Empirical Analysis of Tariff Line-Level Trade, Tariff Revenue and Welfare Effects of Reciprocity under an Economic Partnership Agreement with the EU: Evidence from Malawi and Tanzania

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Abstract

This paper is the first comprehensive quantitative analysis for Malawi and the first to consider the comparative effects of full and less than full reciprocity for both countries. Moreover, the paper presents results at various levels of product aggregation (lowest aggregation of HS six-digit) to assist identification of products and sectors where effects may be large. Unlike previous studies, this paper considers the "presence" of South Africa in the Southern African Development Community (SADC) – with the approval by the European Union (EU) in December 2006, South Africa abandoned its earlier Trade and Development Cooperation Agreement (TDCA) to renegotiate an economic partnership agreement with the rest of SADC countries including Tanzania. This means reduced trade diversion and increased trade creation, which have important implications for Tanzania's trade and welfare effects.

Applying a partial equilibrium model to recent trade and elasticities data, the study finds that reciprocity will have welfare-enhancing consumption and trade creation effects but these will be overshadowed by strong welfare-lowering trade diversion and tariff revenue losses leading to non-negligible net welfare losses. The rise in Malawi's (Tanzania's) imports from the EU will represent 3.4% (2.2%) of gross domestic product (GDP); tariff revenue will fall by 26% (52%), net welfare loss will be the equivalent of 0.4% (0.2%) of GDP, and losses of imports from the ESA (SADC) (thus undermining regional integration drives) will amount to 0.2% (0.23%) of GDP in Malawi at 2003 prices (Tanzania, at 2004 prices). Excluding the so-called "sensitive" products reduces the effects, but significant import growth, tariff revenue and net welfare losses persist. The effects point to major adjustment costs for which the two countries will require assistance for policy and institutional reforms to be able to deal with the adjustment pressures, improve efficiency (e.g., collection of non-trade tax revenues) and facilitate reallocation of resources from contracting to expanding sectors.

Keywords: African, Caribbean and Pacific/European Union; Cotonou Agreement; economic partnership agreement; reciprocity; Malawi; Tanzania

JEL codes: F13; F14; F15; O24; O55

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1. Introduction

Malawi and Tanzania are members of the African, Caribbean and Pacific (ACP) group of countries currently engaged in negotiations with the European Union (EU) to establish a new framework for cooperation in trade and development – the economic partnership agreement (EPA). EPAs will replace the existing Cotonou Agreement, which was successfully challenged at the World Trade Organization (WTO) because its discriminatory non-reciprocal preferential market access (duty-free for most goods and special product protocols, for example, on bananas, rice and sugar) granted only to ACP countries is incompatible with the "Enabling Clause" of the General Agreement on Tariffs and Trade (GATT). The Enabling Clause of GATT expects similar treatment of members of the same level of development (e.g., some least developed Latin American and South Asian countries).

In addition to the problem of incompatibility with WTO rules, the existing EU-ACP economic cooperation had fallen short of expectations. Preferences notionally granted under the Lomé Convention are deemed to have failed to prevent the marginalization of the ACP countries in the world trading system on a number of counts. Panagariya (2002) amongst others cites the tendency of preferences to be unsuited to creating incentives for commitment to reform in the beneficiary countries once preferences are guaranteed. Perhaps the more compelling reason for failure of the preferences and indeed other trade measures in general is that until recently little or no serious attention had been paid to the extensive structural rigidities and supply-side constraints facing ACP and other least developed economies. Because of this, ACP countries are focusing more on the development dimension of the EPAs rather than the EU focus on trade aspects and rules in the context of trade related issues. ACP and other least developed and developing countries have also successfully campaigned to make the Doha Round a "development round".

EPA negotiations were formally launched in 2002 and were scheduled to run until 2007. From 2008 groups of ACP countries are expected to sign EPAs with the EU and start implementing the EPA over a period of at least ten years or a little longer.[1] Under EPAs groups of ACP countries will reciprocate the EU's preferential (duty-free) treatment and form free trade areas (FTA) with the EU.[2] The ongoing negotiations are addressing a number of issues, including the scope and scale of liberalization (i.e., asymmetry in product coverage, longer transition period), adjustment and long-term development support, initiatives to improve export supply capacity and trade facilitation, and technical capacity building in trade policy analysis. Also in focus are measures to safeguard ACP countries' export and industrial development interests, curtail preference erosion, and

reduce the scale and usage of non-tariff measures or technical barriers in the EU that partly limit ACP countries' access to the EU markets and trade remedial measures.

The objective of this paper is to contribute to the policy discussion on securing the best deals for ACP countries entering economic partnership agreements with the EU using the cases of Malawi and Tanzania, two least developed African countries. The contribution of the paper is in four main respects. First, it is the first comprehensive quantitative analysis for Malawi.[3] Second, it is the first to consider the comparative effects of full and less than full reciprocity for both countries. Third, it carries out the analyses and presents findings at a detailed product level. This helps identification of some of the most affected products with respect to tariff revenue losses, net welfare and import effects. Some of these products may be considered for the "sensitive" product status, either exempted from liberalization or liberalized more gradually or with specific adjustment provisions. Fourth, unlike previous studies this paper treats South Africa as part of the Southern African Development Community (SADC) in the EPA negotiations.

This last development is significant for Tanzania and other non-SACU (Southern Africa Customs Union)[4] SADC countries negotiating the EPA. South Africa (and by default the BLNS countries – Botswana, Lesotho, Namibia and Swaziland) previously signed a separate trade and development cooperation agreement (TDCA) with the EU that excluded some of the SADC membership, and was not part of the SADC group negotiating EPAs with the EU. In December 2006 South Africa and the EU agreed to abandon the TDCA and allow South Africa to join the SADC-EPA group. The presence of South Africa in the SADC EPA bears different implications for welfare and tariff revenue effects for Tanzania and other SADC EPA countries. We comment on the implications where we outline the regional economic blocs that the two countries participate in.

The rest of the paper is organized as follows. First we present an overview of the salient issues in the EPA negotiations, and trade policy and liberalization in the ESA and SADC where Malawi and Tanzania, respectively, are participating in EPA negotiations with the EU. Section 3 briefly surveys the empirical analyses of the likely effects of EPAs, while Section 4 presents the countries' patterns of imports and tariff revenue. The empirical methodology and data used in the paper are discussed in Section 5. Empirical results and their interpretation are reported in Section 6. Finally, Section 7 presents the main conclusions and policy implications of the findings.

2. Overview of main issues in EPA negotiations and participation in regional economic blocs

For ACP countries EPA negotiations are guided by the principles set out in the communiqué, "ACP Guidelines for the Negotiations of Economic Partnership Agreements" (ACP Secretariat, 2002). Malawi and Tanzania and other ACP countries stress the importance of a sustainable EPA outcome that addresses the following concerns: adjustment costs (for example, tariff revenue losses, which would seriously undermine public expenditure and therefore poverty reduction); de-industrialization, which can worsen unemployment and poverty; and balance of payment crises where import growth outpaces export expansion, which in some ACP countries is limited by severe capacity constraints. Other concerns are the social and political implications; institutional and human resource capacities; and the stability of ACP countries.

The EU's response to the foregoing seems to be to allow the concerned countries not to enter the EPA, but offer them preferential treatment under its Everything But Arms (EBA) initiative. EBA provides preferential access to the EU for LDCs for all products except arms and ammunition, and a few sensitive products (for example, bananas, rice and sugar) for a temporary period. But the EBA is a non-contractual arrangement that may be withdrawn as the EU deems suitable. Its preference margins and associated income transfers will be eroded by the expected reforms of the EU's Common Agricultural Policy (CAP). And among other shortcomings, it has more stringent origin rules and does not come with development funds like the EPA. The EU's offer to non-LDCs seems to be the "less preferential" generalized system of preferences (GSP) available to all developing and least developed countries. The EU is also tabling liberalization of other issues (e.g., government procurement and investment, intellectual property rights, competition policy, trade and labour standards, consumer policy regulation, and health protection), which ACP countries are reluctant to address until they are resolved at the WTO.

The ACP countries also emphasize the need to find means of mitigating the loss of income transfers associated with current preferences. The EU has the largest – and increasing – number of bilateral trade agreements with other non-ACP countries and regions, which tend to erode preferences margins ACP countries enjoy under the preferential arrangement they have with the EU. Preference margins are important for specific products, and given that most ACP countries (including the East African Community – EAC) have high export concentration in a narrow band of export products, the erosion of preference margins on such products has serious implications for export earnings. ACP countries are also negotiating for elimination of the EU's high tariffs, tariff peaks, tariff escalation and the "new" generation of non-tariff barriers, also known

as technical barriers to trade (TBT), which include stringent rules of origin (discussed below), sanitary and phytosanitory controls, and quality standards. As tariffs have come down through a series of unilateral, regional and multilateral liberalization initiatives, non-tariff barriers have gained in prominence. Thus, unless non-tariff barriers are reduced or eliminated where possible, tariff reduction alone will not deliver significant market access. In addition to such considerations, ACP countries are negotiating for support to develop capacity for compliance.

In March 2005 the EU issued a Green Paper on the new rules of origin (ROO) where the goal is to make ROO "simpler and, where appropriate, more development-friendly" (European Commission, 2005: 1). A wide variety of stakeholders[5] consulted is of the view that the present ROO reflect past mercantilist policy aims, and do not correspond either to the global production model of the market or to new manufacturing and processing operations that are currently taking place. From this perspective, the ROO do not reflect technological advances and actual market, trade, industry and agriculture conditions. Furthermore, they are too complex and lack transparency.[6] The major change will be to use a value added test as the starting point for assessing of origin of imports. Further, a limited degree of differentiation is foreseen between sectors and in relation to LDCs, albeit much less than at present where ROO can vary between subsectors and products.

Typical value added in most cases is very low (actually much lower than the EU's existing ROO thresholds) and varies considerably across products and countries. This means that building ROO based on the old vertical model of several stages of manufacturing in one country ignores contemporary production realities where components are sourced from more than one country and multi-final assembly and/or finishing processes constitute the increasingly large value of the final product (Cerrex, 2002). These conditions will make it difficult for the new ROO to be simple, uniform and development-friendly. Where some uniformity has been achieved it is undermined by the multiplicity of increasingly diverse preferential schemes. Further complications arise from the conditions for applying cumulation of origin that aim to support regional economic integration. It is for these reasons that ACP countries should insist on simple and flexible ROO that would allow application of the Change-in-Tariff-Heading (CTH) criteria and low value added thresholds that support employment creation, even if in a few ACP countries.[7]

Regional economic blocs and trade policies

Malawi and Tanzania are members of SADC, which was established by a treaty signed in 1992.[8] Malawi is also a member of the Common Market for Eastern and Southern Africa (COMESA), which harbours the ESA EPA group under which Malawi is negotiating an EPA. Tanzania is also a member of the EAC, which has had two Heads of State Summits (in April 2002 and August 2007) to pave the way for EAC to explore the possibility of negotiating an EPA with the EU as an independent bloc. The EAC became a customs union in January 2005. Despite the 2002 Summit decision, EAC did not actively seek to initiate EPA negotiations and that allowed Tanzania to continue participating in SADC EPA negotiations. In December 2006 the EU accepted South

Africa's request to join the rest of SADC in EPA negotiations and in the process "abandon" the TDCA. Now that South Africa is part of SADC it means that displacement of its exports in Tanzania contributes to trade creation (under the modelling assumption that SADC is generally less efficient than the EU)[9] and not to trade diversion as before, thereby affecting welfare and other outcomes. This is a non-trivial development (considering that South Africa is Tanzania's second most important source of imports after Saudi Arabia – the latter mainly because of petroleum products) and it is not addressed in any earlier studies. Since Malawi is not negotiating an EPA under the SADC EPA group, the presence of South Africa in the SADC EPA group does not affect the extent of import source substitution arising from an EPA for Malawi.

