of issues including trade in goods (both agricultural and non-agricultural) which are relevant to this study.

Under the draft modalities for agricultural and non-agricultural market access (NAMA) negotiations of the Doha Round WTO member countries have agreed to increase the coverage of products that must have their tariffs bound and adopted formulae for reducing bound tariffs, *inter alia*. The approaches take into consideration a given country's level of development, a country will be required to achieve a given binding coverage ratio, allowed a given maximum bound tariff (which is its coefficient for reducing tariffs e.g. for non-agricultural products), among other things. At the end of the day there will be tariff reductions like under an EPA but with the WTO liberalisation these will be non-discriminatory unlike the EPA where only tariffs on imports from the EU will be (reduced gradually and) later eliminated. The discriminatory nature of EPA tariff cuts gives substantial opportunities for trade diversion (but not as much for creating new trade flows); WTO multilateral liberalisation undermines trade diversion or import source switching as it tends to leave relative prices unchanged, *ceteris paribus*.

Unfortunately, the Doha Round was suspended in July 2006 mainly because of irreconcilable differences among the major global traders (United States, EU and Japan) over the level of ambition of offers (cuts in the level of their domestic support to their producers and the extent of opening up their domestic markets to exports from developing countries) to give developing countries, especially least developed countries significant market access that can promote trade beyond the present levels. Developing countries have also been playing a role. For example, the G20 (group of 20 developing countries), led by Brazil and India, want rich countries to make average cuts of 54 percent to their farm import duties. The United States wants higher cuts by the EU of some 66 percent. The current offer from the EU stands at 39 percent although some estimates put it around at 46 percent hence.

6. Conclusions and implications

The study has applied a partial equilibrium methodology to estimate the likely import, tariff revenue and welfare implications for Malawi and Tanzania of reciprocating the EU's zero tariffs on a wide range of goods imported from the EU in an EPA. The analyses are conducted at six-digit level of HS trade data; results at this level of disaggregation have already provided a useful contribution to the ongoing work by policymakers in both countries to determine lists of sensitive products for the EPA based on the severity of the effects, among other considerations. Fairly aggregated and summary data have been used in this paper for concise reporting.

The study's major conclusions are that both countries are likely to record relatively small increases in total imports over the existing levels, but there will be significant import source substitution away from the relatively high cost producers in their EPA-regional partners and least-cost producers in the rest of the world to EU producers. Manufacturing imports account for the bulk of the import effects in terms of both additional import increases from the EU and substitution away from non-EU sources. Where new trade will be created the implications will be non-insignificant for the specific sectors affected. The affected sectors include tobacco and tobacco products; food products and beverages; fish and fish products; textiles; wearing apparel and dressing; footwear, luggage, handbags, leather dressing; and rubber and plastic products. Interestingly, these are some of the sectors which the countries and ESA and SADC regions recognise they have the potential to develop competitive production to meet regional import demands and for extra-regional exports. Unless these and other similar sectors are provided with support (an enabling environment) to increase production and realise their export potential, it is likely that these regarded import-competing sectors will be undermined by strong competition posed by tariff-free imports from the EU post-EPA.

The displacement of ESA's and SADC exports to Malawi and Tanzania, respectively, can be seen as adding on to the problems which undermine intra-regional trade and regional integration in the ESA and SADC regions. Nevertheless, we need to recognise that the depth of regional integration is fashioned by other non-EPA related factors; small market sizes, physical geographic bottlenecks (e.g. Malawi), lack of or under-developed basic and trade-related infrastructure, overdependence on foreign aid, foreign countries dominance, unrealistic schedules, uneven benefits and political instability (Faber, 2005). Some of the above are clearly areas where the countries need support, for example, aid-for-trade and trade facilitation which are also under negotiations at the WTO in the Doha Round. Channelling some of the EU's EDF resources to export diversification and trade facilitation will usefully address some of the above sources of trade costs, and thus support regional integration.

