COMESA

Key Issues

in Regional Integration. Vol 4

Key Issues in Regional Integration

Volume IV

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ACRONYMS AND ABBREVIATIONS

ACIS	Advance Cargo Information System
ACTESA	Alliance for Commodity Trade in East and Southern Africa
AU	African Union
ASYCUDA	Automated System of Customs Data
CAADP	Comprehensive Africa Agriculture Development Programme
CEMAC	Central Economic and Monetary Union
COMESA	Common Market for Eastern and Southern Africa
COMSTAT	COMESA Statistics
DRC	Democratic Republicof Congo
EAC	East African Community
EAGC	Eastern Africa Grain Council
EITI	Extractive Industries Transparency Initiative
ERC	Estimated Recoverable Crystals
ESP	Excessive Slippages Procedure
FDI	Foreign Direct Investment
FTA	Free Trade Area
GDP	Gross Domestic Product
FEWSNET	Famine Early Warning Systems Network
HS	Harmonized System
ICBT	Informal Cross Border Trade
ICT	Information Communication Technology
IGT	Identifiable Grouping Taxation
IMF	International Monetary Fund
ITC	International Trade Centre
KESREF	Kenya Sugar Research Foundation
MDG's	Millennium Development Goals)
MFSF	Multilateral Fiscal Surveillance Framework
MTBF	Medium Term Budget Framework
MTCCP	Medium Term Country Convergence Programme
MTFF	Medium Term Financial Framework
NEPAD	New Partnership for Africa's Development
NTB	Non-Tariff Barriers

ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OSBP	One Stop Border Post
PEFA	Public Expenditure and Financial Accountability
PFM	Public Finance Management
PPP	Public-Private Partnerships
RCA	Revealed Comparative Advantage
REC	Regional Economic Communities
REPSS	Regional Payment and Settlement System
SACU	South African Custom Union
SADC	Southern African Development Community
SDR	Special Drawing Rights
MSME	Medium and Small Enterprises
TCD	Tones Crushed per Day
TCHM	Tonnes of Cane per Hectare per Month
TFTA	Tripartite Free Trade Area
TRQ	Tariff Rate Quota
UBOS	Uganda Bureau of Statistics
UNECA	United Nations Economic Commission for Africa

PREFACE

Key Issues in Regional Integration is an annual publication of the COMESA Secretariat. This volume is motivated by the long-standing desire to nurture the linkage between industry, academia and policy makers in addressing regional integration concerns. The volume therefore provides a platform for disseminating research output on regional integration not only from COMESA secretariat, but also from these key constituencies.

This volume consists largely of empirical and a few theoretical research papers. The papers address themselves to a wide range of topical themes namely: Identification of potential for intra-COMESA trade in specific sectors and products; effects of safeguard measures and the competitiveness of sugar production in the COMESA region; Impact of financial integration, financial inclusion, ICT and fiscal policy on intra-COMESA trade and Aid-for-Trade Facilitation.

The purpose of this volume is to educate the reader on the status of integration in COMESA, attendant challenges and prospects not only from the practitioner's experiential viewpoint and the academia's more empirical perspective, but also from the hybrid context of the policy makers. It stretches the scope of readership to cover researchers on international trade and regional integration and avails to the reader insightful dimension of issues at the frontier of integration debate in the COMESA region including the key commodities and sectors that merit more attention.

The journey of writing this volume commenced with presentation of research papers at the first COMESA-ACBF Research Forum held in Entebbe, Uganda in 2015. Following a rigorous peer review process, select papers were presented at the plenary session of the Forum where they were discussed and subjected to further sit-in review and comments by participants. In the final round, a small band of papers were selected for publication on the basis of their relevance, conceptual and methodological robustness. This whole process was however, fraught with some problems. Some good papers were dropped for lack of relevant and up to date data and for inability of authors to complete revisions within scheduled timelines.

The majority of the empirical papers relied on secondary sources of data. A few however, collected primary data through field surveys in different countries. The novelty in this volume however, is found in the empirical basis of analysis deployed and the participation of academia and industry at the Research Forum and peer review stages of the process.

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Intra-COMESA Trade Potential, Opportunities and Challenges

By

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Abstract

This paper explores the trade potential of selected COMESA Member States, by indicating the products with highest export potential within COMESA market and examines the opportunities and factors hindering intra-regional trade in COMESA. The paper uses two approaches. The first approach adopts the method developed by International Trade Centre (ITC) for Trade Flow Analysis. The second is the ratio approach where the ratio of the exporting country's extra-COMESA exports to total extra-COMESA imports is estimated within the range of 0.75 -1.25. The paper also examines the opportunities and challenges to intra-COMESA trade and entailed field visit to seven member states, namely, Egypt, Ethiopia, Kenya, Mauritius, Uganda, Zambia and Zimbabwe. The main study findings are that; the potential value that would enhance intra-COMESA trade using 2014 extra-COMESA exports for goods stands at US$ 82.3 billion; the sectors with the highest revealed trade potential are: textiles, wooden furniture, horticultural products, household items, hides and skins, footwear and leather products, sugar confectionery, unmanufactured and manufactured tobacco, precious metals, refined copper and copper alloys, among others. The study identified several challenges that affect utilization of the existing potential. The major ones include; information asymmetry, infrastructure inadequacy and non-compliance with regional commitments. Emerging policy issues from the findings are: COMESA through the Business Council should facilitate the penetration of the local distribution networks through organizing trade fairs, business forums in clusters but also trade information system, which could be accessible online. The COMESA Business Council should also develop a regional supply chain strategy to regional manufacturers, as well as set up trading houses to facilitate the distribution of goods; the Secretariat and member states should fast-track the on-going COMESA transport infrastructure projects.

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Introduction

Regional integration (RI) is one of the prominent strategies for development among countries. It promotes economic growth and industrialization through fostering intra-regional trade, infrastructure and investment and provides a market for parallel development of new industries, which reduces external vulnerability.

Since the establishment of the COMESA FTA on 31 October 2000, intra-regional exports have increased from US$ 1.5 billion to US$ 10.1 billion in 2014. The growth in intra-COMESA exports remains low compared to the region's trade with the rest of the world both in terms of exports and imports. For example, COMESA's exports to the rest of the world grew from US$ 28.3 billion in 2000 to about US$ 106.4 billion in 2013. The exports to EU and China alone accounted for US$ 56.8 billion with the EU importing goods worth US$ 45 billion from the region in 2013.

The growth of intra-COMESA exports, which was about 85 percent between 2000 and 2013 looks impressive compared to the region's export growth to the EU of about 74 percent over the same period. This was because intra-regional export growth rose from a lower value of US$ 1.5 billion to about US$ 10.1 billion in 2014 (COMSTAT, 2015). The intra-COMESA exports for the period 2000 – 2014 only accounted for an average of 6.4 percent of the region's total exports compared to about 20 percent for EAC and 62 percent for the EU (UNCTADSTAT, 2015).

This paper explores the potential of COMESA Member States whose trade within the region would enhance the region's intra-trade. It identifies the products with the highest potential for export into the COMESA market and highlights the opportunities and challenges within the region. The key question is why industrialists/merchants trade less within the region compared to other markets despite the liberalised tariff regime and the prevalence of regional trade potential in a range of commodities.

The first objective of this study is to establish the intra-COMESA trade potential and major products where this potential exists. Secondly, to examine the opportunities and constraints to the utilisation of the potential specifically, along the value chain from production, logistics, marketing and distribution channel.

In determining the intra-COMESA trade potential, the study applied two methodological approaches, that is, the ITC approach (ITC, 2006) and the Ratio Analysis Approach.

In the ITC approach, the lesser of a country's exports of a given product to third countries and the target region's imports of the same commodity from third countries is the indicative trade potential. However, one problem with this methodology is that one quantity may be much larger than the other, giving rise, for example, to situations where there is a huge demand within COMESA for imports of a product for which there is little capacity for production and vice versa. In such instances, either demand within COMESA is already being satisfied from within the region, or the product is simply not there (for example, an unprocessed input into an industrial product, the production of which does not take place within the region).

In the ratio analysis, the share of the exporting country's extra-COMESA exports in total extra-COMESA imports (x) lies between 0.75 and 1.25 such that $0.75<x<1.25$. One advantage of this methodology is that, unlike with the ITC's, it is not necessary to assume that the exporting countries have sufficient experience and technology to produce the products in question to expand supply. Those products identified are already exported outside the

region in volumes similar to what the region imports from outside. Once such sectors have been identified, the next step is to identify the member states that import those products from outside COMESA.

In the country-by-country analysis, the respective member states' trade potential is estimated at a 6-digit level with a minimum export value of US$ 100,000 per country per commodity exports. The major commodity exports such as minerals and metals are excluded in the analysis.