SADC seeks to promote economic integration through intra-regional trade, among others, and has a number of protocols including a trade protocol that guides regional trade liberalization and policy harmonization. A free trade area (FTA) was planned to be launched in 1996, but by 2000 only 11 of the 14 members had ratified the trade protocol and at the time of this study SADC was not yet an FTA. Otherwise, substantial progress has been recorded in harmonization of customs and trade documentation (e.g., certificates of bills of entry and origin rules) and non-tariff barriers have come down. One of the reasons for slow progress is lack of technical capacity to manage trade reforms.

COMESA seeks to deepen and expand integration among its membership by adopting general measures of trade liberalization – by elimination of all tariffs and non-tariff barriers and setting up a customs union, free movement of goods and factors of production, etc.[10] By April 2007 there were 13 countries participating in the COMESA FTA; the remaining six had reduced their tariffs against partners by 60% to 90% (COMESA, 2007). Following the Summit of Heads of COMESA States in May 2007 in Nairobi (Kenya) the common external tariff (CET) of its future customs union was lowered and aligned to the CET of the EAC customs union where capital goods and raw materials imports are subject to a CET of 0%, intermediate goods at 10% and final goods at 25%.[11] For purposes of negotiating an EPA with the EU, not all COMESA countries are involved as some already have other trade agreements with the EU.

As noted earlier, Tanzania belongs to the EAC as well as to SADC. Re-established by the Treaty of Arusha signed in November 1999, which came into force in July 2000, the EAC comprises the other two original members – Kenya and Uganda – and new members Burundi and Rwanda who acceded in 2007.[12] The protocol establishing the EAC customs union became effective in January 2005 and since then members have undertaken progressive liberalization of intra-regional trade and adopted a CET and rules of origin. EAC's CET has three escalated tariff bands: 0% (for capital and other goods in which the EAC does not have a comparative advantage), and 10% and 25% for intermediate and final goods, respectively. Trade liberalization in the EAC is asymmetrical to deal with the differences in the state of industrial development, revenue considerations and the general level of development of the members – Kenya is a developing country whereas the rest are least developed countries. All goods from all other EAC countries are exported to Kenya duty-free, but some of Kenya's exports to the former are still subject to import duties. Tanzania and Uganda liberalized all trade between each other, while all tariffs against Kenya's exports will be eliminated gradually until 2010. Rwanda has liberalized almost all trade with Burundi and Kenya under the COMESA FTA.

Rwanda has a bilateral trade agreement with Uganda to cut tariffs between them by 80%, and Tanzania was granted a similar offer on the basis of the most-favoured-nation (MFN) principle (Zgovu, 2007). The rest of the trade with Uganda (Tanzania) will be liberalized under the COMESA customs union (EAC Customs Union) by June 2009. Clearly, the EAC has made the most significant progress towards trade liberalization and regional integration compared with COMESA and SADC.

So far, EAC countries have participated in EPA negotiations under two different regional economic communities. Tanzania is in the SADC EPA while the rest of EAC countries are in the ESA EPA. Interestingly, the COMESA summit of May 2007 aligned COMESA's CET to the CET of the EAC Customs Union; more importantly the 6th Extraordinary EAC Summit (held in Arusha on 20 August 2007) "recalled" its April 2002 summit decision and agreed that the EAC would explore the possibility of negotiating an EPA with the EU. If the EAC signs an EPA with the EU this will have some important implications for the content and European Development Fund (EDF) resources available to ESA, SADC and EAC, as EAC countries pull out of the ESA and SADC EPAs. More crucially for purposes of our study, the implications for Tanzania of reciprocity (especially at product level) in an EPA with the EU will be different. Such implications have been considered before (see McKay et al., 2005; Zgovu and Milner, 2007). Unlike McKay et al., Zgovu et al. extend the list of EAC countries to include Burundi and Rwanda and apply information on sensitive products, hence analysing the effects of "full" and "less than full" liberalization.

Both Malawi and Tanzania thus belong to more than one regional economic community, with each bloc developing into a customs union and each bloc serving as a vehicle for reaching continental integration guided by the African Union (AU). However, this multiplicity of membership in more than one regional economic community bloc has posed problems for the EU approach to regional integration – it appears the EU sees rules as the basis for building regional integration. While it is true that the EPAs concern ACP countries and not just African countries, it is desirable that EPAs should support the existing regional and continental integration infrastructure, most of which has reached advanced stages and recorded impressive achievements (e.g., in trade growth).

3. A survey of the empirical literature

Theoretical analyses of the effects of preferential trading agreements for the case of a small developing country have been offered in a number of articles inspired by Viner (1950). Among recent analyses are those by Panagariya (1998), Greenaway and Milner (2003), and McKay et al. (2005). Rather than dwell on the theoretical intuition, our paper concentrates on the growing body of empirical evidence on the likely effects of EPAs on ACP countries in general and the study countries and surrounding regions in particular. Before presenting the empirical evidence it is worthwhile to bear in mind the methodological issues involved.

Table 1 summarizes some of the studies of both dynamic and static effects of liberalization. Studies analysing dynamic effects are denoted by "e" and "f"; static effects studies are denoted by "c" and "g"; those that covered both are denoted by "a". 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 the aggregate sector and economy level. Some studies find trade impact of an EPA is likely to be broadly positive (that is, trade creation to outweigh trade diversion), but there will be negative fiscal effects and net welfare losses for some countries and gains for others.

McKay et al. (2005) consider the possibility of an EPA between the EU and the EAC and concluded that all three African countries would suffer large revenue losses. Only Uganda was likely to experience a net welfare gain and Kenya would lose some of its share in Tanzanian and Ugandan markets. Zgovu and Milner (2007) provide a detailed analysis of the trade and welfare effects of reciprocity (and multilateral liberalization of non-agricultural products) on Tanzania. They find that an EAC EPA with the EU will increase imports from the EU by 84%, an overwhelming proportion of which would be due to trade diversion from the rest of the world – which in this case includes South Africa. Tariff revenue is estimated to fall by 54%, accompanied by a net welfare loss of Tsh35,659 million.

Busse et al. (2004) study the potential impacts of an EPA on ECOWAS countries and find that they would experience an absolute decline of US$2.2 million. Welfare losses will be large for Ghana and Nigeria and tariff revenue losses will be highest in The Gambia and Cape Verde. Tekere and Ndlela (2003) examine the effects of SADC-EU EPA on SADC countries using partial equilibrium analysis and showed that an EPA will lead to significant loss of government tax revenue given the significant tariff revenue collected on imports from EU. The study shows that tariff revenue collections in Tanzania and Namibia will decrease by 37% and 24%, respectively. However, the study also showed that trade creation will outweigh trade diversion. Keck and Piermartini (2005)

Table 1: Effects of EPAs on ACP countries

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)

Notes: [a] Karingi et al. (2005); [b] Busse et al. (2004); [c] Zgovu et al. (2004); [d] McKay et al. (2005); [e] Zgovu and Milner (2007); [f] Tekere et al. (2003) and Keck et al. (2005); [g] Gasiorek and Winters (2004), and Greenaway and Milner (2003); [h] Roza et. al. (2003).
Source: Adapted from Calì and te Velde (2006: Table 1).

used a computable general equilibrium (CGE) model of 15 regions and 9 sectors within the General Trade Analysis Project (GTAP) framework to simulate the impact of EPAs on 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 liberalization. Most gains will occur in such sectors as animal agriculture and food processing.

All studies agree that tariff revenue losses will be substantial for both countries, although Karingi et al. (2005) report welfare gains to Malawi (US$2.1 million) and Tanzania (US$8.2 million). In contrast, 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. It seems plausible that for small economies that have insignificant intra-regional trade and depend heavily 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 in favour of the EU.

4. Patterns of imports and tariff revenue

The structure of imports of our study countries is reported in Table 2. Total imports account for 44% of GDP in Malawi but only 13% in Tanzania (much less than the average of 25% for ACP countries). Both countries recorded high concentration ratios of imports in a few commodities: 5% of the 3,609 (4,236) six-digit Harmonized System (HS) tariff lines accounted for 73% of Malawi's imports and 72% of Tanzania's. The rest of the world (ROW) is the most important source of imports for both countries, but Tanzania has a higher proportion of imports from the EU (22%) than Malawi (12%), so under an EPA Tanzania has greater potential for consumption gains (increased cheaper imports from the EU), but trade diversion is likely to be higher in Malawi. The main ROW countries (for purposes of an EPA) for Tanzania are Kenya (fellow member of the EAC Customs Union) and Saudi Arabia, while South Africa (outside the ESA group) is Malawi's single most important imports supplier. South Africa and Kenya have comparative advantages in a number of products exported within the regions; given their proximity (i.e., lower transport costs) to Malawi and Tanzania, respectively, vis-à-vis the EU they may be able to retain much of their market share under an EPA.

Table 2: Imports by range of import duty collection rates (effective tariffs) in millions of local currency

Range of duty rate	From EU	Share (%)	From REGION	Share (%)	From ROW	Share (%)	Total† imports	Share (%)
Malawi								
0%	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% + above	1.8	*0*	1.8	*0*	23.8	*0.04*	27.4	*0.04*
Total	**9,240.0**	***100***	**9,110.4**	***100***	**58,299.7**	***100***	**76,650.1**	***100***
Tanzania								
0%	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% + above	936.0	*0.3*	1,720.8	*1*	9,263.8	*1*	11,920.6	*1*
Total	**349,146.2**	***100***	**197,042.2**	***100***	**1,028,000.7**	***100***	**1,574,189.1**	***100***

Source: Authors' simulations.

For both countries large shares of imports entered at zero or low rates of tariffs; 91% of Malawi's and 63% of Tanzania's imports from the EU were subjected to tariffs set at less than 10%. This indicates that the effect of reciprocity on imports and tariff revenue from the EU will be limited, especially for Malawi. However, the relative importance of the rest of the world as the major source of imports (and tariff revenue) means that there will be greater potential for welfare-lowering trade diversion than welfare-improving trade creation.

Table 3 shows that although large proportions of all types of imports were subjected to low tariff (less than 10%), there is some evidence of tariff escalation especially for Tanzania (45% of final goods faced moderate to high tariffs). Some of the tariff lines with high tariffs can be considered candidates for the list of sensitive products where rates are high on products with relevant import-competing production. The total import values across different types of imports show that for both countries large shares of imports are for use in production as capital goods, raw materials and intermediate goods. A further examination of the imports data showed that the EU out-supplied the regions (ESA and SADC) in which the countries are negotiating EPAs for all categories of imports except raw materials and intermediate goods for Malawi and raw materials for Tanzania. The ESA and SADC regions boast some comparative advantage in the supply of raw materials and intermediate goods, especially in agro-processing. If the EU displaces such intra-regional trade under an EPA, the implication is a welfare gain for Malawi and Tanzania (trade creation) but a loss for Kenya and South Africa, among the main existing exporters to Tanzania and Malawi, respectively.