Furthermore, the study finds that reciprocity will lead to the loss of tariff revenues which contribute a significant proportion in fiscal resources in both countries. The countries will need support to undertake fiscal reforms to replace any reciprocity-induced tariff revenue losses. The fiscal reforms should entail shifting the emphasis from trade to non-trade tax sources, improving the efficiency of fiscal revenue collecting machinery, *inter alia*. Examples of non-tariff instruments which would assume greater importance in revenue generation include value-added tax (VAT) and excise taxes charged on increased imports from the EU, among other commodities. VAT systems are in their infancy stage in both countries, there are possible other fiscal revenue sources that can be mounted, and in any case revenue generation from the taxation systems in place is not at its optimal level due to lack of resources. Due to the high sensitivity of tariff revenue collections to tariff reductions, it is in the best interest of ACP countries that such and other fiscal reforms are firmly in place before full implementation of reciprocity. Fiscal reforms should aim to broaden the tax base, redress major shortcomings in tax administration through investment in human resource and information technology, modernising collection and audit procedures, creating a tax compliant culture, and strengthening the institutional framework for tax enforcement.

We also find that both countries will record welfare losses irrespective of whether sensitive products are excluded or not, but excluding sensitive products does reduce the severity of net welfare losses. Net welfare losses are largely the result of significant trade diversion effects which swamp the welfare-raising effects of consumption effects (from cheaper prices) and resource-saving trade creation effects. Further net welfare losses are expected to arise from losses of employment and wages, *inter alia*. As a way of addressing net welfare losses related to employment displacement, the countries will have to undertake production and employment adjustment programmes and workers skill development and productivity enhancement programmes. These would facilitate relocation of labour into expanding production sectors. Support for such programmes should be negotiated with the EU. Further observations may be made as below.

The EPA-supported policy reforms will be seen as more credible than if they were unilateral. Through commitments to EPA liberalisation the Malawi and Tanzania countries can overcome ‘time inconsistency’ and provide credible signals to economic actors (e.g. investors) about the economic policy preferences and the condition of the economies, *inter alia*. These are important as they reduce incentives for policy reform reversals (i.e. deviation from ‘first-best’ policy) in the face of politically sensitive short-term effects despite expected positive long-run welfare effects. Binding commitments make withdrawal or policy reversal costly, as it will be followed by loss of market access in the partner countries, among other things. A credible policy reform is one of the important factors for stimulating foreign direct investment which some developing countries find difficult to attract.

EPAs are discriminatory and thus entail costly substitution of imports away from least-cost suppliers to the preferential relatively high cost suppliers. In principle costly trade diversion tendencies can be minimised by extending similar preferential treatment to other trade partners than just the EU. The EU is currently involved in preferential trade agreements with an increasing number of its trade partners. In this way the EU is able to minimise costly trade diversion, among other things.

Liberalising trade multilaterally (e.g. through the WTO) offers an avenue for minimising trade diversion and its attendant tariff revenue and welfare losses. As Zgovu and Milner (2006) show multilateral trade liberalisation at WTO can also be welfare-enhancing and tariff revenue-raising (for example, when import volumes increase by a proportionately larger margin than the fall in the tariff, and by shifting imports from preferential regional suppliers to MFN tariff paying sources). However, multilateral trade liberalisation talks at the WTO have left most ACP and other developing countries disillusioned because of the countries limited participation in the negotiations and also more importantly because of the discrimination against agricultural and semi-processed goods that they have export interests (Helleiner and Oyejide, 1999). Wide differences emerged in the level of ambition of offer among the players (United States, EU and Japan) and also by the key developing countries (Brazil, India and China). The current WTO Doha Round of negotiations (started in 2001) was supposed to conclude in 2004 but is not yet concluded, and as the differences widened the Round was suspended in July 2006. The suspension of the Doha Round has left many ACP countries with the EPA as the alternative avenue to liberalisation.

