Economic Commission
for Africa

SUB-REGIONAL OFFICE
FOR EASTERN AFRICA (SRO-EA)

Two Decades of Trade Liberalisation and Market Expansion in Eastern Africa.

Towards a New Economic Geography?"

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Two Decades of Trade Liberalisation and Market Expansion in Eastern Africa – Towards a New Economic Geography?”

Sub-Regional Office for Eastern Africa
Kigali, Rwanda
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Two Decades of Trade Liberalisation and Market Expansion in Eastern Africa – Towards a New Economic Geography?"

Abstract

Trade liberalisation over the last two decades in Eastern Africa has been pronounced, and has resulted in significant increases in exports and imports both through inter-regional trade and intra-regional trade. Measures of diversification show that trade liberalisation has resulted in a more diversified export structure, however the regions comparative advantage has not changed significantly. There is still scope for pursuing further trade liberalisation - especially regional integration - as a way to diversify export markets. Ambitious regional trade liberalisation programs, such as the Tripartite Agreement between COMESA/EAC/SADC, undoubtedly have the potential to change the economic geography of the region and inducing greater structural change. A GTAP computable general equilibrium model was used to evaluate the possible trade and welfare effects of the proposed Tripartite Agreement. Simulation results showed increased net welfare gains and higher levels of aggregate industrial production and realignment of production between countries in the region. The Tripartite would result in increased aggregate regional demand which in turn would lead to higher industrial production in the region.

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1.0 Trade Liberalisation in Eastern Africa: An Overview

Following the Second World War, many developing countries in Africa and elsewhere adopted import substitution industrialization strategies. It was believed that industrialization was the main ingredient of growth and that substituting manufactured imports for domestically produced goods was the only way developing countries would achieve rapid economic growth. Debt and macroeconomic crisis in the 1980's for developing countries including a majority of African countries led to economic reforms that replaced inward-looking, import substituting strategies with outward-oriented trade liberalisation strategies (Rodrik, 1995). The objective of economic reforms was to increase economic growth through increased efficiency of resource allocation. Trade liberalisation was expected to improve the productivity (total factor productivity) of the economy. Through the price effects, trade liberalisation would increase demand for both imported inputs and exports. This would realign incentives away from the non-tradable sectors and towards the tradable sector resulting in increased trade. Efficiency gains were expected because the tradable sector of the economy would be exposed to external competition especially in developing countries. Trade liberalisation was also expected to result in increased investment and productivity gains as a result of technology transfers, economies of scale would result from increased production in the tradable sector. Increased productivity would lead to structural transformation as labor moved to the more productive sectors of the economy. The resulting net effect would be a positive influence of trade liberalisation on long-term growth in Africa.

Trade liberalisation in Eastern Africa took place both in multilateral WTO/GATT processes and through regional processes (regional trade agreements). The former were partly as the result of pressure from international organizations such as the World Bank and the IMF to liberalise their economies, and also due to export promotion policies adopted by Eastern African governments. As a result Eastern African countries liberalized foreign trade (both at multilateral and regional levels), capital markets and privatized national industries. Trade liberalisation has therefore been an important driver of economic integration and export growth in Eastern Africa.

As a development strategy, trade liberalisation was expected to lead to increased exports, increased productivity and structural change.

Therefore developing countries including Eastern African countries adopted trade liberalisation in an attempt to reverse the decline in economic growth and export growth. The objective of this study is to therefore examine Eastern Africa's export performance and structural changes as a result of the multilateral trade liberalisation and regional integration process in order to draw lessons for use in the design of future development strategies.

1.1 Empirical Evidence on the Impact of Trade liberalisation on Economic Growth

Empirical studies of liberalisation of trade can be divided into partial equilibrium analyses, computable general equilibrium (CGE) models and econometric studies. Although not without their detractors[1], computable general equilibrium approaches are generally preferable because of the way they attempt to capture the complex interaction between and within sectors to the stimulus of trade liberalisation measures. In a partial equilibrium setting, such interactions on relative prices and factor utilization between sectors are lost. Hence in this brief review we will focus firstly on econometric studies, and then on computable general equilibrium studies.

Econometric studies of trade liberalisation have focused on the extent to which trade liberalisation has affected economic growth, exports and import flows, and the trade balance. Most initial studies resoundingly endorsed trade liberalisation as a way of enhancing economic growth and development. Wacziarg and Welch (2003) studied the relationship between economic integration and economic growth, over the period 1950-1998 and found that countries that liberalized trade regimes experienced on average an increase in annual rates of growth 1.5 percentage points higher compared to the pre-liberalisation period. The post-liberalisation increase in investment was between 1.5 and 2.5 percentage points and that liberalisation raised the trade to GDP ratio on average by five percentage points. Felbermayr (2005) used a dynamic Panel Data model to test for evidence of a Trade-Income relationship and found a strong positive effect of openness on income growth.

Emiko Fukase (2010) analyzed the relationship between openness, education and economic growth using a series of panel data techniques, using data for 106 countries over the period 1969 to 2004 and found that trade openness had had a positive effect on economic growth.

[1] Because the framework tends to be long run, which often abstracts from short-run realities of structural rigidities in developing countries, such as 'missing' or inefficient factor markets, some scholars have argued that they may not be appropriate for analysing the problems of the typical developing country (e.g., De Maio et al., 1999: Charlton and Stiglitz, 2004).

On the other hand, Rodriguez and Rodrik (2000) reviewed a number of empirical studies, including Dollar (1992), Ben-David (1993), Sachs and Warner (1995), and Edwards (1998), they found no evidence of a robust positive relationship between open trade policies and economic growth. Santos-Paulino and Thirlwall,(2004) estimated the effect of trade liberalisation on export growth, import growth, the balance of trade and the balance of payments for a sample of 22 developing countries that had adopted trade liberalisation policies since the mid-1970s. Although they found that liberalisation stimulated export growth, it also raised import growth by more, leading to a worsening of the balance of trade and payments which constrained the growth of output.

In contrast, Wu and Zeng (2008) studied the impact of trade liberalisation on imports, exports, and overall trade balance for developing countries and found strong and consistent evidence that trade liberalisation resulted in higher imports and exports, however found no robust evidence that liberalisation had a negative impact on the trade balance. Among the African-specific studies, Jones and Morrissey (2008) studied the impact of liberalisation on imports. They compared imports of liberalizing countries to non-liberalizing countries in Africa and found no evidence to suggest that imports increased disproportionately after liberalisation. Allaro (2012) examined the impact of trade liberalisation on Ethiopia's trade balance using the data over the period 1974 to 2009, and found that trade liberalisation led to a worsening trade balance as a result of a rapid increase in imports in Ethiopia.

Falvey et al. (2008) studied the effects of timing on the liberalisation process, and found evidence that an economic crisis at the time trade liberalisation had a negative effect on post- liberalisation growth performance. The success or failure of trade reforms in developing countries could be partly attributed to the timing of the reforms - trade reforms undertaken during an economic crisis lead to lower subsequent growth while trade reforms undertaken during non-crisis periods led to higher post-liberalisation growth.

How do these results compare with those generated by CGE models? In the 1990s, CGE models were used widely to estimate large welfare gains from the trade liberalization achieved under the Uruguay Round. The OECD, along with others, predicted global welfare gains in the order of US$200 billion, approximately a third of which would accrue to developing countries. In hindsight, however, it appears that these estimates were excessively optimistic.

According to subsequent estimates, 70 per cent of the gains from the Uruguay Round would go to the developed countries; more importantly, the remaining 30 per cent would be captured by few large export-oriented developing countries. Indeed, the 48 least-developed countries (LDCs) could be worse off by some US$600 million a year within the first six years of the Uruguay Round (1995–2001), with SSA worse off by US$1.2 billion (UNDP, 1997, cited by Charlton and Stiglitz, 2005, p. 47).

Using the GTAP 6.0 CGE trade model, Fosu and Mold (2008) simulate a complete global liberalization scenario to measure the distribution of gains across countries. The global welfare gains amounted to only US$94 billion or a mere 0.3 per cent of world GDP. However, the gains for SSA are even smaller - the estimated welfare gain of US$259 million is equivalent to only 0.08 per cent of SSA GDP. In per capita terms, this represents a welfare gain for SSA equivalent to 36 cents per capita on a one-off basis. Moreover, even these results hinge on the inclusion of South Africa within the group of 12 SSA regions. Excluding South Africa, the welfare result is a loss for SSA of US$579 million. The conclusion is that SSA stands to gain relatively little from any further global trade liberalization.[2]

Finally, Velde (2011) examined the effect of regional integration on growth and convergence in developing countries using standard growth models using a data set of 100 developing countries between 1970 and 2004. They did not find robust evidence of positive effects of regional integration on growth and convergence at the macro-level.

2.0 Trade Liberalisation in Eastern Africa; Effect on Tariffs and Trade Flows

2.1 The Depth of Trade liberalisation in Eastern Africa

Most Eastern African countries undertook comprehensive trade liberalisation in the 1980s and 1990s. As part of the reforms, trade policy was directed towards the reduction of both tariff and non-tariff barriers on international trade. Table 1.0 shows the approximate dates of trade liberalisation in the region.

[2] See Fosu and Mold (ibid.) for an explanation of why global gains have declined over time. The principal reason for the downscaling of expected gains is the updating of the GTAP database — the GTAP 6 database uses data from 2001 (compared to 1997 for GTAP 5). This incorporates trade agreements reached up until 2005 in the baseline, including China's entry into the WTO, the expansion of the EU in 2004 and the end of the Multifibre Agreement. In this latter database, then, the world has less protectionism to dismantle and so the benefits are correspondingly smaller (Ackerman, 2005, p. 3). Furthermore, when the erosion under WTO of preferential tariff arrangements is incorporated, SSA's global gains drop by 55 per cent (van der Mensbrugghe, 2005, p. 64).

Table 1: Trade Liberalisation in Eastern Africa

Country	Year of liberalization[3]	Year of WTO Membership
Uganda	1988	1995
Kenya	1993	1995
Tanzania	1995	1995
Ethiopia	1996	
Madagascar	1996	1995
Rwanda	1996	1996
Congo, Dem. Rep.	1997	1997
Burundi	1999	1995
Somalia	n/a	

Source Welch and Romain, 2008 and WTO

Table 2.0 shows the distribution of weighted tariffs in the region before and after the liberalisation process. The average weighted applied tariff decreased from 27.8% in 1986 to 11.7% in 2010. Kenya had the biggest decline in tariff between 1986 and 2010. In 1986, Kenya had one of the highest applied tariffs in the region (39.2%), but by 2010 it had decreased to 12.1%.

Table 2: Weighted Applied Tariff (Mean all products,%)

	1986	1997	2007	2008	2009	2010
Djibouti		-	27.8	27.8	20.6	20.9
Ethiopia		24.3	18.2	18.2	18.2	18.2
Tanzania	32.1	22.3	12.5	11.7	11.6	12.9
Kenya	39.2	19	12.3	12.1	11.9	12.1
Uganda	30	13.2	12.1	12	11.9	12.1
Congo DR	22.4	15.2	13	12.8	12.9	12
Madagascar	6	7.7	12.1	12.1		10.6
Rwanda		35	18.7	18.6	10.2	10
Burundi	37	29.5	13.5	12.8	9.8	9.8
Eritrea		28	7.9	7.9	7.9	7.9
Comoros		38.9	11.3	11.3	7.8	7.6
Seychelles		28.3	6.5	6.5	6.5	6.5
Average	**27.8**	**23.8**	**13.6**	**13.7**	**11.8**	**11.7**

Source World Trade Organization, 2011

[3] see Wacziarg, Romain and Karen Horn Welch, 2008. "Trade Liberalization and Growth: New Evidence.

2.2 Effect of Trade liberalisation on Trade Openness

The share of trade in GDP (trade openness) is an indicator of the economy's ability to integrate itself into global trade markets, trade liberalisation is expected to increase both exports and imports and therefore a positive effect on trade openness. Trade openness is also an indirect measure of trade policy performance (e.g. trade barriers), although other factors like geographical size, sea access, remoteness etc. also play a role in determining a country's openness. Table 3.0 shows trends in trade openness in the region.