Table 3: Distribution of selected import categories by range of import duty collection rates (effective tariffs)

Range of duty rate	Capital goods	Raw materials	Intermediate inputs	Final goods	Total
Malawi					
0%	*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% + above	*0*	*0*	*0*	*0*	*0*
	100%	*100%*	*100%*	*100%*	*100%*
Imports value (Mk millions)	**22,063.7**	**18,752.8**	**21,355.0**	**14,478.5**	**76,650.1**
Category share (%)	29	24	28	19	100
Tanzania					
0%	*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% + above	*0*	*3*	*0*	*1*	*1*
	100%	*100%*	*100%*	*100%*	*100%*
Imports value (Tsh millions)	**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' simulations.

Trade tax revenue accounted for 41% of total fiscal revenue in Tanzania and 39% in Malawi. However, tariff revenue accounted for significant proportions of tax revenue only in Tanzania: tariff revenue of Tsh106 billion (the equivalent of US$97.3 million at 2004 prices) accounted for 26% of trade tax revenue and 10% of total fiscal revenue. Malawi's tariff revenue of 3,044 million Malawi kwacha (Mk) (the equivalent of US$39.7 million at 2003 prices) represented 21% of trade tax revenue and 8% of total fiscal revenue. Tariff revenues on imports from the EU accounted for just 5% of total tariff revenue in Malawi but 18% in Tanzania. Thus, Tanzania's tariff revenue base looks likely to be more negatively affected by an EPA than Malawi's. For both countries imports from the rest of world generated the largest shares of tariff revenue, and this means that greatest impact on tariff revenue is likely to be associated with trade diversion. Tanzania collects a non-negligible 12% of tariff revenue on imports from regional partners.

5. Empirical methodology

Under existing and past trade agreements between the EU and ACP countries, a large number (but not all) of ACP exports entered EU 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. 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 effect is unambiguously welfare-raising for Malawi and Tanzania. However, the consumer gains come in part at the expense of the government of the importing country whose tariff revenue from the existing imports is lost completely and that from the additional imports brought about by the EPA is forsaken.

Of course, Malawi and Tanzania import goods from other than the EU before the EPA comes into operation. The alternative sources are fellow regional partners and the rest of the world. Let us assume, not too unrealistically, that the region's (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) were 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 is negative. Tariff-liable imports from ROW are replaced by tariff-free imports from the EU.

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 GTAP, which is a multi-product and multi-country CGE model. Owing to lack of data

disaggregation, however, 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. McKay et al. (2005) correctly point 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 our study deals with clearly renders CGEs unsuitable.

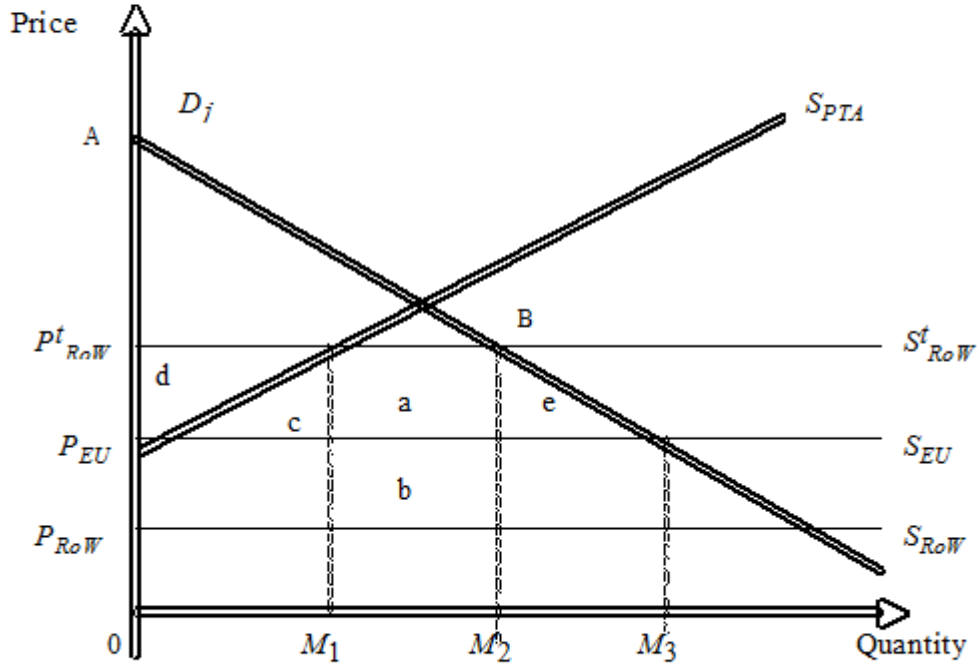
In light of such problems we adopt a partial equilibrium modelling framework as it is less data-intensive and can capture effects on import, tariff revenue and welfare at the product level, among others. The major shortcoming of the partial equilibrium models is that they cannot measure the dynamic effects or second-round effects such as interactions between sectors. A couple of partial equilibrium models have been used in empirical trade analyses, for example, the World Integrated Trade Solution (WITS) SMART model applied in Karingi et al. (2005) and the McKay et al. (2005) model. Both models have the same Vinerian theoretical intuition. Our study follows the McKay et al. (2005) approach, but we provide generalizations for the measurement of the effects where there is more than one episode of tariff reduction. Import and tariff revenue effects are principally measured in the same way in both models, but welfare effects in Karingi et al. (2005) capture welfare associated with consumption effects only and are therefore predictably positive. In McKay et al. (2005), welfare effects, as expected, are an ambiguous result of the summation of, on the 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.

McKay et al. (2005) examine the EPA effects for the case of a small home country, j, that 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. Figure 1 illustrates the impact of reciprocity.

Country j's demand for imports is represented by the line D_j, and the PTA supplies (export) to country j along the line S_{PTA}. Free trade supply conditions for the ROW are shown by the line S^{*}_{ROW} (a free trade supply schedule for the EU lies anywhere above S^{*}_{ROW}). Under non-free trade conditions country j imposes MFN tariff rates on imports from the EU and ROW, thus $P^{*}_{EU} = P_{EU}(1 + t^{MFN}_{j})$ and $P^{*}_{ROW} = P_{ROW}(1 + t^{MFN}_{j})$. Initial cost conditions ensure that $P^{*}_{ROW} = P^{*}_{EU}$ (for expositional simplicity we do not show P^{*}_{EU} in the graph). This price differential will bear both trade creating and trade diverting effects if country j adopted discriminatory "preferential" trade policies towards the EU. The relevant tariff-inclusive supply line is S^{*}_{ROW} and the resulting total imports for country

j is $0M_2$, being the sum of imports $0M_1$ from the PTA and M_1M_2 from ROW. Country j's supply capability is ruled out for simplicity and therefore we can study welfare effects in country j using consumers' surplus with respect to the import demand schedule D_j given as area of the triangle AEP^t_{RoW} plus the tariff revenue on extra-regional imports (area $(a + b)$).

Figure 1: Illustrating the impact of reciprocity in an EPA



Now assume country j and its PTA partners enter an EPA with the EU in which imports from the EU enter the PTA duty-free. Imports from ROW continue to be subjected to import tariffs. Suppose the EPA reduces the price of imports from the EU to a level such as P_{EU} lying anywhere below P'_{RoW} (but above free trade P_{RoW}). Post EPA, P_{EU} becomes the relevant supply line that allows total imports to expand from $0M_2$ to $0M_3$ and all of that comes from the EU only. Total import volume can be broken into three distinct components: the increase in import volume M_2M_3, which is a pure consumption expansion effect; M_1M_2 diverted from ROW; and $0M_1$ displaced from the PTA. In technical terms, $0M_1$ represents "trade creation" arising from the displacement of relatively inefficiently produced PTA goods by the relatively efficiently produced EU goods (although the EU is not the most efficient globally). M_1M_2 is "trade diversion" as it represents the volume of imports from the relatively inefficient EU producers displacing imports from the relatively efficient (least constant cost) ROW producers (this is diversion between extra-regional suppliers).

At the price level P_{EU} there is a resource loss equal to the potential maximum tariff revenue $a + b$ as imports from the EU enter duty-free. Trade creation brings about a

global resource-saving effect given by area *c* and relocation of producers' surplus area *d* in the PTA to consumers, both of which increase consumers' surplus by area *c* + *d*. Adding together the welfare-increasing expansion in consumer's surplus, pure consumption effect (area *e*) and trade creation, on the one hand, and welfare-decreasing trade diversion effects, that is, (*c* + *d* + *e* - *b*) , on the other hand, means that the net welfare effect is ambiguous, depending on the relative strengths of either force. It is clear that the more efficient the EU is, the smaller the trade diversion and hence the greater the probability of a welfare-improving EPA.

The import, tariff revenue and welfare effects can be estimated as set out below. The consumption effect component of import effects can be measured using the elasticity of import demand function – in this case the changes in the import prices are assumed to be caused by changes in ad valorem import tariffs:

$$\Delta M_c = \left[\frac{-t_n^{EU}}{1+t_n^{EU}}\right].e_M^D.M_n^{EU} \tag{1}$$

where t_n^{EU} is the MFN tariff rate imposed on imports from the EU in the present period *n*, e_M^D is elasticity of demand for imports, and M_n^{EU} is imports from EU.

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

$$\Delta M^k = \left[\frac{-t_n^{EU}}{1+t_n^{EU}}\right].\sigma_k^{EU}.M_n^k \tag{2}$$

where $0 \le \sigma_k^{EU} \le 1$ is elasticity of substitution between imports from the EU and those from the PTA (*k* = PTA, in which case Equation 2 measures welfare-raising switching of imports from relatively less efficient suppliers from the PTA to more efficient suppliers from the EU) and from the rest of the world (*k* = ROW; here Equation 2 captures a welfare-lowering switch of source between relatively less efficient EU and the relatively more efficient ROW).[13] M^k is the quantity of imports from region *k*. Source substitution away from the PTA or ROW implies that $\Delta M^k \le 0$.

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 tariff revenue lost on imports shifted from the tariff-paying PTA and ROW sources to EU sources. This can be represented as:

$$\Delta R = t_n^{EU}\left(-M_n^{EU} + \Delta M^{PTA} + \Delta M^{RoW}\right) \tag{3}$$

The welfare effects associated with the import and revenue effects are estimated using the expression:

$$\Delta W = t_n^{EU}\left(\tfrac{1}{2}\Delta M_C + \Delta M^{PTA} + \Delta M^{RoW}\right) \tag{4}$$

where the first term captures the welfare-raising effects of consumption effects stemming from cheaper duty-free prices. The second term measures the welfare-improving effects of 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.

6. Empirical results

The methodology set out above was applied to six-digit HS import and effective tariff[14] data for 2003 and 2004 for Malawi and Tanzania, respectively. The data were provided by the statistical offices in the two countries. Import data were later checked for consistency with data available from the World Bank. 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 the six-digit tariff line level and aggregated for final reporting purposes by either ISIC two-digit or the broad sectors (agriculture, fishing, mining and quarrying and manufacturing). Summary result tables presented in the main text are extracted from the detailed tables set out in Appendix A (tables A1–A6).

We present results based on instantaneous tariff elimination for all products and tariff elimination for non-sensitive products. Non-sensitive products are determined from the tariff elimination schedules made by both countries in fulfilment of Article 4 ("Elimination of Import Duties") of the SADC Protocol on trade in goods. Since these are lists for SADC purposes it is likely that they will differ from the lists Malawi and Tanzania will submit for purposes of EPA negotiations. In the absence of lists for EPA negotiations we use the submissions to SADC as reasonable first approximations of the sensitive products in EPA negotiations. The results generated provide an important qualitative guide on the likely direction and implications of liberalizing all and also excluding sensitive products.