There is consensus among economists that dynamic effects of tariff liberalisation may well outweigh adjustment costs or static effects. The problem with this position however, rests in the fact that it is not easy to state what these dynamic benefits constitute and the manner in which they would arise is rather vague and there is no authoritative evidence linking dynamic benefits to particular cases of integration (Winters, 2001). However, this outcome can only materialise if Malawi and Tanzania were provided with the right support to address not only the weaknesses in their initial conditions (which tend to exacerbate adjustment costs), but also support to develop and sustain competitive capacities in the institutions and management, infrastructure, production, marketing and exporting. With improved performance of the EU's EDF and further support from the multi-agency initiatives the countries could benefit from EPA liberalisation in respects of increased competitive production and exporting, regional integration and economic development.

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APPENDIX A

Table A1: Detailed Effects on Imports in Malawi (millions of local currency)

					Total EU imports rise	
		Consumption effects	Trade Creation	Trade Diversion	Including sensitive products	Excluding Sensitive Products
All Sectors		**210.863**	**345.654**	**5,405.937**	**5,962.454**	**3,782.660**
A-Agriculture, hunting& forestry						
01	Agriculture, hunting	0.031	0.000	0.216	0.247	0.003
02	Forestry, logging	0	0	0	0	0
	sector total	**0.031**	**0.000**	**0.216**	**0.247**	**0.003**
B – Fishing						
05	Fishing, fish hatcheries & farms	0.264	0	17.853	18.117	18.101
	sector total	**0.264**	**0.000**	**17.853**	**18.117**	**18.101**
C - Mining and quarrying						
10	Mining of coal and lignite	0	0	0	0	0
11	Petroleum & natural gas	0	0	0	0	0
12	Mining of uranium & ores	0	0	0	0	0
13	Mining of metal ores	0	0	0	0	0
14	Other mining and quarrying	0.121	11.205	105.199	116.525	116.525
	sector total	**0.121**	**11.205**	**105.199**	**116.525**	**116.525**
D – Manufacturing						
15	Food products and beverages	8.638	48.348	291.345	348.331	0.000
16	Tobacco products	0.446	11.093	2.368	13.908	0.000
17	Textiles	51.495	28.269	634.313	714.077	201.073
18	Wearing apparel,dressing & fur	0.735	16.764	150.805	168.305	162.025
19	Footwear, luggage, handbags	1.371	36.265	216.771	254.407	254.204
20	Wood & products of wood	0.222	1.939	24.059	26.220	25.441
21	Paper and paper products	1.156	3.780	51.841	56.778	26.429
22	Publishing, printing, recorded	4.851	0.782	50.512	56.145	44.948
23	Refined Petroleum & nucl fuel	2.000	3.677	380.450	386.127	181.114
24	Chemicals and chemical prodct	6.899	60.275	267.214	334.388	330.730
25	Rubber and plastics products	4.521	42.875	570.452	617.848	617.934
26	Other non-metallic minerals	2.272	3.560	100.312	106.144	106.144
27	Basic metals	0.391	1.409	29.503	31.302	31.302
28	Fabricated metal products	2.856	14.313	277.677	294.845	288.758
29	Machinery & equipment n.e.c.	22.399	16.729	631.711	670.839	669.850
30	Office, accounting, computers	3.466	0.711	29.808	33.984	33.984
31	Electrical machinery	33.619	10.299	308.702	352.620	352.620
32	Radio, TV & communication	2.794	0.882	33.091	36.766	36.766
33	Medical, optical & watches	14.199	0.983	103.954	119.137	119.137
34	Motor vehicles, trailers	42.049	18.486	1,012.264	1,072.800	32.978
35	Other transport equipment	0.208	0.137	1.663	2.007	2.007
36	Furniture; manufacturing n.e.c.	3.860	12.871	113.854	130.585	130.585
	sector total	**210.446**	**334.449**	**5,282.669**	**5,827.564**	**3,648.031**

Source: Authors' calculations

Table A2: Detailed Effects on Imports in Tanzania (millions of local currency)