To examine the opportunities and challenges to intra-COMESA trade, the study undertook a field survey in seven member states especially those that had revealed trade potential in some products. These are Egypt, Ethiopia, Kenya, Mauritius, Uganda, Zambia and Zimbabwe. A select sample of importers and exporters of the listed products with trade potential were interviewed in the respective member states. The interviews focused on comparative analysis of the opportunities and challenges that the industrialists, exporters, importers, logistics providers, distribution and freight forwarders experienced in the COMESA market vis-à-vis the markets outside the region.

Trade Developments

a) COMESA Trade Performance in the Global Context

COMESA registered a 6 percent growth in its global trade from US$ 290 billion in 2013 to US$ 307 billion in 2014 (COMSTAT, 2015). The region's total exports over the period 2013-2014 dropped from US$ 106 billion to US$ 94.7 billion while imports increased from US$ 173 billion in 2013 to over US$ 191.5 billion in 2014. The drop in exports was mainly attributed to a decline in Libya's exports especially of oil due to the internal political crisis in the country. Libya's exports dropped by about US$ 21 billion in 2014.

Some member states registered positive growth in global exports, namely, Egypt, Eritrea, Comoros, Djibouti, Malawi and Ethiopia. Egypt registered the highest growth with an increase of over US$ 10 billion worth of exports in 2014. However, Libya, Sudan, Kenya and Zambia registered a decline in their exports.

The EU remains the single largest destination for COMESA Member States exports. In 2014, 33 percent of COMESA total exports amounting to US$ 35 billion were exported to the EU, down from US$ 45 billion recorded in 2013. The EU however, remained the major source of imports for the COMESA Member States. Imports from the EU to the COMESA region increased by US$ 5 billion from US$ 45 billion in 2013 to US$ 50 billion in 2014, accounting for 25 percent of COMESA's global imports (Table 1).

The major exports to the EU are petroleum oils and oils obtained from bituminous minerals, crude and natural gas in gaseous state primarily exported by Libya and Egypt. China was the second leading market for COMESA exports. In 2010, it recorded exports worth US$ 17.1 billion, which declined to US $8.6 billion in 2014. This was a decline of about 50.3 percent over the four-year period. The region's exports to China have largely been metals and related primary products. However, China is rebalancing the structure of its economy away from manufacturing, construction, and exports with production inputs being highly skewed towards raw materials with new focus on the services sector and consumption. India, USA, South Africa and United Arab Emirates are also important markets for exports from the COMESA region with a considerable value of about US$ 42.6 billion in 2014.

Table 1: COMESA's Major Export Destination Markets, 2010 - 2014 (% Share)

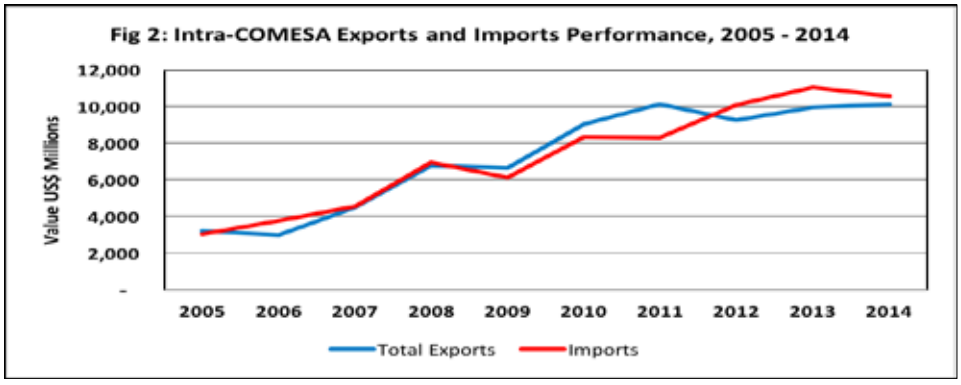
	2010	2011	2012	2013	2014
EU	46.9	36.1	46.2	42.3	36.9
China	16.1	16.0	10.6	11.1	9.1
Switzerland	4.6	6.4	5.3	5.7	5.8
South Africa	4.0	6.6	5.2	5.5	4.8
Saudi Arabia	2.0	2.8	2.5	3.1	4.7
UAE	2.9	3.5	4.2	3.4	4.5
India	2.3	3.3	3.1	3.2	4.2
USA	4.7	4.3	4.6	4.4	3.6
Turkey	1.4	2.0	1.8	2.0	2.9
RoW	15.1	18.8	16.4	19.2	23.5
Total (US Millions)	**106,176**	**86,291**	**115,727**	**106,354**	**94,718**

Source: COMSTAT, 2015

b) Intra-COMESA Trade Performance

Intra-COMESA exports have gradually grown from about US$ 3 billion in 2005 to about US$ 10.1 billion in 2014. However, there was downturn in growth in 2012 from about US$ 10 billion in 2011 to US$ 9.5 billion. In 2014, the region registered a growth of about 1.9 percent from US$ 9.9 billion in 2013 to US$ 10.1 billion in 2014. The variance in the pattern of intra-exports and imports could partly be explained by the re-exports and the cost insurance and freight respectively.

Figure 1: Intra-COMESA Exports and Import Performance, 2005-14



Source: Computed based on the COMSTAT, 2015

The intra-regional share of trade is largely dominated by six member states with an average share of about 86.2 percent of the intra-COMESA trade in 2013 and 2014. Egypt accounted for 31.8 percent of the region's intra-trade followed by Kenya with 15 percent, DRC (13.8 percent), Zambia (11.3 percent), Uganda (7.5 percent) and Malawi (6.5 percent). The major products traded within the region include, black tea, copper ores and

concentrates, portland cement, sulphuric acid, cobalt ores and concentrates, live animals, surface-active washing or cleaning preparations, among others.

Intra-COMESA Trade Potential Analysis

a) Trade Potential

COMESA's total exports dropped from US$ 106 billion in 2013 to US$ 94.7 billion in 2014 while imports increased from US$ 162.1 billion in 2013 to about US$ 191.5 billion in 2014. However, as earlier noted, the region's intra-exports were worth US$ 10.1 billion in 2014 compared to a total of US$ 94.7 billion of the region's total exports. This shows that the extra-exports from COMESA stood at US$ 84.6 billion in 2014, which implies that the intra-COMESA exports in 2014 were only 10.7 percent of the total exports. Out of the total extra-COMESA trade, exports were US$ 82.4 billion and imports US$ 167.5 billion. Out of the total extra-COMESA exports, only goods worth US$ 123.9 million did not match the extra-COMESA imports as shown in Table 2

Table 2: Extra-COMESA Trade, 2014 (US$ Millions)

	Extra-COMESA total Exports (USD million)	Extra-COMESA Imports (USD million)	Extra-exports without matching extra imports
Burundi	88	744	807
Comoros	20	209	
Congo DR	4,443	5,278	
Djibouti	1,322	2,499	
Egypt	24,868	70,378	58,014,197
Eritrea	482	249	
Ethiopia	3,860	15,823	1,030,249
Kenya	4,341	17,576	1,857
Libya	16,758	15,572	
Madagascar	2,147	3,056	7,685
Malawi	1,278	2,712	40,971,755
Mauritius	2,348	5,212	
Rwanda	315	1,302	
Seychelles	548	888	
Sudan	4,052	6,110	23,091,933
Swaziland	1,778	1,681	142,780
Uganda	2,323	5,776	3,911
Zambia	7,701	6,415	756
Zimbabwe	3,758	6,077	589,647
Total	**82,433**	**167,557**	**123,855,576**

Source: Authors calculations from COMSTAT database, 2016

The trend of COMESA's trade pattern suggests a huge potential for increasing intra-trade. The potential using 2014 statistics is estimated at US$ 82.3 billion if all the total extra-COMESA exports (US$ 82.4 billion) less extra-COMESA imports (US$ 123.8 million) which do not match any member states imports can be traded.

c) Country-by-Country Analysis

Burundi:

Burundi has the potential to increase the intra-COMESA trade by US$ 0.09 billion by exporting its extra COMESA exports to the other member states. Among the extra-COMESA exported commodities, no specific commodity meets the minimum threshold of US$ 100,000.

Comoros

Comoros has the potential to increase the intra-trade by US$ 0.02 billion, among its extra COMESA exports no commodity meets the minimum threshold.

Democratic Republic of Congo

DRC has a potential to increase intra-COMESA trade by US$ 4.4 billion with the highest revealed potential being in sawn or chipped wood and refined copper and copper alloys.