Import effects

Tables 4 through 7 report the import effects of instantaneous elimination of tariffs on imports from the EU. Table 4 shows that Malawi's imports will increase by Mk5,962 million over the 2003 imports of Mk9,240 million if tariffs on all imports are eliminated (a 65% increase). Excluding sensitive products leads to a relatively smaller increase of Mk3,783 million (41%). The bulk of the overall increase is due to source substitution from the rest of the world (Mk5,406 million, representing 90%). The increase from regional sources (which represents losses by ESA exporters to Malawi) stands at Mk346 million, or US$4.5 million, representing 4%, with increased imports from the EU accounting for the remaining 6%. Karingi et al. (2005: 65) estimate higher trade creation of US$15 million for Malawi, but like this study conclude that trade creation will be far less than trade diversion from the rest of the world (Mk5,406 million). The "new" imports

from the EU of Mk211 million (if all products are included) represent a small proportion of 0.3% over existing total imports (Mk76,650 million); the proportion is even smaller at 0.1% if sensitive products are excluded.

Table 4: EPA effects on imports in Malawi (millions of local currency)

				Total EU imports rise	
Sector	**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**	**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**	**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' simulations.

Estimates for Tanzania show a similar pattern. Table 5 reports that Tanzania's imports from the EU will increase by 79% (or Tsh275,991 million) relative to existing 2004 imports from the EU worth Tsh349,146 million at 2004 prices with sensitive products included, but by a lower proportion of 46% if sensitive products are excluded. As for Malawi, a large proportion of this increase will be due to substitution away from existing sources in the region (here SADC's export losses to Tanzania are worth Tsh27,833 million) and especially the rest of the world (estimated at Tsh227,258 million, over 90% of the total, which represents costly trade diversion) rather than additional new trade (estimated at Tsh20,900 million). Imports from the EU account for only 1% of the increase. As in the case of Malawi, the Karingi et al. (2005) estimates of trade creation for Tanzania are optimistic – US$63.5 million – but more importantly these authors also estimate that trade diversion will be greater than trade creation.

Import effects according to broad product category are recorded in Table 6. For both countries, the absolute values show that large proportions of consumption effects and trade diversion will concern capital goods, whilst intermediate and final goods will account for the largest trade creation effects. Raw materials (most of which are duty-

free) will be the least affected in relation to the other products. In relation to existing imports from the EU, final goods (135%) and raw materials (120%) will record the largest growth for Tanzania, while for Malawi the largest growth will be of raw materials (119%) and intermediate goods (86%).

Table 5: EPA effects on imports in Tanzania (millions of local currency)

				Total EU imports rise	
Sector	**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' simulations.

The estimated displacement of imports from ESA and SADC are smaller than displacements from the rest of the world, but they are significant in the context of the existing intra-regional trade flows and specific sectors affected in both countries. The products with significant 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). 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 liberalization (from Mk0.247 million to Mk0.003 million, and Tsh4,489 million to Tsh739 million). As with other commodities, the largest share of the agricultural imports increase will be due to switches away from ROW to the EU. Where EU producers receive domestic support and export subsidies in addition to preferential treatment, this would be clearly welfare-lowering.

Table 6: Malawi and Tanzania import effects (millions of local currency) by import end-use under full reciprocity

Import category	Consumption effects	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' simulations.

Tables B1 (for Malawi) and B2 (for Tanzania) in Appendix B report HS six-digit tariff lines with effective tariffs of not less than 20% showing the largest overall import increase in columns (b) and (c), trade creation (or displaced regional exports) in columns (d) and (e,) and trade diversion (displaced exports from the rest of the world) in columns (f) and (g). Displacement of regional (ESA or SADC) exports in Malawi and Tanzania does not auger well for the pursuit of stronger regional integration, whereas displacement of exports from the rest of the world has welfare-lowering implications as more efficiently produced products from the rest of the world are displaced by less efficiently produced products from the EU. Policy makers could use all the three columns to review their lists of sensitive products including some of the listed products based on the severity of the effects, given their high tariffs (not less than 20%). For example, using the HS two-digit description we can tell the narrower description of HS six-digit code 630900 in Appendix B, Table B1, as falling under Chapter 63 using the first two digits.

Tariff revenue effects

Existing (and new) imports from the EU will be duty-free following full EPA. Consequently there is a 100% loss of tariff revenue on all non-sensitive imports from the EU for the case of instantaneous tariff removal (see tables 7 and 8). 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, but effects on agricultural imports are important in Tanzania.

Table 7: Effects on tariff revenue associated with import effects in Malawi (millions of local currency)

Sector	Consumption effects	Trade creation	Trade diversion	Tariff revenue increase	
				Including sensitive products	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**	**-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**	**-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' simulations.

Tanzania records a substantial overall tariff revenue loss of 52%, a reduction of Tsh54,811 million or the equivalent of US$50.3 million (if all products are treated as non-sensitive) on the existing amount of Tsh106,039 million. Tekere and Ndlela (2003) using a different year's data estimated that the Government of Tanzania's tariff revenue would fall by a smaller margin of 37%. The same authors found a smaller (but still significant) decline of 24% for Namibia and a comparatively smaller (26%) fall of Mk777 million (or US$10 million) for Malawi. Karingi et al. (2005) predicted smaller "optimistic" tariff revenue losses of US$7 million for Malawi and US$32 million for Tanzania. For both Malawi and Tanzania, these are substantial losses of what is a significant element of 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 is partly because of its higher tax on imports from the EU: Tanzania has a larger proportion (20%) of its imports from the EU charged applied tariff rates of "10% and above" than Malawi (5%).

In line with the import effects, if all products are modelled large net revenue losses are estimated to occur in these sectors: food products and beverages, motor vehicles, electrical machinery, machinery and equipment, textiles, and rubber and plastic products. Where there is no relevant import-competing production and tariffs could easily be replaced with excise taxes, then such products do not qualify to be taken as sensitive. Typical examples of products that despite the large revenue effects do not qualify as

sensitive in the context of Malawi and Tanzania are motor vehicles, electrical machinery, machinery and equipment. Tables C1 and C2 in Appendix C report some of the HS six-digit products with effective tariffs of 20% or higher showing the largest total revenue effects under conditions where all tariff lines are included. The lists provide policy makers with valuable information to use to understand the major sources of tariff revenue losses and therefore respond with alternative domestic taxes that could be used to recover tariff revenue losses.

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 earlier. Such revenue losses increase the pressure on 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 that could also be revenue-neutral or revenue-enhancing.

Table 8: Effects on tariff revenue associated with import effects in Tanzania (millions of local currency)

				Tariff revenue increase	
Sector	**Consumption effects**	**Trade creation**	**Trade diversion**	**Including sensitive products**	**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' simulations.

Examples of non-tariff instruments that would assume greater importance in revenue generation are value-added tax (VAT) and other domestic taxes charged on increased imports from the EU, among other commodities. VAT systems are in their infancy stage

in both countries and in any case revenue generation from the taxation systems in place is not at its optimal level because of lack of resources. All these require resources, which Milner (2005) estimates to be □40 million for Malawi and □70 million for Tanzania in EPA-related fiscal adjustment costs. The ESA region would require □825 million, SADC would require □340 million and the EAC (based on Kenya, Tanzania and Uganda) would require □220 million at 2005 prices. It is in the best interest of ACP countries that this and other fiscal reform initiatives be firmly in place before full implementation of reciprocity. Fiscal reforms could involve initiatives to broaden the tax base, redress major shortcomings in tax administration through investment in human resource and information technology, modernize collection and audit procedures, create a tax-compliant culture, and strengthen 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.

Welfare effects

Welfare effects are reported in Table 9. The study estimates net welfare losses of MK793 million in Malawi and Tsh29,003 million in Tanzania. The losses mainly arise because the relatively large substitution of imports away from the lowest cost producer, ROW, to the EU, outweighs the welfare-raising consumption effects of Mk14 million and Tsh34,628 million (due to cheaper duty-free imports from the EU). Also contributing to the loss is substitution away from the relatively high cost regional producers (relative to EU producers) worth Mk62 million at 2003 prices and Tsh3,918 million at 2004 values in Malawi and Tanzania, respectively. Excluding sensitive products significantly reduces the loss, but there will still be net welfare losses of Mk426 million in Malawi and Tsh14,439 million in Tanzania. Karingi et al. (2005) report that reciprocity will bring welfare gains to Malawians estimated at US$2 million and US$8 million to Tanzanians. As stated earlier, this finding is based on welfare effects associated with consumption effects only, which in our study are estimated to be much smaller, equivalent to US$0.2 million for Malawi and US$1.6 million for Tanzania.

Appendix A, tables A5 and A6, record major net welfare losses for food products and beverages, motor vehicles, electrical machinery, and footwear, luggage and handbags in Tanzania; and for textiles, motor vehicles, rubber and plastic products, machinery and equipment, and footwear, luggage and handbags in Malawi. The top 50 Malawi import products with net welfare gain and net welfare loss are reported in Appendix D, tables D1 and D2, respectively, while tables D3 and D4 report similar results for Tanzania. It is clear that for both countries net welfare losses dominate net welfare gains among the highest ranked products. More importantly, reciprocity will have a clear adverse effect on the welfare of low income households as import products such as used clothing and food items (maize or corn, milk, whole grain rice) largely consumed by households are more prevalent in the lists of top net welfare loss than the lists of net welfare gains.

Both countries record welfare losses irrespective of whether sensitive products are excluded, but excluding such products does reduce the severity of the 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.

Table 9: Effects on welfare associated with trade effects in Malawi and Tanzania (millions of local currency)

Sector	Due to consumption effects	Due to trade creation	Due to trade diversion	Net welfare	
				With sensitive products	Excluding sensitive products
Malawi					
Agriculture	0.001	0	-0.032	-0.030	0
Fishing	0.033	0	-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' simulations.

This source substitution-induced net welfare loss outweighs the welfare benefits of cheaper duty-free imports from the EU and displaced imports from the regions that are produced at a relatively higher cost than for 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, and □40 million and □65 million for Tanzania.[15]

Relative significance of the effects of the reciprocity and sensitivity analysis

Table 10 summarizes the importance of the import, tariff revenue and net welfare effects in relation to gross domestic product (GDP) in the Malawian and Tanzanian economies. Liberalizing all products including sensitive ones leads to additional imports that are the equivalent to 0.1% and 0.2% of Malawi's (Mk173,468 million) and Tanzania's (Tsh12,321,157 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 record greater import source substitution to the EU from non-EU sources and greater net welfare losses in relation to GDP than Tanzania. Tanzania's effects in tariff revenue losses will be almost twice as much as Malawi's losses in relation

to pre-EPA tariff revenue. In relation to GDP, however, both countries will record almost the same shares of tariff revenue losses.

Table 10: Effects of EPA liberalization 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' simulations.

Given data reliability and methodological concerns, the study estimated lower and upper bound measures around the main results presented in the paper. Lower and upper bound estimates were derived by assuming that the true trade elasticities are 10% lower or 10% higher than the sample estimates used here. Table 11 reports sensitivity results where all products are subject to EPA liberalization.

Table 11: Sensitivity analyses – Effects of reciprocity (including sensitive products) in millions of local currency

	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' simulations.

Reducing trade elasticities by 10% reduces estimates by between 6% and 8% for Malawi and by between 9% and 5% for Tanzania; the respective ranges 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.

7. Conclusions and policy implications

A partial equilibrium methodology was used in this study 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 the six-digit level of HS trade data; results at this level of disaggregation have already provided a useful contribution to the ongoing work by policy makers in both countries to determine lists of sensitive products for the EPA based on the severity of the effects, among other considerations.