					Total EU imports rise	
		Consumption effects	Trade Creation	Trade Diversion	Including Sensitive Products	Excluding Sensitive Products
All Sectors		**20,899.5**	**27,833.1**	**227,258.4**	**275,990.9**	**161,364.5**
			10%	*82%*		
A-Agriculture, hunting& forestry						
01	Agriculture, hunting	14.6	60.3	4,414.3	4,489.2	739.0
02	Forestry, logging	0	0.0	0.0	0.0	0.0
	sector total	**14.6**	**60.3**	**4,414.3**	**4,489.2**	**739.0**
B – Fishing						
05	Fishing, fish hatcheries & farms	6.4	12.0	30.0	48.4	45.1
	sector total	**6.4**	**12.0**	**30.0**	**48.4**	**45.1**
C - Mining and quarrying						
10	Mining of coal and lignite	0	0.0	0.0	0.0	0
11	Petroleum & natural gas	0	0.0	0.0	0.0	0
12	Mining of uranium & ores	0	0.0	0.0	0.0	0
13	Mining of metal ores	0	0.0	0.0	0.0	0
14	Other mining and quarrying	5.5	3.6	924.5	933.6	808.6
	sector total	**5.5**	**3.6**	**924.5**	**933.6**	**808.6**
D – Manufacturing						
15	Food products and beverages	2,693.4	7,336.7	25,226.7	35,256.8	18,362.7
16	Tobacco products	713.8	0.2	22.2	736.2	713.8
17	Textiles	2,371.7	397.1	24,243.5	27,012.4	2,190.0
18	Wearing apparel,dressing & fur	112.3	375.8	8,176.0	8,664.1	482.9
19	Footwear, luggage, handbags	338.4	379.5	11,808.0	12,525.9	6,007.1
20	Wood & products of wood	30.5	312.3	634.5	977.3	947.6
21	Paper and paper products	1,243.8	2,241.7	2,763.4	6,248.8	1,624.4
22	Publishing, printing, recorded	137.1	58.5	978.1	1,173.7	1,166.4
23	Refined Petroleum & nucl fuel	11.8	18.0	9,507.3	9,537.1	9,537.1
24	Chemicals and chemical prodct	1,474.3	3,596.7	10,196.7	15,267.7	12,955.0
25	Rubber and plastics products	1,073.2	1,255.5	13,054.2	15,382.9	4,561.9
26	Other non-metallic minerals	886.0	511.3	8,339.9	9,737.2	9,000.0
27	Basic metals	442.0	909.6	5,344.9	6,696.5	4,539.2
28	Fabricated metal products	998.1	1,539.6	8,123.7	10,661.4	8,694.9
29	Machinery & equipment n.e.c.	2,654.7	2,599.0	14,952.5	20,206.2	20,206.2
30	Office, accounting, computers	57.8	15.8	221.4	294.9	294.9
31	Electrical machinery	2,468.2	3,075.3	13,793.6	19,337.0	19,309.7
32	Radio, TV & communication	277.2	483.1	4,845.7	5,606.0	5,606.0
33	Medical, optical & watches	355.7	246.7	2,306.1	2,908.5	2,908.5
34	Motor vehicles, trailers	2,190.9	1,434.2	47,796.4	51,421.6	20,945.2
35	Other transport equipment	3.6	17.4	8.0	29.0	29.0
36	Furniture; manufacturing n.e.c.	338.6	953.2	9,546.8	10,838.6	9,689.2

sector total	**20,872.9**	**27,757.1**	**221,889.7**	**270,519.7**	**159,771.8**

Source: Authors' calculations

Table A3: Detailed Effects on Tariff Revenue in Malawi (millions of local currency)

