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Computable General Equilibrium Simulations of the COMESA-EAC-SADC Tripartite Free Trade Agreement

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Abbreviations

CES	Constant Elasticity of Substitution
CET	Constant Elasticity of Transformation
CGE	Computable General Equilibrium
COMESA	Common Market for Eastern and Southern Africa
CTTTFP	Comprehensive Trade and Transport Facilitation Programme
EAC	East African Community
EBA	Everything But Arms
EPA	Economic Partnership Agreement
EU	European Union
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project / Global Assistance, Trade and Protection
IDS	Institute of Development Studies
IEPA	Interim Economic Partnership Agreement
REC	Regional Economic Community
SACU	Southern African Customs Union
SADC	Southern African Development Community
TDCA	Trade, Development and Co-operation Agreement
TFTA	Tripartite Free Trade Agreement
TMSA	TradeMark Southern Africa
UNECA	United Nations Economic Commission for Africa

1. Context

1.1. Background

The plan to establish a free trade area (FTA) among the member states of COMESA, the East African Community (EAC) and the Southern African Development Community (SADC) was endorsed by the respective Heads of State and / or Government at the first Tripartite Summit in Kampala in October 2008. The second Tripartite Summit in Johannesburg in June 2011 adopted a *Declaration Launching Negotiations for the Establishment of the Tripartite Free Trade Area* (TFTA) and set out a *Roadmap* for the negotiation process that envisaged a completion of *Phase I* - covering liberalization of trade in goods and movement of business persons – by end of 2014, and a commencement of *Phase II* – covering trade in services and other trade-related issues – following the conclusion of the *Phase I* negotiations.¹ Phase I (which now covers tariff liberalization and rules of origin) is expected to be concluded during the next Tripartite Summit scheduled to take place in Cairo in December 2014. The COMESA-EAC-SADC Tripartite Free Trade Area (TFTA) negotiations are intended to result in an integrated market of 26 countries with a total population of over 600 million people.

The DFID-BIS Trade Advocacy Fund (TAF) in conjunction with TradeMark Southern Africa (TMSA) has supported the Tripartite negotiations through a support programme that included a study by the Institute of Development Studies published by TMSA in September 2013 on economic impact of eight possible economic integration scenarios under the rubric of TFTA (Willenbockel, 2013).

The present study aims to provide an update of this earlier analysis in line with the agreed tariff liberalisation modalities (COMESA / EAC / SADC, 2013) and the

¹ See Erasmus (2012) and Pearson (2012) for further detail on aspirations and initial negotiation stages and Tripartite Task Force (2014) for an account of the current state of play.

expected outcomes of the Phase I negotiations in the light of the current state of progress.

These agreed modalities state in particular that

- Member/Partner States that are already in a REC FTA with each other will not undertake tariff negotiations and exchange of tariff concessions amongst themselves. Such Member/Partner States will consolidate into the Tripartite FTA their existing levels of tariff liberalization vis a vis one another;

- The acquis in the case of COMESA FTA Member and EAC Partner States is 100% of tariff lines, while it is 97% for SADC FTA members.

- Member/Partner States may consider extending the highest level of tariff liberalization achieved in their RECs to all other Tripartite Member / Partner States, subject to the principle of reciprocity and other principles guiding the negotiations;

- Member/Partner States that do not have any FTA arrangement with each other will undertake tariff negotiations and exchange tariff concessions among each other;

- Tariff phase downs will start from the current applied tariff rates;

- Member/Partner States recognize the importance of raising the level of ambition such that the ultimate destination for tariff liberalization in the TFTA approximates 100%, taking into account general, specific and security exceptions provided for under the existing regional and multilateral agreements.

- Member/Partner States agree that 60% to 85% will be liberalised immediately upon entry into force of the TFTA Agreement based on offers. The remaining tariff lines will be the subject of negotiation for liberalisation.

- Liberalisation will be implemented within five to eight years.

Apart from a revised specification of the tariff liberalisation scenarios as agreed in consultation with the COMESA Secretariat and TAF, which takes account of the current tariff phase-down offers available for a sub-set of TFTA partners and the aforementioned modalities, the updated model-based analysis differs from Willenbockel (2013) by

- developing a revised end-of-2014 baseline projection that incorporates new GDP growth and new information on pre-TFTA intra-REC tariff rates from internal data files provided by the COMESA Secretariat;²
- incorporating revisions to the regional and sectoral aggregation structure of the simulation model as requested by stakeholders, in particular a disaggregation of the “Other Crops” sector of the previous analysis to identify rice and wheat as separate commodities
- including an analysis of the impacts of cuts in intra-TFTA export taxes
- including an alternative labour market specification that assumes unlimited supplies of unskilled labour in the African regions of the model.

1.2. Rationale for the Approach of the Study

Partial equilibrium approaches analyse policy impacts on individual markets in isolation from each other while ignoring intersectoral linkages, macroeconomic constraints and feedback effects. For the forward-looking analysis of regional integration agreements like the TFTA that are bound to affect many sectors simultaneously, there is a clear need to supplement partial equilibrium analysis with general equilibrium modelling to get a better ex ante understanding of the

² The author is grateful to George Osoro for granting access to these data.

wider economic impacts of different potential negotiation outcomes and to inform policy choices.

In contrast to partial equilibrium approaches, computable general equilibrium (CGE) models consider all sectors in an economy simultaneously and take full account of economy-wide resource constraints and spill-over effects across markets for individual goods and services. CGE models take consistent account of the full circular flow of income in an economy from (i) income generation through productive activity, to (ii) the primary distribution of that income to workers, owners of productive capital, and recipients of the proceeds from land and other natural resource endowments, to (iii) the redistribution of that income through taxes and transfers, and to (iv) the use of that income for consumption and investment.

The CGE approach enables a consistent integrated predictive evaluation of sectoral production and employment impacts, aggregate income and welfare effects of changes in trade barriers while taking full account of the macroeconomic repercussion arising e.g. from terms-of-trade effects, tariff revenue changes and intersectoral input-output linkages.

To elaborate on the potential significance of such general equilibrium linkage effects in the present context, for example a reduction of TFTA country A's tariffs on imports from partner country B for a particular commodity X may reduce country A's domestic output of good x due to increased import competition. But domestic producers of another commodity Y in A that use good X intensely as intermediate inputs now enjoy lower unit costs and can profitably increase their output – an intersectoral linkage effect on the supply side.

At the same time, country B's output of X expands due to the additional demand from A, and this raises the demand for all intermediate inputs from other sectors used in the production of good X – another intersectoral linkage effect.

Consumers who face a price reduction for good X enjoy a real purchasing power gain: For a given money income, they can buy the same basket of goods as before the tariff cut and still have some funds left for additional purchases. Most

likely, they will not spend all of this additional purchasing power on good X, but will spread it over other goods as well – an intersectoral linkage effect on the demand side.

Unlike partial-equilibrium models CGE models also take account of economy-wide resource constraints such as limits to the availability of productive capital, skilled labour and land, and fully obey all macroeconomic consistency constraints, which require, for example, that the balance of aggregate imports and exports matches a country's net capital inflows, or that aggregate investment matches total savings.

1.3 Analytic Approach

The analytical framework used in the present study is the GLOBE model, a global multi-region and multi-sector CGE trade model that has been widely used in regional economic integration analysis. The model is calibrated to the new GTAP 8.1 data base released end of May 2013, which is a revision and extension of the GTAP 8.0 database released in March 2012. (Narayanan et al (eds.), 2012). This data set provides a detailed and consistent representation the global economy-wide structure of production, demand and international trade at a regionally and sectorally disaggregated level. GTAP 8 combines detailed bilateral trade and protection data reflecting economic linkages among regions with individual country input-output data, which account for intersectoral linkages within regions for the benchmark year 2007.

In the first stage, the model has been used to generate an updated dynamic forward projection for the year 2014. The resulting global 2014 equilibrium serves as the baseline for comparison with the TFTA trade liberalization scenarios considered in this study.

In the second stage, a range of TFTA tariff liberalization scenarios with and without trade facilitation measures that reduce trade transaction costs as

designed in consultation with TMSA has been simulated. These simulations use the finest level of regional disaggregation across the TFTA area supported by the GTAP 8.1 database. This disaggregation identifies 15 of the 26 TFTA partner states as separate countries, while the remaining 11 TFTA countries are treated as parts of four composite regions that comprise several member states.

1.4 Organization of the Report

The exposition is organized as follows: Section 2 provides a concise non-technical description of the CGE model and its regional and sectoral aggregation structure. Section 3 describes the design of the various TFTA scenarios. Aggregate results for welfare and other macroeconomic variables are presented and discussed in section 4, while section 5 turns to sectoral results. Finally, section 6 provides a summary perspective. Appendix A1 details the assumptions underlying the forward projection to 2014. Appendix A2 presents selected key results of this baseline projection with a focus on features that are essential for gaining a firm analytical grasp of the TFTA simulation results.

2. The Computable General Equilibrium Model

2.1. Overview

GLOBE is a multi-country computable general equilibrium (CGE) model originally developed by McDonald, Thierfelder and Robinson (2007) to analyse the impact of global trade negotiations and regional trade agreements. The model consists of a set of individual country or region blocs that together provide complete coverage of the global economy and that are linked through international trade and capital flows. The modeling system solves the within country models and between country trade relationships simultaneously to ensure full global consistency among all variables – e.g. the sum of all exports across region matches the sum of all imports across regions for each commodity, and global production matches global demand for each commodity.

Each region bloc represents the whole economy of that region at a sectorally disaggregated level. The economic interactions among producers, consumers and the government as well as economic transactions with other regions are explicitly captured. Producers in each region combine primary factors (that is skilled and unskilled labour, physical capital, land and other natural resources) and intermediate inputs obtained from the same and other production sectors at home and abroad to produce output, The output is sold to domestic households, the domestic government, to domestic producers (for use as intermediate input or as an addition to the productive capital stock) and to the rest of the world. The production process generates factor income in the form of wages, other in-kind returns to labour, land and natural resource rents and returns to capital as well as production tax income for the government

The factor income flows to households. Households use their income to pay income taxes, to buy consumer goods and to save for future consumption. The government receives additional tax revenue from sales taxes including revenue from import duties.

The model parameters governing household, producer and government decisions are set in line with observed data for the reference year 2007, so that the model equilibrium in the absence of policy changes or other exogenous shocks exactly replicates the reference year data.

As further detailed in the Appendix, producer and consumer responses to price changes are modeled in accordance with microeconomic theory, and the parameters governing the responses to changes in input and output prices are based on the available econometric evidence.

In a nutshell, each region bloc of GLOBE is a multi-sectoral macroeconomic model with microeconomic theoretical foundations. The country models simulate the operation of factor and commodity markets, solving for wages, land rent, profits, and commodity prices that achieve supply-demand balance in all markets. Each country engages in international trade, supplying exports and demanding imports. The model determines world prices that achieve supply-demand balance in all global commodity markets, simulating the operation of world markets.

The model is initially calibrated to the GTAP 8 database that combines detailed bilateral trade, and protection data reflecting economic linkages among regions with individual country input-output data, which account for intersectoral linkages within regions, for the benchmark year 2007 and then used to generate a dynamic forward projection for the year 2014. The resulting global 2014 equilibrium will serve as the baseline for comparison with the TFTA trade liberalization scenarios considered in the next phases of the present study. Production, trade and income elasticities are drawn from the GTAP behavioural data base (Hertel, Narayanan, McDougall, 2006). The version of GLOBE employed in the present study distinguishes 22 commodity groups and production sectors, and 21 geographical regions as detailed in section 2.7 below.

The following sub-sections provide a more detailed informal account of the model components. A full formal algebraic exposition of the GLOBE model is given in

McDonald, Thierfelder and Robinson (2007). Various modifications of the model for purposes of the present study are noted further below.

2.2. Production, Input Demand and Factor Markets

Production relationships by activity are characterized by constant returns to scale and specified by nested Constant Elasticity of Substitution (CES) production functions. Activity output is a CES composite of aggregate intermediate inputs and aggregate value added, while aggregate intermediate inputs are a Leontief aggregate of the individual intermediate commodity inputs and aggregate value added is a CES composite of primary factors demanded by each activity. The determination of product supply and input demand is based on the assumption of profit maximizing behaviour.

For each region bloc, the model allows to adopt either a standard neoclassical factor market closure or a closure with labor underemployment. Under the former closure, factor markets in all regions are characterized by inelastic factor supplies and the model solves for market-clearing factor prices. The primary factors except sector-specific natural resource endowments are mobile across production activities, but immobile across borders. Under the latter closure option the wage for unskilled labor is fixed relative to the domestic consumer price index and the supply of unskilled labor is perfectly elastic.

2.3. Final Domestic Demand by Commodity

The commodity composition of government consumption demand and investment demand is fixed using the observed demand patterns from the benchmark data set, while the determination of the aggregate levels for these final demand components in each region depends on the choice of macro closure, as explained below in section 2.5. Households are utility maximizers who respond to changes in relative prices and disposable incomes. In this version of the model, the utility functions for private households take the Stone-

Geary form and hence consumer demand by commodity is described by a Linear Expenditure System (LES) specification.

2.4. International Trade

Domestically produced commodities are assumed to be imperfect substitutes for traded goods. Import demand is modelled via a series of nested constant elasticity of substitution (CES) functions; imported commodities from different source regions to a destination region are assumed to be imperfect substitutes for each other and are aggregated to form composite import commodities that are assumed to be imperfect substitutes for their counterpart domestic commodities. The composite imported commodities and their counterpart domestic commodities are then combined to produce composite consumption commodities, which are the commodities demanded by domestic agents as intermediate inputs and final demand (private consumption, government, and investment). Export supply is modelled via a series of nested constant elasticity of transformation (CET) functions; the composite export commodities are assumed to be imperfect substitutes for domestically consumed commodities, while the exported commodities from a source region to different destination regions are assumed to be imperfect substitutes for each other. The composite exported commodities and their counterpart domestic commodities are then combined as composite production commodities. The use of nested CET functions for export supply implies that domestic producers adjust their export supply decisions in response to changes in the relative prices of exports and domestic commodities. This specification is desirable in a global model with a mix of developing and developed countries that produce different kinds of traded goods with the same aggregate commodity classification, and yields more realistic behaviour of international prices than models assuming perfect substitution on the export side.

2.5. Macro Closure

For this exercise a “neutral” or “balanced” set of macro closure rules is specified. Current account balances for all regions are assumed to be fixed at initial benchmark levels in terms of a global numeraire and real exchange rates adjust to maintain external equilibrium. The assumption of fixed current account balances ensures that there are no changes in future “claims” on exports across the regions in the model, i.e. net asset positions are fixed. In addition, we assume a “balanced” macro adjustment to the trade policy shocks within countries. Changes in aggregate absorption are assumed to be shared equally (to maintain the shares from the base data) among private consumption, government, and investment demands. Household and government saving rates adjust residually to establish the macroeconomic saving-investment balance in each region.

2.6. Labour Market Closures

The model distinguishes two labour skill categories. Skilled labour supply is inelastic in all regions and the real wage is flexible. For unskilled labour, two alternative labour market closures are considered. The first alternative treats unskilled labour in the same way as unskilled labour. The alternative closure assumes unlimited supplies of unskilled labour at a fixed real wage in all African model regions.

2.7. Benchmark Data and Calibration

The model is calibrated to the GTAP 8.1 database that combines detailed bilateral trade, and protection data reflecting economic linkages among regions

with individual country input-output data, which account for intersectoral linkages within regions, for the benchmark year 2007. Production, trade and income elasticities are drawn from the GTAP behavioural data base (Hertel, Narayanan, McDougall, 2008).

2.7. Sectoral and Regional Aggregation

As shown in Table 1, the GTAP 8.1 database identifies 15 of the 26 potential TFTA countries as separate countries. The other 11 countries are aggregated into four GTAP composite regions (e.g. Lesotho and Swaziland together form the GTAP composite region "Rest of SACU", Angola and DR Congo together form the GTAP composite region "South Central Africa").

As these four GTAP composite regions are almost exclusively composed of TFTA countries³, the regional aggregation structure of the GTAP 8 database supports an almost perfect analytical separation of TFTA and Non-FTA regions, and allows a quite detailed analysis of changes in intra-TFTA trade flows, which takes explicit account of the bilateral trade flows among 19 TFTA countries / country blocs and their trade with the rest of the world.

In addition to these 19 TFTA regions, the regional model aggregation used in stages 1 and 2 of the study distinguishes three composite non-TFTA regions, namely Other Africa, the European Union, and the "Rest of the World".

With respect to the sectoral aggregation structure agreed in consultation with stakeholders, the model distinguishes 24 commodity groups and corresponding production sectors – including seven agricultural sectors, three natural resource extraction sectors, three food-processing sectors, eight non-food manufacturing sectors and three service categories - as listed in Table 2.

³ There are two exceptions: GTAP region "Rest of East Africa" also includes Somalia besides the listed TFTA countries and "Rest of Africa" contains Libya.

Table 1: Representation of Tripartite FTA Countries in GTAP8

Country	Separate Country in GTAP?	Part of GTAP Composite Region	COMESA Member	EAC Member	SADC Member	SACU Member
Angola		South Central Africa			Y	
Botswana	Y				Y	Y
Burundi		Rest of East Africa	Y	Y		
Comoros		Rest of East Africa	Y			
DR Congo		South Central Africa	Y		Y	
Djibouti		Rest of East Africa	Y			
Egypt	Y		Y			
Eritrea		Rest of East Africa	Y			
Ethiopia	Y		Y			
Kenya	Y		Y	Y		
Lesotho		Rest of SACU			Y	Y
Libya		Rest of North Africa	Y			
Madagascar	Y		Y		Y	
Malawi	Y		Y		Y	
Mauritius	Y		Y		Y	
Mozambique	Y				Y	
Namibia	Y				Y	Y
Rwanda	Y		Y	Y		
Seychelles		Rest of East Africa	Y		Y	
South Africa	Y				Y	Y
Sudan		Rest of East Africa	Y			
Swasiland		Rest of SACU	Y		Y	Y
Tanzania	Y			Y	Y	
Uganda	Y		Y	Y		
Zambia	Y		Y		Y	
Zimbabwe	Y		Y		Y	

Table 2: Commodity Aggregation and Concordance with GTAP Sectors

No.	Memo Code	Description	GTAP Sector Codes*
1.	MAIZCG	Maize and other coarse grains	gro
2.	WHEAT	Wheat	wht
3.	RICE	Paddy and processed rice	pdr, pcr
4.	VEGFRT	Vegetables, fruits and nuts	v_f
5.	SUGCAN	Sugar cane and beet	c_b
6.	OCROPS	Other crops	osd, pfb, ocr
7.	LIVSTK	Livestock products	ctl, oap, wol, rmk, fsh
8.	FOREST	Forestry	frs
9.	FSFUEL	Fossil fuels	coa, oil, gas, gdt, p_c
10.	MINRLS	Other mineral extraction	omn
11.	BEVTOB	Beverages and tobacco products	b_t
12.	SUGARP	Sugar and sugar products	sgr
13.	OPFOOD	Other processed food products	vol, cmt, omt, mil, ofd
14.	TEXTIL	Textiles, apparel and leather	tex, wap, lea
15.	CHEMRP	Chemicals, rubber and plastic products	crp
16.	MINPRD	Non-metal mineral products	nmm
17.	METALS	Metals	i_s, nfm
18.	METPRD	Metal products	fmp
19.	TRANEQ	Transport equipment	mvh, otn
20.	MACHEQ	Other machinery and equipment	ele, ome
21.	OMANUF	Other light manufactures	lum, ppp, omf
22.	TRADSV	Trade services	trd
23.	TRANSV	Transport services	otp, wtp, atp
24.	OTSERV	Other services	ely, gdt, wtr, cns, cmn, ofi, isr, obs, ros, osg, dwe

* See Appendix Table A15 for a description of the GTAP 8 sector codes.

3. Specification of the TFTA Simulation Scenarios

3.1. Simulation Scenarios

In addition to the end-of-2014 baseline projection, the following scenarios will be simulated:

T1: TFTA tariff liberalisation as detailed in section 3.2 with fixed supply of skilled and unskilled labour

T2: T1 plus elimination of existing export taxes (unlikely to be significantly different from T1, given that export taxes are very rare in the GTAP database)

T3: T1 plus simultaneous real transport / transaction cost reduction on intra-TFTA flows (5%pt reduction in NTB tariff-equivalents)

T4: TFTA tariff liberalisation with unlimited supply of unskilled labour and fixed supply of skilled labor.

The inclusion of transaction cost reductions in scenario T3 on top of the tariff removals aims to capture in a stylized form the potential impacts of non-tariff barrier reduction and other trade facilitation measures that are envisaged to be an integral part of the formation of the Tripartite Free Trade Area (Pearson, 2012). A key aim of the Comprehensive Trade and Transport Facilitation Programme (CTTTFP) launched by the Tripartite is the reduction of the high transit times and transaction costs along the principal corridors in Eastern and Southern Africa through the enhancement of infrastructure facilities at border posts, the establishment of one-stop border posts and integrated border management practices, the harmonization of trade and transport regulations and a range of other measures.

To capture the real resource cost savings associated with reductions in border delays, these measures are represented as a reduction in iceberg transport costs in the CGE model. Based on sample estimates of the cost wedges attributable to

avoidable delays provided by TMSA, scenario T3 assumes that the ad valorem tariff equivalent rate of these transport costs drops by five percentage points on all intra-TFTA trade flows.