Table 3: Share of trade in GDP (%, trade openness)

	1990	**2000**	**2010**
D. R. Congo	54	33.5	147.9
Djibouti	132.5	84.5	79.3
Tanzania	36.7	32.7	66.3
Madagascar	41.5	69.8	60.2
Uganda	26.7	32.7	56.9
Ethiopia	14.4	32.2	54.1
Burundi	25.4	20.5	53.2
Rwanda	19.3	31.1	39.8
Average	**43.8**	**42.1**	**69.7**

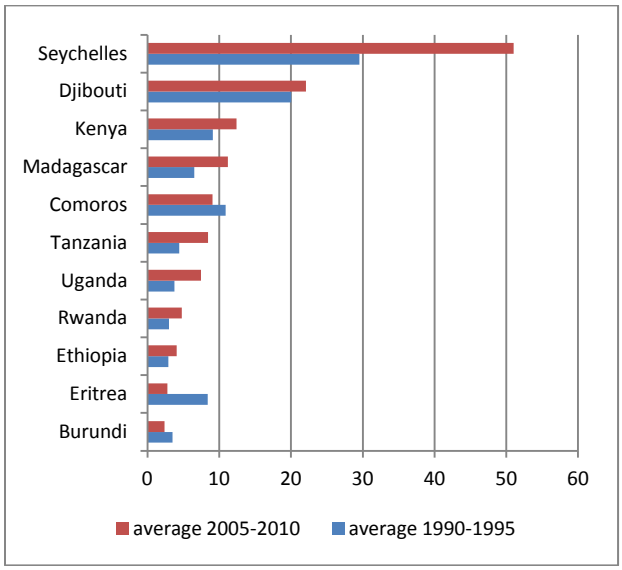
Source: UNCTAD and UNECA, 2012

Average trade openness in the region increased from 43.8% in 1990 to 69.7% in 2010. D.R. Congo had the highest share of trade in GDP (147.9%) in 2010 while landlocked Rwanda had the lowest share of trade in GDP at 39.8% in 2010. Trade openness increased in every country in the region with the exception of Djibouti where the share of trade in GDP decreased from 132.5% in 1990 to 79.3% in 2010.

2.3 Trends in Exports, Imports and Trade Balances following Liberalisation

Trade liberalisation is expected to stimulate export and import growth but the effect is not expected to be symmetrical. Indeed, concerns have been raised (Santos-Paulino and Thirlwall, 2004) that the greatest impact has been on imports, with exports responding slower. Figure 1.0 shows the average export to GDP ratio. Exports grew faster than GDP for all countries in the region (with the exception of Burundi, Eritrea and Comoros) over the period 2005-2010 compared to the period 1990-1995.

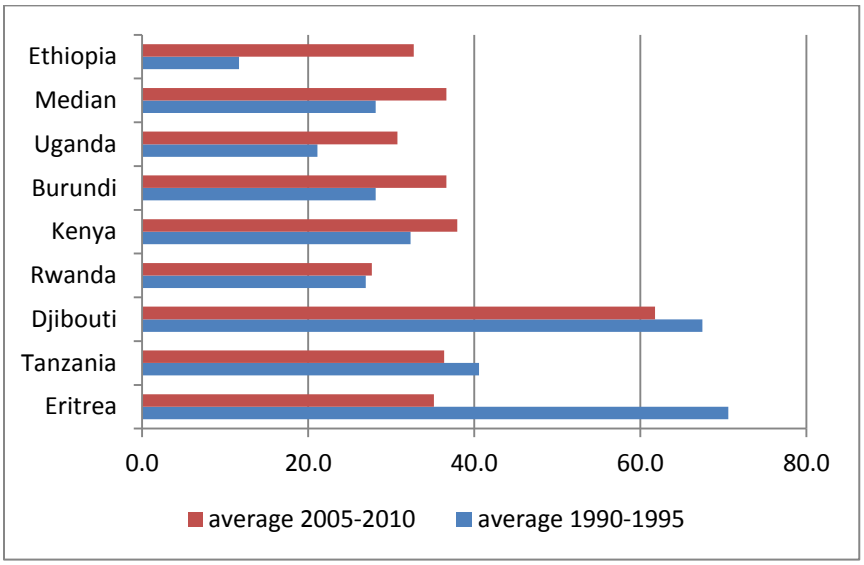
Figure 1: Average Export to GDP ratio (1990-1995 vs. 2005-2010)



Source: WDI and calculations by UNECA

Despite the vigour of the export response in most countries in the region, imports increased as a percentage of GDP for all countries, with the exception of Djibouti, Tanzania and Eritrea (figure 2.0).

Figure 2: Average Import to GDP ratio (1990-1995 vs. 2005-2010)



Source: WDI and calculations by UNECA

Table 4.0 shows the distribution of trade balances in the periods before trade liberalisation (1989-1991) and the periods after liberalisation (2009-2011). Again, with the exception of Tanzania and Uganda, most countries in the region experienced a worsening trade balance. This is consistent with some of the aforementioned empirical studies which show that trade liberalisation worsens the trade balance.

Table 4: Trade balance, % GDP (1989-91 vs. 2009-2011)

Countries	Average Trade balance , 1989-91	Average Trade balance , 2009-2011
Seychelles	-2.0	-8.0
Uganda	-12.3	-10.7
Congo, Dem. Rep.	-1.0	-11.7
Tanzania	-24.0	-12.0
Kenya	-4.7	-14.0
Eritrea		-15.0
Rwanda	-10.0	-18.5
Ethiopia	-4.0	-19.0
Madagascar	-8.0	-24.0
Burundi	-17.3	-29.7
Comoros	-21.7	-33.0
Average	-10.5	-17.8

Source: UNCTAD and UNECA, 2012

3.0 Effect of Trade Liberalisation on the Structure of Exports in the Region

3.1 Revealed Comparative Advantage; The Effect of liberalization

Traditional trade models (Hecksher-Ohlin and Ricardo) attribute trade to differences in natural resource endowments and technology across countries. Indices of Revealed Comparative Advantage (RCA) are used to identify sectors in which a country appears to have a comparative advantage, and sectors in which the comparative advantage is increasing. We used the Normalized RCA index, (NRCA) to measure the evolution of comparative advantage across product lines within the Eastern African region. A normalized RCA above zero indicated comparative advantage in that sector, a value less than zero indicated a lack of competitiveness in a sector. Table 5.0 and Table 6 .0 show the NRCA before and after trade liberalisation periods. The average NRCA shows the region did not have a comparative advantage in the production of 9 out of 10 broad categories and there was no change in this structure between 1997 and 2007. From this empirical evidence, it would seem that trade liberalisation has not lead to any significant change in the structure of production within the region at the broad category level.

Table 5: Normalized Revealed Comparative Advantage index by broad categories, 1997

	Food and live animals	Beverages and tobacco	Crude materials, except fuels	Mineral fuels, lubricants and related material	Animals and Vegetable oils	Chemicals and related products	Manufactured goods	Machinery and Transport equipment	Miscellaneous	Commodities and transactions not classified
BDI	0.3	-1	-0.8		-0.9	-1	-0.9	-1		-1
COM	0		-1	-1		0.7	-0.8	0.7	-0.8	0.3
ETH	0.1	-1	0.2	-0.8	-0.7	-0.7	-0.1	-1	-1	-1
KEN	-0.1	-0.3	-0.2	0.3	0.3	0.2	0.1	-0.3	0.2	-0.5
MDG	0	-1	0	-0.3	-0.9	-0.4	0.3	0	-0.1	0.2
RWA	0	-0.7	0.2	-0.9	-1	-0.9	-0.8	-0.9	-0.9	0.9
SYC	0.3	-1	-0.9	-1	-1	-1	-1	-0.7	-0.9	-1
TZA	-0.1	0.6	0.3	-0.9	-0.6	-0.7	-0.3	0.3	-0.2	-0.2
UGA	0.1	0	-0.2	-1	0	0.4	-0.6	0.6	-0.5	0.6
Average	0.1	-0.6	-0.3	-0.7	-0.6	-0.4	-0.5	-0.3	-0.5	-0.2

Source: UNECA calculations, using COMTRADE data

Table 6: Normalized Revealed Comparative Advantage index by broad categories, 2007

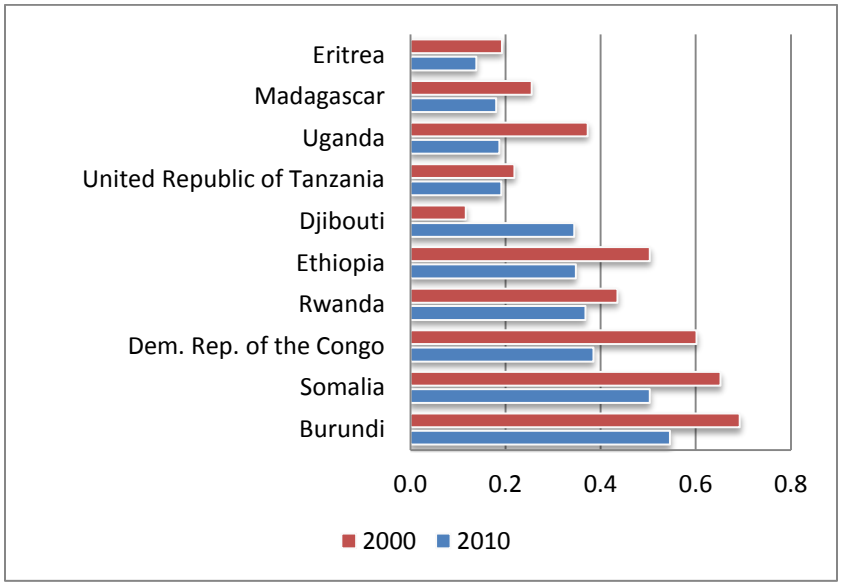
	Food & live animals	Beverages & tobacco	Crude materials, except fuels	Mineral fuels,	Animals and Vegetable oils	Chemicals & related products	Manufactured goods	Machinery and Transport equipment	Miscellaneous	Commodities not classified
BDI	-0.1	-0.5	-0.5	0.2	-1	-0.8	-0.4	0	-0.7	0.6
COM	-0.5					0.2				0.8
ETH	0.1	-1	0.3	-1	-0.8	-0.9	-0.1	-0.1	-0.5	-0.4
KEN	0	0.1	-0.1	0.2	0	0.3	0.1	0.1	0	-0.7
MDG	-0.1	-1	-0.4	0.3	-0.9	-0.5	-0.3	-0.5	0.6	-0.9
RWA	0.1	-0.6	0.5	-1	-1	-0.6	-0.8	-0.5	-0.8	-1
SYC	0.4	-1	-1	-1	-0.3	-1	-1	-1	-0.7	-1
TZA	-0.2	0.2	0.1	-0.6	-0.1	-0.3	0	-0.3	-0.6	0.6
UGA	0.1	0.4	-0.2	-0.3	0.6	-0.2	0	0.2	-0.7	-0.1
Average	0.0	-0.4	-0.2	-0.4	-0.4	-0.4	-0.3	-0.3	-0.4	-0.2

Source: UNECA calculations, using COMTRADE data

3.2 Export Diversification in Eastern Africa

A diversified structure of production is preferable to one that relies on a few goods, especially primary commodities, because of market risk associated with concentrated production structures and primary commodities. Diversification helps to mitigate the effects of negative trade shocks especially for commodity based economies. There is a positive correlation between diversification and per capita income. Imbs and Wacziarg (2003) showed that as countries grew out of poverty, their economies become more diversified and less specialized. The Hirschman-Herfindahl Index (HHI) was used to estimate the export concentration of countries in the region. The HHI for a country with a perfectly diversified export portfolio will be close to zero, whereas a country exporting only one export will have a value of one. Figure 3.0 shows the export concentration index (HHI) across the region. There is evidence here that economies in the region became more diversified, however some countries have not yet achieved significant levels of diversification (HHI<0.2)

Figure 3: Export Concentration Index (Hirschman Herfindahl index, HS4 Classification)