	Associated:			Tariff revenue increase	
	with Consumption effects	with Trade Creation	with Trade Diversion	Including Sensitive Products	Excluding Sensitive Products
All Sectors	**-162.572**	**-3.909**	**-610.120**	**-776.600**	**-422.682**
A-Agriculture, hunting& forestry					
01 Agriculture, hunting	-0.082	0.000	-0.022	-0.104	-0.001
02 Forestry, logging	0.000	0.000	0.000	0.000	0
Sector total	**-0.082**	**0.000**	**-0.022**	**-0.104**	**-0.001**
B – Fishing					
05 Fishing, fish hatcheries & farms	-0.292	0.000	-4.475	-4.768	-4.758
Sector total	**-0.292**	**0.000**	**-4.475**	**-4.768**	**-4.758**
C - Mining and quarrying					
10 Mining of coal and lignite	0	0	0	0	0
11 Petroleum & natural gas	0	0	0	0	0
12 Mining of uranium & ores	0	0	0	0	0
13 Mining of metal ores	0	0	0	0	0
14 Other mining and quarrying	-0.117	-0.155	-4.187	-4.460	-4.460
Sector total	**-0.117**	**-0.155**	**-4.187**	**-4.460**	**-4.460**
D – Manufacturing					
15 Food products and beverages	-9.306	-0.136	-45.096	-54.538	0.000
16 Tobacco products	-0.395	0.000	-0.121	-0.516	0.000
17 Textiles	-48.299	-0.046	-116.124	-164.469	-20.532
18 Wearing apparel,dressing & fur	-0.444	-0.249	-9.107	-9.800	-8.857
19 Footwear, luggage, handbags	-1.088	-0.150	-38.823	-40.061	-40.017
20 Wood & products of wood	-0.146	-0.013	-2.838	-2.997	-2.962
21 Paper and paper products	-0.931	-0.085	-4.093	-5.109	-1.317
22 Publishing, printing, recorded	-4.619	-0.180	-5.995	-10.794	-8.912
23 Refined Petroleum & nucl fuel	-1.225	-0.009	-34.703	-35.937	-17.803
24 Chemicals and chemical prodct	-6.395	-0.078	-35.663	-42.136	-41.045
25 Rubber and plastics products	-4.045	-0.152	-55.313	-59.511	-59.513
26 Other non-metallic minerals	-2.155	-0.376	-15.027	-17.558	-17.558
27 Basic metals	-0.225	0.000	-2.590	-2.815	-2.815
28 Fabricated metal products	-2.479	-0.176	-23.814	-26.469	-25.686
29 Machinery & equipment n.e.c.	-18.657	-0.461	-52.345	-71.463	-71.406
30 Office, accounting, computers	-2.726	-0.155	-4.390	-7.270	-7.270
31 Electrical machinery	-15.397	-0.133	-33.625	-49.155	-49.155
32 Radio, TV & communication	-1.968	-0.004	-3.264	-5.235	-5.235
33 Medical, optical & watches	-9.147	-0.077	-2.942	-12.166	-12.166
34 Motor vehicles, trailers	-29.025	-1.157	-99.363	-129.545	-1.491
35 Other transport equipment	-0.176	-0.004	-0.023	-0.203	-0.203
36 Furniture; manufacturing n.e.c.	-3.231	-0.112	-16.177	-19.520	-19.520
Sector total	**-162.080**	**-3.754**	**-601.435**	**-767.269**	**-413.463**

Source: Authors' calculations

Table A4: Detailed Effects on Tariff Revenue in Tanzania (millions of local currency)