3.2. Specification of Baseline Tariffs on Bilateral Trade between TFTA Participants

The baseline reflects the situation prior to entry into force of the FTA in 2015 and serves as the benchmark for comparison in the simulation analysis.

3.2.1. Baseline Tariff Rates on Intra-EAC Trade Flows

Tariffs are zero for all tariff lines.

3.2.2. Baseline Tariff Rates on Intra-COMESA Trade Flows

Tariffs are zero for all bilateral trade flows between full COMESA FTA participants (i.e. all COMESA members except DR Congo, Eritrea, Swaziland and Ethiopia).

Notes: Swaziland will not be assumed to be a full COMESA FTA participant by the time the TFTA enters into force. COMESA / EAC / SADC (2013) states that Swaziland “has not effected any tariff reduction. Swaziland receives non-reciprocal preferences but has been given derogation until the Tripartite FTA comes into force”.

Baseline tariff rates on trade flows between DR Congo, Eritrea and Ethiopia and full COMESA FTA participants are the latest available applied rates (GTAP database)..

3.2.3. Baseline Tariff Rates on Intra-SADC Trade Flows

Tariffs are zero for all SACU imports from SADC region

Tariffs are zero for most other bilateral trade flows between SACU SADC FTA participants (i.e. all SADC members except Angola, DR Congo and Seychelles).

Exceptions:

Baseline tariff rates for imports by DR Congo, Eritrea and Ethiopia from the SADC region and for imports by non-SACU SADC members from Angola, DR Congo and Seychelles are the latest available applied rates.

A number of non-SACU SADC FTA participants have 'Category E' (Exception List) tariff lines in their SADC tariff liberalization schedules, which are excluded from intra-SADC tariff phase-outs. In cases where these tariff lines account for a significant portion of a country's imports within the corresponding commodity group of the model and observed applied rates are non-zero, baseline intra-SADC tariffs are kept at nonzero levels. This is the case for Madagascar (Sugar Products), Malawi (Machinery and Equipment), Mozambique (Machinery and Equipment) and Zimbabwe (Transport Equipment).⁴

Notes: The specification of the intra-SADC baseline tariffs is based on the assumption that all SADC FTA participants will have reduced intra-SADC tariffs for all 'Category C' (sensitive products) tariff lines to zero by the time the TFTA enters into force. These assumptions are consistent with the information on the state of progress of intra-SADC trade liberalization in COMESA / EAC / SADC (2013) and on the SADC website (last accessed 15/08/2014).

Specifically, COMESA / EAC / SADC (2013) states: "The SADC FTA was launched in 2008 when 85% of tariff lines became duty free. The rest 15% of tariff lines were deemed sensitive (Category C products) and were accorded a longer liberalisation time frame up to 2012, except for Mozambique, which would

⁴ Note that Tanzania, Mauritius and Zambia have no 'Category E' goods in their SADC tariff phase-out schedules. The Seychelles are part of the composite 'Other East Africa' region in the model. Given the tiny weight of this country within the composite, model simulation results will be completely insensitive to assumptions about its baseline tariff levels.

complete its tariff phase down with respect to imports from South Africa by 2015. ... Zimbabwe was granted derogation from implementing its Category “C” tariff reductions until 2012 and to be completed by 2014”.

3.2.4. Baseline Tariffs on Inter-REC Trade flows

Baseline tariff rates are the latest available applied rates.

3.3. Specification of Tripartite FTA Tariff Changes

The specification of tariff changes due to the implementation of the Tripartite FTA follows the agreed modalities as described in Tripartite Task Force (2014). According to these modalities, “the ultimate goal of tariff liberalisation in the Tripartite FTA should approximate 100% of tariff lines” subject to the permanent exceptions as outlined above.

“Countries that are members of existing REC FTAs will not need to negotiate tariff liberalisation under the TFTA with other members of the same REC FTAs but will consolidate their existing tariff liberalisation levels into the TFTA. For countries which have not yet liberalised their tariffs fully under their respective REC trade regimes, or between countries in existing REC FTAs and countries which have not yet joined any REC FTAs, 60-85% of tariff lines should be liberalised upon entry into force of the TFTA Agreement; and the remaining tariff lines under the TFTA should be liberalised over an implementation period of five to eight years.” The principle of reciprocity applies to the tariff cuts.

The matrix in Appendix Table A15 shows for all country pairs which bilateral trade flows will be affected by the TFTA tariff cuts according to these modalities (y entries) – and which not (either because tariffs are already zero except for permanent exclusions, or (in the case of Lybia and Eritrea) because of non-participation) (n entries).

Correspondingly, the TFTA import tariff liberalizations in the model reflecting the situation after full implementation are specified as follows:

- TFTA non-participating countries

- Lybia
- Eritrea.

Import tariffs of Eritrea remain frozen at current levels. By reciprocity, the tariffs of the 24 participating countries on imports from Eritrea likewise do not change. Lybia's MFN import tariffs are already zero for all commodity groups.

- TFTA-participating countries who have not participated in an existing REC FTA

- Angola
- DR Congo
- Ethiopia

Each of these countries phases out tariffs on imports from the other 23 participating TFTA countries except in cases where partners maintain permanent exclusions as identified above.

- Participants in EAC FTA who also participate in COMESA FTA:

- Burundi
- Kenya
- Rwanda
- Uganda

These countries phase out tariffs on imports from Angola, DR Congo and Ethiopia and from SADC FTA members that are not COMESA FTA members (i.e. SACU countries and Mozambique), except for imports from Mozambique in tariff lines with permanent exclusions.

- Participants in EAC FTA who also participate in SADC FTA

- Tanzania

Tanzania phases out tariffs on imports from Angola, DR Congo and Ethiopia and from COMESA FTA members that are not SADC FTA members (i.e. Comoros, Djibouti, Egypt, Sudan).

The Tanzania offer to Djibouti, Egypt and Sudan is immediate tariff elimination on 96.9% of tariff lines and a five-year phase out for 3.1% of tariff lines.

[Tanzania's tariffs on imports from SADC are already zero on 99.6% of tariff lines (exceptions primarily in HS17 Sugar products and HS48 paper products)

- Participants in COMESA FTA who do not participate in EAC and SADC FTAS

- Comoros
- Djibouti
- Egypt
- Sudan

These countries phase out tariffs on imports from Angola, DR Congo and Ethiopia and from SADC FTA members that are not COMESA FTA members (i.e. Botswana, Lesotho, Namibia, South Africa and Mozambique), except for imports from Mozambique in tariff lines with permanent exclusions.

- Participants in COMESA FTA who participate in SADC FTA and not in EAC FTA:

- Madagascar
- Malawi
- Mauritius
- Seychelles
- Zambia
- Zimbabwe

These countries phase out tariffs on imports from the non-FTA countries Angola, DR Congo and Ethiopia, except for the permanent exclusions maintained by Madagascar, Malawi and Zimbabwe.

- SADC FTA members who do not participate in COMESA FTA

- Botswana

- Lesotho
- Namibia
- Swaziland
- South Africa
- Mozambique

These countries phase out tariffs on imports from Angola, DR Congo and Ethiopia and from COMESA FTA participants who don't participate in other RECs (Comoros, Djibouti, Egypt, Sudan) and from the joint EAC and COMESA FTA participants (Burundi, Kenya, Rwanda, Uganda) with the exception of permanent exclusions maintained by Mozambique.

4. Aggregate Results

4.1. Impacts on Aggregate Welfare and Trade

This section looks at the simulation results from a macroeconomic perspective, while section 5.2 turns to sectoral impacts. Table 3 reports aggregate welfare effects as measured by the change in real absorption – that is the change in the real amount of goods and services available for private and public consumption and investment to the economy valued at baseline prices.

As shown in the bottom rows of Tables 3 and 4, all four trade liberalization scenarios under consideration lead to positive net real income gains for the TFTA area as a whole.

The establishment of a free trade area with an elimination of most tariffs on trade among the partners (scenario T1) is projected to generate an annual welfare gain of US\$ 443million or roughly 0.1 percent of total TFTA area 2014 baseline absorption. In absolute terms, South Africa enjoys the largest real income gains under T1 whereas the largest gains relative to baseline absorption are projected for “Other SACU” (i.e. Swaziland and Lesotho) (+0.8 percent) and Namibia (+0.4 percent) in this scenario. In all these cases, baseline tariffs imposed on imports from other TFTA partners are already generally very low (Table A13), while tariffs faced by these countries on exports to TFTA partners are high for certain commodity groups prior to the implementation of TFTA (Table A14). As a consequence, exports to TFTA partners rise stronger than imports from TFTA partner after the removal of these tariff barriers, and this entails a noticeable terms-of-trade improvement along with an appreciation of the real exchange rate (Table 4) for these countries. A terms-of-trade improvement means that in exchange for each unit of exports a larger amount of goods and services can be imported from abroad, and it is this real appreciation effect that drives the welfare gains for these countries.

In contrast, Malawi, Mozambique, South Central Africa (Angola and DR Congo), Botswana and some other countries suffer very small (less than 0.1 percent) aggregate welfare losses under scenario T1 as result of a terms-of trade deterioration that dominates the gains from lower consumer prices for TFTA imports. These countries impose on average relatively high tariffs on TFTA imports and face on balance relatively low tariffs on their TFTA exports in the baseline.

The simulation results also suggest that participation in the free trade agreement would be in Ethiopia's interest, as welfare is higher than in the non-TFTA baseline. The case is different for South Central Africa. This region's export structure is strongly dominated by fossil fuel exports to non-TFTA regions (Table A9 and Table A12), and participation in TFTA has little impact on its exports to TFTA countries (+1.0 percent in T1 – see Table 8) while its imports from TFTA countries rise strongly (by US\$ 718 million (+32 percent) – see Table 6). This boost to TFTA imports is associated with a strong trade diversion effect: The volume of South Central Africa's imports from non-TFTA sources drops by US\$ 614 million (-1.7 percent – see Table 9)⁵. As South Central Africa imposes significant tariffs on most non-TFTA imports, this trade diversion means a welfare-reducing replacement of low-cost import sources by higher-cost import sources, which contributes to the small terms-of-trade loss reported for the region in T1.

The policy message from this result is *not* that the South Central Africa region should not participate in the TFTA. As Willenbockel (2013) demonstrates, the gains from the participation of South Central Africa and Ethiopia for the TFTA region as a group by far outweigh the losses of participation for South Central Africa, the net winners from South Central Africa's participation in TFTA could easily compensate South Central Africa for the tiny welfare loss of participation and still remain better off than without participation of DR Congo and Angola.

⁵ In the case of Ethiopia, TFTA imports rise by US\$ 281 million in T1, while non-TFTA imports drop by US\$ 184 million, i.e. the ratio of trade diversion to additional TFTA imports is far lower than in the case of South Central Africa.

When tariff liberalization as under T1 is combined with an elimination of all export taxes on intra-TFTA trade flows, the total aggregate welfare gain for the TFTA region as a whole rises by a further 120 million US\$ (scenario T2). The implications for government tax revenue are analyzed further in section 4.2.

A strong message is carried by the more ambitious TFTA T3 scenario, which combines tariff liberalization for intra-TFTA trade as under T1 with a reduction in non-tariff trade barriers that reduce the costs of border-crossing trade within the TFTA area. Under the stated assumptions the projected aggregate net benefit for the TFTA group amounts to US\$ 3.1 billion per annum, that is nearly 0.4 percent of aggregate baseline absorption and more than seven times the gains resulting from full intra-TFTA tariff liberalization alone. Importantly, in contrast to the T1 scenario *all* TFTA regions enjoy a positive aggregate welfare gain in this case. The countries with the largest projected percentage increases in real absorption are Zimbabwe (+3.1 percent), Namibia (+2.4 percent), Mozambique (+1.8 percent), Botswana (+1.8 percent) and Other SACU (+1.5 percent) (Table 3 and Figure 1). The total volume of intra-TFTA trade is boosted by US\$ 7.0 billion, an increase of over 17 percent relative to the 2014 baseline volume.

Under the alternative assumption of a perfectly elastic supply of unskilled labour in all TFTA regions – which entails that aggregate unskilled employment can expand without any concomitant increase in real wages for unskilled workers – the aggregate annual welfare gain for the TFTA bloc from tariff cuts alone as under T1 (scenario T4) would rise to US\$ 1 billion (0.12 percent of baseline absorption). The joint implementation of tariff cuts and NTB reductions as in T3 under this alternative labour market closure assumption leads to a simulated welfare gain for the TFTA region on the order of US\$ 5.2 billion (0.61 percent of baseline absorption).

Table 3: Changes in Aggregate Welfare (Real Absorption)*(Million US\$ and percentage deviation from baseline)*

	US\$ Million				Percentage Change			
	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	33.6	44.4	110.9	97.1	0.09	0.12	0.29	0.26
Kenya	-20.9	-4.6	139.9	30.3	-0.05	-0.01	0.36	0.08
Madagascar	-0.7	-0.9	14.2	-1.1	-0.01	-0.01	0.17	-0.01
Malawi	-3.7	-4.5	51.4	-4.7	-0.09	-0.10	1.18	-0.11
Mauritius	-1.1	-1.3	37.7	-1.4	-0.01	-0.01	0.40	-0.01
Mozambique	-10.3	-11.4	217.6	-13.8	-0.09	-0.10	1.84	-0.12
Rwanda	-1.1	-0.5	22.9	2.7	-0.02	-0.01	0.40	0.05
Tanzania	-2.9	-1.1	97.2	-0.7	-0.01	0.00	0.36	0.00
Uganda	26.7	40.9	105.3	72.7	0.15	0.23	0.59	0.41
Zambia	-8.0	-9.8	160.5	-10.3	-0.05	-0.06	0.97	-0.06
Zimbabwe	0.0	-1.0	187.3	1.2	0.00	-0.02	3.12	0.02
OEastAfrica	1.5	21.2	98.5	75.6	0.00	0.03	0.16	0.12
SCAfrica	-57.7	30.3	101.9	14.5	-0.08	0.04	0.13	0.02
Botswana	-10.4	-13.9	234.8	-16.1	-0.08	-0.10	1.76	-0.12
Namibia	45.1	39.2	286.3	67.4	0.38	0.33	2.43	0.57
SouthAfrica	410.6	393.6	1089.0	637.7	0.12	0.12	0.33	0.19
OSACU	32.4	29.8	64.3	32.1	0.76	0.70	1.51	0.75
Egypt	10.0	9.9	83.4	29.1	0.01	0.01	0.05	0.02
OAfrica	-10.7	-15.4	-60.2	-8.1	0.00	0.00	-0.01	0.00
EU27	-104.9	-153.7	-307.0	-91.0	0.00	0.00	0.00	0.00
RoW	-205.3	-272.1	-619.7	-177.8	0.00	0.00	0.00	0.00
Total World	122.3	118.9	2116.2	735.4	0.00	0.00	0.00	0.00
Total TFTA	443.2	560.1	3103.0	1012.4	0.05	0.07	0.36	0.12

Figure 1: Aggregate Welfare Gains – Ambitious TFTA Scenario (T3)

(Percentage deviation from baseline real absorption)

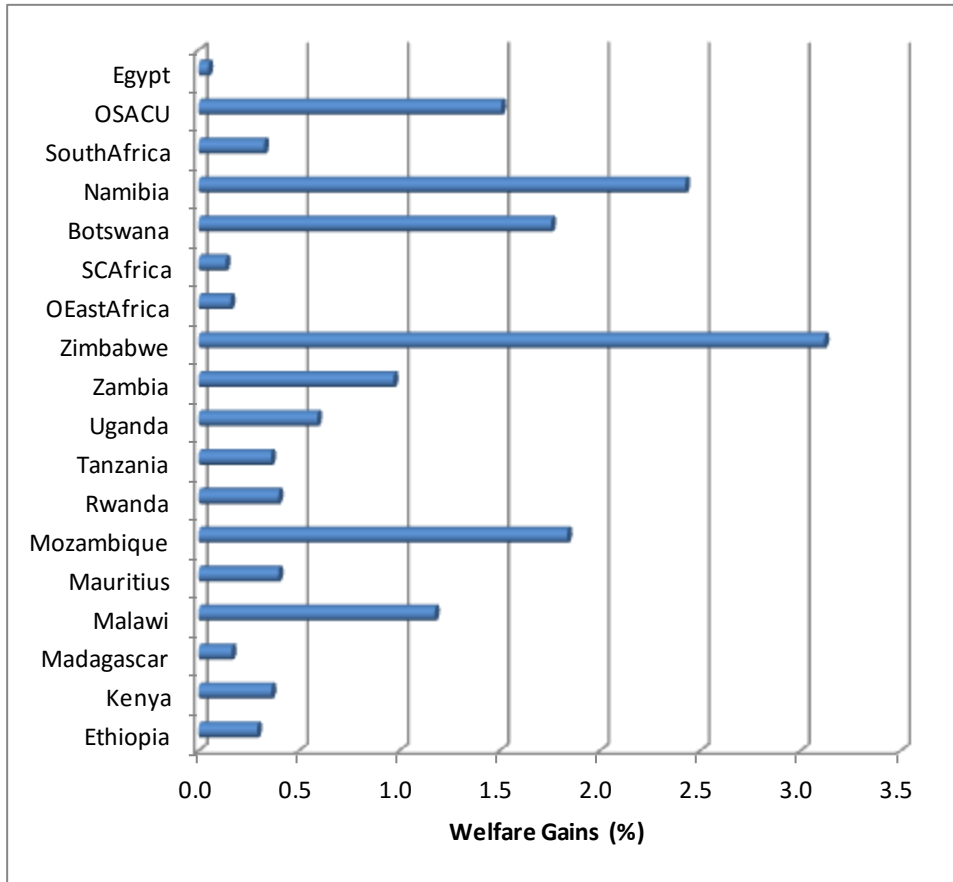


Table 4: Change in Aggregate Terms of Trade and Real Exchange Rate*(Percentage changes relative to 2014 Base)*

	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	0.50	0.59	1.21	0.43	-0.24	-0.19	-0.46	-0.17
Kenya	-0.28	-0.15	0.94	-0.33	0.66	0.61	0.01	0.71
Madagascar	-0.03	-0.04	0.58	-0.03	-0.01	-0.01	0.03	-0.01
Malawi	-0.23	-0.28	2.76	-0.22	0.10	0.08	0.07	0.10
Mauritius	-0.02	-0.02	0.56	-0.02	-0.02	-0.02	-0.02	-0.02
Mozambique	-0.17	-0.19	3.01	-0.15	0.01	-0.02	-0.60	0.00
Rwanda	-0.02	0.01	1.69	-0.02	0.50	0.52	0.97	0.54
Tanzania	-0.08	-0.07	1.03	-0.08	0.07	-0.01	-0.07	0.08
Uganda	0.10	0.28	1.69	0.04	0.49	0.36	0.19	0.56
Zambia	-0.14	-0.18	2.66	-0.12	0.02	0.01	-0.62	0.02
Zimbabwe	0.00	-0.02	3.62	-0.01	-0.15	-0.19	0.03	-0.14
OEastAfrica	0.05	0.15	0.65	0.04	0.51	0.57	0.72	0.54
SCAfrica	-0.06	0.13	0.27	-0.07	0.73	0.82	0.89	0.75
Botswana	-0.20	-0.26	3.98	-0.17	-0.15	-0.18	0.26	-0.14
Namibia	0.73	0.68	4.70	0.69	-0.85	-1.09	-0.29	-0.83
SouthAfrica	0.28	0.27	0.83	0.26	-0.27	-0.34	-0.51	-0.26
OSACU	0.83	0.80	2.05	0.83	-1.87	-2.29	-2.17	-1.87
Egypt	0.02	0.02	0.14	0.01	0.00	0.00	-0.05	0.00
OAfrica	0.00	-0.01	-0.02	0.00	0.00	0.00	0.00	0.00
EU27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RoW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: For the real exchange rate, negative signs indicate an *appreciation* of the real exchange rate, while positive signs indicate a real *depreciation*.