Djibouti

Djibouti has the potential to increase intra-COMESA trade by US$ 1.3 billion with its highest potential being in tanned or crust hides and skins of other animals, without wool or hair on and waste and scrap of primary cells.

Egypt

Egypt has a high potential to increase intra-COMESA trade by US$ 24.9 billion. It also has the highest extra-COMESA imports of US$ 70.4 billion, accounting for 42 percent of the total extra-COMESA imports. The highest revealed potential in Egypt is in several products for which trade potential exceeds U$ 10 million. Among these are cheese and curd, dried vegetables, sunflower seeds, sugar confectionery, fruit juices, concentrates of tea and coffee, mineral or chemical fertilizers, essential oils, registers and account books, woven fabrics, T-shirts, singlets and other vests, men's or boy's suits, ensembles, jackets, trousers, iron and steel products and household articles. The country also has products with substantial potential ranging from U$ 1 - 5 million in medicaments, natural honey, vegetables, bananas, new pneumatic tyres, packaging containers, cotton yarn, babies' garments and clothing accessories, ladies' blouses and shirts, footwear, aluminium waste and scrap, ball point pens, among others.

Eritrea

Eritrea has the potential to increase intra-COMESA trade by US$ 0.5 billion. However, most of its extra-COMESA exports are less than the minimum threshold.

Ethiopia

There is considerable potential for exports to the COMESA market for Ethiopian products. These are, dried leguminous vegetables, live sheep and goats, leather prepared further after tanning or crusting, tanned or dressed furskins, cotton waste, cotton, carded or combed, men's or boys' singlets and other vests. It has the potential to increase intra-COMESA trade by US$ 1.6 billion.

Kenya

Kenya has a high trade potential in a number of products that would enhance the intra-COMESA trade. It exports products worth US$ 4.4 billion outside the region and it is second to Egypt. Kenya and Egypt combined import slightly more than 50 percent of the total extra-COMESA imports of similar products exported by other member states to third party countries. Kenya has also the highest revealed trade potential in unmanufactured tobacco, tanned or crust skins, skins, cut flowers, fruit juices, original sculptures, basket work plaits and similar products of plaiting materials, wood marquetry and inland wood, articles of stone or of other mineral substance, re-treaded or used pneumatic tyres of rubber, meat of sheep or goat, dried fish, salted or in brine, jute and other textile bast fibres.

Libya

Libya exports products with the highest value outside COMESA compared to the other member states. If it could divert its extra-COMESA exports to other member states, this would increase the intra-COMESA trade by US$ 16.8 billion. The major products where Libya has potential include: ammonia, raw hides and skins of bovine, ferrous products obtained by direct reduction of iron ore and other spongy ferrous products, coral and similar material and recovered paper or paperboard.

Madagascar

Madagascar has a trade potential worth US$ 2.1 billion with the highest values in raw hides and skins of bovine, woven fabrics of cotton and other textile products, granite, porphyry, basalt, waste and scrap of primary cells and other monumental building stone, and articles of natural or cultured pearls.

Malawi

Malawi's revealed export potential is worth US$ 1.3 billion in groundnuts, dried leguminous vegetables and manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or insulin content.

Mauritius

Mauritius has the potential to increase intra-COMESA trade by US$ 1.9 billion in textiles, jewellery, prepared tuna and fruits, undenatured ethyl alcohol, carbides, waste and scrap of primary cells.

Rwanda

Rwanda has the potential to increase COMESA intra-trade by US$ 0.3 billion which is below the minimum

threshold.

Seychelles:

Seychelles has the potential to increase intra-COMESA trade by US$ 0.5 billion. Its highest revealed potential is in fats and oils and their fractions, of fish or marine mammals, prepared or preserved fish, molluscs and flours, meals and pellets, of meat or meat ovals, of fish or of crustaceans.

Sudan

Sudan's list of products with a revealed export potential worth US$ 4.1 billion to COMESA in gold, fruits, nuts and other edible parts of plants and meat of sheep or goats.

Swaziland

Swaziland has the potential to enhance intra-COMESA trade by US$ 1.8 billion mainly in sugar confectionery, hydrazine and hydroxylamine and their inorganic salts, wood in the rough, basketwork, ferrous waste and scrap, women and girls' suits, men's or boys' singlets and other vests, artificial filament yarn and flax, raw or processed.

Uganda

Uganda's revealed export potential is worth US$ 2.3 billion in dried leguminous vegetables, other vegetables, cinnamon and cinnamon-tree flowers, cereal flours other than of wheat or meslin, and waste, parings and scrap of plastics.

Zambia

The major products revealing potential worth US $7.7 billion include molasses resulting from refining of sugar, unmanufactured tobacco, pebbles, gravel, broken or crashed stone, natural steatite, tanned or crust hides and skins of bovine and ferro-alloys.

Zimbabwe

Zimbabwe has the potential to increase intra-COMESA trade by US$ 3.8 billion with its revealed export potential being in wooden furniture and wood products, fruits and nuts, seeds of herbaceous plants, tanned or crust hides and skins, recovered waste and scrap, manufactured tobacco, cotton yarn and woven fabrics of cotton.

Overall, the region has a considerable trade potential worth US$ 82.3 billion if the member states redirected their focus towards regional trade.

Opportunities, Challenges and Recommendations on Intra-COMESA Trade

The fieldwork identified a number of opportunities and obstacles to intra-COMESA trade. The details of these findings, as well as recommendations are reported in the Annex.

Conclusions and Emerging Policy Issues

a) Conclusion

The study found out that there is a huge potential to increase intra-COMESA trade by US$ 82.3 billion based on 2014 trade statistics. The sectors with the highest revealed trade potential are: textiles, wooden furniture, horticultural products, household items, hides and skins, footwear and leather products, sugar confectionery, unmanufactured and manufactured tobacco, precious metals, refined copper and copper alloys, waste and scrap of ferrous metals, steel and plastics, basket works, natural sculptures, essential oils, vegetable oils, dried leguminous vegetables, fruit juices, jewellery and white and red meat.

In the fieldwork, producers, exporters, importers and other stakeholders identified the following key obstacles to trade in the region; poor infrastructure connectivity, high freight and transport costs mainly due to lack of a regional shipping line and inadequate export cargo to support return cargo for the vessels, high banking charges, lack of information about potential buyers and sellers of various products, problems in settling payments, slow implementation of COMESA FTA agreement, trading of similar products, high landing prices of regionally produced products due to deficient infrastructure and high energy costs, high labour costs, distance and lack of distribution networks, little demand for high quality products, among others.

However, there is an opportunity to increase intra-COMESA trade through; effective utilization of Regional Payments and Settlement System (REPSS), PTA bank facilities, sensitizing consumers on availability of quality products from the region, building cold rooms and warehouses in potential markets for sea food, establishing tailor-made production lines for products in demand from other COMESA Member States, developing the local distribution networks, promoting technology transfer through training and sharing of high-breed livestock and high yield seeds, reviving the COMESA Trade Fairs, initiating business forums in clusters for traders, undertaking market intelligence survey on the mechanisms of enhancing the dissemination of market information to both prospective importers and producers, developing a trade information system/catalogue of products produced by various companies from within the region and sharing with Member States to clear doubts among customs authorities, initiating a regional shipping line.

b) Emerging Policy Issues

The intra- COMESA trade is far from its potential hence policy makers in member countries should adopt effective trade facilitation and trade promotion measures to realize the trade potential level. These measures include but not limited to: removal of non-physical transport barriers along major transit corridors, especially those connecting landlocked countries to seaports; creation of One Stop Border Posts (OSBPs) and enforcement of adherence by member states to protocols covering the area of transport and measures already adopted to facilitate transport and transit between Member States such as; harmonized axle load limits, the Harmonized Commodity Description Coding System (HS), COMESA carrier licence and transit plates, harmonized road transit charges, Customs Regional Bond Guarantee, the COMESA Customs Declaration, Third Party Motor Insurance (Yellow Card), the Advance Cargo Information System (ACIS), ASYCUDA and Inter-railway working agreement between railway companies.

In addition, there is need to improve transport and communication infrastructure networks between the member

states and to fast-track the on-going COMESA projects such as: Shire-Zambezi waterway; the inter-island high speed cable link for Indian Ocean Commission islands and the North-South Corridor.