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 domestic and regional producers (leading to trade creation) and least-cost producers in the rest of the world to EU producers (leading to trade diversion). 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. The EPA-induced import increases, however, will add pressure on the domestic industries, which have already been subjected to prolonged episodes of unilateral liberalization (under the structural adjustment programmes) and regional liberalization. Where new trade is created and there is relevant domestic production, the import-competition implications will be non-negligible for the specific sectors affected. In the cases of Malawi and Tanzania the affected sectors with relevant domestic production 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 in which the countries and ESA and SADC regions recognize 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 realize their export potential, it is likely that these potential – if indeed they are – import-competing sectors will be undermined by strong competition posed by tariff-free imports from the EU post-EPA.

The displacement of ESA and SADC (and EAC) exports to Malawi and Tanzania respectively can be seen as adding to the problems that undermine intra-regional trade and regional integration in COMESA, SADC and EAC. Nevertheless, we need to recognize that the depth of regional integration is fashioned by other non-EPA related factors: small market sizes, physical/geographic bottlenecks (e.g., Malawi is landlocked), lack of or under-developed basic and trade-related infrastructure, over dependence on

foreign aid, foreign country dominance, unrealistic schedules, uneven benefits, and political instability. Some of these factors are clearly areas where the countries need support, for example, aid-for-trade and trade facilitation, which are also under negotiation at the WTO in the Doha Round. Channelling some of the European Development Fund (EDF) resources to export diversification and trade facilitation will usefully address some of the sources of trade costs, and thus support regional integration.

Furthermore, the study finds that reciprocity will lead to 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, among others, shifting the emphasis from trade to non-trade tax sources and improving the efficiency of fiscal revenue collecting machinery. Examples of non-tariff instruments that may assume greater importance in revenue generation include value-added tax (VAT) and excise taxes charged on imports from the EU. VAT systems are relatively new in both countries, but there are other possible 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 for lack of resources. Owing to the high sensitivity of tariff revenue collections to tariff reductions, it is in the best interest of ACP countries for fiscal reforms to be firmly in place before they implement. Fiscal reforms should aim to broaden the tax base and redress major shortcomings in tax administration and collection.

Welfare losses are likely to be significant, although the exclusion of sensitive products does reduce the impact somewhat. One way of addressing net welfare losses related to employment displacement is to undertake production and employment adjustment programmes and 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.

For both countries reciprocity will have significant negative implications domestically (through increased competition for manufacturing firms, tariff revenue losses and net welfare losses) and regionally (through reduced exports from regional partners). It is often suggested that when faced with this situation (especially from the domestic point of view) the concerned least developed ACP countries should not enter EPAs but instead opt for the EU's Everything But Arms (EBA) initiative. However, as pointed out above, the EBA is inferior to the EPA in many respects (e.g., it does not come with financial aid). EPA signatories will be able to have access to financial assistance under the EPAs to help resolve some supply-side shortcomings that undermine the export potential of some least developed countries. In the final analysis, however, policy makers have to undertake a careful examination of the advantages and disadvantages of EPA and EBA to decide which option to take. Unfortunately that lies outside the scope of this paper.

The EPA-supported policy reforms will be seen as more credible than would such reforms if they were unilateral. Through commitments to EPA liberalization, Malawi and Tanzania 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. 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. 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 under circumstances where they 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 minimized 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, and this way is able to minimize costly trade diversion, among other things.

Liberalizing trade multilaterally offers an avenue for minimizing trade diversion and its attendant welfare losses. Zgovu and Milner (2007) show that multilateral trade liberalization at WTO can also be welfare-enhancing and in certain circumstances will increase tariff revenue (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 liberalization talks at the WTO have left most ACP and other developing countries disillusioned because of the countries' limited participation in the negotiations and, more importantly, because of the discrimination against agricultural and semi-processed goods in which they have export interests. 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 liberalization.

There is consensus amongst economists that the dynamic effects of tariff liberalization may well outweigh adjustment costs. The problem with this position, however, rests in the fact that it is not easy to state what these dynamic benefits entail, and the manner in which they would arise is rather vague. There is also no authoritative evidence linking dynamic benefits to particular cases of integration. Dynamic benefits can be maximized if Malawi and Tanzania are provided with the right support to address not only the weaknesses in their initial conditions (which tend to exacerbate adjustment costs), but also to develop and sustain competitive capacities in the institutions and their management, as well as infrastructure, production, marketing and exporting. With improved performance of the EDF and further support from the multi-agency initiatives, both countries could benefit from EPA liberalization in respect of increased competitive production and exporting, deeper regional integration, and economic development.

Notes

1. The transition period could last more than ten years. ACP countries have proposed a longer transition period lasting more than 20 years to allow relatively sufficient time for adjustment. The EU is not averse to the proposal and the jurisprudence in relation to Article XXIV of GATT is not definitive. Negotiations under Paragraph 29 of the Doha Mandate may be sympathetic to the ACP proposal for more flexibility in the Article.

2. ACP countries negotiate EPAs in six regional groups set up according to the continental integration agenda of the African Union (AU) in which regional markets are developed through inter-connectivity through the development of infrastructure and other joint activities. Malawi is negotiating in the Eastern and Southern Africa (ESA) group (ESA is a subset of COMESA), while Tanzania is in the Southern Africa Development Community (SADC) group.

3. The study by Imani (2005) provided a qualitative assessment of the implications of an EPA for Malawi.

4. The Southern Africa Customs Union (SACU) comprises South Africa and its four neighbouring states of Botswana, Lesotho, Namibia and Swaziland (BLNS). South Africa and BLNS are also members of SADC.

5. These included 4 consultancy groups, 1 research centre, 7 international or regional organizations, 10 authorities from third countries, 13 authorities of member states, 19 private companies, 28 national or local trade or business organizations, 17 various European trade or business organizations, and 1 non-government organization – a total of 100 contributions were received.

6. The EU Green Paper acknowledges the difficulties associated with the existing ROO in its observation that: "... the developing countries that are the potential beneficiaries of the preferences are unable to take full advantage of them for a whole series of reasons, among them the difficulty of complying with some of the rules of origin. They often lack the production facilities, investment opportunities or administrative organisation needed to meet the conditions imposed...." (European Commission, 2003: 8).

7. Origin rules are applied to prevent trade deflection and encourage industrial development in the country receiving preferential market access. To attain originating status the EU requires that some level of local production in ACP countries or conversion of imported elements or local ownership (or joint ownership with EU producers) is satisfied. It is these thresholds that are problematic when they are complex and set at levels that are so demanding that they become instruments of protection and less development-friendly.

8. The other SADC countries are Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, the Seychelles, South Africa, Swaziland, Zambia and Zimbabwe.

9. South Africa is, in fact, equally or more efficient in a number of product lines than the EU as evidenced by its dominant import supplier position in the region for unit cost other than just geographic proximity to ESA countries. Lack of detailed unit cost data at the required level of aggregation made it impossible to single out the exact products where the EU is less competitive than South Africa. Import product shares from the two sources could be used but these ignore some fundamentals (unit cost) that could be playing a more significant role explaining those proportions.

10. Twenty countries make up COMESA: Angola, Burundi, Comoros, DRC, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.

11. A COMESA Customs Union is scheduled for launch on 8 December 2008. Prior to the decision to lower CET the proposed COMESA CET had a maximum rate of 30%.

12. The first EAC treaty was signed in 1967 and lasted until 1977.

13. There can be high but not perfect substitution between goods from different sources because of differences in technology endowments, product differentiation, and market imperfections including imperfect price transmission. Allowing for less than perfect substitution in empirical work reduces the risk of bias. McKay 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.

14. Also termed “import duty collection rates” or “ex post tariffs” that take into account exemptions, etc.

15. 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 billion.

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Appendix A: Sector-level effects (ISIC two-digit)

Table A1: Detailed effects on imports in Malawi (millions of local currency)

Sector	Consumption effects	Trade creation	Trade diversion	Total EU imports rise: Including sensitive products	Total EU imports rise: 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	0.216	0.247	0.003
02 Forestry, logging	0	0	0	0	0
Sector total	0.031	0	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	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 & wood products	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 product	6.899	60.275	267.214	334.388	330.730
25 Rubber and plastic 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' simulations.

Table A2: Detailed effects on imports in Tanzania (millions of local currency)

Sector		Consumption effects	Trade creation	Trade diversion	Total EU imports rise: Including sensitive products	Total EU imports rise: Excluding sensitive products
All sectors		20,899.5	27,833.1 *10%*	227,258.4 *82%*	275,990.9	161,364.5
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
	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
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	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 & wood products	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 product	1,474.3	3,596.7	10,196.7	15,267.7	12,955.0
25	Rubber and plastic 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' simulations.

Table A3: Detailed effects on tariff revenue in Malawi (millions of local currency)

Sector	Associated: With consumption effects	Associated: With trade creation	Associated: With trade diversion	Tariff revenue increase: Including sensitive products	Tariff revenue increase: 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	-0.022	-0.104	-0.001
02 Forestry, logging	0	0	0	0	0
Sector total	**-0.082**	**0**	**-0.022**	**-0.104**	**-0.001**
B – Fishing					
05 Fishing, fish hatcheries & farms	-0.292	0	-4.475	-4.768	-4.758
Sector total	**-0.292**	**0**	**-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 & wood products	-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 product	-6.395	-0.078	-35.663	-42.136	-41.045
25 Rubber and plastic 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' simulations.

Table A4: Detailed effects on tariff revenue in Tanzania (millions of local currency)

Sector	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
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
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	-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 & wood products	-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 product	-1,368.6	-447.3	-1,230.0	-3,045.8	-2,513.1
25 Rubber and plastic 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' simulations.

Table A5: Detailed effects on welfare in Malawi (millions of local currency)

Sector	Associated: With consumption effects	Associated: With trade creation	Associated: With trade diversion	Net welfare: Including sensitive products	Net welfare: 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	-0.032	-0.030	0
02 Forestry, logging	0	0	0	0	0
Sector total	**0.001**	**0**	**-0.032**	**-0.030**	**0**
B – Fishing					
05 Fishing, fish hatcheries & farms	0.033	0	-4.463	-4.430	-4.428
Sector total	**0.033**	**0**	**-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 & wood products	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 product	0.230	13.859	-37.949	-23.860	-22.883
25 Rubber and plastic 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' simulations.

Table A6: Detailed effects on welfare in Tanzania (millions of local currency)

Sector		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		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 & wood products	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 product	81.9	460.7	-1,795.7	-1,253.1	-454.9
25	Rubber and plastic 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' simulations.

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

	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' simulations.