Table 5: Change in Aggregate Real Exports and Imports*(Percentage changes relative to 2014 Base)*

	Export Volume				Import Volume			
	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	1.29	1.36	1.35	1.57	1.03	1.17	1.71	1.16
Kenya	1.85	2.06	2.51	2.07	1.27	1.53	2.92	1.39
Madagascar	-0.03	-0.03	0.47	-0.03	-0.04	-0.06	0.84	-0.05
Malawi	0.00	0.00	0.38	-0.03	-0.19	-0.23	3.07	-0.21
Mauritius	0.00	0.00	0.41	-0.01	-0.02	-0.02	0.96	-0.02
Mozambique	0.07	0.07	0.16	0.04	-0.07	-0.09	3.15	-0.08
Rwanda	0.52	0.59	1.30	0.58	0.35	0.44	2.42	0.41
Tanzania	0.13	0.24	0.63	0.14	0.06	0.15	1.43	0.07
Uganda	1.30	1.55	2.06	1.55	1.97	2.41	4.31	2.16
Zambia	0.00	0.00	0.04	-0.02	-0.13	-0.16	2.57	-0.13
Zimbabwe	0.00	0.00	1.88	0.01	0.00	-0.02	5.17	0.01
OEastAfrica	0.71	0.79	1.13	0.76	0.54	0.71	1.40	0.59
SCAfrica	0.30	0.48	0.40	0.33	0.28	0.75	0.80	0.32
Botswana	0.00	0.01	-0.02	-0.05	-0.17	-0.22	4.11	-0.21
Namibia	0.07	0.31	0.95	0.32	0.79	0.91	5.43	0.97
SouthAfrica	0.17	0.33	0.46	0.24	0.51	0.63	1.37	0.56
OSACU	0.33	0.97	0.91	0.33	2.30	3.11	4.83	2.30
Egypt	0.07	0.07	0.19	0.09	0.07	0.07	0.26	0.08
OAfrica	0.00	0.00	-0.01	0.00	0.00	0.00	-0.03	0.00
EU27	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
RoW	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
Total World	0.00	0.01	0.01	0.01	0.00	0.01	0.02	0.01
Total TFTA	0.29	0.40	0.56	0.34	0.40	0.54	1.47	0.44

Table 6: Changes in Intra-TFTA Import Volumes by Destination

(Million US\$ and percentage deviation from baseline)

	US\$ Million					%			
	<i>Base 2014</i>	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	937.7	281.1	330.9	449.0	283.4	30.0	35.3	47.9	30.2
Kenya	1853.0	305.5	410.1	614.8	309.2	16.5	22.1	33.2	16.7
Madagascar	443.1	-3.2	-4.1	69.9	-3.0	-0.7	-0.9	15.8	-0.7
Malawi	1103.4	-4.9	-6.5	99.3	-4.8	-0.4	-0.6	9.0	-0.4
Mauritius	584.6	-3.9	-4.7	87.8	-3.5	-0.7	-0.8	15.0	-0.6
Mozambique	3471.6	-11.7	-16.1	309.3	-11.1	-0.3	-0.5	8.9	-0.3
Rwanda	537.1	18.4	22.6	72.9	19.2	3.4	4.2	13.6	3.6
Tanzania	1491.8	26.7	24.9	266.9	28.6	1.8	1.7	17.9	1.9
Uganda	1397.2	99.9	150.8	278.5	104.1	7.1	10.8	19.9	7.5
Zambia	3251.5	-16.8	-22.3	282.5	-15.7	-0.5	-0.7	8.7	-0.5
Zimbabwe	3468.3	-6.4	-9.5	306.4	-5.7	-0.2	-0.3	8.8	-0.2
OEastAfrica	2164.8	334.5	433.6	686.3	338.4	15.5	20.0	31.7	15.6
SCAfrica	2260.9	717.6	1152.1	1196.3	723.0	31.7	51.0	52.9	32.0
Botswana	4129.0	-16.0	-20.4	279.0	-16.7	-0.4	-0.5	6.8	-0.4
Namibia	4414.0	21.6	22.6	381.1	30.8	0.5	0.5	8.6	0.7
SouthAfrica	7706.3	49.9	66.7	1257.1	54.5	0.6	0.9	16.3	0.7
OSACU	387.4	11.6	14.1	63.1	11.8	3.0	3.6	16.3	3.0
Egypt	872.2	109.6	113.9	276.0	111.0	12.6	13.1	31.6	12.7
Total	40473.7	1913.5	2658.6	6976.3	1953.5	4.7	6.6	17.2	4.8

Table 7: Changes in Intra-TFTA Import Volumes by Commodity Group*(Million US\$ and percentage deviation from baseline)*

	US\$ Million					%				
	<i>Base 2014</i>	T1	T2	T3	T4	T1	T2	T3	T4	
MAIZCG	448.2	3.5	3.6	29.3	3.7	0.8	0.8	6.5	0.8	
RICE	76.5	-0.1	-0.2	9.6	0.0	-0.1	-0.2	12.5	-0.1	
WHEAT	108.7	0.2	0.2	12.4	0.2	0.1	0.1	11.4	0.2	
VEGFRT	463.5	35.8	35.9	81.5	36.2	7.7	7.8	17.6	7.8	
SUGCAN	0.3	0.0	0.0	0.1	0.0	11.3	11.2	27.1	11.4	
OCROPS	1268.6	58.8	58.1	214.5	61.2	4.6	4.6	16.9	4.8	
LIVSTK	348.5	8.5	8.4	42.7	8.7	2.4	2.4	12.2	2.5	
FOREST	294.7	15.2	14.9	35.4	15.1	5.1	5.1	12.0	5.1	
FSFUEL	5133.4	237.1	458.7	891.9	241.8	4.6	8.9	17.4	4.7	
MINRLS	1391.8	3.1	4.1	48.4	4.0	0.2	0.3	3.5	0.3	
BEVTOB	858.7	101.1	100.7	168.8	102.1	11.8	11.7	19.7	11.9	
SUGARP	709.8	144.8	144.3	214.3	145.6	20.4	20.3	30.2	20.5	
OPFOOD	3224.1	186.7	184.2	642.7	191.4	5.8	5.7	19.9	5.9	
TEXTIL	1876.3	85.6	128.4	428.7	87.8	4.6	6.8	22.8	4.7	
CHEMRP	4775.8	214.1	318.6	771.6	219.9	4.5	6.7	16.2	4.6	
MINPRD	1037.6	46.8	55.1	144.5	47.9	4.5	5.3	13.9	4.6	
METALS	4933.7	166.9	179.4	764.5	169.8	3.4	3.6	15.5	3.4	
METPRD	1425.5	122.0	141.7	314.2	123.6	8.6	9.9	22.0	8.7	
TRANEQ	7244.1	307.2	516.9	1303.3	315.1	4.2	7.1	18.0	4.3	
MACHEQ	711.6	32.9	132.3	158.2	33.8	4.6	18.6	22.2	4.8	
OMANUF	1990.3	138.0	167.8	416.0	140.0	6.9	8.4	20.9	7.0	
TRADSV	31.8	0.0	0.0	4.8	0.1	0.1	0.1	15.2	0.2	
TRANSV	211.7	0.3	0.4	31.6	0.5	0.1	0.2	14.9	0.2	
OTSERV	1908.7	5.1	5.1	247.3	5.2	0.3	0.3	13.0	0.3	
Total	40473.7	1913.5	2658.6	6976.3	1953.5	4.7	6.6	17.2	4.8	

Table 8: Changes in Intra-TFTA Export Volumes by Origin*(Million US\$ and percentage deviation from baseline)*

	US\$ Million					%			
	<i>Base 2014</i>	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	459.5	157.9	157.5	195.7	158.9	34.4	34.3	42.6	34.6
Kenya	2894.3	87.6	123.5	308.6	95.2	3.0	4.3	10.7	3.3
Madagascar	86.8	-0.5	-0.6	10.5	-0.5	-0.6	-0.7	12.1	-0.5
Malawi	552.9	-6.0	-5.6	27.6	-6.1	-1.1	-1.0	5.0	-1.1
Mauritius	469.3	0.3	0.1	57.3	0.3	0.1	0.0	12.2	0.1
Mozambique	2716.0	-1.5	4.1	133.8	-2.0	-0.1	0.1	4.9	-0.1
Rwanda	81.6	0.8	2.0	8.3	0.9	1.0	2.5	10.1	1.1
Tanzania	1089.6	-7.5	32.9	97.7	-7.2	-0.7	3.0	9.0	-0.7
Uganda	891.0	50.1	91.4	119.4	53.4	5.6	10.3	13.4	6.0
Zambia	1407.2	-1.8	0.0	85.1	-1.4	-0.1	0.0	6.0	-0.1
Zimbabwe	2308.0	8.8	11.2	115.7	9.4	0.4	0.5	5.0	0.4
OEastAfrica	832.8	103.5	103.1	177.1	105.2	12.4	12.4	21.3	12.6
SCAfrica	1405.6	13.7	24.7	262.2	15.2	1.0	1.8	18.7	1.1
Botswana	1403.3	5.6	7.0	113.6	4.4	0.4	0.5	8.1	0.3
Namibia	1322.5	142.6	196.0	257.3	146.7	10.8	14.8	19.5	11.1
SouthAfrica	20638.9	1182.5	1679.6	2354.9	1202.4	5.7	8.1	11.4	5.8
OSACU	492.5	117.5	175.6	177.6	117.7	23.9	35.7	36.1	23.9
Egypt	1421.9	60.0	56.1	214.3	60.9	4.2	3.9	15.1	4.3
Total	40473.7	1913.5	2658.6	4716.7	1953.5	4.7	6.6	11.7	4.8

Table 9: Changes in Import Volumes of Non-TFTA Origin

(Million US\$ and percentage deviation from baseline)

	US\$ Million					%			
	<i>Base 2014</i>	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	8278.3	-184.4	-219.2	-281.0	-174.7	-2.2	-2.6	-3.4	-2.1
Kenya	11385.6	-191.8	-257.2	-273.3	-179.1	-1.7	-2.3	-2.4	-1.6
Madagascar	2666.9	1.6	2.0	-36.9	1.3	0.1	0.1	-1.4	0.1
Malawi	760.6	1.0	1.9	-37.3	0.7	0.1	0.3	-4.9	0.1
Mauritius	5476.3	2.7	3.1	-26.6	2.2	0.0	0.1	-0.5	0.0
Mozambique	3434.8	5.3	8.4	-79.0	4.0	0.2	0.2	-2.3	0.1
Rwanda	770.5	-15.3	-18.0	-37.3	-15.3	-2.0	-2.3	-4.8	-2.0
Tanzania	7004.2	-22.8	-13.7	-127.3	-23.5	-0.3	-0.2	-1.8	-0.3
Uganda	3000.5	-48.2	-77.8	-113.8	-43.9	-1.6	-2.6	-3.8	-1.5
Zambia	2651.4	8.5	11.8	-115.0	7.4	0.3	0.4	-4.3	0.3
Zimbabwe	1116.7	6.0	8.1	-59.3	5.8	0.5	0.7	-5.3	0.5
OEastAfrica	14056.2	-264.0	-328.7	-444.7	-260.6	-1.9	-2.3	-3.2	-1.9
SCAfrica	36345.6	-613.7	-841.1	-871.5	-605.0	-1.7	-2.3	-2.4	-1.7
Botswana	1322.2	6.1	7.7	-48.3	5.1	0.5	0.6	-3.7	0.4
Namibia	1422.2	24.1	29.9	-56.2	25.3	1.7	2.1	-3.9	1.8
SouthAfrica	96932.8	469.0	583.7	207.7	519.2	0.5	0.6	0.2	0.5
OSACU	1525.9	32.2	45.4	31.6	32.1	2.1	3.0	2.1	2.1
Egypt	59796.8	-75.6	-79.9	-114.0	-71.5	-0.1	-0.1	-0.2	-0.1
Total	257947.4	-859.3	-1133.5	-2482.1	-770.7	-0.3	-0.4	-1.0	-0.3

4.2. Impacts on Government Revenue

The simulated direct impacts on tariff revenue arising from intra-TFTA trade are reported in Table 10. Summed across the whole TFTA group, the reduction in this source of government revenue ranges from US\$ 684 million to US\$ 695 million. To set these figures into proper perspective it should be noted that in the baseline this tax revenue source accounts for only 0.6 percent of total TFTA area tax revenue.

Table 10: Changes in Tariff Revenue on Intra-TFTA Imports

(Million US\$)

	US\$ Million				%			
	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	-105.6	-105.6	-105.6	-105.6	-100.0	-100.0	-100.0	-100.0
Kenya	-123.6	-123.5	-123.4	-123.6	-88.3	-88.2	-88.2	-88.2
Madagascar	0.0	0.0	0.1	0.0	-2.0	-2.0	5.0	-2.0
Malawi	-0.1	-0.1	0.1	-0.1	-6.6	-7.2	5.5	-6.6
Mauritius	-0.1	-0.1	-0.1	-0.1	-96.2	-96.2	-95.4	-96.2
Mozambique	-2.8	-2.8	-1.7	-2.7	-26.6	-27.0	-16.3	-26.6
Rwanda	-7.7	-7.7	-7.7	-7.7	-100.0	-100.0	-100.0	-100.0
Tanzania	-8.0	-8.0	-8.0	-8.0	-100.0	-100.0	-100.0	-100.0
Uganda	-70.3	-70.3	-70.3	-70.3	-99.4	-99.4	-99.5	-99.4
Zambia	-0.1	-0.1	-0.1	-0.1	-95.2	-95.1	-94.7	-95.2
Zimbabwe	-0.5	-0.7	7.6	-0.5	-0.6	-0.7	8.2	-0.5
OEastAfrica	-106.1	-102.3	-105.3	-106.1	-92.4	-89.1	-91.7	-92.4
SCAfrica	-237.0	-237.0	-237.0	-237.0	-100.0	-100.0	-100.0	-100.0
Botswana	-0.1	-0.1	-0.1	-0.1	-29.3	-29.2	-22.3	-29.4
Namibia	-0.1	-0.1	-0.1	-0.1	-65.7	-65.7	-62.8	-65.7
SouthAfrica	-11.3	-11.3	-10.1	-11.3	-62.7	-62.6	-56.0	-62.6
OSACU	-0.5	-0.5	-0.5	-0.5	-74.0	-74.0	-69.6	-74.0
Egypt	-21.4	-21.4	-21.3	-21.4	-96.3	-96.1	-95.7	-96.3
Total	-695.4	-691.7	-683.6	-695.3	-83.6	-83.2	-82.2	-83.6

To assess the full budgetary impact of the tariff cuts, indirect effects such as the reductions in tariff revenue from non-TFTA imports as a consequence of trade diversion, changes in revenue from other sales taxes and changes in factor tax revenue due to the general equilibrium repercussions on production patterns and factor prices need to be taken account. Therefore, the right-hand panel of Table 11 reports the percentage changes in total tax (including import duty) revenue by TFTA region.

Table 11: Changes in Export Tax Revenue and Total Tax Revenue

(Percentage changes relative to 2014 Base)

	Export Tax Revenue				Total Tax Revenue			
	T1	T2	T3	T4	T1	T2	T3	T4
Ethiopia	-0.3	-8.6	0.8	-0.1	-2.9	-2.9	-3.1	-2.6
Kenya	3.6	-2.0	8.4	3.9	-3.4	-3.7	-3.0	-3.3
Madagascar	0.0	0.0	0.0	0.0	0.0	0.0	-0.9	0.0
Malawi	0.4	0.4	3.7	0.4	0.0	0.0	0.7	-0.1
Mauritius	0.3	-0.5	2.0	0.3	0.0	0.0	0.2	0.0
Mozambique	0.9	-1.9	3.9	0.8	-0.1	-0.2	0.9	-0.2
Rwanda	0.8	-7.8	2.8	0.9	-0.8	-0.9	-0.9	-0.7
Tanzania	0.5	-2.3	3.8	0.5	-0.1	-0.2	0.1	-0.1
Uganda	2.8	-20.1	6.9	3.3	-3.3	-3.7	-3.7	-3.0
Zambia	0.3	0.2	1.0	0.3	0.0	0.0	0.1	0.0
Zimbabwe	0.2	-0.6	5.6	0.2	0.0	0.0	2.3	0.1
OEastAfrica	2.4	-8.6	3.7	2.5	-0.5	-0.5	-0.5	-0.4
SCAfrica	1.3	-0.1	1.6	1.4	-0.9	-0.9	-0.8	-0.8
Botswana	0.0	0.0	0.0	2.7	-0.1	-0.1	1.0	-0.1
Namibia	2.5	-16.4	5.0	2.1	0.5	-1.6	0.9	0.7
SouthAfrica	2.0	-7.6	4.2	-1.4	0.1	0.0	0.3	0.2
OSACU	-1.4	-14.7	-0.6	-0.4	-0.6	-3.2	-0.1	-0.7
Egypt	-0.4	3.0	-1.0	-0.1	-0.2	-0.2	-0.2	-0.2

The impact is most pronounced in the case of Uganda, a country with particularly high intra-TFTA sugar import duties and a particularly high share of intra-TFTA tariff revenue in total tax revenue in the status quo ante. Interestingly, in some

cases - including Namibia and South Africa where baseline intra-TFTA tariffs are already low and the share of this revenue source in total tax revenue is negligible – the net impact on tax revenue arising from the interplay of the aforementioned indirect effects is actually slightly positive. Table 11 also shows a large variation in the impact of an elimination of export taxes imposed on intra-TFTA exports on total export tax revenue, because the application of such taxes and the share of export tax revenue arising from intra-TFTA-region exports varies widely across countries.

4.3. Factor Price Effects

Tables 12 to 15 report the impacts on the wages for skilled (SkL) and unskilled (UnSkL) labor along with the effects on the returns of other primary production factors. Here all factor prices are measured relative to each country / region's consumer price index. In other words factor prices are expressed in terms of their purchasing power of consumption goods. Thus, positive-signed figures in the tables reflect an increase in the real purchasing power of factor earnings.

The changes in factor price relations depend essentially on the factor intensities of the sectors that experience an output expansion due to a growth in export demand and the sectors that shrink relative to others due to higher import competition. For example, land rents in Kenya under T2 and T3 drop noticeably relative to other factor prices, because land-intensive domestic sugar cane production drops significantly due to the backward linkage effect associated with the contraction of the domestic sugar products sector, which is in turn caused by the increase in sugar product imports.

Skill premia are projected to rise in some countries and to drop in others, but the changes in relative wages either way are very moderate. Thus, the simulation results do not suggest that TFTA leads to a systematic increase in wage inequality.

Table 12: Changes in Factor Returns by Country – T1*(Percentage changes relative to 2014 Base)*

	Land	UnSkL	SkL	Capital
Ethiopia	0.28	0.47	0.52	0.61
Kenya	-2.21	0.34	0.64	0.66
Madagascar	-0.05	-0.01	-0.01	-0.01
Malawi	-0.26	-0.07	-0.02	-0.02
Mauritius	0.06	-0.01	-0.01	-0.02
Mozambique	-0.22	-0.08	-0.01	-0.06
Rwanda	0.21	0.12	0.15	0.09
Tanzania	-0.08	0.01	0.03	0.01
Uganda	0.32	0.61	0.57	0.59
Zambia	-0.30	-0.03	-0.03	-0.04
Zimbabwe	-1.05	0.07	0.06	0.12
OEastAfrica	-1.04	0.16	0.20	0.19
SCAfrica	-0.91	0.40	0.45	0.47
Botswana	0.28	-0.09	-0.12	-0.13
Namibia	2.10	0.62	0.56	0.57
SouthAfrica	0.77	0.14	0.13	0.11
OSACU	23.29	-0.03	-0.72	-0.24
Egypt	-0.32	0.03	0.04	0.05
OAfrica	-0.01	0.00	0.00	0.00
EU27	-0.02	0.00	0.00	0.00
RoW	-0.01	0.00	0.00	0.00

Table 13: Changes in Factor Returns by Country – T2*(Percentage changes relative to 2014 Base)*

	Land	UnSkL	SkL	Capital
Ethiopia	0.37	0.51	0.55	0.63
Kenya	-2.19	0.44	0.76	0.77
Madagascar	-0.05	-0.01	-0.01	-0.01
Malawi	-0.28	-0.09	-0.04	-0.04
Mauritius	0.10	-0.01	-0.02	-0.02
Mozambique	-0.30	-0.06	-0.01	-0.07
Rwanda	0.23	0.14	0.17	0.11
Tanzania	-0.21	0.08	0.12	0.09
Uganda	-0.06	0.74	0.76	0.77
Zambia	-0.32	-0.05	-0.05	-0.05
Zimbabwe	-1.25	0.06	0.04	0.11
OEastAfrica	-0.85	0.18	0.23	0.21
SCAfrica	-0.58	0.56	0.64	0.64
Botswana	0.24	-0.12	-0.16	-0.18
Namibia	1.06	0.95	0.82	0.84
SouthAfrica	0.51	0.17	0.16	0.13
OSACU	20.96	0.35	-0.49	0.10
Egypt	-0.31	0.03	0.04	0.05
OAfrica	-0.01	0.00	0.00	0.00
EU27	-0.01	0.00	0.00	0.00
RoW	0.00	0.00	0.00	0.00

Table 14: Changes in Factor Returns by Country – T3*(Percentage changes relative to 2014 Base)*

	Land	UnSkL	SkL	Capital
Ethiopia	0.19	0.74	0.93	1.01
Kenya	-2.62	0.88	1.29	1.33
Madagascar	0.04	0.23	0.27	0.27
Malawi	-0.57	1.30	1.55	1.55
Mauritius	-1.35	0.57	0.43	0.54
Mozambique	-0.49	1.33	1.97	1.69
Rwanda	0.94	0.61	0.65	0.49
Tanzania	-0.12	0.49	0.59	0.53
Uganda	0.56	1.17	1.19	1.15
Zambia	1.83	0.86	0.97	0.94
Zimbabwe	4.92	3.45	3.03	3.55
OEastAfrica	-1.14	0.32	0.41	0.36
SCAfrica	-0.90	0.58	0.68	0.69
Botswana	0.74	2.12	2.46	2.13
Namibia	5.52	3.10	3.29	3.04
SouthAfrica	1.00	0.40	0.39	0.32
OSACU	22.70	0.67	-0.16	0.39
Egypt	-0.55	0.10	0.13	0.13
OAfrica	0.01	-0.01	-0.01	-0.01
EU27	0.03	0.00	0.00	0.00
RoW	0.00	0.00	0.00	0.00

Table 15: Changes in Factor Returns by Country – T4*(Percentage changes relative to 2014 Base)*

	Land	UnSkL	SkL	Capital
Ethiopia	1.26	0.00	0.67	0.79
Kenya	-1.54	0.00	0.74	0.79
Madagascar	-0.07	0.00	-0.01	-0.01
Malawi	-0.38	0.00	-0.03	-0.04
Mauritius	0.04	0.00	-0.02	-0.02
Mozambique	-0.39	0.00	-0.02	-0.08
Rwanda	0.51	0.00	0.19	0.15
Tanzania	-0.06	0.00	0.04	0.01
Uganda	1.78	0.00	0.70	0.76
Zambia	-0.36	0.00	-0.04	-0.04
Zimbabwe	-0.94	0.00	0.06	0.13
OEastAfrica	-0.49	0.00	0.27	0.27
SCAfrica	-0.49	0.00	0.49	0.52
Botswana	0.03	0.00	-0.15	-0.14
Namibia	2.81	0.00	0.66	0.70
SouthAfrica	1.13	0.00	0.18	0.16
OSACU	23.29	0.00	-0.72	-0.25
Egypt	-0.26	0.00	0.05	0.06
OAfrica	-0.01	0.00	0.00	0.00
EU27	-0.02	0.00	0.00	0.00
RoW	-0.01	0.00	0.00	0.00

5. Sectoral Results

This section turns to the potential impacts of TFTA on the sectoral structure of production and employment. Tables 16 to 19 report the changes in real gross output by commodity group and TFTA region for each of the four scenarios under consideration.