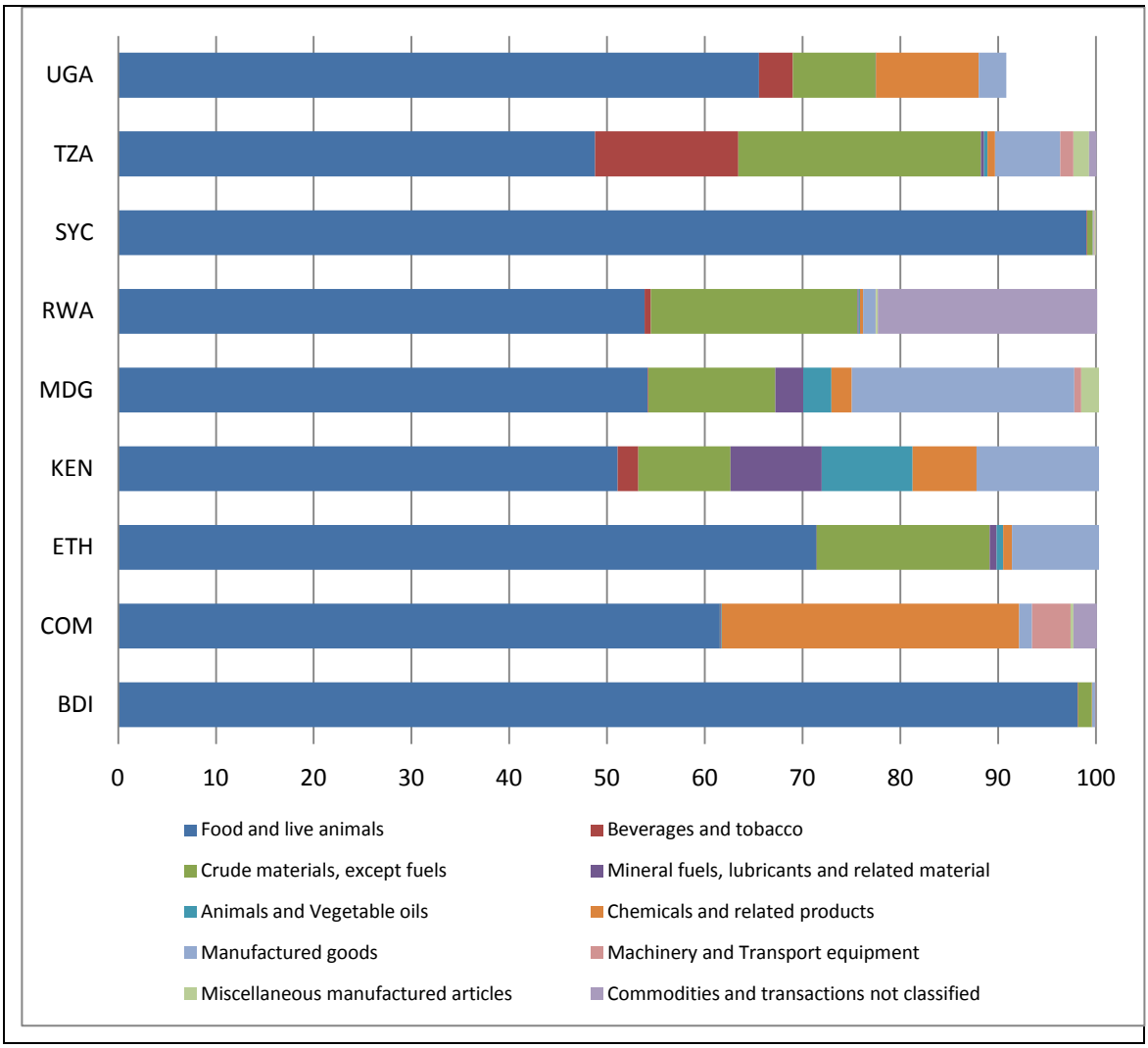


Source: UNCTAD, 2012

Figures 4 & 5 show changes in export shares by broad categories (using the SITC classification). In 1997, *Food and Live Animals* made up over 50% of total exports for all countries in the region with the exception of Tanzania (49%). By 2007, *Food and Live Animals* made up over 50% for only one country in the region.

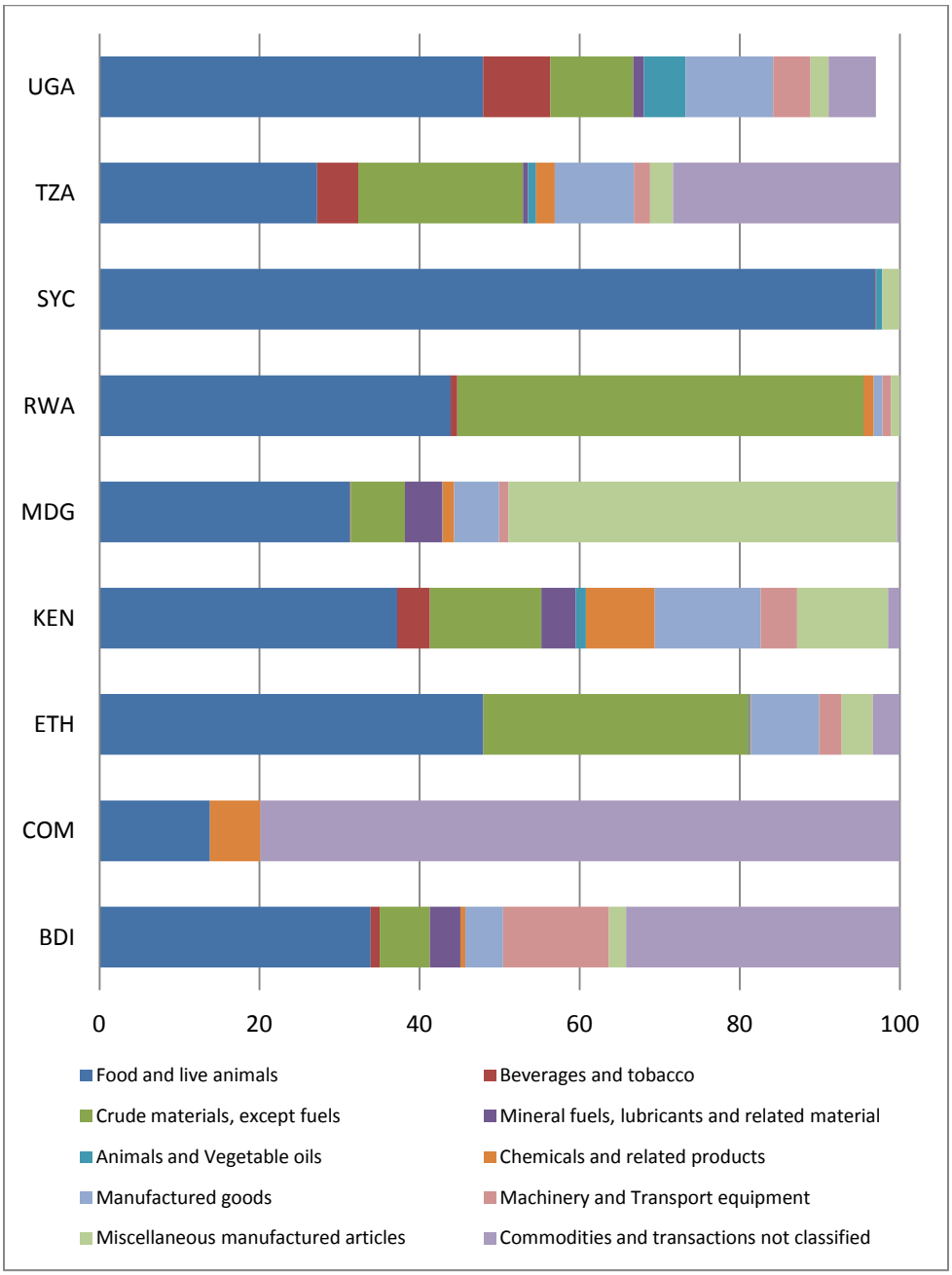
Both measures of export diversification (HHI and changes in Export shares) showed a positive trend in diversification, countries in the region have diversified their products over time.

Figure 4: Export shares by broad categories(SITC, 1997)



Source: UNECA elaboration on the basis of UN Comtrade data.

Figure 5: Export shares by broad categories (SITC, 2007



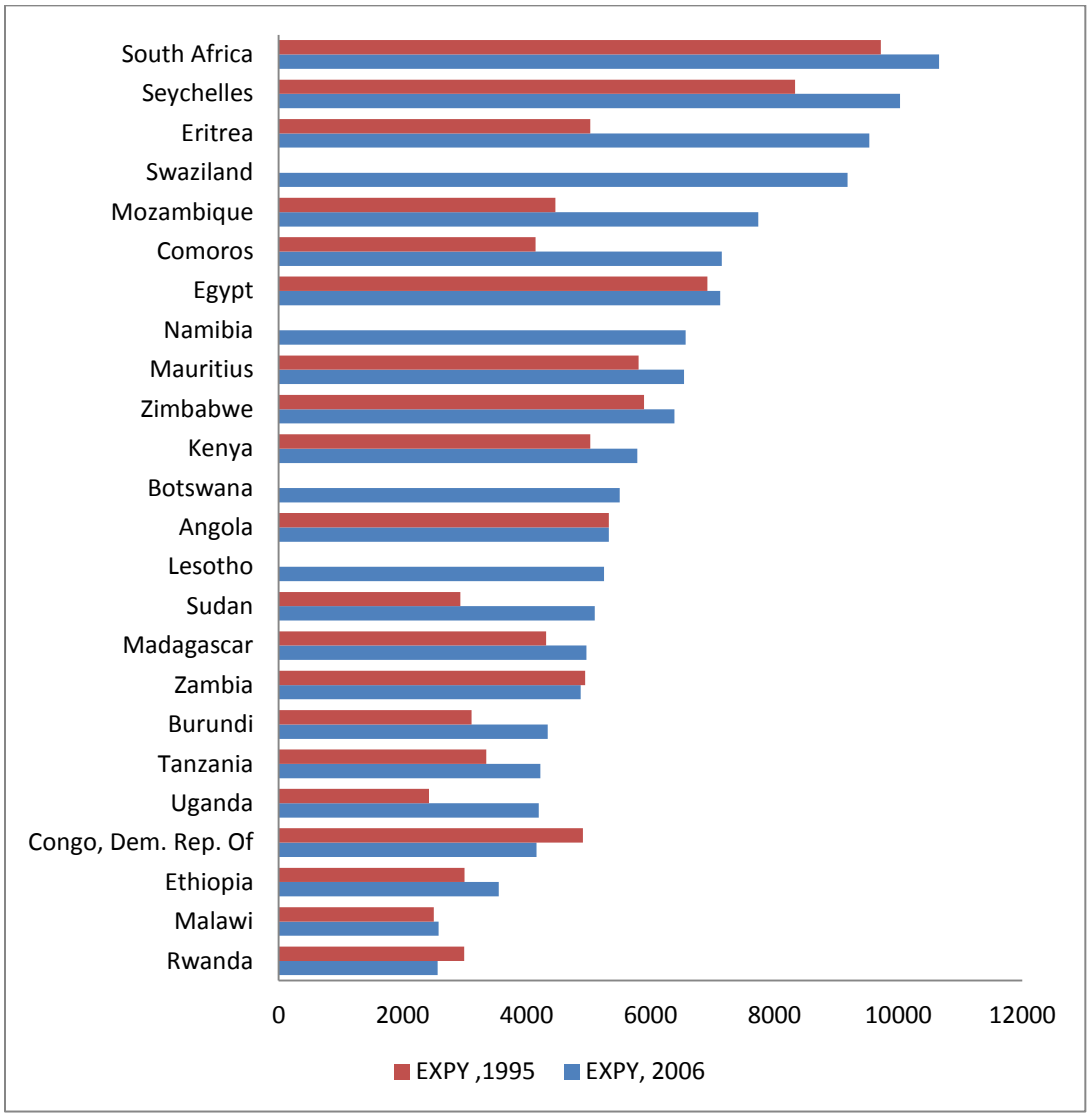
Source: UNECA elaboration on the basis of UN Comtrade data.

3.3 Revealed Technology Content; Quality of Exports in the Region

According to Hausmann, Hwang, and Rodrik (2006), rapidly growing countries are those that are able to somehow generate investments in non-traditional, higher-productivity tradables. However low-income countries produce too few high-productivity good. Countries with high productivity indices[4] (EXPY) tend to have higher growth rates in the future. Countries "become" what they export by converging to the income level implied by their export baskets. They find that doubling of the productivity level of a country's exports results in an increase in its overall per-capita GDP growth of around 6 percent. For example countries exporting smart phones will have a higher productivity index and higher subsequent growth rates than countries exporting cotton. Figure 6.0 shows the evolution of the productivity index in the Tripartite region between 1996 and 2006, the regional trend on the productivity index is positive, most countries in the sample increased the productivity level of their exports by increasing production and export of "non-traditional" products.