Appendix B: Top 50 import products with large overall import effects

Table B1: Top 50 Malawi import products (with tariffs not less than 20%) with largest overall import effects and displaced regional exports (millions of Malawi kwacha)

	Products with largest overall imports effect			Most displaced SADC export products		
No.	**HS code**	**Description**	**Value**	**HS code**	**Description**	**Value**
1	630900	Worn clothing and other worn a	513.003	340220	Washing and cleaning preparati	45.055
2	870290	Motor vehicles, for transport o	243.241	640220	Footwear with upper straps/tho	31.441
3	271000	White spirit and other turpent	205.013	391739	Other tubes, pipes and hoses,	26.584
4	401150	New pneumatic tyres, of rubber	112.666	151219	Sunflower-seed and safflower o	19.481
5	640220	Footwear with upper straps/tho	104.293	630140	Blankets (excl. Electric blank	17.838
6	340220	Washing and cleaning preparati	100.085	630900	Worn clothing and other worn a	8.251
7	151219	Sunflower-seed and safflower o	84.165	620199	Men's or boys' anoraks, wind-c	7.841
8	850680	Primary cells and primary batt	57.524	340510	Polishes, creams and similar p	6.947
9	630140	Blankets (excl. electric blank	55.356	870290	Motor vehicles, for transport o	5.270
10	391739	Other tubes, pipes and hoses,	44.883	210410	Soups and broths and preparati	4.672
11	540769	Other woven fabrics of synth'c	41.610	960719	Slide fasteners not fitted wit	4.173
12	330610	Dentifrices	39.742	620342	Men's or boys' trousers, breec	2.783
13	870839	Brakes and servo-brakes and th	36.462	330610	Dentifrices	2.004
14	551321	Dyed plain weave fabrics, <85%	36.138	271000	White spirit and other turpent	1.938
15	321290	Pigments in non-aqueous media,	33.708	731029	Tanks, casks, drums... (excl.	1.923
16	731029	Tanks, casks, drums... (excl.	32.453	321290	Pigments in non-aqueous media,	1.641
17	600199	Pile fabrics of textile materi	31.364	620690	Women's or girls' blouses, shi	1.619
18	400931	Tubes, pipes and hoses, of vu	30.742	650590	Hats and other headgear, knitt	1.461
19	420222	Handbags with outer surface of	25.709	700711	Toughened (tempered) safety gl	1.397
20	040690	Cheese, nes	25.442	040690	Cheese, nes	1.379
21	400941	Tubes, pipes and hoses without	24.633	870894	Steering wheels, steering colu	1.239
22	870880	Suspension shock absorbers	23.110	830710	Other flexible tubing of iron	1.162
23	441820	Doors and their frames and thr	21.284	210210	Active yeasts	0.970
24	620342	Men's or boys' trousers, breec	20.535	441820	Doors and their frames and thr	0.934
25	420292	Cases and containers, nes, wit	19.487	620419	Women's or girls' suits of oth	0.909
26	840991	Parts of outboard marine engin	18.732	620112	Men's or boys' overcoats, etc,	0.795
27	848340	Specialized for machinery of t	18.138	481710	Envelopes of paper or paperboa	0.749
28	841330	Other pumps for vessels	17.982	732620	Articles of iron or steel wire	0.641
29	842129	Machinery and apparatus for fi	17.077	701329	Drinking glasses (excl. Of lea	0.638
30	871690	Parts of trailers, semi-traile	16.963	650699	Hats and other headgear, nes	0.569
31	400922	With fittings reinforced other	16.673	441219	Plywood, each ply =<6mm thick,	0.496
32	960719	Slide fasteners not fitted wit	16.398	610349	Men's or boys' trousers, etc,	0.493
33	160413	Prepared or preserved sardines	15.855	482370	Moulded or pressed articles of	0.490
34	842199	Parts of machinery... For filt	15.777	850720	Lead-acid accumulators (excl.	0.429
35	831000	Warning signs	15.587	180632	Chocolate, etc, containing coc	0.399
36	940560	Illuminated signs, illuminated	15.017	871640	Trailers and semi-trailers, ne	0.393
37	392590	Roofing sheets, ridging and ti	14.517	960629	Buttons, nes	0.391
38	340510	Polishes, creams and similar p	14.232	870870	Road wheels and parts and acce	0.344
39	210210	Active yeasts	13.922	321000	Other paints and varnishes (in	0.291
40	841590	Parts of air conditioning mach	13.551	842290	Parts of machinery of 8422.11	0.286
41	660110	Garden or similar umbrellas	13.211	854430	Other ignition wiring sets and	0.242
42	210410	Soups and broths and preparati	13.020	610342	Men's or boys' trousers, etc,	0.224
43	180690	Chocolate, etc, containing coc	12.832	854451	Electric conductors, nes, for a	0.210
44	848360	Clutches and shaft couplings	12.753	420222	Handbags with outer surface of	0.204
45	870870	Road wheels and parts and acce	12.717	830241	Mountings, fittings, etc, for	0.191
46	961210	Typewriter or similar ribbons	12.699	621020	Garments of 6201.11 to 19, mad	0.182
47	611790	Parts of garments or clothing	12.138	961210	Typewriter or similar ribbons	0.172
48	761699	Articles of aluminium, nes	11.804	321590	Other ink, whether or not conc	0.153
49	620199	Men's or boys' anoraks, wind-c	11.752	961100	Date, sealing or numbering sta	0.149
50	961700	Vacuum flasks, etc, complete w	11.597	330590	Preparations for use on the ha	0.148

Source: Authors' simulations. The full list is available from the authors on request.

Table B2: Top 50 Tanzania import products (with tariffs not less than 20%) with largest overall import effects and displaced regional exports (millions of Tanzania shillings)

	Products with largest overall imports effect			Most displaced SADC export products		
No.	HS code	Description	Value	HS code	Description	Value
1	630900	Worn clothing and other worn	19,316.3	040700	Birds' eggs, in shell, fresh,	377.3
2	170111	Raw cane sugar, in solid form	7,854.3	220290	Other non-alcoholic beverages,	372.7
3	640299	Footwear, nes, not covering th	2,846.6	220300	Beer made from malt	327.0
4	151590	Other fixed vegetable fats and	2,695.2	220421	Wine (not sparkling); grape mu	296.7
5	690890	Glazed ceramic flags and pavin	2,644.0	950430	Games, coin- or disc-operated	291.3
6	110220	Maize (corn) flour	2,225.4	441119	Fibreboard of a density >0.8g/	263.6
7	850610	Primary cells and primary batt	2,224.0	330590	Preparations for use on the ha	250.7
8	961700	Vacuum flasks, etc, complete	1,737.6	732690	Articles of iron or steel, nes	160.8
9	100630	Semi-milled or wholly milled r	1,498.5	482359	Paper and paperboard writing,	133.7
10	521225	Printed woven fabrics of cotto	1,208.4	330499	Beauty, makeup, skin-care in	132.1
11	960810	Ball-point pens	1,018.7	852330	Cards incorporating a magnetic	109.6
12	110100	Wheat or meslin flour	975.7	680911	Boards..., of plaster..., rein	102.9
13	482359	Paper and paperboard writing,	851.1	690890	Glazed ceramic flags and pavin	102.7
14	841821	Compression-type household ref	842.7	841821	Compression-type household ref	92.1
15	640220	Footwear with upper straps/tho	836.5	940161	Upholstered seats, with wooden	87.6
16	732690	Articles of iron or steel, nes	827.5	340111	Soap and organic surface-activ	83.1
17	640590	Footwear, nes	821.9	851660	Electric ovens, nes; cookers,	81.4
18	220300	Beer made from malt	775.6	940560	Illuminated signs, illuminated	74.2
19	610990	T-shirts, singlets, etc, of ot	758.3	200990	Mixtures of juices, unfermente	74.0
20	330590	Preparations for use on the ha	736.2	391740	Fittings, for tubes, pipes and	71.1
21	240220	Cigarettes containing tobacco	736.2	160250	Preparations of meat of bovine	68.0
22	940161	Upholstered seats, with wooden	712.1	170111	Raw cane sugar, in solid form	62.5
23	691200	Ceramic tableware... Other hou	704.1	220870	Liqueurs and cordials	62.1
24	620899	Women's or girls' dressing gow	657.2	570500	Other carpets and other textil	62.0
25	621040	Men's or boys' garments made u	650.8	620590	Men's or boys' shirts of other	55.0
26	220290	Other non-alcoholic beverages,	614.2	220850	Gin and geneva	51.6
27	732394	Table, kitchen or household ar	606.8	481720	Letter cards, plain postcards	51.4
28	940510	Chandeliers and other electric	604.5	040221	Milk and cream in solid forms	50.1
29	330610	Dentifrices	597.6	721650	Angles/shapes/sections of iron	48.8
30	681099	Articles of cement, concrete o	594.1	841830	Freezers of the chest type, ca	48.7
31	170490	Sugar confectionery (incl. whi	551.2	630399	Curtains and interior blinds;	48.5
32	640419	Sports footwear, with rubber o	532.5	040210	Milk and cream in solid forms	48.3
33	854451	Electric conductors, nes, for a	530.8	330510	Shampoos	46.3
34	620590	Men's or boys' shirts of other	502.9	630900	Worn clothing and other worn a	45.5
35	360500	Matches (excl. pyrotechnic art	502.4	040690	Cheese, nes	44.5
36	170410	Chewing gum	473.0	360300	Safety fuses; detonating fuses	44.3
37	190530	Sweet biscuits; waffles and wa	472.0	392410	Tableware and kitchenware of p	44.0
38	040700	Birds' eggs, in shell, fresh,	456.5	210390	Sauces and sauce preparations;	43.7
39	391740	Fittings, for tubes, pipes and	455.1	200980	Juice of other single fruit, u	41.9
40	170219	Lactose and lactose syrup cont	438.9	321490	Non-refractory surfacing prepa	40.8
41	190190	Food prep's of goods of hdgs 0	431.4	482360	Trays, dishes, plates and cups	39.4
42	721070	Rolled iron/steel, width >=600	407.8	401310	Inner tubes, of rubber of a ki	39.0
43	620419	Women's or girls' suits of oth	404.6	841810	Combined refrigerators-freezer	37.1
44	841810	Combined refrigerators-freezer	401.8	330690	Preparations for oral or denta	36.2
45	340111	Soap and organic surface-activ	393.5	940510	Chandeliers and other electric	35.4
46	851660	Electric ovens, nes; cookers,	389.2	831000	Sign-plates, name-plates, addr	34.8
47	330499	Beauty, make-up, skin-care (in	387.1	330720	Personal deodorants and antipe	34.8
48	551519	Woven fabrics of polyester sta	384.8	721632	I sections of iron/steel, hot-	33.1
49	392410	Tableware and kitchenware of p	379.4	610990	T-shirts, singlets, etc, of ot	33.0
50	841829	Household refrigerators, nes	373.1	721590	Bars/rods of iron/steel, nes(in	32.2

Source: Authors' simulations. The full list is available from the authors on request.