To set the percentage changes in these Tables into proper perspective, the information on the relative importance of each sector in total domestic production activity by region provided in Table A6 needs to be borne in mind. For brevity's sake, the following discussion focuses primarily on the full intra tariff liberalization scenario T1.

As Table 16 indicates, strong sectoral production effects with corresponding significant implications for sectoral employment are concentrated in a sub-set of sectors including primarily sugar products with backward linkage effects to sugar cane production, and to a lesser extent for some TFTA countries in textiles, metals and metal production, beverages and tobacco, light manufacturing and chemicals. The directions and magnitudes of the effects can be readily explained by recourse to the information on average baseline tariffs in Tables A13/14, on revealed comparative advantage (i.e. the direction of baseline net trade by commodity and region in Table A10), the baseline shares of exports in domestic production (Table A9) and the baseline TFTA trade shares in Tables A11/12.

In the case of sugar products, the net importers Kenya and Uganda (Table 10) impose the highest pre-TFTA duties on imports from prospective TFTA partners in this commodity group (Table A13), whereas net sugar product exporter OSACU as well as Mozambique face the highest TFTA duties on their sugar product exports. Despite the high import tariffs, both Kenya and Uganda already source a high share of their sugar product imports from TFTA sources in the baseline (69 and 98 percent respectively according to Table A11). Correspondingly, the elimination of these trade barriers leads to a significant

contraction of uncompetitive high-cost production in Kenya's and Uganda's sugar sector, while OSACU experiences a boost in export demand for this product group. As OSACU's export share in total domestic sugar production is already high in the status quo ante (72 percent according to Table A9), this export demand increase results in a strong output and employment expansion effect for this sector as well as for OSACU sugar cane production further upstream along the sugar product value chain. The other large output effects in Tables 16 to 19 can be explained in a similar manner.

As a matter of course, the sectoral employment effects for both skilled and unskilled labour are identical in terms of direction (sign) and closely similar in terms of magnitude to the reported output effects, as illustrated for scenario T4 in Tables 20 and 21. In other words, notable employment effects occur only in sectors and regions with notable impacts on production activity. Therefore the sectoral labour re-allocation effects for the other scenarios are not reported here to avoid an unnecessary proliferation of tables.

Table 22 shows the aggregate economy-wide impacts on unskilled labour employment by country under scenario T4, which reconsiders the T1 tariff liberalization shocks under the alternative assumption of unlimited supplies of unskilled labour in the spirit of Lewis (1954)⁶ (as opposed to the assumption of fixed labour endowments in all TAFTA regions under T1). Table 22 also indicates how aggregate unskilled labour employment would change for scenarios T2 and T3 under this alternative Lewis-type labour market closure. For T4, the simulation results suggest increases in the demand for unskilled workers in the majority of TFTA regions. The most pronounced employment impacts are recorded for Namibia (+0.8 percent), Uganda (+0.7 percent), Ethiopia (+0.5 percent), South Central Africa and Kenya (+0.4 percent). If the tariff cuts due to TFTA are

⁶ See Cirera, Willenbockel and Lakshman (2014) for a systematic review of existing CGE studies concerned with the employment impacts of tariff reductions in developing countries under alternative labour market closure assumptions.

combined with significant NTB reductions (scenario T3u), the aggregate employment impacts for unskilled labour are generally considerably magnified and are positive for all TFTA participants. Unskilled employment in Zimbabwe, Botswana and Namibia is projected to rise by well over four percent in this case.

Table 16: Change in Real Output by Sector – T1*(Percentage changes relative to 2014 Base)*

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	-0.3	0.3	-1.6	0.0
WHEAT	-0.2	-1.0	0.0	0.2	0.0	-0.1	0.1	0.3	2.0	0.0	0.6	0.4	0.4	0.0	-3.5	0.0	-2.8	0.0
RICE	-1.3	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.6	0.0	0.0	0.3	1.7	-0.2	6.9	0.4	-1.4	0.0
VEGFRT	0.1	0.2	-0.1	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.3	-0.5	0.1	1.1	0.0	-2.1	0.0
SUGCAN	0.2	-19.7	0.0	0.3	0.1	-6.6	0.0	-4.3	-20.6	-0.2	-1.6	-0.6	0.1	0.0	0.0	2.3	29.5	-1.2
OCROPS	-0.3	1.1	0.0	0.2	-0.2	0.2	0.4	0.1	3.5	-0.1	-0.1	-1.0	0.0	-0.1	-2.7	-1.5	-3.5	-0.1
LIVSTK	0.0	0.0	0.0	-0.8	0.0	0.0	-0.1	0.0	0.5	0.0	0.1	-0.1	-0.2	0.1	0.0	0.2	-0.1	0.0
FOREST	0.9	-2.6	0.0	0.0	0.0	0.1	0.0	0.0	-0.2	0.0	0.0	-2.2	0.1	0.0	0.1	0.1	-0.8	0.0
FSFUEL	-3.8	0.6	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.0	-1.5	0.0
MINRLS	-0.3	0.1	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	-0.1	-0.1	0.1	0.0	-1.3	-0.4	-1.7	0.1
BEVTOB	-0.3	0.0	0.0	-0.1	-0.4	-0.1	-0.2	0.0	0.9	0.0	1.0	-0.3	-0.6	0.0	3.1	0.6	0.7	0.0
SUGARP	0.5	-21.3	0.1	-4.4	0.1	-9.4	-7.9	-10.3	-49.7	-0.2	-1.7	-1.5	0.1	0.0	7.4	7.0	30.0	-3.1
OPFOOD	0.2	0.5	0.0	0.5	-0.1	0.2	0.0	0.1	1.0	0.0	0.2	-0.5	-0.1	0.1	-1.0	0.4	-0.7	0.0
TEXTIL	0.0	0.7	0.0	0.4	0.0	-0.4	0.5	0.0	-0.4	0.0	0.0	0.2	-0.2	0.0	0.3	0.0	-4.6	0.0
CHEMRP	-0.3	2.3	0.0	0.5	0.0	0.4	-0.5	1.0	0.0	0.4	1.0	0.2	-0.9	0.7	-0.5	0.0	9.2	0.2
MINPRD	-1.4	0.2	-0.1	0.0	0.0	0.1	0.4	-0.6	-0.3	0.2	1.9	0.2	-0.5	0.2	7.3	-0.1	-0.8	0.2
METALS	-0.3	4.5	0.2	0.1	0.8	0.3	-1.4	0.6	0.3	0.0	-0.1	-0.6	0.5	0.1	-4.1	-0.8	-2.8	0.1
METPRD	-0.5	1.1	0.1	0.1	0.0	4.1	-1.9	0.2	-0.8	0.8	0.7	0.3	-1.8	0.5	6.3	0.5	-0.8	0.0
TRANEQ	0.2	1.6	-0.6	1.0	0.0	0.2	-1.9	-0.1	-0.2	0.6	0.0	0.3	0.4	0.4	2.1	0.0	4.5	0.4
MACHEQ	-0.4	0.3	-0.1	0.6	0.1	0.5	0.3	0.4	0.2	0.4	0.0	0.7	-0.4	0.6	1.3	0.2	-2.4	-0.1
OMANUF	0.4	-0.5	0.0	0.2	0.0	1.2	-0.4	-0.7	-0.9	0.1	2.6	-0.1	-1.3	0.1	5.4	0.0	-3.0	0.1
TRADSV	0.0	0.2	0.0	-0.1	0.0	-0.2	-0.3	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.9	0.1	0.2	0.0
TRANSV	0.2	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.6	0.0	-0.8	0.0
OTSERV	-0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	-0.1	0.0	-0.7	0.0

Table 17: Change in Real Output by Sector – T2

(Percentage changes relative to 2014 Base)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.6	0.0	0.0	0.0	0.1	0.0	-0.6	0.3	-1.7	0.0
WHEAT	-0.2	-1.0	0.0	0.2	0.0	-0.2	0.1	-0.1	1.9	0.0	0.7	0.4	0.4	0.0	-4.7	-0.1	-3.2	0.0
RICE	-1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.4	1.6	-0.2	6.2	0.4	-2.0	0.0
VEGFRT	0.2	0.2	-0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	-0.3	-0.5	0.1	1.1	-0.1	-2.3	0.0
SUGCAN	0.3	-19.7	0.0	0.3	0.1	-6.6	0.0	-4.5	-20.6	-0.2	-1.7	-0.6	0.1	-0.1	0.0	2.3	28.1	-1.2
OCROPS	-0.3	1.0	0.0	0.2	-0.2	0.1	0.4	0.1	3.0	-0.1	-0.2	-0.9	0.0	-0.1	-3.4	-1.6	-3.9	-0.1
LIVSTK	0.0	0.0	0.0	-0.8	0.0	0.0	-0.1	0.0	0.5	0.0	0.1	-0.1	-0.1	0.1	-0.2	0.2	-0.3	0.0
FOREST	1.0	-2.7	0.0	0.0	0.0	0.1	0.0	-0.1	-0.1	0.0	-0.1	-2.2	0.1	-0.1	-0.1	0.1	-1.3	0.0
FSFUEL	-3.9	1.3	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.0	0.4	-2.1	0.0
MINRLS	-0.3	0.2	0.0	0.0	0.0	0.1	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.0	-1.8	-0.4	-2.4	0.1
BEVTOB	-0.3	0.0	0.0	-0.1	-0.4	-0.1	-0.2	-0.1	0.9	0.0	1.0	-0.3	-0.5	-0.1	3.0	0.6	0.7	0.0
SUGARP	0.5	-21.3	0.2	-4.4	0.1	-9.4	-7.9	-10.7	-49.7	-0.2	-1.7	-1.3	0.2	0.0	6.8	6.9	28.5	-3.1
OPFOOD	0.2	0.5	0.0	0.6	-0.1	0.2	0.0	0.0	1.0	0.0	0.2	-0.4	-0.1	0.1	-1.4	0.3	-1.0	0.0
TEXTIL	0.0	0.6	0.0	0.4	0.0	-0.4	0.6	1.9	1.9	0.0	0.0	-0.5	-0.3	0.0	0.7	0.0	-6.4	0.0
CHEMRP	-0.9	3.2	0.0	0.4	0.0	0.4	0.0	7.0	1.2	0.5	0.9	-0.1	-1.0	0.8	-0.7	0.0	19.5	0.2
MINPRD	-1.4	0.2	-0.2	0.0	0.0	0.1	0.5	0.2	-0.4	0.2	2.3	0.2	-0.5	0.2	7.4	-0.1	-1.2	0.2
METALS	-0.4	6.3	0.2	0.1	0.8	0.1	-1.3	-0.1	1.3	0.0	-0.1	-0.5	0.8	0.2	-5.5	-1.1	-4.0	0.1
METPRD	-0.6	1.0	0.1	0.2	0.0	4.3	-2.0	-0.2	-1.2	0.9	0.8	0.3	-1.9	0.6	9.2	0.5	-0.9	0.0
TRANEQ	0.1	1.7	-1.0	1.1	0.0	0.4	-2.2	-0.5	-0.7	0.8	0.1	0.1	0.2	0.4	5.5	0.2	10.3	0.4
MACHEQ	-0.6	-1.0	-0.1	0.9	0.1	0.8	-1.6	-0.1	-1.3	0.7	0.0	0.7	-2.8	0.7	2.5	3.3	-3.6	-0.1
OMANUF	0.3	-0.5	0.0	0.2	-0.1	1.9	-0.4	-0.9	-0.7	0.1	2.7	0.0	-1.5	0.1	7.4	0.0	-4.3	0.1
TRADSV	0.0	0.2	0.0	-0.1	0.0	-0.2	-0.3	0.0	0.0	0.1	0.0	0.0	-0.3	0.0	1.6	0.2	1.5	0.0
TRANSV	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.0	-0.1	0.0	-0.2	0.0	0.0	-0.2	1.1	-0.1	-0.6	0.0
OTSERV	-0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	-0.1	-0.2	0.0	-1.2	0.0

Table 18: Change in Real Output by Sector – T3

(Percentage changes relative to 2014 Base)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	0.0	0.2	-0.4	0.4	0.1	0.7	-0.2	0.0	1.0	0.3	-0.7	0.0	0.1	0.4	-0.6	0.6	-2.3	0.0
WHEAT	-0.2	14.9	0.0	-3.5	0.0	11.6	-1.3	0.2	5.0	-0.5	-2.3	0.5	0.5	0.0	-2.7	0.4	-5.6	0.0
RICE	-2.2	-2.1	0.0	1.1	0.0	-0.7	-0.6	0.0	-0.1	-1.1	0.0	-0.4	1.8	-8.9	19.6	1.6	-6.8	0.1
VEGFRT	0.2	0.2	0.0	0.5	-0.2	0.4	0.0	0.0	0.2	0.0	1.7	-0.4	-0.6	-2.0	-0.3	0.0	-2.0	0.0
SUGCAN	0.3	-22.8	-0.1	0.2	-0.7	-9.1	0.0	-5.0	-21.7	0.6	-1.2	-0.5	-0.4	0.8	0.0	2.6	29.6	-1.1
OCROPS	-0.9	0.9	-0.2	-1.3	-1.7	-3.5	0.6	-0.3	2.7	-0.1	-0.1	-1.6	-0.2	-2.5	5.4	-2.8	-4.4	-0.6
LIVSTK	0.1	0.1	0.0	0.0	0.1	0.6	-0.3	0.0	0.7	0.4	1.7	0.0	-0.1	0.0	0.6	0.4	0.0	0.0
FOREST	1.0	-3.4	0.1	0.4	0.1	-0.1	0.0	-0.2	-0.2	-0.1	1.6	-3.8	0.1	0.6	0.6	0.2	1.0	0.0
FSFUEL	-6.4	2.0	0.0	-0.3	-0.3	2.1	0.3	-1.4	-0.2	-0.4	-1.2	0.4	0.2	-2.3	0.0	-0.2	-2.1	0.0
MINRLS	-0.4	-0.7	0.0	0.0	-0.6	-0.6	0.6	-0.3	0.1	-0.4	1.0	-0.4	0.1	-1.5	-1.9	-0.7	-2.5	0.1
BEVTOB	-0.3	0.2	0.0	0.9	-0.4	1.3	-0.1	0.0	1.2	0.4	2.0	-0.4	-0.6	1.5	4.2	0.9	1.1	0.0
SUGARP	0.4	-24.6	-0.6	-4.3	-0.7	-13.3	-12.0	-11.9	-52.5	0.6	-1.2	-1.4	-0.6	0.0	27.6	7.6	30.0	-3.0
OPFOOD	0.4	0.7	-0.4	0.9	0.2	-0.8	-0.1	-0.2	1.5	0.3	2.0	-0.4	-0.2	0.2	-0.9	0.9	-0.6	0.1
TEXTIL	0.1	0.4	0.6	0.2	1.7	-3.3	-0.2	1.3	-0.9	0.5	0.9	0.0	-0.2	8.2	-2.8	0.1	-6.2	0.0
CHEMRP	-0.3	4.2	-0.4	1.1	-0.2	-5.2	-2.7	2.0	-1.2	-6.8	-0.6	-0.1	-1.7	0.3	-2.9	0.3	15.9	0.5
MINPRD	-1.8	0.1	4.6	0.0	0.3	0.2	-1.0	-1.5	-1.8	-2.7	-1.2	-0.1	-0.6	-3.6	4.6	0.0	-2.0	0.4
METALS	0.2	10.2	3.2	-4.2	1.5	-1.9	-4.4	2.0	4.2	0.2	3.1	-0.4	0.4	-4.0	-4.5	-2.1	-4.7	-0.1
METPRD	-0.7	4.2	-0.9	-1.0	0.5	18.5	-2.5	-3.3	-2.3	-7.3	-5.2	-0.1	-2.8	-2.2	1.5	0.8	-2.5	0.2
TRANEQ	0.1	5.5	13.6	8.5	0.3	2.5	-2.2	-0.6	-1.0	-6.3	-4.9	0.2	0.0	17.3	2.6	0.5	6.6	1.1
MACHEQ	-0.5	-0.4	3.0	-2.5	-0.5	-5.3	0.4	-1.2	1.2	-6.4	-4.2	0.9	-1.0	19.6	-2.6	1.8	-3.8	-0.1
OMANUF	0.5	-1.2	-0.2	-0.9	0.5	2.0	-2.3	-1.1	-2.2	-1.1	3.3	-0.1	-1.9	-1.8	4.6	0.1	-1.9	0.2
TRADSV	0.0	0.2	0.4	1.5	-0.5	-1.3	-0.7	0.2	0.1	-0.5	1.6	0.0	-0.4	1.6	0.4	0.3	0.8	0.0
TRANSV	0.4	-0.4	0.0	0.8	-0.5	-0.2	0.4	-0.2	-0.3	-0.4	0.7	0.0	-0.2	1.0	0.5	-0.1	-1.0	-0.1
OTSERV	0.0	0.1	0.1	0.0	-0.2	1.1	0.2	0.1	0.0	0.5	-1.0	0.1	0.0	0.7	0.4	0.0	-1.0	0.0

Table 19: Change in Real Output by Sector – T4

(Percentage changes relative to 2014 Base)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.1	0.1	0.1	0.0	-0.2	0.4	-1.6	0.0
WHEAT	0.0	-1.1	0.0	0.2	0.0	-0.1	0.2	0.3	2.3	0.0	0.7	0.5	0.5	0.0	-3.3	0.1	-2.8	0.0
RICE	-0.9	0.4	0.0	0.0	0.0	0.0	0.1	0.1	1.0	0.0	0.0	0.5	1.8	-0.1	7.0	0.4	-1.4	0.0
VEGFRT	0.3	0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	-0.2	-0.4	0.0	1.2	0.0	-2.1	0.0
SUGCAN	0.4	-19.5	0.0	0.2	0.1	-6.7	0.0	-4.3	-20.4	-0.2	-1.6	-0.5	0.2	-0.1	0.0	2.4	29.6	-1.2
OCROPS	0.2	1.3	0.0	0.2	-0.2	0.1	0.5	0.1	4.1	-0.1	-0.1	-0.8	0.1	-0.1	-2.8	-1.4	-3.5	-0.1
LIVSTK	0.2	0.1	0.0	-0.9	0.0	0.0	0.0	0.0	0.8	0.0	0.2	0.0	-0.1	0.0	0.1	0.3	-0.2	0.0
FOREST	1.0	-2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	-2.0	0.1	-0.1	0.3	0.2	-0.8	0.0
FSFUEL	-3.6	0.8	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.1	0.1	-1.5	0.0
MINRLS	-0.2	0.2	0.0	0.0	0.0	0.1	0.4	0.1	0.2	0.0	0.0	0.1	0.2	0.0	-1.1	-0.3	-1.7	0.1
BEVTOB	-0.1	0.1	0.0	-0.1	-0.4	-0.1	-0.1	0.0	1.2	0.0	1.0	-0.2	-0.5	-0.1	3.2	0.7	0.6	0.0
SUGARP	0.6	-21.1	0.1	-4.4	0.1	-9.5	-7.8	-10.3	-49.4	-0.2	-1.6	-1.3	0.2	0.0	7.4	7.1	30.0	-3.1
OPFOOD	0.4	0.6	0.0	0.5	-0.1	0.1	0.1	0.1	1.4	0.0	0.2	-0.3	0.0	0.0	-0.8	0.5	-0.7	0.0
TEXTIL	0.3	1.0	0.0	0.3	0.0	-0.5	0.6	0.0	0.3	0.0	0.1	0.6	0.0	-0.1	0.6	0.2	-4.6	0.0
CHEMRP	-0.1	2.6	0.0	0.4	0.0	0.3	-0.4	1.0	0.4	0.4	1.0	0.4	-0.7	0.7	-0.1	0.2	9.2	0.2
MINPRD	-1.2	0.4	-0.1	0.0	0.0	0.0	0.4	-0.6	-0.1	0.1	1.9	0.4	-0.3	0.1	7.6	0.0	-0.8	0.2
METALS	-0.1	4.7	0.2	0.1	0.8	0.3	-1.3	0.6	0.5	0.0	-0.1	-0.3	0.7	-0.2	-3.7	-0.7	-2.8	0.1
METPRD	-0.3	1.3	0.1	0.1	0.0	4.0	-1.7	0.2	-0.5	0.7	0.7	0.5	-1.6	0.4	6.8	0.6	-0.8	0.1
TRANEQ	0.4	1.9	-0.6	0.9	0.0	0.1	-1.8	-0.1	0.2	0.5	0.1	0.6	0.7	0.4	2.7	0.1	4.5	0.4
MACHEQ	-0.1	0.5	-0.1	0.5	0.1	0.4	0.4	0.4	0.6	0.4	0.0	0.9	-0.2	0.5	1.7	0.3	-2.5	0.0
OMANUF	0.7	-0.3	0.0	0.1	-0.1	1.1	-0.3	-0.7	-0.4	0.0	2.7	0.1	-1.0	0.0	5.9	0.1	-3.0	0.1
TRADSV	0.2	0.4	0.0	-0.1	0.0	-0.3	-0.2	0.0	0.3	0.0	0.0	0.2	0.0	-0.1	1.2	0.2	0.2	0.0
TRANSV	0.4	0.2	0.0	0.1	0.0	0.0	0.3	0.1	0.2	0.0	-0.1	0.1	0.1	-0.2	0.9	0.0	-0.9	0.0
OTSERV	0.1	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.0	-0.1	0.1	0.1	-0.1	0.1	0.1	-0.7	0.0