[4] $EXPY_j = \sum_l \frac{x_{jl}}{X_J} PRODY_i$, and $PRODY_j = \sum_j \frac{\left({}^{x_{jk}}/_{X_j}\right)}{\sum_j \left({}^{x_{jk}}/_{X_j}\right)} Y_j$; Where Y is GDP per Capita, X_{jk}- value of exports of product k of country j, X_j- total exports of country j

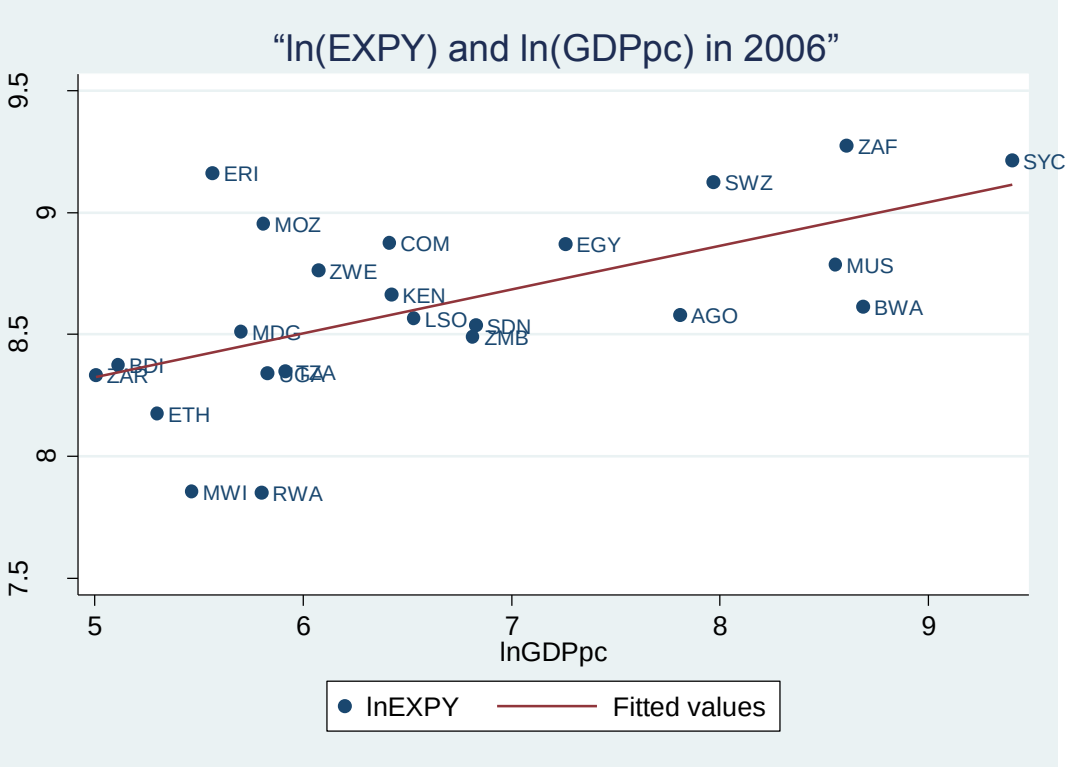
Figure 6: The Evolution of the EXPY index (HS4 level) for the Eastern African region



Source: based on World Bank data

Figure 7.0 below shows the scatter plot of the productivity index (EXPY index) plotted against the income variable, GDP per capita for countries within the tripartite agreement. For each country in figure 7.0, we can determine whether the products it is currently exporting are more sophisticated than would be suggested by that country's level of income. Countries above the fitted line outperformed countries with similar levels of GDP, they had higher productivity indices than would be expected for countries with similar levels of income while countries below the fitted lines underperformed, in the sense that they had lower levels of productivity than would be expected from countries with similar levels of income.

Figure 7: Scatter Plot of the EXPY index Vs. GDP per capita, 2006



Source: based on World Bank data

4.0 Regional Integration as Catalyst for Structural Transformation

What is the principle driving force for the increases in trade that we see both globally and within the Eastern Africa region? Is it unilateral liberalization processes? Regional integration? Or multilateral negotiations for tariff reductions? It is commonly argued that the remarkable growth of global trade since the post-war period is principally ascribable to multilateral processes – the GATT and, subsequently, from 1995 onwards, the WTO. Empirical verifications of this are rather thin on the ground, however. Rose (2002) raises doubts on this question. He estimates the effect on international trade of multilateral trade agreements through the World Trade Organization (WTO), its predecessor the Generalized Agreement on Tariffs and Trade (GATT), and the Generalized System of Preferences (GSP), using a standard "gravity" model of bilateral merchandise trade and a large panel data set covering over fifty years and 175 countries.

Rose finds little evidence that countries joining or belonging to the GATT/WTO have different trade patterns than outsiders.[5] Chortareus and Pelagidis (2004) explore the issue of whether the growth in trade flows has been principally driven by regional factors or global ones. They conclude that the dominant tendency is an increase in trade within blocks (North America, the EU and Asia-Pacific) rather than across them. They also carry out an analysis of the degree of convergence of openness within and across regions of the world, and find that the degree of convergence of openness proceeds faster within regions rather than across regions, again reinforcing the idea that the principal engine of trade growth has been regional rather than multilateral processes.

Regional integration thus seems to have a major role to play in expanding trading capacities. But how does Regional integration affect integrating countries? Baldwin and Venables (2004) divide the economic effects of Regional Integration Agreements (RIA) into two; the first effect is the static allocation effect through changes in the allocation of resources. The removal of trade barriers in the context of regional integration increases efficiency in resource allocation. Effects are different for small and large countries; for a small country, producer prices and the terms of trade are unchanged, welfare changes result from trade volume effects or trade cost effects. In large countries, changes in trade lead to changes in world prices and the resulting changes in welfare include terms of trade effects. The second effect is the accumulation effect (growth effect of RIA) is dependent on accumulation of factors of production. A RIA will affect growth if it changes return to investments i.e. physical or human and leads to capital accumulation and this effect on growth may be medium or long term

There are mainly two major types of RIA's, reciprocal and non-reciprocal. While reciprocal agreements impose symmetric trade liberalisation between participating countries, non-reciprocal agreements involve asymmetric trade liberalisation between countries. Types of reciprocal trade agreements include; free trade areas, customs unions, common markets and monetary unions with free trade areas being the most common. In a free trade area trade restrictions between participating countries are removed but each member maintains its own trade policy towards non-members. In the customs union and common market members adopt a common external tariff policy against nonmembers, while a monetary union has the characteristics of common markets and also adopts a single currency between member states.

According to UNCTAD(2009) , there are 14 major regional economic groupings in Africa. Out of the 53 countries, 27 are members of two regional groupings, 18 belong to three, and one country is a member of four. Only seven countries have not maintained overlapping memberships. Overlapping regional blocks is one of the main challenges facing Africa's Regional Economic Communities.

[5] Interestingly, Rose finds that GSP does seem to have a strong effect, and is associated with an approximate doubling of trade.

How important is trade between African countries? More than half of all the countries in continent rank Africa as the second most important export market and three quarters of trade within Africa takes place within intra-regional markets. It is worth stressing that the composition of intra-regional trade is generally much more 'pro-developmental', in the sense that intra-African trade are much more diversified than extra-regional exports (39 products account for two-thirds of intra-African trade while 7 products make up two-thirds of Africa's exports to rest of the world). This implies that intra-regional trade is much more valuable in terms of helping countries build up capacities in new industries and sectors.

4.2 The "New Economic Geography" and its relevance to Eastern Africa

In the 1990s there were a number of interesting attempts to formalise models which analyse spatial patterns of economic activity, attempts which collective became known as the "New Economic Geography" (NEG). This literature provides some important insights into outcomes from regional integration processes. Contributions (e.g. Krugman 1995, Venables 1996, and Baldwin 1998) developed a novel approach to the way we think about location - the emphasis being on agglomeration, on the way in which firms tend to cluster together and how regions are formed. The distinctive trait of these models was that, in contrast to the partial equilibrium models which characterised most previous analysis of industrial location up, these newer contributions involved *full general-equilibrium models*, wherein resource constraints were incorporated, the geographical distributions of population, demand and supply were made endogenous, and thus the two-way feedback between location decisions by individual agents and these distributions became the focal point of interest (Krugman, 1998). Krugman's (1991) model explicitly addresses itself to the likely impact that economic integration can have on the geographical distribution of industry, emphasising the trade-off between fixed costs, economies of scale and transport costs. It is developed in a general equilibrium framework with linear demand and costs functions and resources endowments, plus imperfect competition as a justification for trade. The specifications of the model, together with some comments on the effect of changes in some of the parameters, can be found in the aforementioned article.

Krugman distinguishes between two regions- a *centre* and *periphery*. Before integration, trade costs are presumed to be high, and thus the distribution of manufacturing industry is dispersed between the two regions. After integration, however, trade costs fall, and this will provoke a relocation of industry. Exactly how industry reacts depends on the relative importance of trade costs and prevalence of scale economies. Were trade costs to fall to negligible levels, then the periphery may well benefit from the process of integration. Firms would be attracted to the lower costs of the periphery and would not have to face any additional access costs from being located there. But the outcome is more complicated at intermediate levels of transport costs. If regional integration is an imperfect process, and trade costs remain considerable, Krugman hypothesizes a situation whereby it may pay to concentrate production at the location with higher costs, but better access, so as to take advantage of scale production economies. Because of the difficulty of reducing trade costs to a negligible level, ***Krugman foresaw the possibility of a sizeable re-allocation of industry in favour of the centre, and away from the periphery, when trade liberalisation is incomplete***. Although peripheral countries are unlikely to lose overall from the formation of the Single Market (because the impact of lower consumer prices is felt no matter where the production of goods characterised by economies of scale takes place), there is thus a possibility that richer regions will gain most because of their enhanced attractiveness as locations for those industries (Barry, 1996: 348).

The conclusion that some authors (for example, Corado, 1990) have drawn from this is that it is necessary to deepen the integration process, so as to lower the costs of market access from the periphery and thereby make peripheral regions more attractive. Crucially, however, this interpretation relies on one's conception of whether or not trade or non-trade barriers can be eliminated, or at least minimised so as to have a negligible effect: if the answer to this incognito is negative and it is believed that significant barriers will remain, then, following the *"second-best theorem",* it may be better for peripheral countries to resist further integration.[6] Indeed, other authors (e.g. Barry, 1996; Dignan, 1995) draw a quite different conclusion to that of Corado, warning that dedicating too many resources towards the development of transport infrastructure in the periphery could theoretically have a negative impact on the locational advantages of the peripheral regions.

[6] On an intuitive level, the second-best theorem infers that, if an economy suffers from two or more distortions, their effects could be partially or wholly to neutralise each other. Removal of one of them (in our case, high transport costs) could thus result in an even more inefficient outcome. See Toye (1990:95-97) for a brief explanation of the second-best theorem.

The advantages of a central location for industries where increasing returns are dominant would still not be overcome, and the improvement of transport provision in peripheral areas would simply facilitate access for centrally-located firms to sell their goods there.[7] This represents a powerful and polemical argument: the reasoning is born out to a certain extent by the empirical findings of Martin and Rodgers (1994) who note that, while there is a strong correlation within the regions of the EU between GDP per capita, telecommunications, educational infrastructure, and the share of intra-industry trade (which they identify with the location of increasing-returns industry), there is only a weak correlation with the provision of transport infrastructure.

Although most of the applications of the 'new economic geography' were confined to European integration, the findings have some direct relevance to Eastern Africa. Countries in the region are currently actively engaged in trying to reduce both transport costs, through improved infrastructure, and reducing trade costs, particularly those related to 'non-tariff barriers'. For instance, approximate estimates, by comparing FOB and CIF cost of imports, suggest that together trade and transport costs add 22 percent to the cost of goods for landlocked Rwanda.[8] Reducing such costs has thus become a government priority, both through actions domestically and attempts to pressure trading partners to remove the impediments to the free movement of goods.