	Associated: with Consumption effects	Associated: with Trade Creation	Associated: with Trade Diversion	Total EU imports rise: Including Sensitive Products	Total EU imports rise: Excluding sensitive Products
All Sectors	**-18,803.7**	**-3,276.5**	**-32,731.1**	**-54,811.3**	**-32,167.9**
	34%	*6%*	*60%*		
A-Agriculture, hunting& forestry					
01 Agriculture, hunting	-23.9	-13.8	-802.3	-839.9	-101.2
02 Forestry, logging	0	0	0	0.0	0
Sector total	**-23.9**	**-13.8**	**-802.3**	**-839.9**	**-101.2**
B – Fishing					
05 Fishing, fish hatcheries & farms	-7.1	-3.0	-5.8	-16.0	-12.2
Sector total	**-7.1**	**-3.0**	**-5.8**	**-16.0**	**-12.2**
C - Mining and quarrying					
10 Mining of coal and lignite	0	0	0	0.0	0
11 Petroleum & natural gas	0	0	0	0.0	0
12 Mining of uranium & ores	0	0	0	0.0	0
13 Mining of metal ores	0	0	0	0.0	0
14 Other mining and quarrying	-6.8	-0.7	-58.6	-66.0	-32.2
Sector total	**-6.8**	**-0.7**	**-58.6**	**-66.0**	**-32.2**
D – Manufacturing					
15 Food products and beverages	-3,040.1	-1,131.4	-4,960.6	-9,132.2	-5,573.8
16 Tobacco products	-38.7	0.1	-2.8	-41.4	-38.7
17 Textiles	-2,224.3	-56.4	-5,010.1	-7,290.8	-263.5
18 Wearing apparel,dressing & fur	-80.7	-73.8	-1,926.0	-2,080.5	-103.4
19 Footwear, luggage, handbags	-348.1	-70.8	-2,571.8	-2,990.8	-1,571.6
20 Wood & products of wood	-26.4	-71.7	-85.1	-183.2	-157.5
21 Paper and paper products	-1,177.7	-253.0	-357.7	-1,788.4	-906.1
22 Publishing, printing, recorded	-106.2	-9.0	-187.1	-302.3	-295.6
23 Refined Petroleum & nucl fuel	-7.5	-1.6	-88.8	-97.9	-97.9
24 Chemicals and chemical prodct	-1,368.6	-447.3	-1,230.0	-3,045.8	-2,513.1
25 Rubber and plastics products	-1,035.3	-156.3	-2,165.2	-3,356.9	-1,251.8
26 Other non-metallic minerals	-909.1	-73.6	-1,474.6	-2,457.3	-2,344.4
27 Basic metals	-303.8	-69.4	-499.9	-873.1	-540.8
28 Fabricated metal products	-971.6	-145.0	-1,306.6	-2,423.2	-2,142.8
29 Machinery & equipment n.e.c.	-2,496.6	-151.1	-1,121.7	-3,769.5	-3,769.5
30 Office, accounting, computers	-57.8	-1.1	-22.0	-80.9	-80.9
31 Electrical machinery	-1,582.2	-233.8	-1,870.9	-3,686.9	-3,678.6
32 Radio, TV & communication	-150.0	-103.8	-710.2	-964.0	-964.0
33 Medical, optical & watches	-262.0	-17.7	-197.3	-477.1	-477.1
34 Motor vehicles, trailers	-2,206.6	-87.0	-4,480.6	-6,774.1	-3,453.0
35 Other transport equipment	-2.5	-0.7	-1.3	-4.5	-4.5
36 Furniture; manufacturing n.e.c.	-370.1	-104.6	-1,594.0	-2,068.7	-1,793.8

Sector total	**-18,765.9**	**-3,259.0**	**-31,864.4**	**-53,889.4**	**-32,022.3**

Source: Authors' calculations

Table A5: Detailed Effects on Welfare in Malawi (millions of local currency)