Table 20: Change in Unskilled Employment by Sector – T4

(Percentage changes relative to 2014 Base)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	0.2	0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	1.1	0.0	-0.1	0.1	0.1	0.0	0.1	0.5	-0.6	0.0
WHEAT	0.1	-1.1	0.0	0.2	0.0	-0.1	0.2	0.3	2.3	0.0	0.5	0.5	0.5	0.0	-3.3	0.2	-2.8	0.0
RICE	-0.9	1.1	0.0	0.0	0.0	0.0	0.1	0.1	1.1	0.0	0.0	0.5	1.8	-0.1	7.0	0.5	-1.7	0.0
VEGFRT	0.4	0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	-0.1	-0.2	-0.4	0.0	1.5	0.1	-1.2	0.0
SUGCAN	0.5	-19.5	0.0	0.2	0.1	-6.7	0.0	-4.3	-20.3	-0.3	-1.7	-0.5	0.2	-0.1	0.0	2.5	30.9	-1.2
OCROPS	0.3	1.3	0.0	0.2	-0.2	0.1	0.5	0.1	4.3	-0.1	-0.2	-0.8	0.1	-0.1	-2.8	-1.4	-2.6	-0.1
LIVSTK	0.3	0.1	0.0	-1.0	0.0	-0.1	0.0	0.0	1.3	-0.1	0.1	0.0	-0.1	0.0	0.4	0.4	0.2	0.0
FOREST	1.4	-2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	-2.2	0.2	-0.1	0.4	0.2	-1.0	0.0
FSFUEL	-3.1	1.4	0.0	0.1	0.0	0.0	0.5	0.0	0.2	0.0	0.0	0.7	0.3	0.0	0.0	0.1	-2.4	0.0
MINRLS	-0.3	0.3	0.0	0.0	0.0	0.2	0.5	0.1	0.3	0.0	0.0	0.1	0.3	0.0	-1.2	-0.3	-1.9	0.1
BEVTOB	0.4	0.8	0.0	-0.1	-0.4	-0.2	0.0	0.0	1.9	0.0	1.2	0.0	0.0	-0.2	3.9	0.9	0.4	0.0
SUGARP	1.5	-20.7	0.1	-4.5	0.0	-9.5	-7.7	-10.3	-49.4	-0.3	-1.5	-1.1	0.8	0.0	7.4	7.3	29.8	-3.0
OPFOOD	0.7	1.3	0.0	0.5	-0.1	0.0	0.2	0.1	1.7	-0.1	0.4	-0.1	0.4	-0.1	-0.3	0.6	-1.0	0.1
TEXTIL	0.7	1.4	0.0	0.3	0.0	-0.6	0.7	0.0	0.9	-0.1	0.2	0.7	0.5	-0.2	1.3	0.2	-4.9	0.1
CHEMRP	0.8	3.2	0.0	0.4	0.0	0.2	-0.2	1.1	1.1	0.3	1.0	0.6	-0.2	0.6	0.6	0.3	8.9	0.3
MINPRD	-0.6	1.1	-0.1	0.0	0.0	0.0	0.6	-0.6	0.8	0.1	2.0	0.6	0.1	0.0	8.3	0.1	-1.1	0.3
METALS	0.3	5.4	0.2	0.0	0.8	0.2	-1.3	0.6	1.3	-0.1	0.0	-0.2	1.1	-0.2	-3.1	-0.6	-3.1	0.2
METPRD	0.0	1.9	0.1	0.1	0.0	3.9	-1.6	0.2	0.2	0.7	0.8	0.7	-1.2	0.3	7.3	0.6	-1.1	0.1
TRANEQ	0.8	2.5	-0.6	0.9	0.0	0.0	-1.7	-0.1	0.9	0.5	0.2	0.7	1.1	0.3	3.2	0.2	4.2	0.4
MACHEQ	-0.1	1.3	-0.1	0.5	0.0	0.3	0.6	0.4	1.4	0.4	0.1	1.1	0.3	0.4	2.3	0.4	-2.7	0.0
OMANUF	1.0	0.3	0.0	0.1	-0.1	1.1	-0.2	-0.7	0.1	0.0	2.8	0.3	-0.8	-0.1	6.3	0.3	-3.3	0.1
TRADSV	1.2	1.3	0.0	-0.2	0.0	-0.3	0.0	0.1	1.3	0.0	0.1	0.4	0.6	-0.2	2.0	0.4	-0.1	0.1
TRANSV	1.4	1.2	0.0	0.0	0.0	0.0	0.4	0.2	1.2	0.0	0.0	0.4	0.7	-0.3	1.6	0.2	-1.2	0.1
OTSERV	0.8	0.9	0.0	0.0	0.0	0.1	0.3	0.1	0.9	-0.1	0.0	0.3	0.6	-0.2	0.8	0.2	-1.1	0.1

Table 21: Change in Skilled Employment by Sector – T4

(Percentage changes relative to 2014 Base)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	0.9	0.0	-0.1	0.0	0.0	0.0	-0.1	0.5	-0.4	0.0
WHEAT	0.0	-1.1	0.0	0.2	0.0	-0.1	0.2	0.3	2.3	0.0	0.5	0.4	0.4	0.0	-3.3	0.2	-2.8	0.0
RICE	-0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.3	1.8	-0.1	7.0	0.5	-0.9	0.0
VEGFRT	0.3	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	-0.1	-0.3	-0.5	0.1	1.3	0.1	-1.0	0.0
SUGCAN	0.3	-19.7	0.0	0.2	0.1	-6.7	0.0	-4.3	-20.4	-0.2	-1.7	-0.5	0.1	-0.1	0.0	2.4	31.1	-1.2
OCROPS	0.1	1.1	0.0	0.2	-0.2	0.1	0.5	0.1	4.1	-0.1	-0.3	-0.9	0.0	-0.1	-2.8	-1.4	-2.4	-0.1
LIVSTK	0.2	0.0	0.0	-1.0	0.0	-0.1	0.0	0.0	1.1	-0.1	0.0	0.0	-0.2	0.1	0.2	0.4	0.3	0.0
FOREST	1.3	-2.6	0.0	0.0	0.0	0.0	0.0	-0.1	0.2	0.0	0.0	-2.3	0.1	-0.1	0.3	0.2	-0.8	0.0
FSFUEL	-3.9	0.5	0.0	0.1	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.6	0.2	0.1	0.0	0.1	-2.2	0.0
MINRLS	-0.4	0.1	0.0	0.0	0.0	0.2	0.5	0.1	0.2	0.0	-0.1	0.1	0.2	0.0	-1.4	-0.4	-1.7	0.1
BEVTOB	-0.3	0.0	0.0	-0.1	-0.4	-0.2	-0.2	-0.1	1.1	0.0	1.1	-0.3	-0.6	0.0	3.2	0.7	1.2	0.0
SUGARP	0.7	-21.3	0.1	-4.4	0.1	-9.5	-7.9	-10.4	-49.4	-0.2	-1.6	-1.4	0.2	0.0	7.4	7.0	30.8	-3.1
OPFOOD	0.0	0.5	0.0	0.5	-0.1	0.1	0.0	0.1	0.9	0.0	0.3	-0.4	-0.1	0.1	-1.0	0.4	-0.2	0.0
TEXTIL	-0.1	0.5	0.0	0.3	0.0	-0.6	0.5	0.0	0.0	0.0	0.1	0.3	-0.1	0.0	0.5	0.0	-4.0	0.0
CHEMRP	-0.1	2.3	0.0	0.4	0.0	0.2	-0.5	1.0	0.3	0.4	1.0	0.3	-0.8	0.8	-0.3	0.1	9.9	0.2
MINPRD	-1.4	0.2	0.0	0.0	0.0	0.0	0.4	-0.6	-0.1	0.2	1.9	0.2	-0.5	0.2	7.4	-0.1	-0.2	0.2
METALS	-0.5	4.4	0.2	0.0	0.8	0.2	-1.3	0.6	0.4	0.0	-0.1	-0.6	0.5	0.0	-3.9	-0.8	-2.2	0.1
METPRD	-0.8	0.9	0.1	0.1	0.1	3.9	-1.8	0.1	-0.7	0.7	0.7	0.3	-1.8	0.5	6.4	0.4	-0.1	0.0
TRANEQ	0.0	1.6	-0.6	0.9	0.0	0.0	-1.9	-0.1	0.1	0.6	0.1	0.3	0.5	0.5	2.3	0.0	5.2	0.4
MACHEQ	-0.1	0.4	-0.1	0.5	0.1	0.3	0.4	0.3	0.5	0.4	0.0	0.8	-0.3	0.6	1.5	0.2	-1.8	-0.1
OMANUF	0.2	-0.6	0.0	0.1	0.0	1.1	-0.4	-0.8	-0.7	0.0	2.7	-0.1	-1.4	0.1	5.5	0.1	-2.4	0.1
TRADSV	0.1	0.1	0.0	-0.1	0.0	-0.3	-0.4	0.0	0.1	0.1	0.0	0.0	-0.2	0.0	0.9	0.1	1.1	0.0
TRANSV	0.2	-0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.5	-0.1	0.0	0.0
OTSERV	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.2	0.0

Table 22: Change in Aggregate Unskilled Labour Employment*(Percentage changes relative to 2014 Base)*

	T4	T2u	T3u
Ethiopia	0.5	0.5	0.8
Kenya	0.4	0.6	1.2
Madagascar	0.0	0.0	0.3
Malawi	-0.1	-0.1	1.4
Mauritius	0.0	0.0	0.9
Mozambique	-0.1	-0.1	1.8
Rwanda	0.2	0.2	0.8
Tanzania	0.0	0.1	0.7
Uganda	0.7	0.9	1.4
Zambia	0.0	-0.1	1.4
Zimbabwe	0.1	0.1	4.7
OEastAfrica	0.3	0.3	0.6
SCAfrica	0.4	0.5	0.6
Botswana	-0.2	-0.2	4.6
Namibia	0.8	1.3	4.2
SouthAfrica	0.2	0.3	0.7
OSACU	0.0	0.5	0.9
Egypt	0.0	0.0	0.1
OAfrica	0.0	0.0	0.0
EU27	0.0	0.0	0.0
RoW	0.0	0.0	0.0

Note: T2u: T2 scenario with alternative Lewis-type labour market closure.

T3u:T3 scenario with alternative Lewis-type labour market closure.

6. Summary

Building upon earlier work by Willenbockel (2013), this study provides an updated ex-ante computable general equilibrium (CGE) assessment of the Tripartite Free Trade Agreement between the member states of the Common Market for Eastern and Southern Africa, the East African Community and the Southern African Development Community. The CGE approach enables a consistent integrated predictive evaluation of sectoral production and employment impacts, aggregate income and welfare effects of changes in trade barriers while taking full account of the macroeconomic repercussion arising e.g. from terms-of-trade effects, tariff revenue changes and intersectoral input-output linkages. The simulation analysis considers four distinct trade integration scenarios, which are based upon the agreed tariff reduction modalities and differ in their assumptions about export taxes, trade facilitation efforts and labour supply elasticities. The main findings of the analysis can be concisely summarized as follows.

- All four trade liberalization scenarios under consideration lead to positive net real income gains for the TFTA area as a whole.
- The establishment of a free trade area with an elimination of most tariffs on trade among the partners (scenario T1) is projected to generate an annual welfare gain of US\$ 443million or roughly 0.1 percent of total TFTA area 2014 baseline absorption.
- In absolute terms, South Africa enjoys the largest real income gains under this scenario whereas the largest gains relative to baseline absorption are projected for “Other SACU” (i.e. Swaziland and Lesotho) (+0.8 percent) and Namibia (+0.4 percent)..
- A number of countries suffer tiny aggregate welfare losses under this scenario as result of a terms-of-trade deterioration that dominates the gains from lower consumer prices for TFTA imports.
- The strongest message emerges from a TFTA scenario which combines tariff liberalization for intra-TFTA trade with trade facilitation measures that

reduce the transaction costs of border-crossing trade within the TFTA area. The projected aggregate net benefit for the TFTA group amounts to US\$ 3.1 to 5.2 billion per annum in this case, that is 0.4 to 0.6 percent of aggregate baseline absorption and a multiple of the gains resulting from intra-TFTA tariff liberalization alone.

- Importantly, in contrast to the T1 scenario *all* TFTA regions enjoy a positive aggregate welfare gain in this case. The countries with the largest projected percentage increases in real absorption are Zimbabwe (+3.1 percent), Namibia (+2.4 percent), Mozambique (+1.8 percent), Botswana (+1.8 percent) and Other SACU (+1.5 percent).
- In this scenario, the total volume of intra-TFTA trade is boosted by US\$ 7.0 billion, an increase of nearly 20 percent relative to the 2014 baseline volume.
- Under the alternative assumption of a perfectly elastic supply of unskilled labour in all TFTA regions – which entails that aggregate unskilled employment can expand without any concomitant increase in real wages for unskilled workers – the aggregate annual welfare gain for the TFTA bloc from tariff cuts alone as under T1 (scenario T4) would rise to US\$ 1 billion (0.12 percent of baseline absorption). The joint implementation of tariff cuts and NTB reductions as in T3 under this alternative labour market closure assumption leads to a simulated welfare gain for the TFTA region on the order of US\$ 5.2 billion (0.61 percent of baseline absorption).
- The simulation results do not suggest that TFTA leads to systematic increase in wage inequality.
- Significant sectoral production effects with corresponding significant implications for sectoral employment are concentrated in a sub-set of sectors including primarily sugar products with backward linkage effects to sugar cane production, and to a lesser extent for some TFTA countries in textiles, metals and metal production, beverages and tobacco, light manufacturing and chemicals.

Annexes

A1. Development of the 2014 Baseline Scenario

A1.1. Population, Labor Force, Technical Progress and Non-Labor Factor Growth Projections

The specification of the 2014 baseline scenario that serves as the benchmark for comparison with the TFTA scenarios requires projections for the evolution of the exogenous variables of the model over the period 2007 to 2014, including total population and labor force by region, technical progress by sector and region, and the supply of non-labor primary factors by region.

For given primary factor growth projections, average total factor productivity (TFP) growth projections are calibrated residually such that the model's average annual real GDP growth rates over the period 2008 to end of 2014 by region are consistent with the growth rates reported in Table A1, which shows observed growth from 2008 to 2011 and the latest (June 2014) World Bank Global Economic Prospects projections for 2012 to 2014. Assumed population growth Table A2 is drawn from the latest UN medium-variant population projections, which are also used for the generation of the World Bank GDP growth projections. The labor force growth projections in Table A3 are derived by applying the UN projections of the shares for persons aged 15 to 64 in the total population and labor force participation rates for this age group from the World Bank's World Development Indicators database to the population projections in Table A2.

The supply of primary natural resource factors is assumed to grow in line with average global real GDP. The calibration of parameters governing changes in total agricultural land use by region are based on a synopsis of projections in Smith *et al.* (2010) and Nelson *et al.* (2010). Over the projection period, the effective supply of land for agricultural use grows at an average annual rate of 0.9 percent in the Sub-Sahara African regions at 0.025 percent in the RoW

regions. No agricultural land expansion is assumed for the EU27, Rest of North Africa and Egypt.

Table A1: Real GDP Growth Rates by Region 2008-2014

(Annual growth rates in percent)

Region	2008	2009	2010	2011	2012	2013	2014	Average p.a.
Ethiopia	10.8	8.8	12.6	11.2	8.7	9.7	7.4	9.9
Kenya	1.5	2.7	5.8	4.4	4.6	4.7	5.0	4.1
Madagascar	7.1	-4.6	0.5	1.9	3.1	2.8	4.0	2.1
Malawi	8.3	9.0	-9.5	4.3	1.9	4.2	4.4	3.1
Mauritius	5.5	3.0	4.1	3.9	3.2	3.2	3.7	3.8
Mozambique	6.8	6.3	7.2	8.2	8.0	5.0	8.1	7.2
Rwanda	11.2	6.2	7.2	8.2	8.0	5.0	7.2	7.6
Tanzania	7.4	6.0	7.0	6.4	6.9	7.0	7.2	6.9
Uganda	8.7	7.2	6.2	5.0	4.7	6.5	7.0	6.5
Zambia	5.7	6.4	7.6	6.8	7.2	6.4	7.0	6.7
Zimbabwe	-17.7	6.0	9.6	10.6	4.4	2.9	2.0	2.1
OEastAfrica	6.2	5.7	3.4	-2.5	-8.6	3.9	3.2	1.5
Burundi	5.0	3.5	3.8	4.2	4.0	4.5	4.0	4.1
Comoros	1.0	1.8	2.1	2.2	3.0	3.3	3.5	2.4
Djibouti	5.8	5.0						
Eritrea	-9.8	3.9	2.2	8.7	7.0	3.6	3.5	2.6
Seychelles	-1.9	-0.2	5.9	7.9	2.8	3.7	3.7	3.1
Sudan	6.8	6.0	3.5	-3.3	-10.1	4.0	3.2	1.3
Botswana	2.9	-4.8	7.3	5.1	4.2	4.2	4.1	3.2
Namibia	3.4	-1.1	6.3	5.7	5.0	4.2	3.4	3.8
SouthAfrica	3.6	-1.5	3.1	3.5	2.5	1.9	2.0	2.1
OSACU	3.4	2.1	3.3	3.0	0.4	2.7	3.3	2.6
Lesotho	5.4	3.6	5.6	5.8	4.3	5.2	5.3	5.0
Swaziland	2.4	1.3	2.0	1.3	-2.0	1.0	1.9	1.1
SCAfrica	12.8	2.5	3.9	4.3	6.9	4.4	5.3	5.7
Angola	13.8	2.4	3.4	3.9	6.8	4.1	5.2	5.6
DR Congo	6.2	2.8	7.2	6.9	7.2	6.5	6.0	6.1
Libya	3.8	2.1						0.8
Egypt	7.2	4.7	3.5	2.0	2.2	2.3	2.6	3.5
OAfrica	5.4	3.1	5.0	3.3	6.4	3.9	4.8	4.6
EU27	0.4	-4.5	2.0	1.7	-0.4	0.1	1.2	0.1
RoW	1.8	-1.3	5.0	3.3	3.6	3.3	3.4	2.7

Source::World Bank, World Data Bank, World Development Indicators (accessed 12 August 2014).
World Bank, Global Economic Prospects, June 2014. EU27: Eurostat.