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Annex 1

Opportunities, Challenges and recommendations on intra-COMESA trade

Sectors	Constraints/Challenges to Intra-COMESA Trade	Opportunities	Recommendations
Cross-cutting Issues	Limited/lack of knowledge about COMESA Programs among the practitioners especially the private sector players. This has led to lack of visibility of COMESA at the Member States; Some member states lack information about the production capacity of other member states. Thus, generating doubts on the originality of particular products from within the region.		Revival of the COMESA Trade Fair, which would bring producers and importers together to showcase their products; Secretariat should initiative business forums in clusters for traders to discuss business opportunities and build linkages/networks. There is need for COMESA to undertake market intelligence survey on the mechanisms of enhancing the dissemination of market information to both prospective importers and producers. Secretariat should develop a trade information system/catalogue of products produced by various companies from within the region and share with member states to clear doubts among customs authorities.

	Some players in the supply chain both on the part of importers and exporters do not know the importance of letters of credit. Exporters in the region do not recognize letters of credit and prefer transacting on cash basis. Although the letter of credit is the most secure way of effecting business transactions given that in the event that the importer is unable to make payment on the purchase, the bank covers the outstanding amount. Likewise, the exporters/producers also lack market intelligence, which would help them build contacts and networks.		
	The high cost of freight from the Island member states to the Inland markets due to transhipment. This being attributed to lack of shipping lines from within the region (connectivity - it takes about 30 days to ship goods from Mauritius to Mombasa, the same period it takes from China) and limited cargo from the Island destined to the Inland markets. For example, a 20 ft container from Mauritius to Mombasa costs US$ 1250 compared to US$ 1000 from China to Mombasa. The unreliability (limited in number) and high cost of freight from the Egypt to other COMESA Member States due to transhipment but also the air flights are costly and limited or non-existent to most Member States. This is attributed to lack of shipping lines from within the region but also limited air cargo flights to Member States. For example, the case of heavy metallic products that do not fit in containers. The carriers that transport such products are few and not known, not even the ownership.		There is need to establish regional shipping lines through inter-governmental - private sector partnership to reduce the freight costs resulting from transhipment. COMESA Summit could initiate this discussion and rollout with other African Heads of States.

	The high cost of doing business especially the security of goods and banking transactions given that not all COMESA Member States are on the Regional Payment and Settlement System (REPSS) platform, as well as the high financial risk associated with the operational mechanism of the Banks in the Inland Member States. The payment system in the region remains of a great risk due to lack of insurance guarantees (credit facilities).	Utilization of REPSS	Member States should sensitise traders on the benefits of utilising the REPSS payment platform.
	The high cost of freight from the Island member states to the Inland markets due to transhipment. This being attributed to lack of shipping lines from within the region (connectivity - it takes about 30 days to ship goods from Mauritius to Mombasa, the same period it takes from China) and limited cargo from the Island destined to the Inland markets. For example, a 20 ft container from Mauritius to Mombasa costs US$ 1250 compared to US$ 1000 from China to Mombasa.	Utilization of REPSS	Member States should sensitise traders on the benefits of utilising the REPSS payment platform.
	Some Central Banks in the region imposes fees on commercial banks so as to loop them into the REPSS. This hinders the settlement of payments through REPSS		The Secretariat should investigate the matter and advice on the appropriate measures to be applied.
	There are variances in the documentations required by respective Member States' agencies involved in goods clearances at border points;		Harmonization/standardization of documentation requirements among the Member States.
	While Mauritius has almost zero NTBs, some COMESA Member States have disguised NTBs.		Secretariat should initiate bilateral engagement by the Summit Heads to resolve the NTBs other than merely maintaining the current status quo. Private sector should be involved in resolving NTBs through business forums.

	Access to credit is difficult for manufacturers within the region. International banks are not comfortable lending to manufacturers within the region due to the perceived high financial risks.	Utilization of PTA bank facilities	Creation of financial products tailored for the manufacturing sector within the region at the PTA bank
	There is a laxity on the part of some Member States in implementing the agreed COMESA trade rules. Some member states are not granting preferential treatment to a number of products from Egypt without any formal procedural notification to the Secretariat and other Member States. It was also noted that some Member States were implementing anti-dumping duties on products from Egypt without appropriate measures		The government of Egypt should initiate a formal complaint to the Secretariat for appropriate intervention to resolve the problems. Secretariat should initiate bilateral engagement by the Summit Heads to resolve the NTBs other than merely maintaining the current status quo..
	There is a great problem of competition for the COMESA Market with cheap and low standard products from China and Eastern Asia into the markets of COMESA Member States.	Availability of Quality products from within the COMESA region.	The Secretariat should initiate a mechanism of ensuring that Member States effectively implement measures at custom points to regulate the standard of products imported from non-COMESA Member States.
	There is infringement on the Trade Marks within the region. One paper copy company in Egypt noted that, when it exported to Kenya, it found that a similar Trade Mark of its product had been registered in Kenya by another entity. Agro-Machinery company in Bulawayo noted that, its brand has been infringed on by Chinese companies and currently exporting same product to the East African Community market. The delays and high costs involved in court procedures have made the company to lose its market in the EAC.		Member States need to ratify the WTO TRIPS Agreement to ensure that Intellectual Property Rights within the region is protected. The COMESA Competition Commission should also ensure that these rights are not infringed upon.

	The inefficiency at various customs entry points especially in Chirundu. The One-Stop-Border post initiative no longer functions as it was envisaged when it was being established. Goods clearance still takes about four hours or more causing congestions at the border point. The delays are costs to traders. This is partly attributed to inefficiency in the processes and management with excuse of systems fluctuations, which is an avenue for customs officials to get involved in corruption deals.		The Member States should improve on the border process and management to ensure efficiency in goods clearance. This would minimise time and additional costs to the logistics providers who pass the same costs to the supplier or importer hence affecting the final price of the good and its competitiveness within the region.
	The high landing prices of regionally produced products due to deficient infrastructure, high labour costs, distance and lack of distribution networks.		
	Exporters in Zimbabwe also noted that there are so many unnecessary road stops, which are time wasting and breeds an avenue for corruption both within Zimbabwe and in other Member States. Exporters also reported that some government agencies in Malawi do not recognise the COMESA Yellow Card Insurance and always impound tracks in the interior of the country especially at Balaka with excuse that the tracks have to obtain a recognised insurance at the border point.		The government of Zimbabwe need to initiate a formal complaint about the behaviour of Police of Malawi in disregard of the commitment of the government of Malawi to recognise the COMESA Yellow Card. The government of Zimbabwe need to regulate the police roadblocks especially the unnecessary stopping of transit goods tracks. However, transit tracks need to secure the COMESA transit licences.
	The manufacturers also complained of the substandard products, which are allowed from outside the region, which unfairly distorts the market, endangering the quality of products. Manufactures also noted that there are tendencies of manipulation of customs declarations through undervaluation of products from outside COMESA region.		COMESA should establish a mechanism of enhancing fair competition and improve on customs management to detect undervaluation.

	here is inefficiency in the railway infrastructure within the region. This has driven most traders to resort to use of trucks whose limitation is on the quantity of goods it can take at a given time. This high logistics costs trickles down to the price of the product, which affects the competitiveness within the region.		There is need for Member States to establish mechanisms of developing interlinked regional railway network/ infrastructure to foster intra-COMESA trade.
	Political dimensions and private sector dominance: There is need for political goodwill to permit fair trade and competition especially on commonly consumed products in various member states such as dairy products, beverages, among others.		Member States perpetuating non-competitive trade practices among member states should embrace competition and embrace the spirit of regional integration
	There are high costs of business logistics and poor inland infrastructure. Exporting industries are most profitable along the coasts There is a lack of political goodwill at the port of Mombasa. The police stall trucks for no good reason. The resistance and sabotage faced by transporters makes them hesitant to trade through the port of Mombasa Individuals dictate transport costs of goods because prices are not regulated.		There is need to improve the interconnectivities such as seamless boarders, logistics and transport in order to increase competitiveness Harmonise and regulate transport costs
	Political dimensions and private sector dominance: There is need for political goodwill to permit fair trade and competition especially on commonly consumed products in various member states such as dairy products, beverages, among others.		Member States perpetuating non-competitive trade practices among member states should embrace competition and embrace the spirit of regional integration

	There are high costs of business logistics and poor inland infrastructure. Exporting industries are most profitable along the coasts There is a lack of political goodwill at the port of Mombasa. The police stall trucks for no good reason. The resistance and sabotage faced by transporters makes them hesitant to trade through the port of Mombasa Individuals dictate transport costs of goods because prices are not regulated.		There is need to improve the interconnectivities such as seamless boarders, logistics and transport in order to increase competitiveness Harmonise and regulate transport costs
	Some Member States have cumbersome clearing systems which make trading difficult. In Zambia, for example, clearing trucks may take up to two weeks. This increases the cost of transport and hence hinders trade.		The member states should develop a mechanism on reducing the bonded warehouses costs near the ports
	There is generally little demand for high quality products among COMESA member states. This is because the propensity to consume low quality products is very high in the region. Consumers would rather purchase relatively cheap, low-quality products from China and India than buy high quality products from within the region. Consequently, producers of high quality products are forced to divert their trade to high-end markets outside the region.		
	Bonded warehouses costs are often too high along the coasts		
	Individuals dictate transport costs of goods because prices are not regulated.		