The lessons of the new economic geography, however, suggests that one should not presuppose that such a strategy will meet with the desired impact – the reduction in 'distance costs' may help attract mobile investments, but equally it runs the risk of facilitating market access from producers based in other countries, with larger domestic markets and a greater ability to reap scale economies.

A recent World Bank (2012) report seems to support just such a view – while arguing that "*implementing and deepening the current program of regional infrastructure improvements would ensure that consumers and producers throughout the region are better connected to each other and to global markets*", the same paper argues that policies should aim at '*facilitating greater economic activity in the coastal areas*' so that the EAC could '*take advantage of the global demand for manufactured goods and thus to promote employment*.' In order to emulate the example of successful 'outward oriented' trade strategies such as those adopted in East Asia, the World Bank argues that only the coastal areas of Eastern Africa offer a viable option with regards to the ability to build up successful export processing zones.

[7] This argument is not in fact by any means new. In an extensive empirical study by Stöhr and Tödtling (1977), it was found that the establishment of improved transport infrastructure for peripheral regions tends to benefit central areas more by facilitating access to those areas by the larger, more competitive firms located in the central areas.

[8] UNECA calculations from MINECOFIN data. Details available from the authors on request.

It is argued that such 'clusters' would create greater demand for services and agricultural inputs from the great 'economic interior' of the EAC, so that all member countries would ultimately benefit. But it does give an impression of economic 'defeatism' with regard of the potential of the three landlocked partners to attract a greater share of mobile investments in industrial capacity.

The other concern in a large Tripartite free market is that economic activity would essentially polarise at the extreme ends of the COMESA-EAC-SADC free trade area in the countries with the largest domestic markets, and therefore with greater capacity to attract increasing return industries where proximity to the bulk of clients is important. In other words, industrial activity would concentrate in Egypt and South Africa. Tanzania actually left COMESA precisely because of such fears that it would open the 'floodgates' to cheaper more competitive imports from Egypt. To a certain extent, our simulation exercise (see section 4.5) bears out some of these fears. In any case, the new economic geography does at least alert policymakers to the possibility of 'unexpected outcomes', and that a reduction in distance costs, in all their manifestations, does not necessarily lead to the desired outcomes, in terms of ability to cataylse structural transformation and attract a greater share of industrial capacity.

4.3 The Effect of Regional Integration on Foreign Direct Investment in the Region

In tandem with shifts in trading patterns, one of the principal ways in which the reorganization of production in an integrated area takes place is through flows of Foreign Direct Investment (FDI). Regional integration is likely to lead to increased inflows of FDI by increasing incentives for firms to invest in the larger integrated markets. Regional integration should also lead to reduced transactions costs resulting in higher rate of returns on capital. However the changes in FDI for particular country will depend on the locational advantages of a particular country - the stronger the advantages the more likely that integration agreement would lead to inflows of FDI from outside as well as from the rest of integrity region (Blomstrom and Koko, 1997). This also implies that flows of FDI will not be evenly distributed among the member countries of a regional bloc. This is relevant for the Eastern African region where some countries are land locked, and FDI would most likely flow at higher rates to coastal countries like Kenya. However other factors also have an effect on FDI flows, including significant deposits of natural resources which attract large inflows of FDI, which distorts the overall analysis. It would be best to look exclusively at manufacturing FDI, but unfortunately the relevant disaggregated data on FDI often does not exist.

According to UNCTAD, 2013 regional integration initiatives have had a limited impact on attracting more FDI. UNCTAD analyzed data from COMESA, EAC, and SADC, and found that following regional integration initiatives, FDI as a percentage of GDP did not show significant growth over the past decade.

Although FDI did not grow faster than GDP, total annual FDI inflows to COMESA, EAC and SADC increased between the two time periods (2003–2005 versus 2009–2011) (Table 7.0). While extra-regional FDI constituted the largest percentage of flows to the region, shares of intraregional FDI increased, the EAC had the largest increase in intraregional FDI (12%), COMESA and SADC increased intra-regional FDI by 7% and 6% respectively.

Table 7: Intra-regional and Extra-regional FDI projects in selected regional groups,

(Billions of dollars and percentage)

		Billions of dollars			(% share in total)	
Region	Period	Total (Annual Average)	Intra-regional	Extra-regional	Intra-regional	Extra-regional
COMESA	2003–2005	**17.9**	0.2	17.7	1	99
	2009–2011	**34.0**	2.6	31.4	8	92
EAC	2003–2005	**2.3**	0.0	2.3	2	98
	2009–2011	**9.9**	1.4	8.5	14	86
SADC	2003–2005	**23.3**	1.0	22.3	4	96
	2009–2011	**32.0**	3.2	28.8	10	90
EU	2003–2005	**325.7**	161.2	164.5	50	50
	2009–2011	**310.5**	129.2	181.3	42	58

Source: UNCTAD, 2013.

According to COMESA investment report (2012), Rwanda, Uganda and Zambia were the biggest recipients of FDI from COMESA countries they received a combined total of $216 million which was 63% of intra-COMESA FDI inflows for the countries sampled. South Africa was a big source of FDI to countries in COMESA, with Mauritius Uganda Swaziland and Kenya receiving significant inflows(Table 8).

Table 8: Intra COMESA and Intra African FDI Inflows for Selected COMESA Countries

		Source Country/Region & Period Average FDI Inflows, Millions US$			
Destination	**Periods Covered**	**COMESA**	**EAC/SADC**	**South Africa**	**Rest of Africa**
Rwanda	2010	76.4	-		-
Uganda	2007-2010	70.9	-	56.0	-
Zambia	2007-2010	68.5	-1.7	42.6	-
Egypt	2007-2011	51.7	-		1.8
Madagascar	2007-2010	49.8	-	0.5	-
Malawi	2010	19.7	10	20	-
Kenya	2007-2008	5.82	8.92	45.6	-0.22
Mauritius	2007-2011			147.5	-
Swaziland	2007-2011		-	46.3	-

Source COMESA, 2012

4.4 Effect of Regional Integration on Trade flows: A Gravity model Approach

The gravity model uses real data to assess the sensitivity of trade flows with respect to policy factors we are measuring. The gravity equation relates the natural logarithm of the dollar value of trade between two countries to the log of their respective GDPs, a composite term measuring barriers and incentives to trade between them, typically the log of the distance between their capitals, and terms measuring barriers to trade between each of them and the rest of the world. Rohini et al. (2011) estimate the ex-post effects of the various PTAs using the gravity trade model. Table 9.0 shows the regression results of their gravity model, comparing the trade performance of various African, European and North American PTAs, and providing estimates of how much of the increase in trade can be ascribed to the PTAs.

Table 9: Regression Results on the impact of Regional Integration on Trade , Selected PTA's

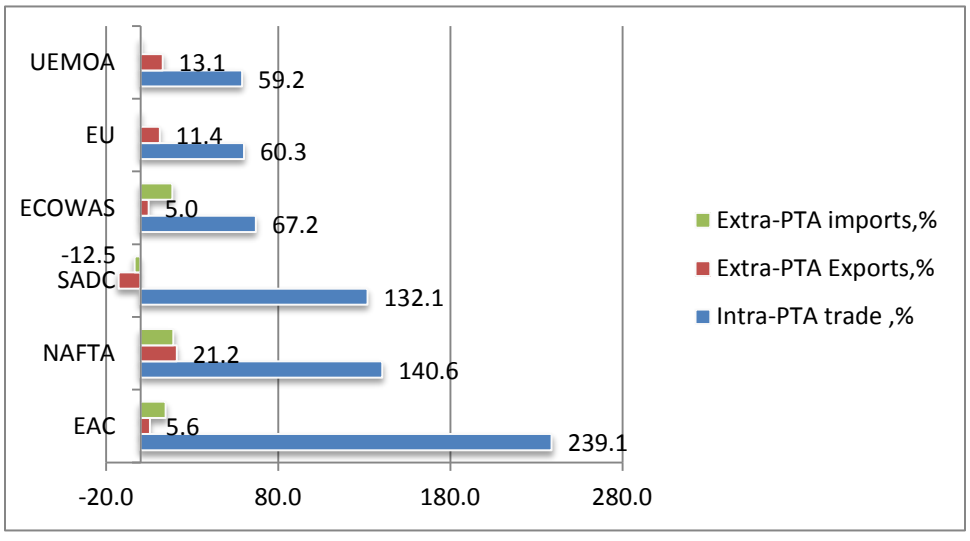
PTA	Intra-PTA trade	Extra-PTA exports	Extra-PTA Imports
EAC	1.221***	0.0545**	0.137***
NAFTA	0.878***	0.192***	0.175***
SADC	0.842***	–0.134***	–0.0332
ECOWAS	0.514***	0.0484**	0.171***
EU	0.472***	0.108***	0.00367
WAEMU/UEMOA	0.465***	0.123***	0.00836

** p< 10% ** p < 5% *** p < 1%.*

Source: Preferential Trade Agreement Policies for Development A Handbook, World Bank 2011

From the coefficients of regression results in table 9 , we calculated the trade effects of the various PTA coefficients i.e. countries in the EAC increased intra-trade by a multiple of 2.39 ($e^{1.221}$ -1 =2.39) Figure 9.0 shows the percentage change in trade due to the various PTAs. In line with the aforementioned study by Chortareus and Pelagidis (2004), the most significant effect was on intra –regional trade. The EAC, NAFTA and SADC had the biggest impact on intra-regional trade, with increases of 239%, 141% and 132.1% respectively. In contrast the effect on extra regional trade (imports and exports) was significantly lower than the effect on intra-regional trade

Figure 8: Trade Effects of Various PTA's (percentage change)



Source: UNECA

4.5 Intra-Industry trade: Grubel-Lloyd Index

Although there are computational issues linked to how widely-defined sectorial definitions are, two- way trade within the same sector can be considered to constitute the intra-industry component of international trade while inter- industry trade (the trading of products from different sectors) can be viewed as the comparative advantage component of trade flows. Inter- industry trade allows countries to trade embodied factors of production as a result of their comparative advantage, while the essential reason for intra-industry trade is the existence of economies of scale which allows countries to produce under increasing returns to scale (Krugman, 1995). In this sense, the degree of intra-industry trade is arguably more indicative of deepening intra-regional integration. According to Reinert (2011), inter industry trade causes productive resources to shift from contracting to expanding sectors in order to avoid unemployment (workers) while the adjustment process in the case of intra-industry trade is very different - a given sector experiences increase in imports and exports simultaneously, workers are less likely to need to shift between sectors and demands for protection from increased imports are less likely.

Table 10 shows the Grubel-Lloyd Index(GLI) disaggregated at the HS4 level for the Eastern African region. This index is relevant for countries seeking to diversify exports not across industries but rather within an industry. A Grubel-Lloyd Index of one indicates maximum intra-industry trade while a GLI of zero indicates the presence of only inter-industry trade. The average GLI of 0.19 indicates a very low level of intra-industry trade within the region. The relatively low GL indices in the region indicate that companies in the region are not taking advantage of regional supply chains of inputs to enhance competitiveness.

Table 10: Grubel Lloyd Index

Countries	Gruber Lloyd index (HS4, 2009)
Kenya	0.3
Tanzania	0.26
Rwanda	0.25
Ethiopia	0.23
Madagascar	0.19
Uganda	0.16
Burundi	0.07
Djibouti	0.03
Average	0.19

Source: UNECA elaboration from Comtrade data.

4.6 Effect of the COMESA-SADC-EAC FTA: A Computable General Equilibrium Analysis

The proposed free trade area between the Common Market for Eastern and Southern Africa (COMESA), the South African Development Community (SADC) and East African Community (EAC), has the main objective of strengthening and deepening economic integration in the southern and eastern Africa region. The COMESEA-SADC-EAC free trade area would include 26 African countries (more than half of the countries in Africa) with 57% of the population of the African Union. The free trade area is therefore considered an important milestone in the economic integration of the African continent.

This paper uses the Global Trade Analysis Project (GTAP) Computable General Equilibrium (CGE) model and database (version 8.0) to measure the static effects of the proposed COMESA-SADC-EAC free trade area on welfare, trade flows, prices, consumption and production in the region. The CGE models economic models use actual economic data to estimate how an economy might react to future changes in policy or other external shocks. The CGE models adopt a multi-sector and multi-region general equilibrium framework, and are able to capture interactions of different sectors and markets in a given economy and at the international level. The underlying data dates back to 2007, prior to reaching the Tripartite Agreement.