	Associated:			Net welfare	
	with Consumption effects	with Trade Creation	with Trade Diversion	Including sensitive products	Excluding Sensitive Products
All Sectors	**13.957**	**61.826**	**-805.648**	**-729.866**	**-429.436**
A-Agriculture, hunting& forestry					
01 Agriculture, hunting	0.001	0.000	-0.032	-0.030	0.000
02 Forestry, logging	0.000	0.000	0.000	0.000	0
sector total	**0.001**	**0.000**	**-0.032**	**-0.030**	**0.000**
B – Fishing					
05 Fishing, fish hatcheries & farms	0.033	0.000	-4.463	-4.430	-4.428
sector total	**0.033**	**0.000**	**-4.463**	**-4.430**	**-4.428**
C - Mining and quarrying					
10 Mining of coal and lignite	0	0	0	0	0
11 Petroleum & natural gas	0	0	0	0	0
12 Mining of uranium & ores	0	0	0	0	0
13 Mining of metal ores	0	0	0	0	0
14 Other mining and quarrying	0.006	1.121	-10.520	-9.393	-9.393
sector total	**0.006**	**1.121**	**-10.520**	**-9.393**	**-9.393**
D – Manufacturing					
15 Food products and beverages	0.450	8.364	-49.010	-40.196	0.000
16 Tobacco products	0.006	0.265	-0.138	0.134	0.000
17 Textiles	5.674	5.654	-143.074	-131.746	-38.948
18 Wearing apparel,dressing & fur	0.078	4.426	-27.760	-23.256	-23.091
19 Footwear, luggage, handbags	0.150	9.105	-55.779	-46.524	-46.522
20 Wood & products of wood	0.007	0.399	-5.652	-5.245	-5.227
21 Paper and paper products	0.032	0.466	-4.426	-3.928	-0.867
22 Publishing, printing, recorded	0.202	0.114	-5.341	-5.025	-3.529
23 Refined Petroleum & nucl fuel	0.011	0.439	-45.010	-44.560	-1.077
24 Chemicals and chemical prodct	0.230	13.859	-37.949	-23.860	-22.883
25 Rubber and plastics products	0.290	8.138	-92.243	-83.815	-83.815
26 Other non-metallic minerals	0.153	0.570	-13.310	-12.587	-12.587
27 Basic metals	0.021	0.044	-5.143	-5.078	-5.078
28 Fabricated metal products	0.187	1.982	-38.434	-36.264	-35.409
29 Machinery & equipment n.e.c.	1.202	1.716	-71.065	-68.146	-68.097
30 Office, accounting, computers	0.266	0.057	-3.016	-2.693	-2.693
31 Electrical machinery	1.511	0.689	-38.494	-36.294	-36.294

32	Radio, TV & communication	0.048	0.046	-2.400	-2.306	-2.306
33	Medical, optical & watches	1.295	0.064	-9.458	-8.099	-8.099
34	Motor vehicles, trailers	1.704	2.746	-124.032	-119.581	-2.149
35	Other transport equipment	0.010	0.026	-0.105	-0.069	-0.069
36	Furniture; manufacturing n.e.c.	0.388	1.537	-18.796	-16.871	-16.871
	sector total	**13.916**	**60.706**	**-790.633**	**-716.012**	**-415.615**

Source: Authors' calculations

Table A6: Detailed Effects on Welfare in Tanzania (millions of local currency)

		Associated:			Total EU imports rise	
		with Consumption effects	with Trade Creation	with Trade Diversion	Including sensitive products	Excluding Sensitive products
All Sectors		**1,707.6**	**3,917.6**	**-34,628.2**	**-29,003.1**	**-14,438.9**
A-Agriculture, hunting& forestry						
01	Agriculture, hunting	1.7	15.2	-676.2	-659.2	-157.6
02	Forestry, logging	0	0	0	0	0
	sector total	**1.7**	**15.2**	**-676.2**	**-659.2**	**-157.6**
B – Fishing						
05	Fishing, fish hatcheries & farms	0.8	3.0	-7.5	-3.7	-4.1
	sector total	**0.8**	**3.0**	**-7.5**	**-3.7**	**-4.1**
C - Mining and quarrying						
10	Mining of coal and lignite	0	0	0	0	0
11	Petroleum & natural gas	0	0	0	0	0
12	Mining of uranium & ores	0	0	0	0	0
13	Mining of metal ores	0	0	0	0	0
14	Other mining and quarrying	0.5	0.5	-95.6	-94.6	-70.2
	sector total	**0.5**	**0.5**	**-95.6**	**-94.6**	**-70.2**
D – Manufacturing						
15	Food products and beverages	258.2	1,288.7	-6,236.3	-4,689.5	-2,793.0
16	Tobacco products	219.6	-0.1	-13.6	205.9	219.6
17	Textiles	257.3	74.5	-5,002.1	-4,670.3	-262.3
18	Wearing apparel,dressing & fur	12.8	76.7	-1,728.0	-1,638.5	-103.4
19	Footwear, luggage, handbags	40.8	80.5	-2,449.5	-2,328.2	-922.4
20	Wood & products of wood	3.1	76.4	-133.5	-54.0	-57.0
21	Paper and paper products	88.8	253.6	-368.8	-26.4	42.8
22	Publishing, printing, recorded	9.9	7.7	-147.2	-129.6	-130.2
23	Refined Petroleum & nucl fuel	0.1	0.2	-129.7	-129.3	-129.3
24	Chemicals and chemical prodct	81.9	460.7	-1,795.7	-1,253.1	-454.9
25	Rubber and plastics products	87.3	180.3	-1,817.7	-1,550.1	-284.6
26	Other non-metallic minerals	82.8	92.2	-1,534.2	-1,359.2	-1,234.3
27	Basic metals	27.5	114.3	-727.2	-585.5	-428.2
28	Fabricated metal products	68.3	212.2	-1,223.4	-942.8	-840.1