Appendix C: Top 50 import products with large revenue effects

Table C1: Top 50 Malawi import products (with tariffs not less than 20%) with largest tariff revenue loss (units of Malawi kwacha)

No.	HS code	Description	Revenue loss value (Mk)	Share % in total	Effective tariff (%)
1	630900	Worn clothing and other worn articles	-143,936,866	18.534	22
2	870290	Motor vehicles, for transport of>=10 persons,	-30,060,927	3.871	22
3	401150	New pneumatic tyres, of rubber of a kind used	-21,047,313	2.710	25
4	271000	White spirit and other turpentine substitutes	-18,134,548	2.335	22
5	640220	Footwear with upper straps/thongs plugged int	-17,801,991	2.292	25
6	340220	Washing and cleaning preparations, put up for	-13,981,438	1.800	25
7	151219	Sunflower-seed and safflower oil (excl. crude	-11,801,927	1.520	25
8	850680	Primary cells and primary batteries, nes	-11,569,062	1.490	21
9	330610	Dentifrices	-9,577,420	1.233	25
10	630140	Blankets (excl. electric blankets), etc, of s	-8,737,092	1.125	20
11	540769	Other woven fabrics of synth'c yarn >=85% tex	-7,773,451	1.001	30
12	420222	Handbags with outer surface of plastic sheeti	-6,465,743	0.833	30
13	040690	Cheese, nes	-6,118,263	0.788	25
14	870880	Suspension shock absorbers	-5,910,243	0.761	20
15	900719	Cinematographic cameras, nes	-5,091,765	0.656	28
16	870839	Brakes and servo-brakes and their parts (excl	-4,833,838	0.622	24
17	842129	Machinery and apparatus for filtering/purifyi	-4,740,893	0.610	24
18	840991	Parts of outboard marine engines	-4,650,285	0.599	22
19	842199	Parts of machinery... For filtering/purifying	-4,601,827	0.593	24
20	420292	Cases and containers, nes, with outer surface	-4,492,618	0.578	30
21	940560	Illuminated signs, illuminated name-plates an	-4,159,091	0.536	26
22	210210	Active yeasts	-4,120,428	0.531	25
23	160413	Prepared or preserved sardines, sardinella, bri	-4,055,482	0.522	25
24	841330	Other pumps for vessels	-3,698,973	0.476	24
25	180690	Chocolate, etc, containing cocoa, not in bloc	-3,280,033	0.422	30
26	961700	Vacuum flasks, etc, complete with cases; part	-3,251,739	0.419	21
27	961210	Typewriter or similar ribbons inked or otherw	-3,049,718	0.393	24
28	701329	Drinking glasses excl. Of lead crystal)	-2,860,728	0.368	21
29	842290	Parts of machinery of 8422.11 to 8422.40	-2,807,963	0.362	27
30	660110	Garden or similar umbrellas	-2,680,896	0.345	29
31	180631	Chocolate, etc, containing cocoa, in blocks,	-2,647,271	0.341	30
32	848340	Specialized for machinery of this chapter or	-2,626,590	0.338	22
33	180632	Chocolate, etc, containing cocoa in blocks, s	-2,600,548	0.335	30
34	441820	Doors and their frames and thresholds, of woo	-2,539,725	0.327	25
35	870870	Road wheels and parts and accessories thereof	-2,502,914	0.322	22
36	848360	Clutches and shaft couplings (incl. universa	-2,471,589	0.318	25
37	321490	Non-refractory surfacing preparations	-2,332,211	0.300	25
38	401212	New tyres of a kind used in buses and lorries	-2,250,266	0.290	28
39	210410	Soups and broths and preparations therefore	-2,231,341	0.287	30
40	761699	Articles of aluminium, nes	-2,229,237	0.287	25
41	831000	Warning signs	-2,210,523	0.285	20
42	870893	Specialized parts of tractors of subheading n	-2,132,845	0.275	21
43	392590	Roofing sheets, ridging and tiles other than	-2,084,718	0.268	25
44	853931	Other discharge lamps, other than ultra-violet	-1,980,540	0.255	23
45	340510	Polishes, creams and similar preparations for	-1,899,726	0.245	25
46	830241	Mountings, fittings, etc, for buildings, of b	-1,787,864	0.230	25
47	700711	Toughened (tempered) safety glass for use in	-1,762,779	0.227	25
48	871640	Trailers and semi-trailers, nes	-1,749,693	0.225	25
49	871690	Parts of trailers, semi-trailers, etc, of 87	-1,651,485	0.213	26
50	620459	Skirts and divided skirts of other textiles	-1,601,415	0.206	25

Source: Authors' simulations. The full list is available from the authors on request.

Table C2: Top 50 Tanzania import products (with tariffs not less than 20%) with largest tariff revenue loss (units of Tanzania shillings)

No.	HS code	Description	Revenue loss value (Tsh)	Share % in total	Effective tariff (%)
1	630900	Worn clothing and other worn articles	-6,011.881	33.853	22
2	170111	Raw cane sugar, in solid form	-2,603.306	14.659	31
3	690890	Glazed ceramic flags and paving, hearth or wa	-948.640	5.342	22
4	640299	Footwear, nes, not covering the ankle, of rub	-705.930	3.975	24
5	850610	Primary cells and primary batteries, manganes	-655.847	3.693	46
6	220300	Beer made from malt	-546.540	3.078	25
7	961700	Vacuum flasks, etc, complete with cases; part	-440.980	2.483	24
8	482359	Paper and paperboard writing, printing, etc,	-440.301	2.479	22
9	521225	Printed woven fabrics of cotton, >200g/m2, ne	-335.947	1.892	25
10	100630	Semi-milled or wholly milled rice	-311.403	1.754	25
11	220290	Other non-alcoholic beverages, nes	-289.683	1.631	25
12	841821	Compression-type household refrigerators	-268.319	1.511	24
13	841829	Household refrigerators, nes	-240.468	1.354	23
14	040221	Milk and cream in solid forms of >1.5% fat, u	-223.201	1.257	42
15	830910	Crown corks of base metal	-218.063	1.228	25
16	610990	T-shirts, singlets, etc, of other textiles, n	-209.832	1.182	24
17	640590	Footwear, nes	-201.801	1.136	21
18	732690	Articles of iron or steel, nes	-187.685	1.057	21
19	170490	Sugar confectionery (incl. white chocolate),	-187.079	1.053	25
20	392099	Plates..., of other plastics, not reinforced,	-182.652	1.029	25
21	691200	Ceramic tableware... Other household articles	-166.753	0.939	21
22	620899	Women's or girls' dressing gowns, panties, et	-164.080	0.924	25
23	621040	Men's or boys' garments made up of fabrics of	-161.307	0.908	25
24	151590	Other fixed vegetable fats and fractions, nes	-154.837	0.872	26
25	940510	Chandeliers and other electric ceiling or wal	-153.073	0.862	22
26	940161	Upholstered seats, with wooden frames	-152.630	0.859	21
27	330590	Preparations for use on the hair, nes	-147.293	0.829	25
28	190190	Food prep's of goods of hdgs 0401-0404/of flo	-145.013	0.817	25
29	360500	Matches (excl. pyrotechnic articles of 36.04)	-140.455	0.791	113
30	960810	Ball-point pens	-137.057	0.772	22
31	391740	Fittings, for tubes, pipes and hoses, of plas	-135.634	0.764	23
32	620590	Men' or boys' shirts of other textiles, nes	-135.528	0.763	24
33	640419	Sports footwear, with rubber or plastic soles	-135.039	0.760	22
34	392410	Tableware and kitchenware of plastics	-131.468	0.740	24
35	170219	Lactose and lactose syrup cont. by weight <99%	-128.448	0.723	20
36	190530	Sweet biscuits; waffles and wafers	-127.099	0.716	24
37	170112	Raw beet sugar, in solid form	-125.535	0.707	25
38	110100	Wheat or meslin flour	-121.605	0.685	25
39	330499	Beauty, makeup, skin-care (incl. suntan), ne	-121.234	0.683	24
40	170410	Chewing gum	-113.138	0.637	25
41	851660	Electric ovens, nes; cookers, cooking plates,	-112.848	0.635	21
42	040700	Birds' eggs, in shell, fresh, preserved or co	-111.142	0.626	25
43	853931	Discharge lamps, other than ultra-violet lamp	-110.456	0.622	25
44	841830	Freezers of the chest type, capacity =<800lit	-106.329	0.599	24
45	841810	Combined refrigerators-freezers, with separat	-102.790	0.579	23
46	040210	Milk and cream in solid forms of =<1.5% fat	-97.162	0.547	35
47	640220	Footwear with upper straps/thongs plugged int	-97.104	0.547	25
48	551519	Woven fabrics of polyester staple fibres, nes	-96.740	0.545	25
49	732394	Table, kitchen or household articles... Of ir	-95.831	0.540	25
50	620419	Women's or girls' suits of other textiles, ne	-95.482	0.538	25

Source: Authors' simulations. The full list is available from the authors on request.

Appendix D: Top 50 import products with large net welfare effects

Table D1: Top 50 Malawi import products with net welfare gain

No.	HS code	Description	Tariff on EU	Net welfare (M k)
1	391739	Other tubes, pipes and hoses, nes	25%	2,072,391
2	620199	Men's or boys' anoraks, wind-cheaters, etc, o	30%	1,180,305
3	900719	Cinematographic cameras, nes	28%	840,779
4	170490	Sugar confectionery (incl. white chocolate),	6%	525,007
5	240220	Other cigarettes	2%	220,639
6	620112	Men's or boys' overcoats, etc, of cotton	29%	202,219
7	482370	Moulded or pressed articles of paper pulp	25%	120,783
8	591000	Transmission or conveyor belts or belting, of	10%	112,470
9	830710	Other flexible tubing of iron or steel	25%	72,138
10	846920	Typewriters, electric, (excl. automatic, or p	23%	71,027
11	220290	Other non-alcoholic beverages, nes	10%	69,157
12	340211	Anionic surface-active agents, (excl. soap)	10%	59,938
13	850211	Generating sets with compression-ignition eng	3%	35,472
14	880190	Balloons, dirigibles and other non-powered ai	25%	28,565
15	854121	Transistors (excl. Phototransistors), with a	25%	26,156
16	840733	Other engines for tractors	25%	23,434
17	850162	AC generators (alternators) of an output >75	4%	20,470
18	170219	Lactose and lactose syrup cont. by weight <99%	15%	15,365
19	700721	Laminated safety glass for vehicles, aircraft	5%	8,728
20	850590	Electro-magnetic or permanent magnet chucks,	10%	6,931
21	761519	Table, kitchen or other household articles an	2%	6,049
22	854040	Data/graphic display tubes, colour, with a phos	30%	5,998
23	854260	Hybrid integrated circuits	5%	5,516
24	401210	Retreaded tyres of rubber	60%	5,367
25	902590	Parts and accessories of hydrometers... Therm	6%	4,067
26	860791	Parts of railway or tramway locomotives, nes	10%	2,717
27	520100	Cotton, not carded or combed	2%	2,599
28	902720	Chromatographs and electrophoresis instrument	10%	2,575
29	281290	Halides and halide oxides of non-metals, nes	5%	2,083
30	841191	Parts of turbo-jets or turbo-propellers	10%	1,921
31	847090	Postage-franking machines, ticket-issuing mac	7%	1,837
32	521224	Coloured woven fabrics of cotton, >200g/m2	25%	1,198
33	330210	Mixtures/with basis of/odorifer's subst's inc	0%	1,184
34	930529	Parts and accessories, nes, of shotguns or ri	30%	963
35	853400	Printed circuits	5%	944
36	580631	Narrow woven fabrics of cotton, nes	25%	928
37	060290	Other live plants, nes	10%	801
38	850432	Transformers, nes, power handling capacity1-1	4%	768
39	293100	Other organo-inorganic compounds	2%	714
40	760421	Hollow profiles of aluminium alloys	5%	685
41	482360	Trays, dishes, plates and cups, etc, of paper	2%	599
42	740911	Plates, sheets and strip, of refined copper,	5%	581
43	480439	Kraft paper... (excl. unbleached), weighing =	1%	466
44	810890	Articles of titanium, nes	25%	359
45	950621	Sailboards	30%	341
46	741021	Foil, backed with paper... Of refined copper,	5%	286
47	741510	Nails and tacks, drawing pins, staples, etc,	5%	208
48	851910	Coin- or disc-operated record-players	1%	159
49	691110	Tableware and kitchenware, of porcelain or ch	0%	135
50	960340	Paint, distemper, varnish or similar brushes;	1%	82

Source: Authors' simulations. The full list is available from the authors on request.