Table A2: Population by Region 2007-2014*(In thousands; Last column: Average annual growth rate 2008-2014 in percent)*

	2007	2008	2009	2010	2011	2012	2013	2014	Growth Rate p.a.
Ethiopia	77 718	79 446	81 188	82 950	84 734	86 539	88 356	90 179	2.1
Kenya	37 485	38 455	39 462	40 513	41 610	42 749	43 924	45 121	2.7
Madagascar	18 980	19 546	20 124	20 714	21 315	21 929	22 555	23 196	2.9
Malawi	13 589	14 005	14 442	14 901	15 381	15 883	16 407	16 954	3.2
Mauritius	1 276	1 284	1 292	1 299	1 307	1 314	1 321	1 327	0.6
Mozambique	21 811	22 333	22 859	23 391	23 930	24 475	25 028	25 590	2.3
Rwanda	9 711	10 004	10 311	10 624	10 943	11 272	11 608	11 950	3.0
Tanzania	41 068	42 268	43 525	44 841	46 218	47 656	49 153	50 705	3.1
Uganda	30 340	31 339	32 368	33 425	34 509	35 621	36 759	37 923	3.2
Zambia	12 055	12 380	12 724	13 089	13 475	13 884	14 315	14 768	2.9
Zimbabwe	12 481	12 452	12 474	12 571	12 754	13 014	13 328	13 665	1.3
OEastAfrica	54 483	55 944	57 421	58 898	60 369	61 836	63 303	64 781	2.5
Burundi	7 708	7 943	8 171	8 383	8 575	8 749	8 911	9 069	2.4
Comoros	679	697	716	735	754	773	793	813	2.6
Djibouti	839	856	872	889	906	923	940	958	1.9
Eritrea	4 799	4 948	5 098	5 254	5 415	5 581	5 748	5 915	3.0
Seychelles	85	86	86	87	87	87	87	88	0.4
Sudan	40 374	41 415	42 478	43 552	44 632	45 722	46 823	47 939	2.5
Botswana	1 928	1 955	1 982	2 007	2 031	2 053	2 075	2 095	1.2
Namibia	2 159	2 200	2 242	2 283	2 324	2 364	2 404	2 444	1.8
SouthAfrica	48 842	49 319	49 752	50 133	50 460	50 738	50 981	51 207	0.7
OSACU	3 239	3 278	3 318	3 357	3 397	3 437	3 477	3 517	1.2
Lesotho	2 106	2 127	2 149	2 171	2 194	2 217	2 240	2 263	1.0
Swaziland	1 133	1 150	1 168	1 186	1 203	1 220	1 237	1 254	1.5
SCAfrica	78 298	80 513	82 759	85 048	87 376	89 738	92 134	94 566	2.7
Angola	17 525	18 038	18 555	19 082	19 618	20 163	20 714	21 275	2.8
DR Congo	60 772	62 475	64 204	65 966	67 758	69 575	71 420	73 291	2.7
Libya	6 023	6 150	6 263	6 355	6 423	6 469	6 506	6 548	1.2
Egypt	76 942	78 323	79 716	81 121	82 537	83 958	85 378	86 788	1.7
<i>Total TFTA</i>	<i>548 429</i>	<i>561 195</i>	<i>574 220</i>	<i>587 520</i>	<i>601 093</i>	<i>614 929</i>	<i>629 013</i>	<i>643 324</i>	<i>2.3</i>
OAfrica	445 400	456 570	468 012	479 746	491 778	504 099	516 695	529 545	2.5
EU27	494 854	496 868	498 747	500 441	501 915	503 179	504 283	505 309	0.3
RoW	5 288 158	5 342 880	5 397 408	5 451 644	5 505 594	5 559 217	5 612 302	5 664 581	1.0
<i>World</i>	<i>6 661 637</i>	<i>6 739 610</i>	<i>6 817 737</i>	<i>6 895 889</i>	<i>6 974 036</i>	<i>7 052 135</i>	<i>7 130 014</i>	<i>7 207 460</i>	<i>1.1</i>

Source: United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision (2011-14: Medium-fertility variant projection).

Table A3: Index of Labour Force Growth by Region 2007-2014*(Index numbers, 2007 = 1; Last column: Average annual growth rate in percent)*

	2007	2008	2009	2010	2011	2012	2013	2014	Average Growth Rate p.a.
Ethiopia	1.00	1.03	1.06	1.10	1.13	1.17	1.20	1.24	3.15
Kenya	1.00	1.03	1.07	1.10	1.14	1.17	1.21	1.25	3.24
Madagascar	1.00	1.03	1.07	1.11	1.14	1.18	1.22	1.26	3.41
Malawi	1.00	1.04	1.07	1.11	1.14	1.18	1.22	1.26	3.33
Mauritius	1.00	1.01	1.03	1.06	1.07	1.09	1.10	1.11	1.55
Mozambique	1.00	1.02	1.05	1.07	1.10	1.12	1.15	1.18	2.39
Rwanda	1.00	1.03	1.07	1.10	1.13	1.17	1.20	1.24	3.13
Tanzania	1.00	1.03	1.06	1.09	1.12	1.15	1.18	1.22	2.86
Uganda	1.00	1.03	1.07	1.10	1.14	1.18	1.21	1.25	3.29
Zambia	1.00	1.03	1.05	1.08	1.10	1.13	1.16	1.20	2.60
Zimbabwe	1.00	1.00	1.00	1.01	1.04	1.07	1.11	1.15	1.97
OEAfrica	1.00	1.03	1.07	1.10	1.13	1.17	1.20	1.24	3.10
Burundi	1.00	1.03	1.06	1.09	1.12	1.14	1.16	1.18	2.44
Comoros	1.00	1.03	1.06	1.10	1.13	1.16	1.19	1.22	2.92
Djibouti	1.00	1.02	1.05	1.08	1.11	1.14	1.17	1.20	2.60
Eritrea	1.00	1.04	1.07	1.11	1.15	1.19	1.23	1.27	3.49
Seychelles	1.00	1.00	1.01	1.01	1.01	1.01	1.02	1.02	0.2
Sudan	1.00	1.03	1.07	1.10	1.13	1.17	1.21	1.24	3.17
Botswana	1.00	1.02	1.05	1.07	1.09	1.10	1.12	1.14	1.87
Namibia	1.00	1.04	1.07	1.10	1.13	1.16	1.19	1.23	2.95
SouthAfrica	1.00	1.04	1.01	0.99	1.01	1.01	1.01	1.00	0.05
OSACU	1.00	1.01	1.04	1.07	1.09	1.11	1.13	1.15	1.97
Lesotho	1.00	1.01	1.03	1.05	1.07	1.09	1.10	1.12	1.66
Swaziland	1.00	1.03	1.06	1.09	1.12	1.14	1.17	1.19	2.55
SCAfrica	1.00	1.03	1.07	1.10	1.14	1.18	1.22	1.26	3.41
Angola	1.00	1.03	1.07	1.11	1.15	1.19	1.24	1.28	3.60
DR Congo	1.00	1.03	1.07	1.10	1.14	1.18	1.22	1.26	3.31
Libya	1.00	1.02	1.04	1.06	1.06	1.06	1.06	1.06	0.84
Egypt	1.00	1.03	1.05	1.08	1.11	1.13	1.16	1.19	2.49
EU27	1.00	1.00	1.01	1.01	1.01	1.00	1.00	1.00	-0.02
RoW	1.00	1.02	1.03	1.05	1.06	1.08	1.09	1.11	1.45

Source: Author's calculations based on total population and working-age population growth projections from United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision (2011-14: Medium-fertility variant projection) and labor force participation rates from World Bank, World Data Bank, World Development Indicators (accessed 17 April 2013) .

A1.2. Changes in Trade Policy over the 2008-2014 Period

The construction of the 2014 baseline takes account of a range of recent and scheduled upcoming changes in trade policy parameters since 2007 with a potentially non-negligible influence on the outcome of the TFTA assessment. These include scheduled tariff reductions on TFTA partner countries with the EU under the various Interim Economic Partnership Agreements (IEPAs) and under the EU-South Africa Trade and Development Cooperation Agreement (TDCA)⁷, changes in the EU trade regime for sugar, and progress on further trade liberalization within the three RECs since 2007.

With respect to the IEPAs, a number of TFTA countries have signed the interim agreements negotiated by the various African EPA negotiation group, but only the ESA IEPA (ratified by Madagascar, Mauritius, Seychelles, Zimbabwe) has so far entered into force (in May 2012 – see Annex Table A16 for details). The IEPAs grant immediate quota- and duty-free access to EU markets for the African signatories (which the LDCs enjoy anyway under the EBA initiative) for all product lines except rice and sugar where restrictions are phased out over a transition period, while the liberalization of tariffs on imports from the EU is subject to longer transition periods and further provisions for sensitive products. Thus, in practice the IEPAs entail only minor adjustments to the 2007 applied tariff rates in the GTAP database.

The TDCA between South Africa entered into force in 2004. According to the tariff liberalization provisions of the agreement 95 percent of South African exports will enter EU markets duty-free after ten years, and 86 percent of EU exports to South Africa will be liberalized with a transition period of twelve years. Some sensitive products are excluded from the immediate liberalization schedule while others are partially liberalized. For South Africa, sensitive sectors include

⁷ See Osman (2012) and Annex Table A-2.

some textiles and clothing products and motor vehicles. With respect to the EU, sensitive sectors are mainly agricultural products.

With respect to progress in tariff liberalization on intra-REC imports since 2007, in line with the EAC Customs Union Protocol (East African Community Secretariat, 2004), tariffs on Kenyan imports from both partners as well as tariffs on bilateral import flows between Tanzania and Uganda have been removed immediately with the start of the phased CU implementation process in 2005. For a “B list” of Kenyan exports of sensitive products to Tanzania and Uganda, on the other hand, import tariffs have been phased out over a five-year period from 2005 to 2010 according to the Protocol (Willenbockel, 2012). Correspondingly, the 2014 baseline assumes zero tariffs on all intra-EAC trade.

The average applied tariff rates on intra-COMESA imports by destination country at the model commodity group aggregation level for 2007 according to the GTAP 8 database are shown in Table A4. For COMESA, intra-tariffs are already generally low with the exception of customs duties imposed by Ethiopia and by the composite OEastAfrica region on imports of COMESA origin. This situation persists beyond 2007. As the latest UNECA (2012) report on progress in African regional integration notes, “Ethiopia ... has the lowest commitment to the market integration agenda of COMESA FTA”⁸. The report further points out that some other COMESA members lag behind with the implementation of the agreed COMESA tariff liberalization schedule “for fear of revenue losses and to protect local industry”.⁹

In SADC, a phased programme of tariff reductions that had commenced in 2001 has resulted in zero duties for 85 percent of intra-SADC trade by August 2008. However, SADC members Angola, DR Congo (i.e. SCAfrica in the model) and the Seychelles do so far not participate in the SADC FTA, and the planned phase-out for remaining tariffs on sensitive products after 2008 has encountered

⁸ UNECA (2012:79).

⁹ Ibid.

various delays¹⁰, and the envisaged progression to a SADC customs union originally scheduled for 2010 has been put on hold. The intra-SADC tariff data for 2007 in the GTAP 8 database show full tariff liberalization on all imports from SADC by the SACU countries, but significant tariffs imposed by some other SADC members (see fn 6) on imports from partners in a subset of sensitive sectors including vegetables and fruits, the processed food sectors and textiles. For the 2014 baseline we take account of further progress in intra-SADC tariff phase-outs between 2007 and 2014 (Table A5).

¹⁰ In particular, Malawi fell behind with the implementation of the tariff phase-out schedule, Zimbabwe was allowed to suspend the tariff-phase out and Tanzania applied for permission to re-introduce tariffs on certain sensitive products until 2015 according to the official SADC website (www.sadc.int – accessed April 2013). See also Mashayekhi, Peters, Vanzetti (2012).

Table A4: Average Applied Tariff Rates on Intra-COMESA Imports by Destination Country and Commodity

(In percent)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Rwanda	Uganda	Zambia	Zimbabwe	OEastAfrica
cMAIZCG	3.3	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	2.1
cVEGFRT	9.9	0.0	0.0	0.0	0.0	0.9	0.2	0.0	0.0	12.8
cSUGCAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8
cOCROPS	10.4	0.2	0.4	0.0	0.0	0.4	0.4	0.0	0.0	8.4
cLIVSTK	12.9	0.0	0.4	0.0	0.0	1.0	1.5	0.1	0.0	13.3
cFOREST	18.3	6.6	0.0	0.0	0.0	0.6	1.1	0.0	0.0	9.7
cFSFUEL	8.1	0.0	0.3	0.0	0.0	0.3	0.0	0.1	0.1	5.0
cMINRLS	5.7	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
cBEVTOB	35.0	0.1	0.0	0.0	0.0	1.5	0.1	0.0	0.0	23.4
cSUGARP	5.0	0.0	0.0	0.0	0.0	0.3	2.6	0.0	0.0	4.3
cOPFOOD	23.8	1.3	0.0	1.8	0.0	3.6	0.1	0.1	0.2	12.2
cTEXTIL	30.6	0.3	0.0	0.0	0.0	1.6	0.0	0.0	0.0	13.5
cCHEMRP	14.5	0.1	0.0	0.0	0.2	1.9	0.0	0.0	0.0	9.5
cMINPRD	18.1	1.6	0.4	0.2	0.3	0.3	0.0	0.0	0.0	2.1
cMETALS	9.2	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	3.2
cMETPRD	20.9	0.1	0.0	0.3	1.4	1.4	0.0	0.0	0.0	5.4
cTRANEQ	10.4	0.7	0.0	0.1	0.0	1.7	0.1	0.1	0.0	5.3
cMACHEQ	7.6	0.4	0.1	0.2	0.1	2.6	0.3	0.8	0.2	3.0
cOMANUF	21.9	0.2	0.0	0.3	0.0	1.4	0.1	0.1	0.2	11.8
cOTSERV	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0

Table A5: Average Applied Tariff Rates on Intra-SADC Imports by Destination Country and Commodity

(In percent)

	Madagascar	Malawi	Mauritius	Mozambique	Tanzania	Zambia	Zimbabwe	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU
cMAIZCG	1.2	0.5	0.0	0.5	4.7	0.2	0.0	2.1	0.0	0.0	0.0	0.0
cVEGFRT	3.8	3.5	0.0	3.5	1.1	1.8	3.1	12.7	0.0	0.0	0.0	0.0
cOCROPS	0.5	0.9	0.0	0.6	0.6	0.3	2.0	5.8	0.0	0.0	0.0	0.0
cLIVSTK	0.1	0.4	0.0	1.6	0.7	0.9	2.4	7.6	0.0	0.0	0.0	0.0
cFOREST	0.0	1.7	0.0	0.2	0.0	0.7	1.0	15.5	0.0	0.0	0.0	0.0
cFSFUEL	0.0	1.3	0.0	1.2	0.6	1.6	4.9	18.5	0.0	0.0	0.0	0.0
cMINRLS	0.0	0.4	0.0	0.1	0.2	0.2	1.3	20.1	0.0	0.0	0.0	0.0
cBEVTOB	0.4	2.4	5.2	2.6	4.2	1.2	12.0	28.2	0.0	0.0	0.0	0.0
cSUGARP	0.8	0.0	0.0	1.5	1.0	3.6	4.0	5.2	0.0	0.0	0.0	0.0
cOPFOOD	0.2	2.2	0.8	2.7	4.0	1.7	4.0	11.8	0.0	0.0	0.0	0.0
cTEXTIL	0.0	3.6	0.1	3.3	3.3	2.6	10.7	11.5	0.0	0.0	0.0	0.0
cCHEMRP	0.2	0.7	0.3	1.3	0.6	0.9	1.9	9.6	0.0	0.0	0.0	0.0
cMINPRD	0.0	2.0	0.2	1.6	1.3	1.4	3.0	13.3	0.0	0.0	0.0	0.0
cMETALS	0.0	1.6	0.0	0.2	0.2	0.7	1.2	5.3	0.0	0.0	0.0	0.0
cMETPRD	0.2	3.7	0.3	1.8	0.6	2.1	4.2	14.6	0.0	0.0	0.0	0.0
cTRANEQ	0.2	2.1	0.1	1.1	0.6	1.7	2.7	4.1	0.0	0.0	0.0	0.0
cMACHEQ	0.0	1.8	0.0	1.9	0.4	1.7	3.2	6.6	0.0	0.0	0.0	0.0
cOMANUF	0.0	1.8	0.5	2.0	1.3	1.4	29.5	13.1	0.0	0.0	0.0	0.0
cOTSERV	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0

A2. Key Characteristics of the 2014 Baseline Equilibrium

The following Tables report selected key features of the projected end-of-2014 baseline equilibrium that serves as the benchmark for the TFTA simulations. Table A6 shows the projected sectoral pattern of domestic production for all model regions. Tables A7 and A8 show the projected commodity composition of exports and imports for each region. Table A9 reports the share of exports in total domestic production for each country and sector. Table A10 shows net exports – i.e. value of exports minus value of imports – for each sector and country or country group and serves as an indicator of comparative advantage.

Tables A11 and A12 provide information about the projected baseline TFTA shares in each region's total imports and exports by commodity group. Note that some of the large share figures are associated with very small absolute trade volumes. For instance, raw sugar cane is rarely traded across borders (see Tables A7 and A8), and so the large TFTA shares for sugar cane in Table A11 are of little significance from an economy-wide perspective. Thus the figures in this and the following Table need to be interpreted in conjunction with the earlier Tables. Finally, Table A13 reports average import tariffs on imports of TFTA partner origin by TFTA destination country, while Table A14 shows the corresponding average tariff rates faced by TFTA exporters.

The information in these Tables are crucial for the interpretation and explanation of the TFTA scenario results in section 3 to 6 above.