29	Machinery & equipment n.e.c.	142.8	226.0	-1,532.5	-1,163.6	-1,163.6
30	Office, accounting, computers	2.2	1.2	-17.0	-13.5	-13.5
31	Electrical machinery	169.5	353.6	-2,597.0	-2,073.9	-2,066.2
32	Radio, TV & communication	21.3	78.6	-762.7	-662.8	-662.8
33	Medical, optical & watches	17.4	27.5	-226.3	-181.4	-181.4
34	Motor vehicles, trailers	83.4	102.9	-3,662.5	-3,476.2	-1,429.1
35	Other transport equipment	0.2	1.9	-0.9	1.3	1.3
36	Furniture; manufacturing n.e.c.	29.3	189.1	-1,743.1	-1,524.8	-1,314.3
	sector total	**1,704.6**	**3,898.8**	**-33,848.9**	**-28,245.5**	**-14,206.9**

Source: Authors' calculations

Table A7: Sensitivity analyses – Effects of reciprocity (including sensitive products) (millions of local currencies)

	Malawi			Tanzania		
	Lower	Middle	Upper	Lower	Middle	Upper
(a): Consumption effects (over existing EU imports)	189.8	210.9	231.9	18,809.5	20,899.5	22,989.4
(b): Trade creation	311.3	345.7	378.8	25,050.0	27,833.1	30,615.9
(c): Trade diversion	4,964.2	5,405.9	5,802.4	208,324.6	227,258.4	244,527.8
(d): Overall increase	5,465.2	5,962.5	6,413.1	252,184.1	275,990.9	298,133.2
Lower or Upper / Middle %	*8%*		*8%*	*9%*		*8%*
(f): Total Pre-EPA	76,650.1	76,650.1	76,650.1	1,574,189.1	1,574,189.1	1,574,189.1
(g): Pre-EPA imports from EU	9,240.0	9,240.0	9,240.0	349,146.2	349,146.2	349,146.2
(i): (a) / (f)	0.2%	0.3%	0.3%	1.2%	1.3%	1.5%
(j): (d) / (g)	59.1%	64.5%	69.4%	72.2%	79.0%	85.4%
(k): (a) / GDP	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
(l): (d) / GDP	3.2%	3.4%	3.7%	2.0%	2.2%	2.4%
(m): Overall tariff revenue effect	-730.3	-776.6	-815.8	-52,066.6	-54,817.1	-57,182.1
Lower or Upper / Middle %	*6%*		*5%*	*5%*		*4%*
(n): Net welfare effect	-681.6	-729.9	-768.4	-27,150.4	-28,998.9	-30,458.8
Lower or Upper / Middle %	*7%*		*5%*	*6%*		*5%*
(o): (m) / Pre-EPA tariff revenue	-24.0%	-25.5%	-26.8%	-49.1%	-51.7%	-53.9%
(p): (m) / GDP	-0.4%	-0.4%	-0.5%	-0.4%	-0.4%	-0.5%
(q): (n) / GDP	-0.4%	-0.4%	-0.4%	-0.2%	-0.2%	-0.2%

Source: Authors' calculations