Seafood	There are very high labour costs in the region. These are not necessarily caused by high wages but instead, largely by the low productivity per worker. This is compounded by the intensive use of labour in most production processes. There are connecting countries (those between importing and exporting countries) not yet integrated in the FTA and therefore duty on goods would still be imposed before reaching their final destination		
	Certain countries are too dominant in other countries' markets making them impenetrable. For example, most goods in Zambia are South African. South Africa tries to protect this market by making it very difficult for other competing countries to penetrate the Zambian market		
Seafood	The lack of appropriate cold store facilities among the COMESA Member States at the ports and border points imped the trade in seafood.	Building of sufficient cold rooms and warehouses in potential markets for the sea foods	COMESA Secretariat should sensitize Member States on the importance of building appropriate warehouses to accommodate fresh seafood and other perishable products.
Textile and Apparel	The rigidity in the current COMESA Rules of Origin (RoO) does not support the trade in technologically advanced textile especially in Chapter 63.	Exporters receives requests on weekly basis to export to other Member States but the current RoO regime does not support this kind of products	The Working Committee on Rules should fast track the negotiation of the RoO for Chapter 63 and other products to facilitate the intra-regional trade in the advanced textile products. This should be convened before April 2016. The value added computation criteria should integrate the cost of investment especially for high technic-textile.

	Mauritius produces textile for the high-end market, which seems to have low market in the region.	Tailor production lines for products that are demanded by other COMESA markets	Mauritius to undertake market survey to establish the potential markets for the products in COMESA
	There are tendencies of dumping/unfair trade practices by China of cheap textile products in the region.		COMESA Secretariat should undertake studies to ascertain dumping and initiate mechanisms of protecting the regional market against unfair trade practices. Address loopholes in the customs management to ensure that undervalued products from other markets do not enter the COMESA Member States.
	Penetration of the local distribution networks within the region is very difficult because most of the local players are Chinese and Indians who are well connected to the exporters from China and India.	Developing the local distribution networks	COMESA to facilitate penetration of the local distribution networks through organizing the buyer-seller forums but also trade information system which could be accessible online. There is need to develop the regional supply chain strategy Set up trading houses to facilitate distribution of goods
Sugar and Agro-based Products	Kenya has not honoured its part of the sugar safe guard measure and this has distorted trade in sugar across all product lines and has created bad precedence for other countries like Zimbabwe that is likely to seek for safeguard measures.		Safeguard application should be limited and adhered to. This is to ensure that regional trade is not distorted.
	The challenge is exporting to Kenya, which is a deficit market. The issuance of import permits in Kenya is bureaucratic. The licence in some cases takes as long as six months to be issued. Kenya also limits the importation of sugar to only one variety and yet Mauritius produces 15 varieties of sugar.	Potential demand for more varieties in Kenya	The issuance of sugar import permits in Kenya should be simplified and transparent.

	There are challenges of SPS Standards in the region especially for some agro-products from the Inland Member States.		COMESA should further roll out initiatives to promote healthy food production and handling through training and collaborating with responsible institutions in the member states.
	There is high competition for the COMESA market with subsidized sugar from outside COMESA Member States especially Brazil, India and Thailand.		Subsided Sugar imports from Non-Member States should be regulated or controlled to control for its market distortions in the COMESA Market.
	The quality of maize and rice in the region is low and does not match the pricing compared to countries like Argentina where Mauritius mostly import from Livestock products are banned in the region due to SPS issues Registration of livestock products in the region takes a very long period	Technology transfer through training and sharing of high breed livestock breeds and high yield seeds	There is need to improve on the livestock breeds and maize/rice breeds There is need to establish and strengthen regional value chains by developing linkages among various players through business forums and trade fares.
	Underdeveloped agro-processes.		COMESA member states must invest in agriculture (mechanizing the sector) and promote the green evolution through trainings and investing in Research and Development
Industrial products (Jewellery, Sunglasses, iron bars, printing materials among others)	There are general inconsistencies in standards of doing business among Member States. It was noted that Kenya Bureau of Standards (KEBS) does not recognize the Standard Marks of the Board of Mauritius.	Signing Memoranda of Understanding (MOU) with the Mauritian Counterpart	Kenya should be encouraged to sign the jointly agreed MOU.
	Kenya and Uganda do not grant preferential treatment of steel and related products from Mauritius despite the products meeting the COMESA RoO criteria.		Mauritius should initiative a complaint against Kenya and Uganda

Freight Forwarding	Trading under the COMESA Trade regimes (RoO) is cumbersome in some Member States especially for the case of Madagascar where consignments are reassessed and a higher value added domestic taxes instead of the value on the COMESA RoO (pre-shipment inspection). Comoros does not grant preferential treatment of goods exported under the COMESA Certificate of Origin; instead 50 percent of MFN tariff is applied.		There is need for all countries to harmonise customs procedures with the regional initiative in order to reduce delays and duplication of services; Mauritius business players need to initiate the complaint through the COMESA coordinating ministry.
	Movement of business persons to Comoros and Madagascar is cumbersome and costly. Visas are required and at a cost especially for Comoros, which charges 30 Euros for visas without clear procedures. There are no COMESA desks at immigration points for both Comoros and Madagascar.		Secretariat to engage Madagascar and Comoros to establish a COMESA desk at immigration points to facilitate the movement of business people from other Member States. COMESA Secretariat to engage Comoros to reciprocate the waiver of visa fees similar to what other member states extends to it.
	Customs in Mauritius are still undertaking inefficient mechanism of addressing risk management through physical inspection of containers even where electronic systems have been developed. There are also unnecessary requirements of multiple documentations from different institutions especially for exportation, which delays business and increases the cost of doing business.		There is need to create green channels for fast clearance and movement of goods at customs. Mauritius should fast tract the establishment of a single window to facilitate the quick documentation clearance for goods.
	Flight cost within the region is far higher than travels to other destinations out of COMESA. Example, it costs about US$ 1,183 on a flight to Comoros with additional day of connection while it costs only US$ 676 to India, US$ 732 to Malaysia or Singapore, US$ 957 to Hong Kong.		

2

Revealed Comparative Advantage in Agricultural Commodities in COMESA

By

Mphumuzi Sukati

Abstract

The paper analyses the Revealed Comparative Advantage (RCA) for agricultural commodities in the COMESA Region. The aim of the analysis is to determine the level of agro-processing in the region and to identify commodities that countries could focus on in setting up agro-food industries. RCA is estimated for selected agricultural commodities divided into raw/semi-processed and highly processed food stuff. Results reveal that many COMESA Member States show strong RCA in raw or semi-processed agricultural commodities with little or no corresponding RCA in highly processed derivatives of those commodities. In general, very few countries in the COMESA region show strong RCA in highly processed and diversified food commodities. This means that there is still a large scope for agro-processing, especially using the abundant traded raw materials. Countries can focus on agro-industries where they show strong RCA in the corresponding raw material base or precursor.

Introduction

Agriculture forms a key sector in African economies and plays a crucial role in trade and regional integration. According to the World Bank (2013), Africa earns 23 percent of its annual growth from farming. Agricultural commodities form an important share of African trade, both regionally and internationally. However, the continent still records a negative trade balance with other international markets, and this trade deficit is widening. UNCTAD (2014) reported that net food imports increased by US$ 14.3 billion from 1999-2001 to 2009-2011 for African countries. The net food imports as a share of GDP increased from 3.2 percent in 1999-2001 to 3.6 percent in 2009-2011.