The model is run using an aggregation which includes the 16 regions included within the GTAP model which make up the Tripartite region (27 countries in all) and 10 aggregated sectors.[9] The model closure uses the standard GTAP closure, but adjusted so as to allow for fixed wages within the Tripartite Region – this is the way the model is used to simulate for high levels of under- and un-employment. The simulation involves completely eliminating tariffs on trade between Tripartite members.[10]

4.7 Results from the GTAP Model

Simulation results from the GTAP model show net welfare gains of $10.7 billion (table 11) to consumers within the Tripartite block as a result of establishment of the tripartite free trade area. However the distribution of these gains will be heavily skewed with 92% of welfare gains going to consumers in Egypt, South Africa and Zimbabwe. For other countries, welfare benefits are small.

[9] As a result, the results for some countries in the region should not be considered as robust, as these countries are part of an aggregate sum region where no specific underlying data exists for the countries in question.

[10] No adjustments are made to existing external tariffs on trade - although there is of course the possibility of eventually negotiating a common external tariff, because of uncertainty about how these would be set, for simulation purposes it was considered better to maintain the tariffs which exist in the model for 2007.

Table 11: Welfare Gains ($US, Millions)

	Welfare (total)	Share of welfare Gains
Egypt	5577.5	52.2
South Africa	2534.1	23.7
Zimbabwe	1808	16.9
Mozambique	166.5	1.6
Rest EA	110	1.0
Ethiopia	109.4	1.0
South Central Africa	89.6	0.8
Kenya	89.1	0.8
Uganda	59	0.6
SCU	46.6	0.4
Tanzania	20.3	0.2
Namibia	19	0.2
Mauritius	14.2	0.1
Malawi	11.4	0.1
Zambia	8.3	0.1
Madagascar	6.3	0.1
Botswana	5.8	0.1
SSA	4.3	0.0
Total	10679.4	100.0

Source: GTAP results

Table 12.0 shows the decomposition of welfare gains in the region. Allocative efficiency gains which are due to the decrease in the excess taxes make up the largest share of welfare gains to countries in the region with Egypt, South Africa and Zimbabwe enjoying the largest gains. Endowment effects which represent changes in the factors of production constitute the second largest share of welfare gains ($4.2 billion).

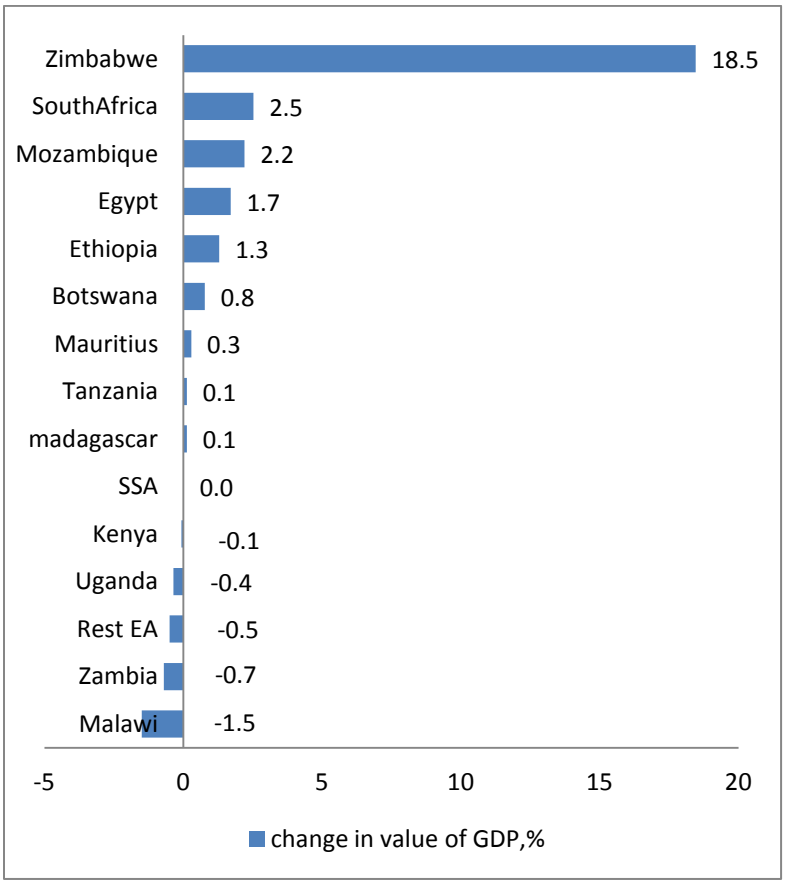
Table 12: Welfare Decomposition ($US, Millions)

Countries	Welfare (total)	Allocative efficiency	Endowment effect	Commodity terms of trade effect	Investment -savings
Egypt	5577.5	3476.9	2476.7	-353.4	-22.7
South Africa	2534.1	571.8	690.7	1223.9	47.6
Zimbabwe	1808	1555.3	498.1	-78.1	-167.3
Mozambique	166.5	40.6	108.7	16.7	0.4
Rest EA	110	47.9	110.5	-38.9	-9.5
Ethiopia	109.4	20.3	51.4	29.6	8
South Central Africa	89.6	20.5	34.9	-15.8	50
Kenya	89.1	56.1	71.6	-28.5	-10.1
Uganda	59	37.7	34	-13	0.3
SCU	46.6	2.2	15	51.3	-22
Tanzania	20.3	2.2	17.5	1.7	-1.1
Namibia	19	6.1	8.4	-4.6	9.1
Mauritius	14.2	2.2	7.7	4.2	0
Malawi	11.4	4.9	22.1	-16.2	0.5
Zambia	8.3	10.3	35	-43.4	6.4
Madagascar	6.3	1.1	5.3	-0.3	0.2
Botswana	5.8	1.1	35.5	-21.6	-9.3
SSA	4.3	-3.3	-8.8	17.8	-1.3
Rest of World	-641.4	8.4	0	-757.7	107.9
Total	10038	5862.4	4214.5	-26.3	-12.6

Source: GTAP Results

Figure 9 shows the changes in value of GDP. Most countries in the region experience limited gains in values of GDP, with members of the EAC experiencing small losses in value of GDP. However Zimbabwe has significant increases in values of GDP (18.5%).[11]

Figure 9: Changes in Value of GDP (%)



Source: GTAP results

The tripartite would result in the realignment of supply and demand in the region leading to changes in the values of industry output within the region. Table 12 shows the distribution of percentage changes in industry output. Industry output increases for all the countries in the region, Zimbabwe and Mozambique would have the largest gains, with output increasing by 243.7% and 121.9% respectively. In contrast, Uganda, Madagascar and Tanzania would have the smallest gains with output increasing by 3.1%, 1.9%, and 1.7% respectively.

[11] It has to be remembered that gains under the GTAP model are usually proportional to the pre-existing barriers to trade – highly-protected countries have potentially more to gain from trade liberalization than countries that have already achieved lower levels of tariffs.

Table 13: Percentage Change in industry output by region

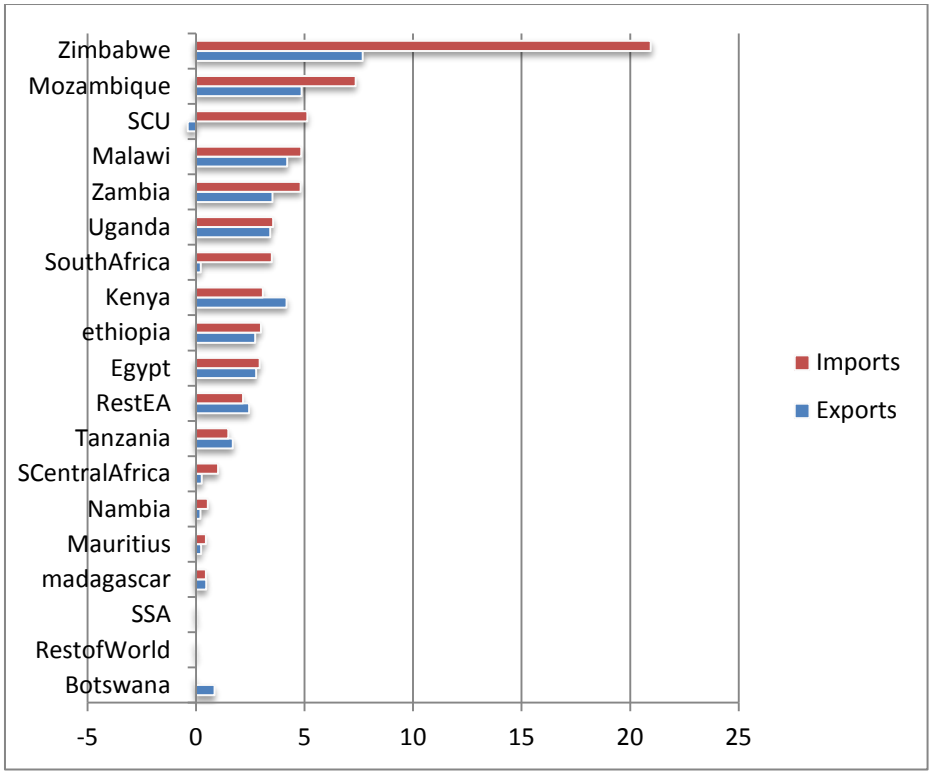
	Total industry output (%)
Zimbabwe	243.7
Mozambique	121.9
South African CU	25.2
Botswana	19.2
South Africa	17.6
Egypt	13.5
Kenya	11.3
Namibia	10.8
Tanzania	9.0
Malawi	6.1
Ethiopia	4.2
Mauritius	3.7
Rest EA	3.4
Uganda	3.1
Madagascar	1.9
Zambia	1.7
S Central Africa	0.02
SSA	-0.08
Rest of World	-0.11

Source: GTAP results

Figures in the Appendix show the maps of percentage changes in the output of various industrial sectors within in the region. Changes within and between industries are not evenly distributed across the region. For example in the Light Manufacturing industry, output in Mozambique increased by 107.6%, while in Zimbabwe it declined by 59.3%. In the textile industry, Botswana, Tanzania, and Zimbabwe would be the largest beneficiaries, output would increase by 16%, 7.3%, and 6% respectively in contrast Mozambique, Malawi and Zambia would be the largest losers, output would decline by 12%, 1.4%, and 1.3% respectively.

Figure 10 shows the percentage changes in volume of imports and exports in the tripartite scenario. The volume of imports and exports increased for all countries in the region; in most countries the increase in imports was greater than the increase in exports with the exception of Kenya, Tanzania, Rest of East Africa and Botswana.

Figure 10: Percentage change in volume of Imports and Exports



Source: GTAP results

5.0 Conclusion

This paper analyzed the effects of the effects of trade liberalisation on trade flows and export structure within the region and simulated the effect of the proposed COMESA-SADC-EAC free trade area on production and trade flows within the region. Simulation results from the GTAP model suggest a net welfare gain of $10.7 billion, however the distribution of these gains will be heavily skewed with 92% of welfare gains going to consumers in Egypt, South Africa and Zimbabwe.

The tripartite will lead to increased exports and imports within the region as a result of realignment of demand and supply within the region, increased aggregate demand in the region will result in increased industrial production across the region as new firms join the regional market. The distribution of changes in production will vary between different countries both within and between sectors.