Table D2: Top 50 Malawi import products with net welfare loss

No.	HS code	Description	Tariff on EU	Net welfare (M k)
1	630900	Worn clothing and other worn articles	22%	-92,797,736
2	870290	Motor vehicles, for transport of>=10 persons	22%	-50,298,227
3	271000	White spirit and other turpentine substitutes	22%	-43,483,296
4	401150	New pneumatic tyres, of rubber of a kind used	25%	-28,045,579
5	401120	New pneumatic tyres, of rubber of a kind used	9%	-14,158,464
6	621710	Clothing accessories, nes	16%	-12,615,888
7	540769	Other woven fabrics of synth'c yarn >=85% tex	30%	-12,481,266
8	850680	Primary cells and primary batteries, nes	21%	-11,903,682
9	151219	Sunflower-seed and safflower oil (excl. crude	25%	-11,079,082
10	870899	Specialized parts for tractors of subheading	13%	-11,002,085
11	640220	Footwear with upper straps/thongs plugged int	25%	-10,099,984
12	551321	Dyed plain weave fabrics, <85% polyester fibr	25%	-8,992,492
13	330610	Dentifrices	25%	-8,914,881
14	870839	Brakes and servo-brakes and their parts (excl	24%	-8,613,712
15	252329	Portland cement (excl. White)	10%	-8,280,971
16	871000	Motorized tanks and other armoured fighting	10%	-7,992,670
17	600199	Pile fabrics of textile materials, nes, knitt	25%	-7,816,897
18	400931	Tubes, pipes and horses, of vulcanized rubber	25%	-7,685,874
19	420222	Handbags with outer surface of plastic sheeti	30%	-7,581,007
20	321290	Pigments in non-aqueous media, nes, for retai	25%	-7,544,543
21	731029	Tanks, casks, drums... (excl. for gas) of iro	23%	-6,617,120
22	400941	Tubes, pipes and hoses without fittings	26%	-6,289,770
23	842121	Other filtering or purifying machinery for wa	14%	-6,154,988
24	842123	Oil or petrol-filters for internal combustion	19%	-5,862,812
25	420292	Cases and containers, nes, with outer surface	30%	-5,840,968
26	040690	Cheese, nes	25%	-5,668,815
27	871639	Trailers and cart chassis for special convers	10%	-5,010,571
28	441820	Doors and their frames and thresholds, of wood	25%	-4,851,704
29	852910	Aerials and aerial reflectors of all kinds an	14%	-4,579,067
30	040229	Milk and cream in solid forms of >1.5% fat	13%	-4,511,801
31	620342	Men's or boys' trousers, breeches, etc, of co	30%	-4,487,709
32	870880	Suspension shock absorbers	20%	-4,451,151
33	871680	Vehicles, not mechanically propelled, nes	17%	-4,377,999
34	400922	With fittings reinforced otherwise combined	25%	-4,163,389
35	841330	Other pumps for vessels	24%	-4,133,683
36	871690	Parts of trailers, semi-trailers, etc, of 87.	26%	-4,089,617
37	630140	Blankets (excl. electric blankets), etc, of s	20%	-3,961,800
38	842129	Machinery and apparatus for filtering/purifyi	24%	-3,951,576
39	160413	Prepared or preserved sardines, sardinella, bri	25%	-3,928,182
40	040221	Milk and cream in solid forms of >1.5% fat	6%	-3,917,877
41	830140	Locks of base metal, nes	13%	-3,850,056
42	380810	Insecticides, put up for retail sale	5%	-3,845,210
43	848340	Specialized for machinery of this chapter or	22%	-3,822,970
44	401110	New pneumatic tyres, of rubber of a kind used	10%	-3,798,669
45	660110	Garden or similar umbrellas	29%	-3,741,500
46	180690	Chocolate, etc, containing cocoa, not in bloc	30%	-3,737,510
47	840991	Parts of outboard marine engines	22%	-3,658,866
48	870323	Vehicles with spark-ignition engine of cylinder	3%	-3,616,059
49	392590	Roofing sheets, ridging and tiles other than	25%	-3,554,051
50	842199	Parts of machinery... For filtering/purifying	24%	-3,470,604

Source: Authors' simulations. The full list is available from the authors on request.

Table D3: Top 50 Tanzania import products with net welfare gain

No.	HS code	Description	Tariff on EU	Net welfare (Tsh)
1	330210	Mixtures/with basis of/odorifer's subst's inc	10%	244,342,870
2	240220	Cigarettes containing tobacco	62%	206,096,121
3	220300	Beer made from malt	25%	126,706,050
4	210690	Other food preparations, nes	10%	114,357,113
5	220290	Other non-alcoholic beverages, nes	25%	92,662,259
6	854212	Cards incorporating electronic integrated cir	13%	79,973,385
7	040700	Birds' eggs, in shell, fresh, preserved or co	25%	74,902,133
8	220421	Wine (not sparkling); grape must with by alco	24%	72,590,343
9	950430	Games, coin- or disc-operated (excl. bowling	25%	68,572,584
10	110710	Malt not roasted	10%	56,866,831
11	480100	Newsprint, in rolls or sheets	10%	51,256,365
12	854420	Co-axial cable and other co-axial electric co	15%	40,963,203
13	441119	Fibreboard of a density >0.8g/cm3, nes	25%	40,545,377
14	482110	Printed paper or paperboard labels of all kin	10%	30,391,002
15	851711	Line telephone sets with cordless handsets	15%	29,771,629
16	852330	Cards incorporating a magnetic stripe	25%	18,363,041
17	160250	Preparations of meat of bovine animals	25%	16,750,882
18	220870	Liqueurs and cordials	25%	16,402,661
19	480411	Unbleached kraftliner, uncoated, in rolls or	10%	14,572,025
20	480510	Semi-chemical fluting paper (corrugated mediu	10%	14,040,051
21	841790	Parts of industrial or laboratory furnaces an	10%	13,528,914
22	830990	Stoppers, caps and lids (excl. crown corks)..	19%	13,213,145
23	902890	Parts and accessories of gas, liquid and elec	14%	12,677,687
24	360300	Safety fuses; detonating fuses; caps; igniter	24%	12,631,471
25	220850	Gin and geneva	25%	11,936,537
26	220830	Whiskies	15%	10,736,917
27	170112	Raw beet sugar, in solid form	25%	10,522,592
28	680911	Boards..., of plaster..., reinforced with pap	21%	10,376,623
29	220429	Wine (not sparkling); grape must with alcohol	15%	9,657,653
30	220890	Other spirituous beverages, nes	12%	8,968,693
31	851631	Electro-thermic hair dryers	24%	8,527,061
32	321490	Non-refractory surfacing preparations	30%	8,318,733
33	480252	Paper... (excl. mechanical fibres), weighing	10%	8,290,859
34	940560	Illuminated signs, illuminated name-plates an	25%	8,019,347
35	480419	Kraftliner, uncoated (excl. unbleached), in r	10%	7,145,037
36	850490	Parts of transformers, inductors and static c	13%	6,828,144
37	853110	Electrical burglar or fire alarms and similar	5%	6,557,050
38	300650	First-aid boxes and kits	10%	6,494,194
39	551299	Printed, dyed, coloured woven fabrics, >=85%	15%	6,469,202
40	381600	Refractory cements, mortars, concretes and si	14%	6,109,370
41	854690	Electrical insulators (excl. of glass or cera	15%	5,614,982
42	220820	Spirits from distilled grape wine or marc	25%	4,822,150
43	291090	Epoxides... with a three-membered ring and de	25%	4,638,388
44	190410	Prepared foods obtained by the swelling or ro	25%	4,538,720
45	853190	Parts of apparatus of 85.31	15%	4,425,266
46	330720	Personal deodorants and antiperspirants	25%	4,171,118
47	841720	Bakery ovens (incl. biscuit ovens)	25%	4,159,089
48	481011	Paper..., coated with kaolin, etc, weighing =	10%	4,028,317
49	220410	Champagne and sparkling wine	16%	3,975,707
50	731210	Stranded wire, cables of iron or steel, not e	17%	3,826,240

Source: Authors' simulations. The full list is available from the authors on request.

Table D4: Top 50 Tanzania import products with net welfare loss

No.	HS code	Description	Tariff on EU	Net welfare (Tsh)
1	630900	Worn clothing and other worn articles	22%	-3,447,392,665
2	170111	Raw cane sugar, in solid form	31%	-2,430,431,089
3	850610	Primary cells and primary batteries, manganes	46%	-972,668,135
4	151590	Other fixed vegetable fats and fractions, nes	26%	-705,587,850
5	870210	Motor vehicles, for transport of>=10 persons, w	9%	-696,723,258
6	870323	Vehicles with spark-ignition engine of cylind	7%	-695,684,001
7	640299	Footwear, nes, not covering the ankle, of rub	24%	-672,416,634
8	360500	Matches (excl. Pyrotechnic articles of 36.04)	113%	-566,490,715
9	110220	Maize (corn) flour	25%	-555,614,413
10	870421	Goods vehicles, with diesel or semi-diesel en	7%	-535,677,514
11	420212	Trunks, suit-cases..., etc, with outer surfac	17%	-522,658,010
12	961700	Vacuum flasks, etc, complete with cases; part	24%	-415,163,111
13	401120	New pneumatic tyres, of rubber of a kind used	12%	-410,735,830
14	690890	Glazed ceramic flags and paving, hearth or wa	22%	-405,547,856
15	100630	Semi-milled or wholly milled rice	25%	-373,024,163
16	852812	Colour tv receivers, whether/not with radio/so	17%	-345,116,180
17	521225	Printed woven fabrics of cotton, >200g/m2, ne	25%	-301,878,660
18	870333	Ambulances and hearses >2500cc	6%	-283,816,411
19	110100	Wheat or meslin flour	25%	-242,046,212
20	392310	Boxes, cases, crates and similar articles of	12%	-228,721,662
21	960810	Ball-point pens	22%	-219,359,185
22	640220	Footwear with upper straps/thongs plugged int	25%	-208,721,338
23	392490	Household and toilet articles of plastics, ne	18%	-201,105,753
24	870322	Vehicles with spark-ignition engine of cylind	12%	-188,739,715
25	870423	Goods vehicles, with diesel or semi-diesel en	6%	-183,847,917
26	940360	Wooden furniture, nes	13%	-174,310,411
27	340120	Soap in other forms, nes	13%	-167,626,514
28	520822	Bleached plain cotton weave, with >=85% cotto	10%	-166,871,919
29	870290	Motor vehicles, for transport of>=10 persons	10%	-166,368,060
30	621040	Men's or boys' garments made up of fabrics of	25%	-159,916,531
31	620899	Women's or girls' dressing gowns, panties, et	25%	-158,493,780
32	691110	Tableware and kitchenware, of porcelain or ch	17%	-157,965,070
33	850690	Parts of primary cells and primary batteries	49%	-157,868,841
34	640590	Footwear, nes	21%	-157,565,255
35	732394	Table, kitchen or household articles... of ir	25%	-151,052,309
36	840721	Outboard motors for marine propulsion	11%	-144,207,238
37	610990	T-shirts, singlets, etc, of other textiles, n	24%	-142,894,302
38	150710	Crude soya-bean oil	15%	-139,487,263
39	691200	Ceramic tableware... other household articles	21%	-138,346,896
40	330610	Dentifrices	24%	-138,263,995
41	560749	Twine, cordage, rope and cables, of polyethyl	15%	-137,983,649
42	681099	Articles of cement, concrete or artificial st	24%	-135,961,828
43	870324	Vehicles with spark-ignition engine of cylind	11%	-133,969,615
44	850710	Lead-acid accumulators for starting piston en	12%	-130,229,364
45	841821	Compression-type household refrigerators	24%	-130,080,189
46	271000	Partly refined petroleum and bituminous miner	1%	-129,347,376
47	852390	Prepared unrecorded media (excl. magnetic tap	13%	-128,678,894
48	170410	Chewing gum	25%	-114,047,461
49	640419	Sports footwear, with rubber or plastic soles	22%	-113,913,962
50	854459	Electric conductors, nes, for voltage>80 v-<=10	17%	-113,337,130

Source: Authors' simulations. The full list is available from the authors on request.

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