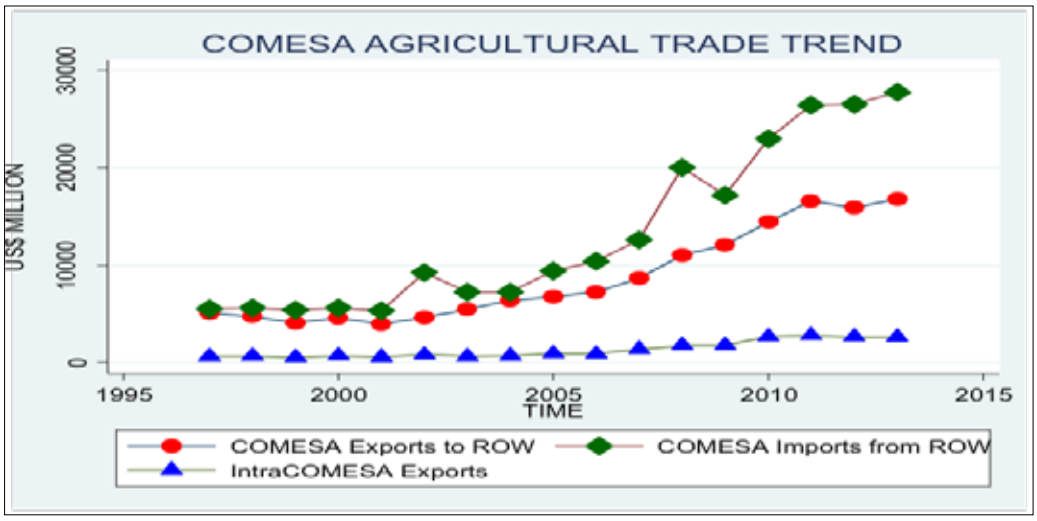
These imports are mainly processed finished products. This means that Africa has a huge scope to strengthen agro-industries and agro-processing. Further, intra-regional trade in processed food items remains low, although the Malabo declaration clearly articulates the need to promote agricultural productivity and boost intra-African trade.

The COMESA region, like the rest of Africa is also experiencing a sustained negative trade balance in agricultural

commodities despite the clear comparative advantage that the region has in agriculture.

Figure 1 shows intra-COMESA Exports; and trade between COMESA and the rest of the world (ROW) from 1997 to 2013.

Figure 1: COMESA Trade in Agricultural Commodities



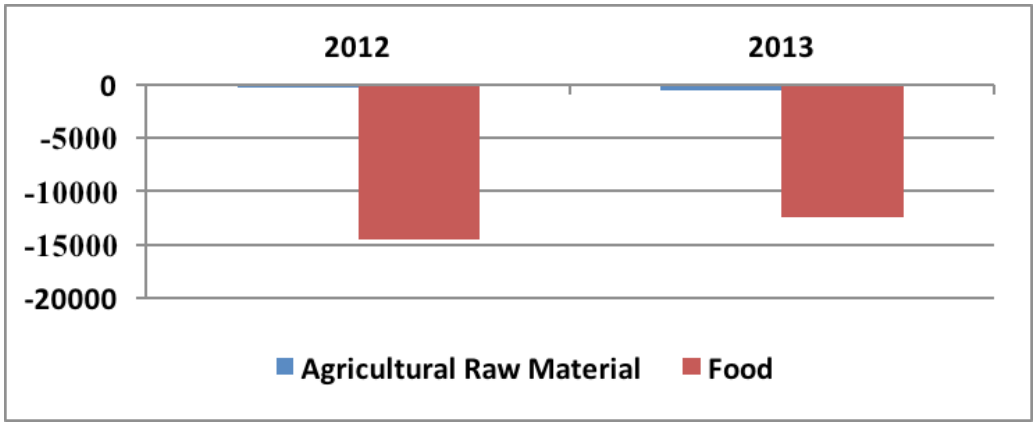
Source: By Author from COMSTAT Data

Trend analysis reveals that COMESA exports to the ROW grew from US$ 5 Billion to US$ 17 Billion between 1997 and 2013, which is a 240 percent increase. During the same period, COMESA imports from ROW remained higher than exports and grew faster from US$ 5.5 Billion to about US$ 28 Billion, a 409 percent increase. Intra-COMESA exports remained below exports and imports from the ROW. However, the growth in Intra-COMESA exports has been impressive rising from US$ 0.6 Billion in 1997 to US$ 2.6 Billion in 2013, a 333 percent increase.

The COMESA region, like the rest of Sub-Saharan Africa tends to trade more with the ROW. According to UNCTAD (2014), Sub-Saharan African countries faced the most liberal market access conditions with a MA-TTRI of about 1 per cent in 2013. This is largely due to unilateral preferences with developed countries especially in Europe and USA. It further noted that Sub-Saharan Africa market access is relatively more favourable for inter-regional than intra-regional exports. This is partly due to preferences granted to least developed countries (LDCs), but also owing to tariff barriers imposed by Sub-Saharan African countries on trade amongst each other. The report further highlights that Tariff Policy space is greater for Sub-Saharan African countries and lower income countries in general because of larger water in the tariff. In this regard, boosting intra-regional trade will involve removal of tariff and non-tariff barriers (NTBs) that hinder trade. For the COMESA region, removal of NTBs remains very critical for increasing trade in agricultural commodities.

A two year (2012 and 2013) snap shot of trade balance in aggregated agricultural commodities show that the region's import bill is mainly composed of processed food rather than agricultural raw materials as shown in Figure 2.

Figure 1: Trade Balance in Agricultural Commodities (US$ Million



Source: By Author from COMSTAT Data

This trade deficit in processed food commodities is likely to rise further, given the bulging middle class and increasing demand for sophisticated food commodities, unless the region invests in agro-processing. These observations clearly support value addition through regional industrialization and trade facilitation.

However, to guide agro-processing, countries need to target commodities where they have RCA especially in the primary raw materials. Using the product space, Hausmann and Klinger (2007) argue that countries change their export mix by switching to products that are nearby, in the sense that these other products use similar capabilities to those used by the products in which they excel (those products in which they have revealed comparative advantage).

Comparative advantage is applied to explain the propensity for countries to export commodities which they produce relatively more efficiently compared to trading partners in a reference trading bloc. This implies that countries will have a tendency to export those commodities that they produce at the lowest cost. If this idea is pursued, it can be useful because it can encourage countries to specialize in commodities that they produce more efficiently and through trade, this will result in a more efficient use of scarce resources.

Value addition, product diversification and trade have a significant role to play in national and regional development. Studies have shown that countries with diversified production base, and which are export-oriented have relatively higher income per capita (Imbs and Wacziarg, 2003; Carrere, Strauss -Kahn, and Cadot, 2007). Further studies suggest that countries that produce and export value added products have stronger economies than their counterparts (Hausmann, Hwang, and Rodrik, 2007; UNIDO, 2009, De Ferranti et. al., 2000).

Agriculture is a key sector to target for industrialization through the establishment of agro-food industries. COMESA industrialization policy places emphasis on agro-processing as a key pillar for industrialization. The

process of industrialization enhances product diversification.

The aim of the paper is twofold: to determine the level of agro-processing in the region and to identify commodities that countries could focus on in setting up agro-food industries. To address these issues, the RCA is computed for selected agricultural commodities which are divided into raw/semi processed and highly processed food stuff.

Modelling Approach

The RCA is a widely used measure of industrial competitive performance, (Galleto, 2003; Winkelman et. al., 1995, Utkulu et.al., 2004). The RCA was first introduced by Balassa in 1965 to identify the relative trade performances in countries.

Balassa (1965) defines the RCA of a product as the ratio of the share of that product in world trade. It measures a nation's exports of a product or service relative to its overall exports and to the corresponding export performance of a set of countries (Ferto and Hubbard, 2002). The Balassa index measures normalized export shares, with respect to the exports of the same industry in a group of reference countries.

The index has undergone many transformations and variations (see Memedovic, 1994 and Vollrath, 1991).

The standard Balassa index is expressed as follows:

$$RCA_k^i = \frac{X_k^i / X^i}{X_k / X} \quad \text{.....(1)}$$

Where:

X_k^i refers to exports of country i for commodity k;

X^i refers to total country i exports;

X_k refers to total exports of commodity k;

X refers to total exports.

If RCA > 1, a country has a revealed comparative advantage in commodity k. If RCA<1, the country has revealed comparative disadvantage in commodity k.

This study uses the RCA index shown in equation 1.. This version is preferred because it has less data requirements hence easy to use.

The main flaw of the Balassa index (equation 1) is that it is asymmetric, meaning it has no upper bound for products with revealed comparative advantage but has a lower bound of 0 for those with comparative disadvantage. The solution is to normalize the index, as proposed by Laursen (2000). The normalized index can be expressed as follows:

$$NRCA_k^i = \frac{RCA_k^i - 1}{RCA_k^i + 1} \quad \text{.....(2)}$$

Where:

$0 < NRCA_k^i < 1$ means country i has revealed comparative advantage in exporting product (or group of products) k to the world (or group of countries of reference).

$-1 > NRCA_k^i > 0$ means country i has revealed comparative disadvantage in exporting product (or group of products) k to the world (or group of countries of reference).

Data Source:

The data used for this analysis is obtained from COMSTAT.[1] These statistics are mainly derived from Member Country *EUROTRACE* databases. Statistics on International Trade in Services are derived from the balance of payments current account data from Central Banks of Member Countries. The time span for the analysis is 2005 to 2013.