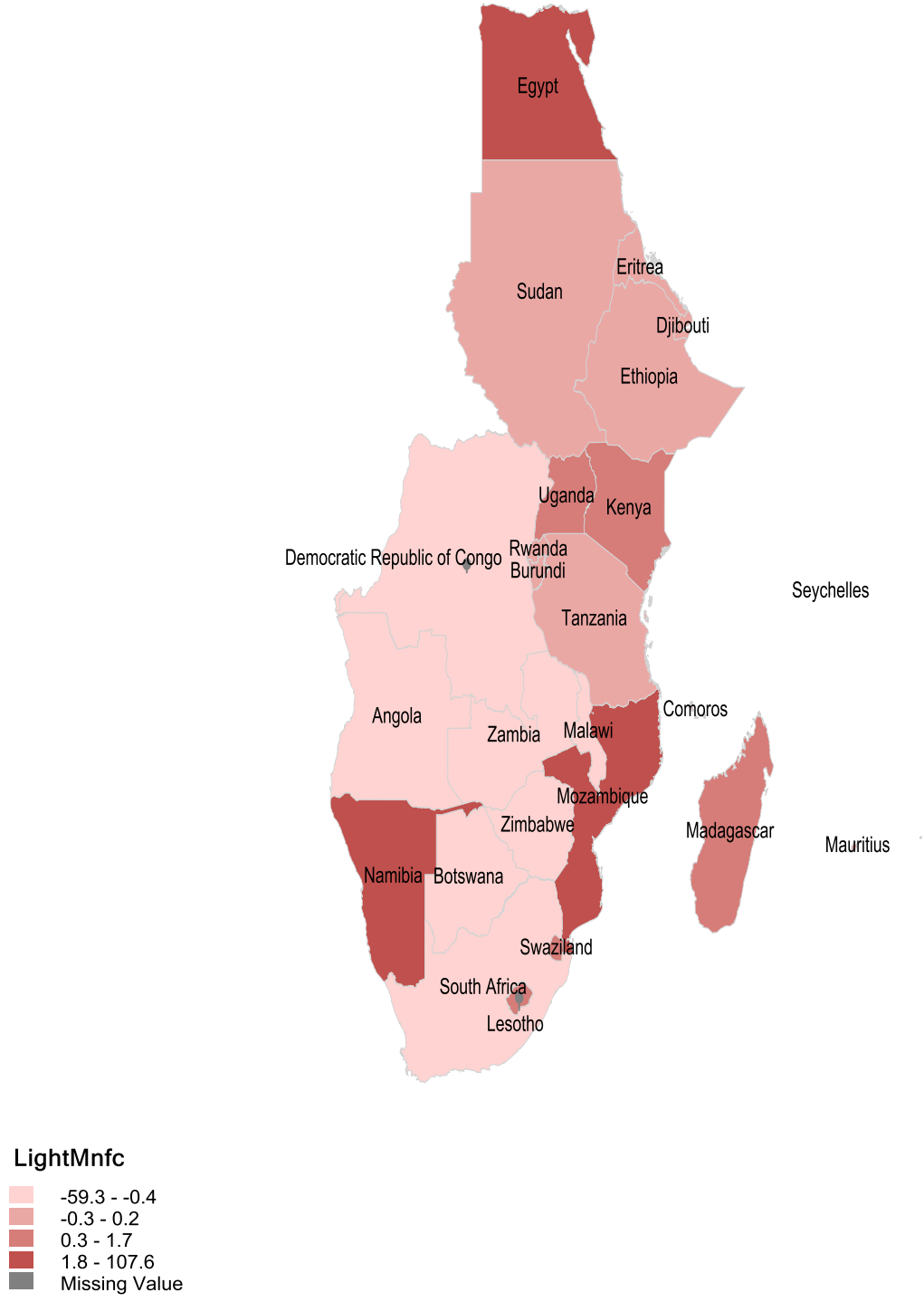
Trade liberalisation in the region had a positive effect on both the value of trade and the structure of exports in the region. Liberalisation in the region resulted in increased total exports and imports. Measures of diversification show that trade liberalisation has resulted in a more diversified export structure. However, the region's comparative advantage has not changed (at the broad category level). Measures of the productivity of exports also indicate that the region is producing higher quality exports.

Regional integration as part of the liberalisation process has also led to realignment of trade in the region, inter regional trade has increased, however intra-regional industry trade remains at extremely low levels within the region an indicator that firms in the region do not have economies of scale. It is possible that increased market size from the tripartite would allow firms to enjoy economies of scale, leading to increased specialization and increased intra-industry trade within the region.

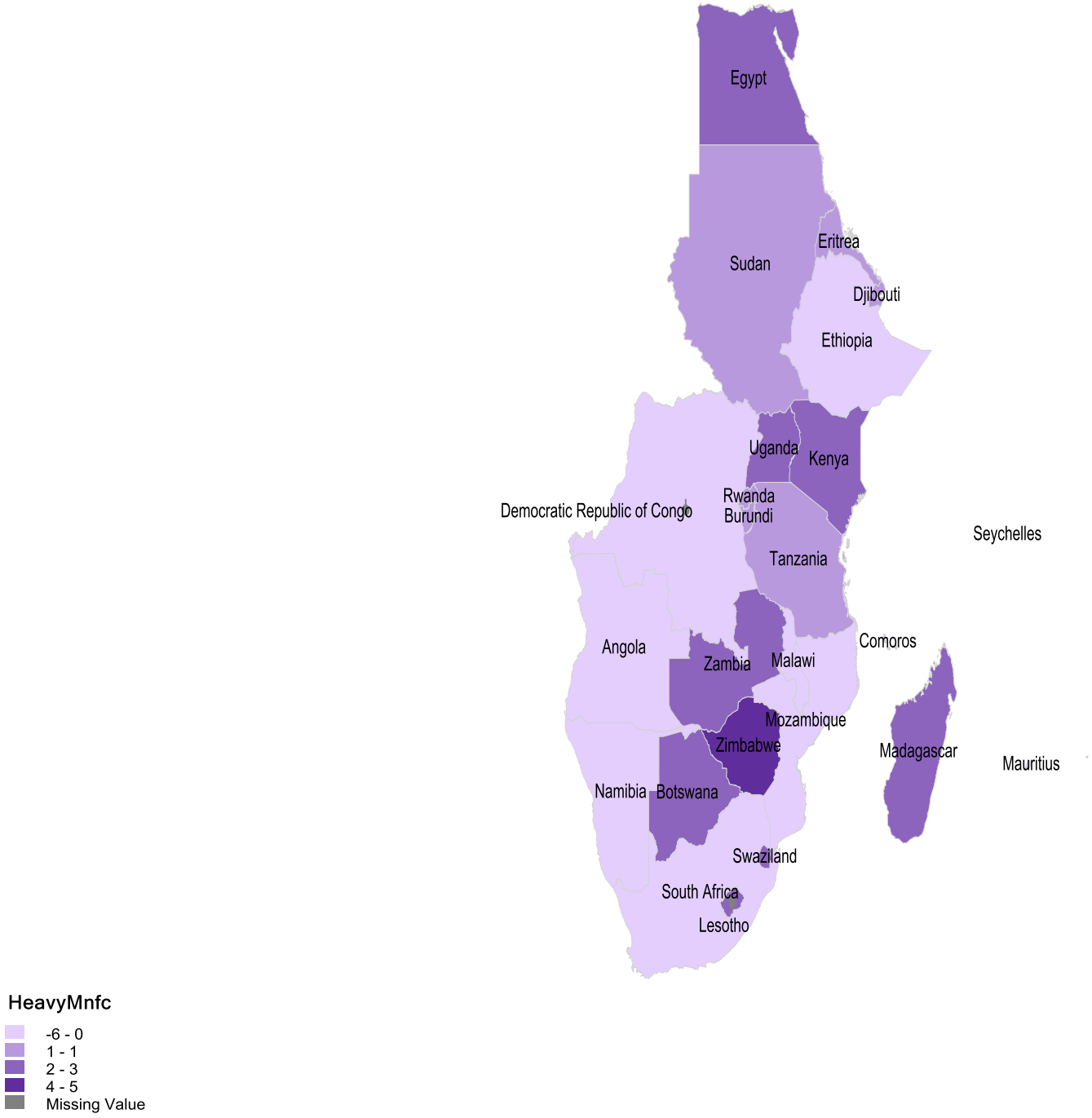
While the process of trade liberalisation has been challenging and the benefits unevenly distributed, trade liberalisation (especially regional integration) still remains important to the economic development of the region. However policy barriers (tariffs and non-tariff barriers), are not the only trade costs faced by firms in the region. Sub-Saharan Africa has some of the highest trade costs –i.e. transport costs - in the world and they remain a significant barrier to trade. This implies that as the region seeks to synchronize trade policy, measures to address other trade costs faced by firms in the region should also be discussed. A holistic approach to reducing trade costs is required to increase trade and growth in the region.