Table A6: Sector Shares in Domestic Gross Production Value – 2014 Projection
(Percentage Shares)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	5.7	4.1	0.1	5.3	0.0	4.1	2.0	4.0	1.4	2.6	0.7	1.2	0.7	0.7	0.4	0.4	1.6	0.9	1.9	0.1	0.2
RICE	1.4	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.0	0.2	0.1	0.8	0.1	0.0	0.0	0.1	0.0	1.0	0.9	0.1	0.2
WHEAT	0.0	0.1	5.5	0.7	0.0	1.4	0.6	3.7	0.3	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.4
VEGFRT	6.5	4.3	1.1	4.8	2.2	4.9	16.9	5.7	8.6	1.6	0.7	2.3	1.1	0.4	1.1	0.9	2.0	2.9	6.5	0.3	0.9
SUGCAN	0.3	0.9	1.0	0.5	1.9	0.1	0.0	0.3	0.7	0.5	0.7	0.1	0.0	0.0	0.0	0.2	1.5	0.4	0.1	0.0	0.1
OCROPS	5.6	8.3	2.9	12.5	0.2	2.8	5.7	4.3	3.1	3.0	7.8	1.4	0.3	0.1	0.0	0.2	1.8	1.4	2.4	0.4	0.6
LIVSTK	6.9	2.5	6.8	5.5	2.2	2.7	2.2	4.2	3.5	4.5	2.6	4.8	3.5	2.6	6.2	0.9	3.9	1.6	3.0	0.7	1.6
FOREST	1.9	0.2	10.3	0.8	0.4	2.8	2.1	1.8	2.4	1.9	0.1	0.6	0.6	0.1	0.4	0.4	0.5	0.0	0.6	0.1	0.2
FSFUEL	0.0	1.7	0.5	0.1	0.1	3.3	0.8	0.6	1.5	0.9	3.7	15.7	32.4	0.4	0.0	3.4	4.8	13.3	19.4	2.4	5.4
MINRLS	0.4	0.2	0.9	0.0	0.4	0.9	1.4	1.5	0.4	1.8	9.7	0.1	1.7	15.1	8.1	1.1	2.8	0.2	2.3	0.3	0.6
BEVTOB	1.2	7.6	6.1	6.7	1.1	1.6	6.6	2.3	3.2	0.7	1.9	1.5	2.2	1.7	3.7	1.7	4.4	1.7	1.3	1.2	0.8
SUGARP	0.6	1.0	2.3	1.4	2.7	1.2	0.3	0.4	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.4	1.8	0.3	0.4	0.1	0.2
OPFOOD	5.7	18.5	3.1	2.2	7.4	5.4	4.9	9.2	12.1	11.5	4.1	6.3	3.2	6.6	8.5	4.7	9.6	6.5	5.6	3.6	3.8
TEXTIL	5.6	4.3	7.6	1.8	13.6	1.3	1.3	1.7	1.6	2.8	4.2	0.7	1.4	3.0	2.0	2.8	9.0	8.6	3.1	1.7	2.3
CHEMRP	1.7	2.0	6.7	0.9	4.4	1.2	2.8	0.9	2.4	0.7	0.6	2.1	1.5	1.0	4.0	6.2	3.5	3.1	3.0	4.5	4.7
MINPRD	1.4	1.1	0.0	0.0	0.4	0.8	1.2	1.3	1.6	0.4	0.9	2.0	0.9	0.5	0.6	1.0	1.3	2.5	0.8	1.2	1.1
METALS	1.6	0.8	0.1	0.9	1.1	13.4	0.2	5.1	2.0	11.0	18.0	1.3	1.4	5.1	5.4	5.8	0.8	2.4	1.7	1.7	3.1
METPRD	1.7	0.7	1.8	2.6	1.1	0.1	0.2	0.4	0.6	0.3	1.0	1.3	0.8	1.6	0.5	1.7	0.5	1.7	0.8	2.1	1.5
TRANEQ	3.2	1.5	0.1	1.7	4.0	1.4	2.5	1.3	3.0	1.2	4.6	6.5	2.6	0.7	4.0	8.8	3.0	2.2	2.8	9.9	8.4
MACHEQ	0.4	1.1	0.0	0.2	1.0	0.3	0.8	0.4	0.5	0.2	0.9	1.2	0.5	0.1	0.8	0.5	0.6	1.1	0.9	1.2	3.0
OMANUF	2.1	3.2	9.4	1.7	3.7	3.0	1.0	0.8	1.5	2.6	0.9	3.5	1.2	3.0	2.1	4.7	3.5	2.3	2.7	3.9	3.4
TRADSV	11.2	3.6	0.1	10.7	1.4	8.6	8.7	14.2	11.0	21.9	7.7	9.4	7.4	8.4	10.0	10.8	8.5	6.4	9.5	7.7	11.4
TRANSV	9.1	5.6	5.4	2.5	12.2	7.0	5.7	3.4	3.0	2.8	3.7	6.3	4.3	3.8	6.2	4.1	4.7	6.4	3.8	5.6	4.6
OTSERV	25.8	26.8	27.9	36.5	38.3	31.8	31.8	32.2	35.4	25.3	23.9	30.7	31.9	45.1	36.0	39.4	29.7	31.1	25.7	51.3	41.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A7: Commodity Shares in Total Exports by Country – 2014 Projection
(Percentage Shares)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	0.2	0.5	0.0	8.2	0.1	0.3	0.3	0.9	1.3	1.3	0.0	0.4	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.3
RICE	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.3
WHEAT	0.0	0.0	0.3	0.2	0.0	0.1	0.0	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.1
VEGFRT	3.3	4.5	3.3	2.1	0.2	1.1	1.7	3.5	1.9	0.5	1.0	0.3	0.0	0.0	0.9	2.9	1.0	2.1	1.2	0.6	0.7
SUGCAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OCROPS	26.7	21.8	9.6	51.7	0.2	5.6	17.6	11.7	23.6	5.8	18.2	3.1	0.1	0.0	0.1	0.5	0.5	1.3	2.3	0.5	0.9
LIVSTK	2.2	0.8	1.0	0.3	1.0	0.2	1.2	1.6	1.4	0.3	1.0	3.1	0.0	0.1	3.6	0.7	0.1	0.2	0.3	0.4	0.4
FOREST	3.0	0.6	0.7	0.2	0.0	1.9	0.7	1.9	0.6	0.1	0.0	0.6	0.5	0.0	0.2	0.1	1.0	0.0	0.6	0.1	0.1
FSFUEL	0.0	1.5	3.7	0.5	0.4	10.3	7.8	0.0	0.6	0.2	0.5	70.6	92.3	0.0	0.0	6.7	15.8	17.3	65.1	2.5	13.4
MINRLS	0.1	0.8	2.2	0.0	0.1	0.6	14.8	5.1	0.4	5.7	8.0	0.1	2.0	50.1	19.6	8.0	6.5	0.8	1.9	0.6	1.5
BEVTOB	0.1	2.4	0.2	0.6	0.6	0.1	0.8	0.7	1.4	0.1	2.0	0.1	0.0	0.2	1.7	1.5	0.6	0.3	0.2	1.3	0.4
SUGARP	1.3	0.2	0.3	4.9	6.4	2.0	0.0	1.0	0.5	2.0	2.4	0.3	0.1	0.0	0.1	0.7	4.8	0.4	0.0	0.1	0.2
OPFOOD	2.8	8.8	10.7	1.8	7.6	2.6	7.3	9.1	15.8	2.4	2.1	3.3	0.1	3.2	18.3	2.9	6.1	2.6	2.8	4.2	3.2
TEXTIL	7.2	7.6	36.0	3.8	26.9	0.3	1.6	4.9	2.6	1.6	2.7	0.5	0.1	8.9	2.3	1.9	23.8	9.0	4.2	3.6	5.3
CHEMRP	0.5	5.9	1.2	2.1	2.8	0.5	1.6	2.0	2.9	1.3	1.2	1.1	0.3	1.1	9.3	6.9	8.3	6.2	3.2	14.1	9.5
MINPRD	0.3	1.2	0.0	0.0	0.2	0.1	0.3	0.8	1.6	0.3	1.0	0.1	0.0	0.1	0.5	0.6	0.2	2.1	0.3	1.2	0.8
METALS	7.9	4.0	1.1	0.2	0.9	42.6	0.9	22.6	13.5	69.3	47.8	3.2	1.2	17.2	19.2	28.9	1.4	7.4	2.7	4.8	6.0
METPRD	0.1	0.9	0.1	0.2	0.3	0.1	0.1	0.5	0.4	0.6	0.4	0.1	0.0	0.2	0.4	2.1	0.2	1.1	0.3	2.5	1.6
TRANEQ	1.0	2.6	0.9	7.0	4.6	1.0	0.8	1.9	2.8	1.8	2.2	1.9	0.2	1.9	7.1	16.4	6.1	3.6	3.1	28.0	21.6
MACHEQ	0.1	0.6	0.0	0.1	1.0	0.1	0.9	0.3	0.4	0.1	0.2	0.4	0.0	0.3	0.5	1.0	0.3	0.3	0.8	4.0	11.3
OMANUF	0.5	2.3	2.3	1.3	4.2	3.6	0.5	1.7	1.2	0.9	1.7	0.5	0.3	1.6	4.0	5.2	5.6	1.7	1.3	5.2	4.7
aTRADSV	1.9	0.1	0.5	0.9	1.7	0.4	3.6	4.8	4.8	0.2	0.8	0.7	0.1	1.1	0.4	1.3	0.1	1.8	0.5	2.3	2.2
aTRANSV	24.7	16.2	11.7	5.6	24.3	4.4	14.8	12.9	7.2	2.8	2.8	4.1	0.7	4.7	4.9	4.4	1.1	24.7	4.5	9.3	6.8
aOTSERV	15.9	16.6	14.1	8.4	16.6	22.2	22.5	10.8	15.1	2.6	4.0	5.5	1.8	8.9	6.8	6.9	16.4	15.4	4.8	14.6	9.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A8: Commodity Shares in Total Imports by Country – 2014 Projection
(Percentage Shares)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	0.1	0.2	0.0	0.3	0.3	0.2	0.5	0.1	0.6	0.2	4.4	0.5	0.0	0.5	0.5	0.3	3.2	2.1	0.8	0.2	0.3
RICE	1.0	1.8	1.1	2.7	0.9	2.9	0.1	1.8	1.6	0.1	0.6	1.4	0.1	0.5	0.4	0.4	0.0	4.4	2.5	0.1	0.2
WHEAT	0.0	0.8	2.7	0.0	0.9	2.9	0.2	0.4	0.2	0.1	0.3	0.7	0.6	0.5	0.2	0.4	0.1	0.1	1.1	0.0	0.2
VEGFRT	0.2	0.5	0.1	0.2	0.9	0.9	0.3	0.2	0.5	0.3	0.6	0.8	0.4	1.1	1.0	0.2	0.4	0.8	0.5	0.9	0.8
SUGCAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OCROPS	0.4	1.2	0.2	4.3	1.0	0.4	0.2	0.4	0.5	0.6	1.0	1.1	0.1	0.5	0.4	0.6	1.9	2.4	0.9	0.6	1.0
LIVSTK	0.0	0.1	0.2	0.2	0.6	0.2	0.5	0.1	0.1	0.1	0.1	0.4	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.4	0.4
FOREST	0.0	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.1	0.0	0.3	0.1	0.1	0.1	0.2
FSFUEL	28.1	16.6	7.9	8.9	10.8	9.3	12.4	11.3	11.0	6.2	9.6	4.2	4.1	10.6	13.4	12.1	8.7	6.2	8.2	9.2	13.0
MINRLS	0.2	0.2	0.1	0.3	0.7	3.0	1.9	0.4	1.3	7.5	2.6	0.2	0.1	2.8	0.6	1.8	0.1	1.0	0.5	0.9	2.0
BEVTOB	0.7	0.4	0.7	1.2	1.3	1.0	1.4	1.0	2.4	0.6	0.4	1.2	2.5	2.0	2.3	0.6	0.9	0.9	1.0	0.8	0.7
SUGARP	0.1	2.5	1.6	0.1	0.5	2.3	2.3	1.7	2.9	0.0	0.0	1.7	0.4	0.7	0.5	0.2	0.2	0.4	1.0	0.1	0.2
OPFOOD	1.7	3.2	8.5	5.5	10.6	8.1	10.3	6.1	3.9	4.8	4.3	7.6	8.8	6.8	9.6	3.6	2.4	6.1	6.9	4.0	3.7
TEXTIL	3.1	6.6	18.5	5.3	9.4	3.8	2.9	6.7	5.8	2.1	3.4	5.9	2.1	5.4	5.2	5.5	14.7	6.0	7.9	5.1	5.3
CHEMRP	10.4	14.3	8.0	22.4	8.3	9.6	12.0	17.0	14.8	15.1	14.4	11.1	4.9	11.7	11.7	10.7	5.6	12.3	9.6	12.7	10.6
MINPRD	1.8	1.2	2.1	1.7	1.9	1.7	2.9	1.7	3.2	2.0	1.1	2.3	1.3	2.4	2.6	1.3	1.0	0.8	1.8	1.1	1.0
METALS	5.2	6.7	2.3	3.4	2.7	15.1	5.9	3.3	5.1	4.1	9.8	5.4	3.0	2.4	1.5	6.7	0.9	6.6	5.3	5.6	6.0
METPRD	2.4	2.5	3.5	2.5	2.0	2.5	3.2	3.2	2.3	4.6	2.2	4.5	4.5	4.7	5.4	1.6	0.6	1.5	2.8	2.4	1.7
TRANEQ	21.7	23.7	17.5	18.9	15.4	16.5	18.3	21.3	17.1	33.5	24.5	28.8	28.0	25.0	27.0	32.5	5.4	26.0	26.6	23.7	23.8
MACHEQ	4.1	4.5	3.6	3.3	3.8	2.8	4.3	6.1	10.5	2.7	1.4	4.4	1.6	3.8	3.3	5.6	5.3	3.1	3.2	5.7	10.1
OMANUF	1.7	5.0	4.7	7.6	5.0	3.6	4.9	4.4	5.5	2.7	5.3	3.7	2.9	5.5	6.1	3.7	4.2	5.5	3.9	5.4	4.9
aTRADSV	0.5	0.5	1.5	1.2	3.2	1.8	2.6	1.4	1.5	0.3	0.6	2.5	0.4	0.9	0.5	3.4	4.4	0.8	1.0	2.3	2.0
aTRANSV	10.5	1.5	2.4	2.5	7.5	1.7	3.0	3.1	3.1	2.6	1.1	3.8	1.9	1.9	0.9	3.6	7.9	2.7	3.0	4.5	3.3
aOTSERV	6.1	5.8	12.9	7.6	11.9	9.3	9.9	8.3	6.0	9.8	12.3	6.7	32.0	10.1	6.5	4.8	31.2	10.1	11.0	14.0	8.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A9: Share of Exports in Domestic Output by Commodity Group and Country – 2014 Projection
(Percentage Shares)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	0.4	1.8	1.4	25.9	98.4	1.9	1.5	4.1	10.5	7.9	1.3	4.3	0.3	1.5	0.9	6.7	1.0	0.7	0.4	23.4	13.8
RICE	0.5	75.9		0.0		80.3	0.7	13.1	11.6	0.0	0.8	0.4	0.3		0.1	4.6	0.0	0.7	1.1	26.0	22.0
WHEAT	0.0	1.7	0.6	4.5		1.2	0.7	3.1	5.2	6.6		0.6	4.6	8.4	66.2	85.1	0.1	10.9	0.9	31.4	4.1
VEGFRT	5.5	14.5	37.1	7.2	3.2	7.0	0.9	10.6	2.4	4.7	50.1	1.4	0.4	2.2	19.7	42.6	13.7	11.4	4.3	42.4	8.6
SUGCAN	0.2	0.1	0.0	0.2	0.0	0.1		1.6	0.5	0.1	0.0	0.3	0.1	2.0		0.7	0.0	0.8	0.1	1.5	0.1
OCROPS	51.8	36.3	40.6	69.2	24.5	63.1	28.5	47.1	86.1	30.0	82.3	29.0	9.2	12.0	96.2	40.0	7.9	15.0	21.9	19.5	18.0
LIVSTK	3.5	4.3	1.8	0.9	15.3	1.7	5.0	6.6	4.4	1.1	13.5	8.0	0.1	1.6	13.3	10.7	0.7	2.3	2.0	11.6	2.9
FOREST	16.8	38.3	0.8	3.8	0.3	20.8	3.0	18.1	2.7	0.7	10.2	12.9	27.2	9.2	9.7	2.9	51.3	55.5	22.5	10.4	7.8
FSFUEL	0.0	12.2	87.6	86.9	87.3	97.9	85.4	0.5	4.1	4.0	4.3	56.0	94.4	0.1	2.3	26.0	85.7	20.2	75.4	18.8	30.0
MINRLS	4.0	69.8	30.6		9.9	20.7	98.7	60.4	10.3	49.1	29.2	16.6	39.0	98.7	54.6	99.2	60.8	49.1	18.1	36.1	27.8
BEVTOB	1.0	4.4	0.5	1.4	18.3	1.0	1.2	5.4	4.8	3.0	37.6	0.7	0.4	4.3	10.2	11.7	3.9	2.6	2.7	19.6	5.6
SUGARP	21.2	2.9	1.5	58.0	82.5	48.9	0.8	47.7	19.2	24.3	58.5	30.8	31.9		90.6	26.6	70.1	19.7	1.7	23.5	12.0
OPFOOD	5.2	6.6	42.5	14.0	35.3	15.1	13.7	17.1	14.5	3.3	17.7	6.5	1.5	14.6	48.6	8.1	16.6	6.1	11.0	20.9	10.3
TEXTIL	13.9	24.1	58.6	35.2	69.0	7.9	11.5	48.9	18.2	8.7	22.9	8.9	2.0	90.2	25.8	8.8	69.5	16.1	30.4	37.7	28.1
CHEMRP	2.9	41.3	2.3	38.1	22.3	13.9	5.2	37.7	13.9	26.9	68.6	6.3	6.2	32.5	52.6	14.8	61.4	31.5	23.8	56.8	24.4
MINPRD	2.1	15.0	80.6		13.8	2.3	2.7	10.6	11.0	12.6	35.5	0.9	0.5	4.0	18.1	8.5	3.9	12.9	8.0	18.9	8.8
METALS	51.8	67.6	98.5	3.6	26.7	99.7	41.9	76.4	75.2	98.9	93.1	30.8	28.0	99.9	80.0	66.4	45.1	46.5	35.0	52.3	23.3
METPRD	0.8	17.3	0.6	1.1	10.3	52.0	3.8	20.3	8.0	31.5	15.5	1.2	0.8	4.6	18.8	16.6	13.3	9.6	7.4	21.2	13.2
TRANEQ	3.3	24.2	93.3	68.8	40.0	22.5	2.9	25.0	10.4	24.7	16.3	3.7	2.9	83.6	40.0	24.8	52.3	25.5	24.5	51.0	31.0
MACHEQ	2.2	7.7	48.8	8.6	33.8	6.9	10.1	14.8	9.3	10.5	9.3	4.2	2.4	85.1	15.3	26.3	12.6	4.1	21.4	58.6	45.7
OMANUF	2.7	10.0	3.0	12.7	39.7	37.6	4.8	34.6	9.0	5.3	65.8	1.6	8.4	15.8	42.6	14.9	41.7	11.6	10.8	24.3	16.6
aTRADSV	1.8	0.3	83.6	1.5	41.4	1.4	3.9	5.8	4.8	0.2	3.5	0.9	0.6	4.0	0.9	1.6	0.4	4.4	1.2	5.3	2.3
aTRANSV	29.3	40.1	27.0	37.7	69.3	19.6	23.9	65.8	26.5	15.6	26.3	8.2	5.2	37.2	17.9	14.0	6.2	59.6	26.4	30.2	17.7
aOTSERV	6.6	8.5	6.3	3.9	15.1	21.8	6.5	5.8	4.8	1.6	5.9	2.2	1.9	5.9	4.3	2.3	14.4	7.6	4.2	5.1	2.7
Average	10.8	13.8	12.4	16.8	34.8	31.2	9.2	17.2	11.1	15.7	35.0	12.5	33.1	29.8	22.5	13.3	26.2	15.4	22.5	18.1	12.1

Table A10: Net Exports by TFTA Country – 2014 Projection

(Export value minus import value, US\$ billion)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	0.01	0.02	0.00	0.11	-0.02	0.00	-0.01	0.06	0.01	0.07	-0.23	-0.03	-0.01	-0.02	-0.03	-0.12	-0.06	-1.37
RICE	-0.11	-0.26	-0.04	-0.05	-0.06	-0.19	0.00	-0.15	-0.08	-0.01	-0.03	-0.26	-0.04	-0.03	-0.02	-0.39	0.00	-2.91
WHEAT	0.00	-0.12	-0.08	0.00	-0.06	-0.21	0.00	0.01	-0.01	0.00	-0.02	-0.12	-0.26	-0.03	-0.01	-0.34	0.00	0.65
VEGFRT	0.20	0.38	0.07	0.03	-0.05	0.01	0.01	0.22	0.03	0.01	0.01	-0.11	-0.15	-0.06	-0.01	2.71	0.02	0.55
SUGCAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
OCROPS	1.75	2.02	0.20	0.67	-0.06	0.36	0.12	0.74	0.69	0.34	0.76	0.27	0.01	-0.02	-0.02	-0.11	-0.02	-0.96
LIVSTK	0.15	0.06	0.02	0.00	0.01	0.00	0.00	0.10	0.03	0.01	0.04	0.39	-0.12	0.00	0.17	0.42	-0.01	-0.07
FOREST	0.20	0.05	0.01	0.00	0.00	0.11	0.00	0.12	0.02	0.00	0.00	-0.15	0.28	0.00	0.00	0.05	0.02	-0.05
FSFUEL	-3.23	-2.23	-0.18	-0.16	-0.66	0.06	-0.14	-1.03	-0.53	-0.37	-0.48	9.78	50.25	-0.61	-0.81	-6.71	0.28	4.63
MINRLS	-0.02	0.05	0.04	-0.01	-0.04	-0.17	0.08	0.30	-0.05	-0.10	0.22	-0.03	1.08	3.34	0.96	6.01	0.18	-0.24
BEVTOB	-0.07	0.19	-0.02	-0.01	-0.05	-0.07	-0.02	-0.04	-0.08	-0.03	0.07	-0.20	-0.99	-0.10	-0.05	0.89	0.00	-0.43
SUGARP	0.08	-0.34	-0.05	0.07	0.30	-0.02	-0.04	-0.09	-0.13	0.13	0.11	-0.26	-0.12	-0.04	-0.02	0.47	0.13	-0.07
OPFOOD	-0.01	0.42	-0.05	-0.08	-0.27	-0.40	-0.11	0.04	0.29	-0.14	-0.13	-0.90	-3.48	-0.16	0.36	-1.05	0.12	-2.77
TEXTIL	0.13	-0.18	0.15	-0.04	0.82	-0.25	-0.03	-0.29	-0.21	-0.03	-0.06	-1.01	-0.82	0.32	-0.20	-4.24	0.38	0.51
CHEMRP	-1.16	-1.46	-0.23	-0.39	-0.37	-0.64	-0.18	-1.42	-0.65	-0.86	-0.70	-1.87	-1.80	-0.59	-0.23	-4.89	0.12	-5.11
MINPRD	-0.19	-0.04	-0.07	-0.03	-0.11	-0.12	-0.04	-0.11	-0.11	-0.10	-0.01	-0.40	-0.51	-0.13	-0.13	-0.86	-0.01	0.50
METALS	-0.07	-0.56	-0.05	-0.06	-0.13	1.93	-0.09	1.19	0.15	4.21	1.62	-0.52	-0.56	1.07	0.89	21.48	0.02	-0.71
METPRD	-0.27	-0.26	-0.11	-0.04	-0.11	-0.17	-0.05	-0.26	-0.10	-0.24	-0.10	-0.80	-1.80	-0.25	-0.30	0.31	-0.01	-0.45
TRANEQ	-2.43	-3.13	-0.56	-0.25	-0.72	-1.11	-0.28	-1.83	-0.76	-1.96	-1.19	-5.00	-11.20	-1.30	-1.26	-19.41	0.07	-15.64
MACHEQ	-0.47	-0.58	-0.12	-0.06	-0.19	-0.19	-0.06	-0.54	-0.51	-0.16	-0.06	-0.75	-0.63	-0.20	-0.17	-5.18	-0.09	-1.94
OMANUF	-0.16	-0.48	-0.11	-0.12	-0.09	-0.01	-0.07	-0.29	-0.24	-0.11	-0.20	-0.61	-0.98	-0.20	-0.16	1.14	0.08	-2.79
aTRADSV	0.07	-0.06	-0.04	-0.01	-0.11	-0.10	-0.01	0.18	0.07	0.00	0.00	-0.35	-0.10	0.03	-0.01	-2.44	-0.08	0.37
aTRANSV	0.45	1.41	0.17	0.03	0.80	0.19	0.06	0.57	0.06	0.02	0.07	-0.07	-0.40	0.22	0.19	0.33	-0.12	10.68
aOTSERV	0.36	0.84	-0.13	-0.02	0.12	0.91	0.01	-0.05	0.16	-0.44	-0.46	-0.40	-11.95	0.04	-0.04	1.69	-0.14	1.01

Table A11: TFTA Origin Shares in Total Imports by Commodity and Destination – 2014 Projection