Results

The products selected and their RCAs are reported in Tables 1 and 2:

Table 1: RCA, Selected Raw or Semi-Processed Agricultural Commodities

Commodity	Countries' RCA		
	Weak	Intermediate	Strong
0102 Live animals	Eritrea: Mauritius	Djibouti	Ethiopia: Rwanda: Sudan
4101 Raw hides and skins of bovine or equine animals, fresh or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared, whether or not dehaired or split	Ethiopia, Madagascar	DRC	Burundi, Kenya, Libya, Rwanda, Sudan
0302 Fish, fresh or chilled (excl. fish fillets and other fish meat of heading 0304)	Burundi: Comoros: Djibouti: Sudan: Zambia	Eritrea: Libya: Mauritius: Rwanda	Ethiopia: Madagascar: Seychelles: Uganda:
0401 Milk and cream, not concentrated nor containing added sugar or other sweetening matter	Kenya: Libya: Malawi: Zambia	Zimbabwe	Egypt: Uganda
071410 Manioc (cassava)	Burundi: DRC : Ethiopia: Madagascar: Malawi: Zimbabwe	Rwanda	Uganda

1 http://comstat.comesa.int/DataAnalysis.aspx

090111 Coffee (excl. roasted and decaffeinated)		Comoros	Burundi, Ethiopia, Kenya, Rwanda and Uganda
100199 Wheat and meslin (excl. seed for sowing, and durum wheat)	Burundi: Djibouti: DRC: Malawi: Rwanda	Ethiopia: Uganda	Kenya
100590 Maize (corn)	Burundi		Malawi: Uganda: Zambia
100610 Rice in the husk, "paddy" or rough	Ethiopia: Libya: Malawi: Rwanda: Uganda		Egypt
100790 Grain sorghum	Djibouti: DRC: Malawi: Rwanda: Uganda: Zambia	Ethiopia: Kenya: Sudan	
1701 Cane or beet sugar and chemically pure sucrose, in solid form	Madagascar	Burundi, Uganda	Kenya, Swaziland, Malawi
070190 Potatoes, fresh or chilled.	Madagascar: Malawi: Zimbabwe		Ethiopia: Rwanda
0805 Citrus fruit, fresh or dried.	Swaziland		Egypt: Ethiopia: Kenya: Zimbabwe

Table 2: RCA, Selected Processed Agricultural Commodities

Commodity	Countries' RCA		
	Weak	Intermediate	Strong
0201: Meat and edible meat offal	Libya: Madagascar: Mauritius: Rwanda: Uganda: Zambia	Zimbabwe	Ethiopia: Kenya: Sudan
0304 Fish fillets and other fish meat, whether or not minced, fresh, chilled or frozen		Madagascar	Kenya,
0406: Cheese and curd	Burundi: Djibouti: Mauritius		Egypt
0403: Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or flavoured or containing added sugar or other sweetening matter, fruits, nuts or cocoa	Mauritius		
110429 Grains of cereals, hulled, pearled, sliced, kibbled or otherwise worked (excl. rolled, flaked, flour, pellets, and oats and maize, and husked and semi- or wholly milled rice and broken rice)			Egypt, Ethiopia

110510 Flour, meal and powder of potatoes			
110811 Wheat starch			Egypt, Kenya
110812 Maize starch		Egypt,	
110813 Potato starch		Egypt,	
120034 Cassava Starch	Kenya		
170211 Lactose in solid form and lactose syrup, not containing added flavouring or colouring matter, containing by weight >= 99 percent lactose, expressed as anhydrous lactose, calculated on the dry matter		Kenya	
170230 Glucose in solid form and glucose syrup, not containing added flavouring or colouring matter and not containing fructose or containing in the dry state, < 20 percent by weight of fructose			Kenya
170260 Fructose in solid form and fructose syrup, not containing added flavouring or colouring matter and containing in the dry state > 50 percent by weight of fructose (excl. chemically pure fructose and invert sugar)	Kenya		
170290 Sugars in solid form, incl. invert sugar and chemically pure maltose, and sugar and sugar syrup blends containing in the dry state 50 percent by weight of fructose, not flavoured or coloured, artificial honey, whether or not mixed with natural honey and caramel			Kenya
1905 Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products	Madagascar	Ethiopia, Uganda	Kenya, Mauritius
090121 Roasted, decaffeinated coffee			Ethiopia, Kenya
1902 Pasta, whether or not cooked or stuffed with meat or other substances or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared	Djibouti		Egypt, Kenya, Mauritius, Zimbabwe
1904 Prepared foods obtained by the swelling or roasting of cereals or cereal products, e.g. corn flakes; cereals, other than maize "corn", in grain form, pre-cooked or otherwise prepared			Egypt, Kenya
2009 Fruit juices, incl. grape must, and vegetable juices, unfermented, not containing added spirit, whether or not containing added sugar or other sweetening matter	Djibouti, Uganda		Egypt, Kenya
4101 Raw hides and skins of bovine or equine animals, fresh or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared, whether or not dehaired or split	Ethiopia, Madagascar	DRC	Burundi, Kenya, Libya, Rwanda, Sudan
42 Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	Burundi, Kenya		Mauritius, Uganda, Zimbabwe

Source: Author's calculation form COMSTAT DATA

The computed RCA is classified in three categories: weak, intermediate and strong where, weak includes products showing RCA for 1-2 years intermediate for 3-5 years and strong for more than 5 years.

Discussion of Results

Results show that Ethiopia, Rwanda and Sudan have a scope to develop meat value chains since they show strong RCA in live animals, the precursor commodity to meat and edible offals. Ethiopia, Kenya and Sudan show evidence of adding extra value to their livestock sector since they have strong RCA in meat and edible offal. Kenya does not have RCA in live animals, which could be an indication that its livestock industry is well developed, with most of their livestock products traded after some value addition.

Kenya, Libya, Rwanda and Sudan have a strong RCA in raw hides and skins. Burundi and Libya have a weak RCA in meat and edible offals. This could be an indication that most of the meat and edible offals in these two countries are consumed internally. This means that Burundi, Kenya, Libya, Sudan and Rwanda have potential to develop leather based industries, which at the moment are showing evidence of being less developed despite the abundance of raw materials.

Mauritius and Uganda are the only countries with a strong RCA in leather products, whose precursor is hides and skins. Ethiopia, Madagascar, Seychelles and Uganda have a strong RCA in fresh or chilled fish. However, only Kenya is showing signs of adding value to their fish industries, with a corresponding strong RCA in sophisticated fish products like fish fillet.

Egypt and Uganda have a strong RCA in milk and cream, and neither country showing strong RCA in milk products like Buttermilk, curdled milk, cream, yogurt, cheese and curds. This could mean much of the milk in Egypt is exported in processed form, an indication of strong industrialization and agro-processing in this sector. However, there is scope for further diversification of the dairy sector in Egypt given that the country does not have RCA in other sophisticated milk products like butter and yogurt. Further, neither country shows strong RCA in sophisticated milk products like lactose, an indication that there is still a large scope for value addition and product diversification in the COMESA milk sector.

Burundi, Ethiopia, Kenya, Rwanda and Uganda show strong RCA in unprocessed coffee. However, Ethiopia and Kenya have a strong RCA in processed decaffeinated roasted coffee. This means there is scope for countries like Burundi, Rwanda and Uganda to develop their coffee value chains since they show strong RCA in the raw precursor commodity.

Few countries show evidence of RCA in highly processed food products like wheat starch, maize starch, potatoes starch and cassava starch with the exception of Kenya. Further, only Kenya and Madagascar show strong RCA in wheat products like bread, pastry and biscuits. This is despite the fact that several countries show strong RCA in many starch precursor commodities like potatoes, maize, wheat, cassava and rice. With respect to cereals, only Egypt and Kenya show strong RCA in prepared food cereal products despite many countries showing strong RCA in the precursor commodities.

Egypt, Kenya and Mauritius show strong RCA in pasta and pasta related commodities with only Kenya having a strong RCA in the precursor commodity, which is wheat. This could be an indication that Egypt and Mauritius have well developed wheat value chains and hardly export wheat and meslin in raw form.

Kenya, Malawi and Swaziland show strong evidence of RCA in cane sugar with no corresponding RCA in sophisticated sugar products like glucose, fructose and syrups. Egypt, Ethiopia, Kenya and Zimbabwe show strong RCA in citrus fruits with only Egypt and Kenya showing strong RCA in value added fruit juices.

In summary, this analysis suggests that most of COMESA member states export raw unprocessed agricultural commodities. Further, even though some countries show evidence of adding value to their raw agricultural commodities, there is still scope for product diversification. This means that there is still a huge potential for investment in agro-processing if the region is to increase intra-regional trade in sophisticated food commodities and reduce their imports from the ROW.