APPENDICIES

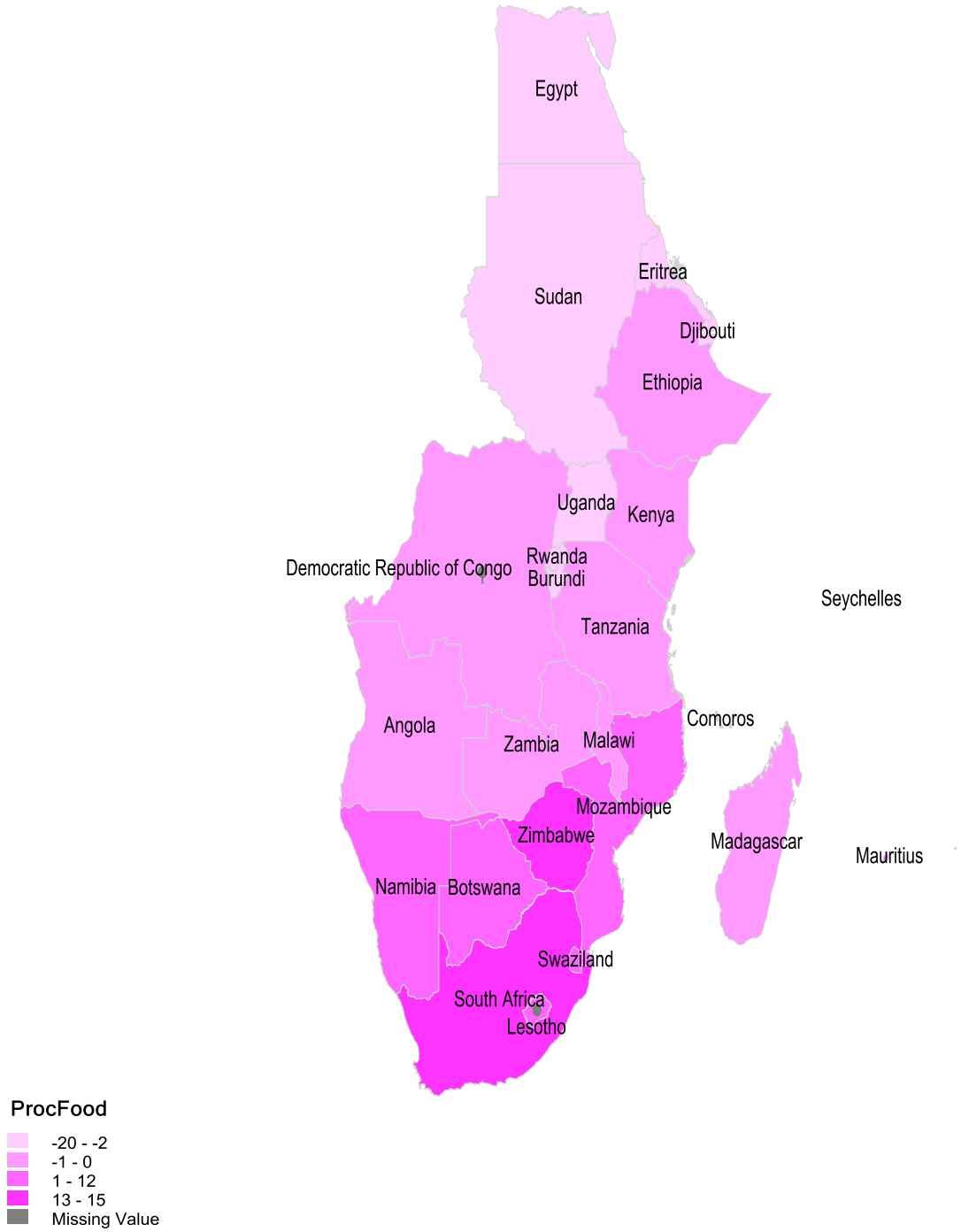
Appendix 1: Light Manufacturing



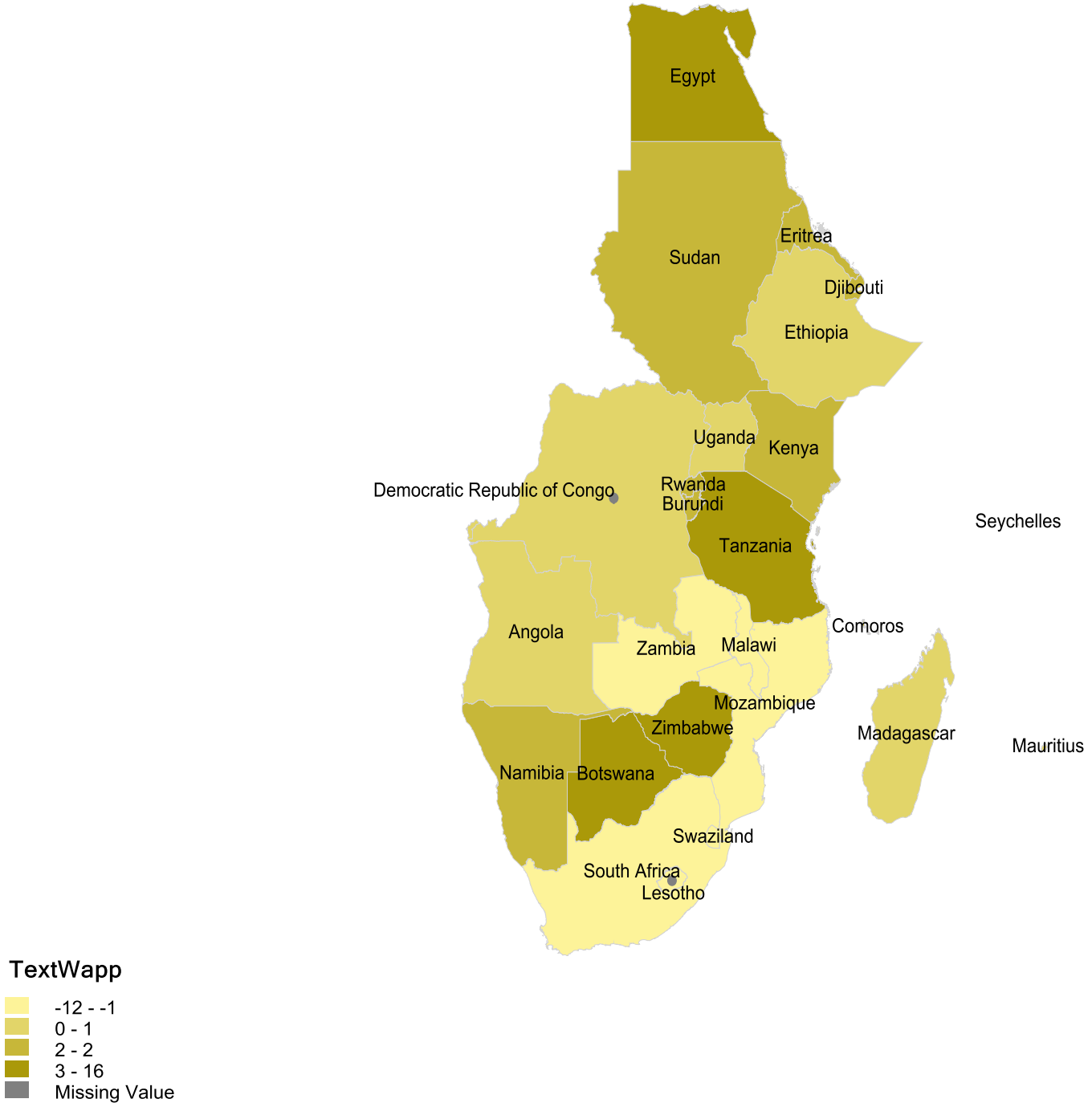
Appendix 2: Heavy Manufacturing



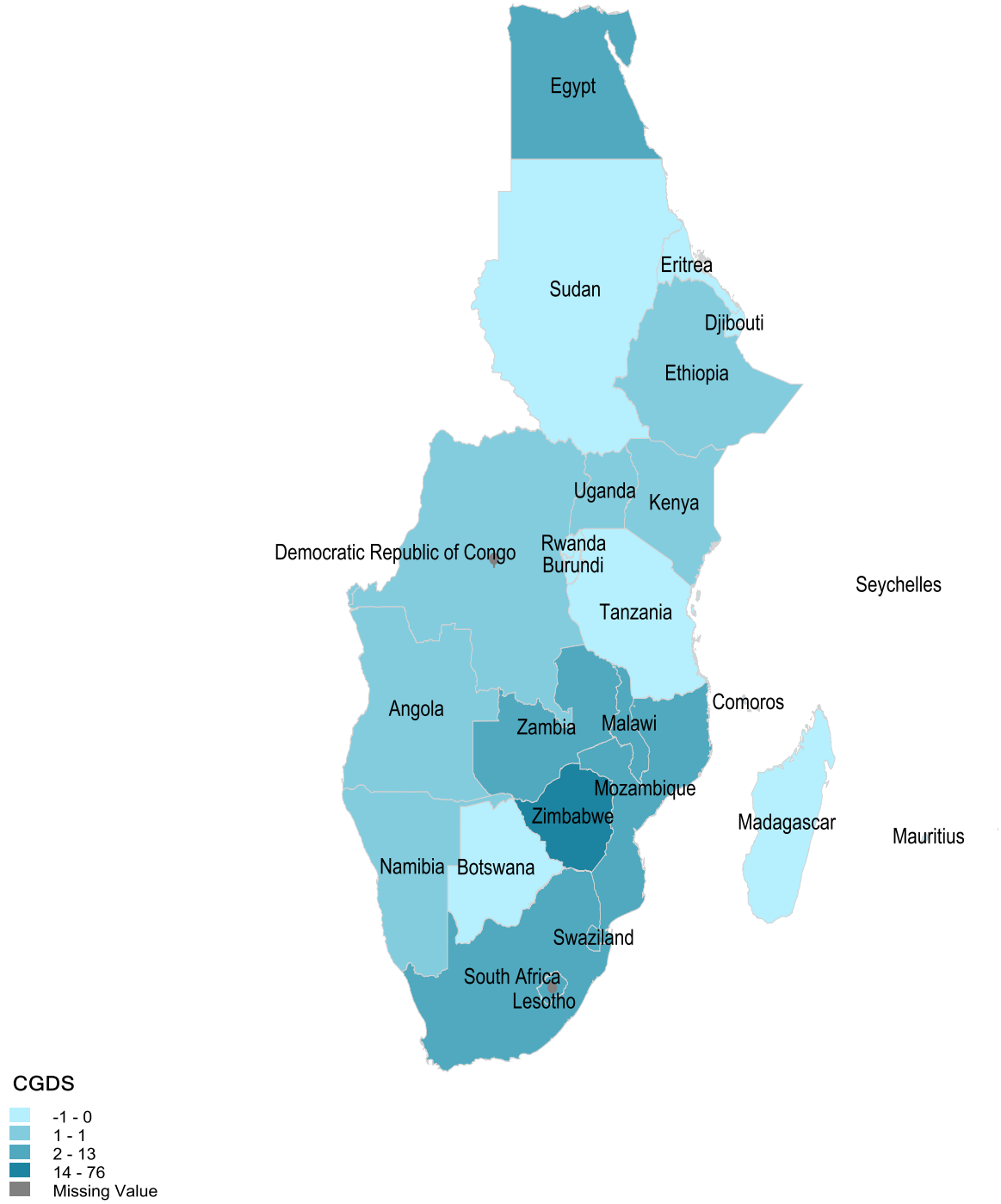
Appendix 3: Processed Food



Appendix 4: Textiles



Appendix 5: Capital Goods



Appendix 6: Change in Volume of Exports

DVol, exports of i from r to s, I.M.P.										
DQXS	**Egypt**	**Ethiopia**	**Kenya**	**Madagascar**	**Malawi**	**Mozambique**	**Tanzania**	**Uganda**	**Zambia**	**Zimbabwe**
Egypt	0	102.5	-4.1	0.6	-0.3	1.5	37.5	2.8	-0.9	0
Ethiopia	0.8	0	2.5	0	0.3	0.1	0.3	0.2	0.1	0
Kenya	-15.9	69	0	0.2	-5.2	8.9	36.9	-7.7	-11.3	-2.5
Madagascar	-0.2	0	-0.1	0	0	0.1	0	0	0	-0.2
Malawi	-4	0	-1	0.2	0	3.6	2.3	-0.6	-1.2	8.7
Mozambique	-0.5	0.1	115.2	0.6	3.6	0	0.7	4.5	-0.8	243.9
Tanzania	1.5	2.1	-12.4	0.1	19.9	20.6	0	-7.1	-0.2	13.1
Uganda	-1	0.8	-8.4	0	0	0.1	-0.2	0	0	0
Zambia	6	0.7	-0.1	0	-4.2	0.5	5.8	0	0	-2.4
Zimbabwe	1.3	2.6	-1.1	1	2.5	-0.3	8.7	0.2	-1.4	0
11 Botswana	-0.1	0	0.3	0	0.9	0.2	0	0	-0.1	151.1
South Africa	3416.4	56.3	375.8	7.5	135.3	348	61.7	126	354.2	401.3
Namibia	-0.1	0.2	0.1	0	0.1	13.7	0.1	0	0.5	7
Mauritius	-0.1	0.1	-0.5	-1.3	-0.2	0.7	0.1	0.1	-0.9	-1.6
SCentralAfri	0.1	0	0	0	0	0.1	0.1	1.2	0.1	0.6
SCU	0	8.6	115	-3.8	0.9	1.4	2.5	74	-0.6	0.1
SSA	-16	0	-1.6	0	-0.1	0	-0.1	-0.1	-3.6	0.2
Rest EA	20.1	129.5	-2.4	1.4	0.5	0.1	7.9	0.5	0.4	0.1
Rest of World	-2069.4	-209.3	-294.1	5.1	-94	-116.1	-85.7	-105.4	-173.7	-147.7
Total	**1338.9**	**163.3**	**283.2**	**11.5**	**59.8**	**283.3**	**78.8**	**88.6**	**160.6**	**671.6**

Appendix 6: Change in volume of exports continued

Dqxs	Botswana	South Africa	Namibia	Mauritius	Scentral africa	Scu	Ssa	Rest EA	Rest of world	Total
Egypt	3.1	52.3	0.4	1.6	6.6	2.1	10.9	-16.3	886.3	**1086.4**
Ethiopia	0	3.1	0	0	0	0.6	-0.7	166.9	-100.2	**74**
Kenya	0.5	17.2	0.4	0.2	2.4	1.8	3.8	138.4	49.8	**286.8**
Madagascar	0	0.2	0	0	0.2	0.1	0	24	-12.6	**11.6**
Malawi	0.1	11.7	0	0	0.8	0.2	0.1	13.1	27.8	**62**
Mozambique	0.1	-19.7	0	0.2	16.1	0.5	-0.4	10.7	-154	**220.8**
Tanzania	0	5.4	0	0	7.1	0	-0.6	51.9	-28.6	**72.9**
Uganda	0	4.3	0	0	36.1	0	1.9	39.3	28.5	**101.4**
Zambia	1.2	32.4	0.6	0.4	0.3	0.9	6.3	-0.6	107.6	**155.4**
Zimbabwe	16.6	81.6	1.5	0.2	30.1	1.7	9.8	0.3	87.1	**242.4**
Botswana	0	-3.1	0.2	0.4	1.2	0	-0.3	0.1	-101.1	**49.9**
South Africa	-64.6	0	-45.4	-1	419.6	-2.8	-194.7	382.2	-5608.9	**166.9**
Namibia	0	-18.8	0	-0.1	208.1	0.2	-4.4	2.3	-201.2	**7.6**
Mauritius	0.1	2.7	0.1	0	2.3	0.1	-0.2	43.3	-33.2	**11.4**
S Central Africa	0	-14.1	0.3	0.5	0	0	2.4	5.4	122.3	**119.1**
SCU	0	-7.6	-0.6	-1.1	-0.4	-0.5	-7.7	44.2	-230.2	**-5.7**
SSA	0.1	71.3	0.2	0.2	-6.1	0.4	8.3	-4	-28.2	**20.9**
Rest EA	0.1	7.4	0.1	1.3	0.4	1.3	3.7	-1.3	177.9	**348.8**
Rest of World	44	2750.4	67.1	17.5	-500.7	69.2	193.3	-608.1	3669.4	**2412**
Total	**1.3**	**2976.6**	**25.1**	**20.3**	**224.1**	**76**	**31.6**	**291.8**	**-1341.6**	**5444.7**

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