(Percentage share of imports from TFTA region in a country's / region's total imports by commodity group)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	15.2	92.9	66.1	99.7	1.4	77.4	99.7	75.1	8.8	90.7	97.1	31.4	51.7	99.7	97.7	4.0	99.9	0.8	0.5	0.9	0.6
RICE	0.0	0.2	0.0	36.8	0.0	0.2	66.3	0.0	8.7	82.1	49.8	0.2	0.1	95.8	9.5	0.0	72.1	0.0	0.0	0.2	0.1
WHEAT	3.4	13.0	0.9	69.4	0.1	0.9	78.2	0.4	53.3	74.5	16.8	27.8	0.7	98.0	98.4	0.3	83.3	0.2	5.7	4.3	3.3
VEGFRT	3.4	55.3	25.0	54.3	46.1	89.6	85.0	19.1	41.2	96.3	48.7	47.4	43.8	98.3	99.2	21.3	48.4	1.1	8.1	6.1	3.4
SUGCAN	43.2	44.6	45.3	29.2	45.5	45.3	45.6	44.0	43.6	43.9	29.4	40.8	38.6	45.4	75.9	34.7	87.6	20.0	46.2	7.7	24.6
OCROPS	24.7	65.2	7.3	99.5	49.0	82.7	56.5	81.3	74.0	96.9	95.9	81.8	45.6	97.7	96.8	46.5	93.0	21.6	6.0	7.9	5.8
LIVSTK	35.3	68.6	22.7	91.3	62.4	86.4	87.3	39.7	33.9	34.5	52.8	53.0	8.7	93.1	94.3	52.3	86.6	21.0	4.1	1.9	2.8
FOREST	6.2	93.8	15.3	49.6	55.1	98.6	27.8	67.5	42.1	61.1	91.7	98.7	61.0	90.3	96.9	41.2	71.8	3.2	9.4	3.3	3.5
FSFUEL	23.7	2.1	1.9	82.5	1.8	5.8	16.0	6.2	16.9	21.8	64.8	2.8	14.5	99.0	95.2	15.9	15.5	0.1	5.4	2.1	4.9
MINRLS	3.3	18.3	62.2	97.9	18.2	96.7	59.4	71.2	90.1	11.5	99.7	52.8	31.5	32.6	19.8	40.1	30.8	0.1	7.1	13.2	4.1
BEVTOB	14.3	42.9	49.9	78.3	27.6	58.8	42.8	34.7	82.3	87.5	73.6	65.1	23.1	97.1	82.1	1.3	71.9	2.1	6.3	1.6	1.1
SUGARP	28.1	69.3	74.9	98.0	45.4	99.8	95.8	15.1	98.3	98.3	89.8	16.8	16.4	99.3	97.2	8.0	87.6	1.1	8.8	16.8	3.6
OPFOOD	13.0	34.7	16.0	68.2	20.5	61.6	74.7	32.3	61.5	93.3	62.3	10.0	6.5	98.0	92.5	9.8	60.4	0.5	4.1	1.2	0.8
TEXTIL	1.5	9.9	17.0	56.7	6.5	47.4	45.4	11.5	29.0	60.8	80.3	7.7	5.5	77.8	89.5	6.9	11.5	0.2	1.4	1.5	1.1
CHEMRP	8.6	13.3	19.5	53.6	16.5	52.0	56.8	20.4	40.6	78.4	75.1	13.8	14.6	86.3	77.9	1.0	39.2	0.2	3.7	0.3	0.5
MINPRD	40.6	9.2	7.0	91.7	6.0	40.4	86.3	35.6	83.4	81.4	87.8	42.7	8.9	95.8	83.5	1.5	77.1	0.3	4.8	0.8	0.7
METALS	7.8	53.3	21.0	83.8	25.5	89.9	87.7	50.4	43.8	81.5	98.6	16.0	7.2	94.9	91.1	22.4	66.2	6.2	4.8	3.7	4.8
METPRD	3.4	8.9	29.1	75.6	11.6	67.0	37.9	30.2	41.5	71.7	82.2	12.0	9.3	94.6	71.4	1.8	52.2	0.1	8.1	0.4	0.3
TRANEQ	2.9	4.6	14.2	66.8	5.5	48.1	19.2	15.2	19.8	60.8	62.5	7.9	5.6	79.8	73.9	1.0	39.0	0.3	2.3	0.4	0.3
MACHEQ	0.7	3.8	3.8	40.3	4.2	43.7	11.4	7.7	6.1	43.5	61.2	2.3	10.3	59.4	75.0	0.3	6.6	0.2	1.6	0.1	0.0
OMANUF	9.6	23.8	19.7	55.2	13.8	58.4	44.6	26.6	40.9	69.2	99.8	13.0	13.4	80.5	74.6	3.5	26.6	0.3	4.3	0.6	0.8
aTRADSV	1.0	1.1	0.6	0.9	0.8	0.9	1.0	1.0	0.9	1.2	0.9	1.1	0.9	1.2	1.2	0.4	1.0	0.6	1.1	1.0	0.8
aTRANSV	0.8	1.8	2.0	1.4	2.7	3.0	2.9	3.3	3.0	4.7	1.4	3.0	2.2	3.1	3.1	2.1	3.5	1.5	2.7	3.0	3.3
aOTSERV	1.2	1.5	1.5	1.4	1.1	17.9	1.4	1.7	1.3	3.3	71.6	2.2	0.9	12.3	2.1	19.1	1.9	1.0	1.4	1.1	1.3

Table A12: TFTA Destination Shares in Total Exports by Commodity and Origin – 2014 Projection

(Percentage share of exports to TFTA region in a country's / region's total exports by commodity group)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt	OAfrica	EU27	RoW
MAIZCG	3.2	20.8	12.0	99.5	0.8	46.9	59.3	20.1	99.2	92.9	48.5	1.6	1.3	22.9	18.9	75.8	39.7	0.7	1.2	0.2	5.2
RICE	6.4	97.6	0.0	100.0	0.0	100.0	0.7	36.3	100.0	100.0	100.0	1.2	1.4	0.0	100.0	88.7	100.0	1.0	0.9	2.5	12.9
WHEAT	100.0	93.3	22.2	92.0	0.0	74.5	1.3	21.2	60.4	0.0	0.0	0.9	0.0	88.4	99.1	97.1	82.9	5.1	0.5	0.8	7.1
VEGFRT	21.8	3.6	9.1	21.3	4.1	15.8	14.4	5.5	47.6	12.7	13.8	9.0	1.2	25.6	31.4	7.5	4.6	0.8	0.2	0.6	0.9
SUGCAN	6.1	1.2	1.3	1.1	3.3	1.3	0.0	1.2	1.3	1.3	27.4	1.2	1.2	1.2	0.0	1.4	21.1	0.9	1.3	0.0	1.1
OCROPS	2.5	15.3	1.6	18.5	19.3	10.3	9.8	6.9	17.3	42.4	16.9	2.6	0.8	78.0	48.3	21.0	65.4	0.4	0.6	1.4	1.2
LIVSTK	23.7	2.4	11.0	30.2	2.4	62.1	32.5	3.7	18.1	24.9	35.4	8.3	1.9	95.9	74.1	8.4	70.9	0.7	1.0	0.5	0.8
FOREST	78.9	80.9	2.4	3.6	14.5	0.5	1.8	2.1	3.9	6.5	68.8	0.5	1.3	4.3	26.7	20.0	97.5	0.7	0.3	0.8	0.2
FSFUEL	37.2	78.3	1.6	1.2	0.9	95.9	1.3	43.9	1.0	33.5	58.7	5.1	2.5	98.5	67.2	27.0	1.1	1.2	0.8	0.8	1.4
MINRLS	0.5	57.7	4.0	0.0	7.1	20.6	1.8	8.8	4.2	40.4	69.1	6.8	0.1	1.9	16.4	2.5	0.0	5.2	3.5	3.2	0.5
BEVTOB	4.3	82.9	6.7	49.2	50.9	52.5	2.8	10.8	76.3	14.5	37.3	1.7	2.1	43.6	84.1	27.5	26.8	2.6	5.8	1.8	0.7
SUGARP	6.1	94.2	0.4	34.0	1.1	38.7	1.1	28.7	65.3	16.7	66.7	25.8	0.0	0.0	99.9	39.3	28.5	37.3	0.6	0.2	5.4
OPFOOD	13.3	40.6	2.2	94.6	11.8	26.8	74.0	15.0	42.9	12.8	79.7	15.5	0.4	51.5	33.3	51.5	14.6	3.9	2.5	1.2	2.4
TEXTIL	2.4	18.5	2.1	45.6	12.0	45.6	7.0	35.8	38.5	6.6	48.5	7.6	1.4	44.2	18.6	41.3	3.4	0.7	0.6	0.6	1.8
CHEMRP	21.7	73.7	11.9	97.1	36.6	86.3	17.4	71.7	57.8	18.1	76.9	24.1	1.3	87.6	9.7	43.9	66.8	5.8	2.6	1.2	1.5
MINPRD	1.7	90.7	30.9	0.0	24.5	86.1	29.0	32.0	92.4	30.5	90.5	1.6	0.9	85.3	72.0	59.0	32.9	15.2	0.5	1.3	2.0
METALS	8.8	39.4	0.2	72.6	18.7	1.3	56.3	19.3	36.8	13.4	65.9	5.0	0.2	49.4	10.0	4.7	13.4	1.9	34.4	0.9	1.0
METPRD	9.9	82.2	22.5	21.9	20.1	98.9	14.9	17.0	67.5	5.2	91.8	21.7	15.3	63.9	78.1	51.3	10.5	10.2	2.3	1.5	1.8
TRANEQ	33.3	77.8	40.5	96.1	27.0	64.6	50.3	56.3	55.7	72.4	89.6	7.2	8.2	84.0	62.9	32.7	40.2	11.0	1.7	1.8	1.8
MACHEQ	25.3	30.1	24.7	36.1	17.4	59.4	8.0	16.9	58.0	62.0	22.3	1.8	4.8	92.1	65.7	52.8	9.5	2.9	0.4	2.1	0.6
OMANUF	22.0	65.2	15.5	78.1	10.3	94.7	13.7	51.5	45.2	12.9	78.1	10.9	1.5	25.5	27.4	18.0	38.4	8.1	3.3	1.1	1.1
aTRADSV	1.9	1.9	2.0	1.3	1.8	1.9	1.9	1.4	1.6	1.5	1.3	1.4	1.3	1.4	1.5	0.4	1.7	1.1	1.5	1.9	1.5
aTRANSV	1.5	1.0	1.5	0.6	1.6	1.0	1.0	0.4	1.4	0.3	0.7	1.0	1.0	1.0	1.2	0.8	0.8	0.7	1.1	0.8	0.8
aOTSERV	2.0	1.8	2.4	1.5	1.5	83.0	2.2	1.7	1.9	27.0	1.6	1.7	2.2	1.6	1.9	4.0	1.8	1.7	1.9	1.6	1.8

Table A13: Average Tariff Rates on Intra-TFTA Imports by Destination and Commodity Group – 2014 Projection

(In Percent)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	4.9	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	2.1	0.0	0.0	0.0	0.0	1.8
RICE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.4	0.0	0.0	0.1	0.0	0.4
WHEAT	4.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	3.3	4.9	0.0	0.0	0.0	0.0	0.0
VEGFRT	9.4	4.3	0.0	0.0	0.0	0.0	0.0	0.9	3.1	0.0	0.0	10.0	12.7	0.0	0.0	2.8	0.3	2.4
SUGCAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0
OCROPS	10.6	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.6	0.0	0.0	5.5	5.4	0.0	0.0	2.4	0.2	0.2
LIVSTK	12.5	0.8	0.0	0.0	0.0	0.0	1.1	0.1	2.4	0.0	0.0	12.7	7.6	0.0	0.0	0.0	0.0	0.6
FOREST	13.2	5.6	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	7.2	15.2	0.0	0.0	0.0	0.0	0.9
FSFUEL	8.1	2.1	0.0	0.0	0.0	0.1	0.1	1.7	0.5	0.0	0.0	2.8	18.4	0.0	0.0	0.0	0.0	2.2
MINRLS	5.4	4.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.4	17.4	0.0	0.0	0.0	0.0	1.9
BEVTOB	34.9	17.9	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.0	0.0	5.6	27.5	0.0	0.0	0.4	0.0	29.2
SUGARP	5.0	37.1	4.0	0.0	0.0	0.0	6.5	0.0	51.3	0.0	0.0	8.0	5.1	0.0	0.0	0.0	0.0	1.0
OPFOOD	24.0	1.5	0.0	0.0	0.0	0.3	0.1	0.1	1.5	0.0	0.0	10.2	12.8	0.0	0.0	0.6	0.4	3.3
TEXTIL	28.4	5.9	0.0	0.0	0.0	0.7	0.3	0.4	1.3	0.0	0.0	5.9	11.6	0.1	0.0	0.8	0.7	5.3
CHEMRP	12.9	4.9	0.0	0.0	0.0	0.1	0.7	0.3	1.7	0.0	0.0	3.0	9.7	0.0	0.0	1.2	0.1	4.6
MINPRD	10.3	2.5	0.1	0.0	0.0	0.5	0.0	2.6	0.2	0.0	0.0	0.3	13.4	0.0	0.0	2.3	0.0	9.5
METALS	9.5	4.8	0.0	0.0	0.0	0.0	0.3	0.0	1.2	0.0	0.0	12.1	5.6	0.0	0.0	0.0	0.0	0.6
METPRD	19.7	13.9	0.0	0.0	0.0	0.1	1.9	0.2	3.6	0.0	0.0	2.6	14.6	0.0	0.0	0.8	0.1	13.1
TRANEQ	15.4	3.4	0.0	0.0	0.0	0.0	6.3	1.1	3.3	0.0	13.0	4.2	4.2	0.0	0.0	0.2	0.0	32.5
MACHEQ	12.7	5.1	0.0	8.0	0.0	9.4	2.7	0.0	5.8	0.0	0.0	1.9	6.6	0.0	0.0	0.3	0.0	22.9
OMANUF	14.8	5.6	0.0	0.1	0.3	0.0	1.1	0.6	3.0	0.0	0.0	4.2	13.1	0.0	0.0	0.6	1.3	9.3

Table A14: Average Tariff Rates on Intra-TFTA Exports by Origin and Commodity Group – 2014 Projection

(In Percent)

	Ethiopia	Kenya	Madagascar	Malawi	Mauritius	Mozambique	Rwanda	Tanzania	Uganda	Zambia	Zimbabwe	OEastAfrica	SCAfrica	Botswana	Namibia	SouthAfrica	OSACU	Egypt
MAIZCG	4.5	0.1	0.5	0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.1	0.0	0.5	0.0	1.3	0.6	1.4	0.7
RICE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	1.0	1.1	0.0	2.1	0.0	0.0	0.9
WHEAT	0.0	0.0	1.5	0.4	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.2	0.0	0.0	3.3	0.1	0.0	0.0
VEGFRT	13.0	3.5	0.4	0.1	0.0	0.2	0.0	0.4	0.2	0.0	0.0	0.3	0.7	0.0	11.9	2.7	0.0	2.9
SUGCAN	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OCROPS	18.4	0.9	0.1	0.2	0.1	0.1	0.1	0.9	3.8	0.0	0.0	0.6	0.7	0.0	1.8	1.0	0.3	1.0
LIVSTK	12.3	2.4	0.4	0.0	0.0	0.7	0.0	4.1	0.0	0.6	0.3	0.1	0.0	0.0	0.4	0.6	0.0	2.6
FOREST	9.6	0.3	0.0	0.0	0.0	2.2	0.0	1.2	0.0	0.0	0.0	0.7	0.0	0.0	3.9	0.8	0.0	0.2
FSFUEL	0.0	0.9	0.3	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.2	7.8	0.0	0.0	6.0	1.8	2.7	6.9
MINRLS	29.6	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	1.1	0.1	0.0	1.1	0.3	1.8	2.6
BEVTOB	30.0	1.3	0.5	0.9	6.0	7.4	0.0	1.5	7.9	1.3	4.9	69.2	1.1	0.0	21.4	9.2	4.5	2.0
SUGARP	19.5	0.4	0.0	0.3	0.0	55.3	0.0	0.0	0.2	0.0	0.0	0.0	1.0	0.0	3.2	20.4	53.6	0.7
OPFOOD	22.3	1.2	0.0	0.4	0.1	0.5	0.0	1.6	3.3	0.1	0.3	0.4	1.5	0.0	1.9	1.4	0.7	5.2
TEXTIL	26.0	1.0	0.1	0.0	0.0	0.1	6.3	0.9	0.7	0.7	0.2	2.3	4.0	0.0	8.6	0.8	11.1	11.6
CHEMRP	18.0	1.2	0.0	0.0	0.1	0.1	0.0	1.6	1.0	0.0	0.4	1.7	21.9	0.3	9.8	1.0	5.8	2.3
MINPRD	9.5	0.1	0.1	0.0	0.1	0.7	0.1	1.8	0.1	0.0	1.1	7.6	1.6	0.0	14.2	0.5	0.3	4.0
METALS	2.5	0.7	0.0	0.0	2.5	1.7	0.0	0.1	0.5	0.0	0.0	1.2	0.1	0.0	0.5	3.0	0.5	2.8
METPRD	16.9	0.5	0.4	0.1	0.3	0.9	0.1	1.6	3.1	0.1	0.4	0.7	0.5	0.1	11.5	2.3	6.1	1.8
TRANEQ	22.0	0.3	0.0	0.0	0.2	0.4	0.2	0.6	2.6	0.0	0.3	0.8	3.3	1.9	3.8	2.3	7.4	2.7
MACHEQ	9.3	0.2	0.4	3.0	0.3	0.8	0.4	8.0	1.1	0.0	1.5	2.4	3.0	0.1	6.8	2.6	2.1	2.1
OMANUF	33.9	0.8	0.1	0.0	0.3	0.6	0.3	0.5	2.3	0.1	0.9	2.0	5.8	0.0	12.4	2.0	0.6	2.4

Table A15: Changes in Bilateral Tariffs Due to TFTA

(y: Tariffs change; n: No change in tariffs)

		Comoros	DR Congo	Djibouti	Egypt	Eritrea	Ethiopia	Libya	Madagascar	Malawi	Mauritius	Seychelles	Sudan	Swasiland	Zambia	Zimbabwe	Burundi	Kenya	Rwanda	Uganda	Tanzania	Angola	Botswana	Lesotho	Mozambique	Namibia
COMESA	Comoros																									
	DR Congo	y																								
	Djibouti	n	y																							
	Egypt	n	y	n																						
	Eritrea	n	n	n	n																					
	Ethiopia	y	y	y	y	n																				
	Libya	n	n	n	n	n	n																			
	Madagascar	n	y	n	n	n	y	n																		
	Malawi	n	y	n	n	n	y	n	n																	
	Mauritius	n	y	n	n	n	y	n	n	n																
	Seychelles	n	y	n	n	n	y	n	n	n	n															
	Sudan	n	y	n	n	n	y	n	n	n	n	n														
	EAC	Swasiland	y	y	y	y	n	y	n	n	n	n	y	y												
		Zambia	n	y	n	n	n	y	n	n	n	n	n	n	n											
Zimbabwe		n	y	n	n	n	y	n	n	n	n	n	n	n	n											
Burundi		n	y	n	n	n	y	n	n	n	n	n	n	y	n	n										
Kenya		n	y	n	n	n	y	n	n	n	n	n	n	y	n	n	n									
Rwanda		n	y	n	n	n	y	n	n	n	n	n	n	y	n	n	n	n								
Uganda		n	y	n	n	n	y	n	n	n	n	n	n	y	n	n	n	n	n							
Tanzania		n?	y	y	y	n	y	n	n	n	n	n	y	n	n	n	n	n	n	n						
		Angola	y	y	y	y	n	y	n	y	y	y	y	y	y	y	y	y	y	y	y	y	y			
		Botswana	y	y	y	y	n	y	n	n	n	n	y	y	n	n	n	y	y	y	y	y	n	y		
	Lesotho	y	y	y	y	n	y	n	n	n	n	y	y	n	n	n	y	y	y	y	y	n	y	n		
	Mozambique	y	y	y	y	n	y	n	n	n	n	y	y	n	n	n	y	y	y	y	y	n	y	n	n	
	Namibia	y	y	y	y	n	y	n	n	n	n	y	y	n	n	n	y	y	y	y	y	n	y	n	n	n
South Africa	y	y	y	y	n	y	n	n	n	n	y	y	n	n	n	y	y	y	y	y	n	y	n	n	n	

A3. Supplementary Information

Table A15: Commodity Group Aggregation of the GTAP Database

Description	Code	Description	Code
1 Paddy rice	pdr	27 Textiles	tex
2 Wheat	wht	28 Wearing apparel	wap
3 Cereal grains nec	gro	29 Leather products	lea
4 Oil seeds	osd	30 Wood products	lum
5 Vegetable oils and fats	vol	31 Paper products, publishing	ppp
6 Sugar cane, sugar beet	c_b	32 Chemical,rubber,plastic products	crp
7 Vegetables, fruit, nuts	v_f	33 Petroleum, coal products	p_c
8 Plant-based fibers	pfb	34 Mineral products nec	nmm
9 Crops nec	ocr	35 Ferrous metals	i_s
10 Wool, silk-worm cocoons	wol	36 Metals nec	nfm
11 Cattle, sheep, goats, horses	ctl	37 Metal products	fmp
12 Animal products nec	oap	38 Motor vehicles and parts	mvh
13 Raw milk	rmk	39 Transport equipment nec	otn
14 Forestry	frs	40 Electronic equipment	ele
15 Fishing	fsh	41 Machinery and equipment nec	ome
16 Coal	coa	42 Manufactures nec	omf
17 Oil	oil	43 Electricity	ely
18 Gas	gas	44 Gas manufacture, distribution	gdt
19 Minerals nec	omn	45 Water	wtr
20 Processed rice	pcr	46 Construction	cns
21 Sugar	sgr	47 Trade	trd
22 Meat: cattle, sheep, goats horse	cmt	48 Transport nec	otp
23 Meat products nec	omt	49 Sea transport	wtp
24 Dairy products	mil	50 Air transport	atp
25 Food products nec	ofd	51 Communication	cmn
26 Beverages and tobacco products	b_t	52 Financial services nec	ofi
		53 Insurance	isr
		54 Business services nec	obs
		55 Recreation and other services	ros
		56 Public administration, defence, health, education	osg
		57 Dwellings	dwe

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