Conclusion and Policy Issues

This analysis has shown that there is a big potential for the COMESA region to develop agro-processing industries. Agro-processing has a higher multiplier effect on incomes. It creates employment along the food chain. Establishing agro-industries should be guided by the countries' abilities to produce the precursor raw material, as discussed in this paper. Agro-processing should also be accompanied by Good Agricultural Practices (GAP) in Hazard Analysis Critical Control Point (HACCP) production systems. These systems should articulate issues of labeling, certification and traceability in order to enhance trade and regional integration.

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3

COMPARATIVE ASSESSMENT OF THE COMPETITIVENESS OF SUGAR PRODUCTION IN THE COMESA REGION

By

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Abstract

The objective of this paper was to undertake a comparative assessment of the competitiveness of sugar production in the COMESA region so as to situate the Kenya sugar industry within the broader industry in COMESA. This entailed field visits to Kenya, Zambia, Swaziland, Malawi and Egypt. The aim was to compare production methods, land tenure systems, adoption of energy policies aimed at promoting co-generation and other forms of bio-fuel energy production (that could contribute to making the sugar sector more competitive), any government form of support to farmers, and the import and export procedures. In the field visits, data on the cane production techniques, land tenure, yield per hectare, cane maturity period, cane breeds, sucrose content, and pricing methods, among others was collected using standard data collection instruments. Key findings show that in all the countries visited except Kenya, cane matures in one year under irrigation with resultant high yields and profit margins. The sugar sector in Zambia, Malawi, and Swaziland was found to be largely private sector owned. In Egypt 55% of all sugar is made using sugar beet which is a six month winter crop allowing farmers to make additional income from growing summer crops such as wheat. Research and development structures are well established in the region. In Kenya and Egypt, inadequate linkages between research, extension, millers and farmers are a contributor to low adoption of technologies. The key policy issues arising from the findings are: Kenya should strategize and put in place measures to reduce the cost of cane production by increasing farm level productivity from the current 3 tonnes of cane per hectare per month (TCHM) to at least 8 tchm and from 3-ratoons to a minimum of 8-ratoons per crop cycle. The government of Kenya should simplify the sugar importation and licensing procedures. The Kenya sugar sector should also be given a further protection period to allow the new entrants to stabilize and equally compete with other sugar producers in the region.

Introduction

Globally, sugar is treated as one of the sensitive products in many countries and its trade is therefore restricted.

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Some 160 million tonnes of sugar is produced each year in millions of smallholder farms and plantations in 123 countries. About 70 per cent of production is consumed in the domestic markets and the rest traded in the international market.

In 2011, world trade in raw sugar was worth US$ 47billion, up from US$ 10.2 billion in 2000. Developing countries alone accounted for US$ 33.5 billion worth of exports.

About 80 per cent of the world's sugar is derived from sugarcane which is grown by millions of small-scale farmers and plantation workers in developing countries. According to USDA FAS, (2012) the following facts about sugar can be deduced: Sugar is one of the most valuable agricultural commodities; the sugar industry supports the livelihoods of millions of people – not only smallholders and estate workers but also those working within the wider industry and family dependents; world consumption of sugar has grown at an average annual rate of 2.7% over the past 50 years driven by rising incomes and populations in developing countries.

Governments are historically major shareholders in various sugar milling companies across the region although there is a progressive move towards privatizing these firms. Among COMESA countries, sugar is a major agricultural product. It is produced in 11 of the 19 COMESA Member States, namely Egypt, Sudan, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Swaziland, Uganda, Zambia and Zimbabwe.

Production capacities, operational efficiencies and farming methods vary from country to country. Egypt is the only country in the region that produce both cane and beet sugar. The rest produce cane sugar. Total cane sugar production has increased over the last decade from 5,500,000 metric tonnes in 2002 to 6,435,000 metric tonnes in 2012. .

Major sugar producers in the region with capacities in excess of 300,000 metric tonnes annually include: Egypt, Sudan, Swaziland, Kenya, Mauritius, Zambia, Zimbabwe and Malawi. Each of these countries produces sugarcane through irrigation except Kenya, where rain-fed cane production is dominant.

Sugar production generates other economic activities including co-generation of electricity from bagasse, production of ethanol from sugar molasses, and production of potash as a form of fertilizer from the ash derived from burning bagasse. The extent to which these other economic activities are exploited differs across the countries in the region. Sugar production is also a major employer in the region. Sugar cane estates and associated mills employ many workers directly and indirectly and are major contributors to the national economies, as well as the COMESA region in general.

Kenya is among the major sugar producers in the region but at the commencement of the FTA, it was not able to compete with other COMESA countries due to production inefficiency. To protect its market, Kenya was granted a sugar safeguard from 2002. At the 32nd meeting of COMESA Council of Ministers in Kinshasa, DR Congo in February 2014, the safeguard was extended by one year. The Council directed for a comparative assessment of the competitiveness of sugar production in the COMESA region to be undertaken with a special focus on Keny

Safeguards for the Kenya Sugar Sector

The Government of Kenya (GoK) applied for protection of the sector by way of a safeguard under Article 61 of the COMESA Treaty. This was to ensure that sugar imports to Kenya from COMESA Member States were subjected to

a tariff rate quota. The safeguard was implemented in March 2002 for an initial period of twelve (12) months and subsequently renewed by the Council of Ministers as follows:-

a) First extension of 12 months – March 2003 to February 2004;

b) Second extension of 4 years – 1 March 2004 to 28 February 2008;

c) Third extension of 4 years – 1 March 2008 to 28 February 2012;

d) Fourth extension of 2 years – March 2012 to February 2014; and

e) Fifth extension of 1 year – March 2014 to February 2015.

The safeguard was expected to ensure that the sugar sector in Kenya contributes to overall competitiveness of COMESA. This would enable Kenya citizens to enjoy a higher standard of living, directly or indirectly, in the short, medium or long term from the application of the terms and conditions of the safeguard measure.

The COMESA Directive No. 1 of 2007

The COMESA Council of Ministers Directive No. 1 of 2007 set the following terms and conditions of the safeguard extension which Kenya was required to adhere to:

1. The safeguard should continue as a Tariff Rate Quota (TRQ);
2. Sugar types (domestic and industrial) under HS Heading 1701 should be amalgamated into a single figure for the quota;
3. The size of the quota should be increased while the tariff rate applied on above quota imports of COMESA sugar should be lowered in each successive year as shown in Table 1;
4. A framework for administering and monitoring the implementation of the safeguard and for liaison with the COMESA Policy organs should be established;
5. Government should scale up divestiture efforts away from publicly owned sugar mills;
6. Government should adopt an energy policy aimed at promoting co-generation and other forms of bio-fuel energy production that will contribute to making the sugar sector more competitive;
7. Kenya Sugar Research Foundation (KESREF) and other stake holders should continue with research and development on high sucrose and early maturing cane varieties and Kenya Sugar Board (KSB) should assure adequate funds for such research;
8. The sugar industry should adopt a cane pricing formula based on sucrose content of cane delivered rather than one based on the weight of the cane delivered;
9. Government and other stakeholders should improve the road infrastructure network and related infrastructure in the cane producing areas; and

10. Submit periodic performance reports to council through the Secretary General on all measures, activities and improvements on the sugar sector competitiveness at least twice in each year.

Table 1: Quota Size and above Quota Tariff

Year	Size of Quota (Metric Tons)	Tariff Rate above quota imports in %
2008/09	220,000	100
2009/10	260,000	70
2010/11	300,000	40
2011/12	340,000	10
1st March 2012	No quota	0

Methodology

Data was collected through field visits to Kenya, Malawi, Zambia, Egypt and Swaziland. In addition, the study relied on published material on the sugar sector in the region and beyond. The data was subjected to comparative and content analysis on value chain and market structure, the sugar farming techniques and production, sugar policy environment, sugar trade developments, pricing among others.

COMESA Sugar Comparative Analysis

a) Sugar value chain and market structure

Sugarcane production is the first stage in the cane sugar value chain and has strong bearing on the viability of all subsequent operations. Figure 1 shows that at the upstream level, there are two types of growers - the nucleus (or miller-cum-planter) estates and the out-growers. The ratio of out-growers to nucleus farming is an important factor which influences the entire value chain for sugar production. For instance, in a market where there is a high proportion of out-growers, there may be greater risks for the millers in terms of ensuring a steady supply of sugarcane, especially where there are many small holder farmers. This is because out-growers are not coordinated and therefore make independent decisions about where to deliver their cane, what farming practices to follow, and whether to invest further in their farms.

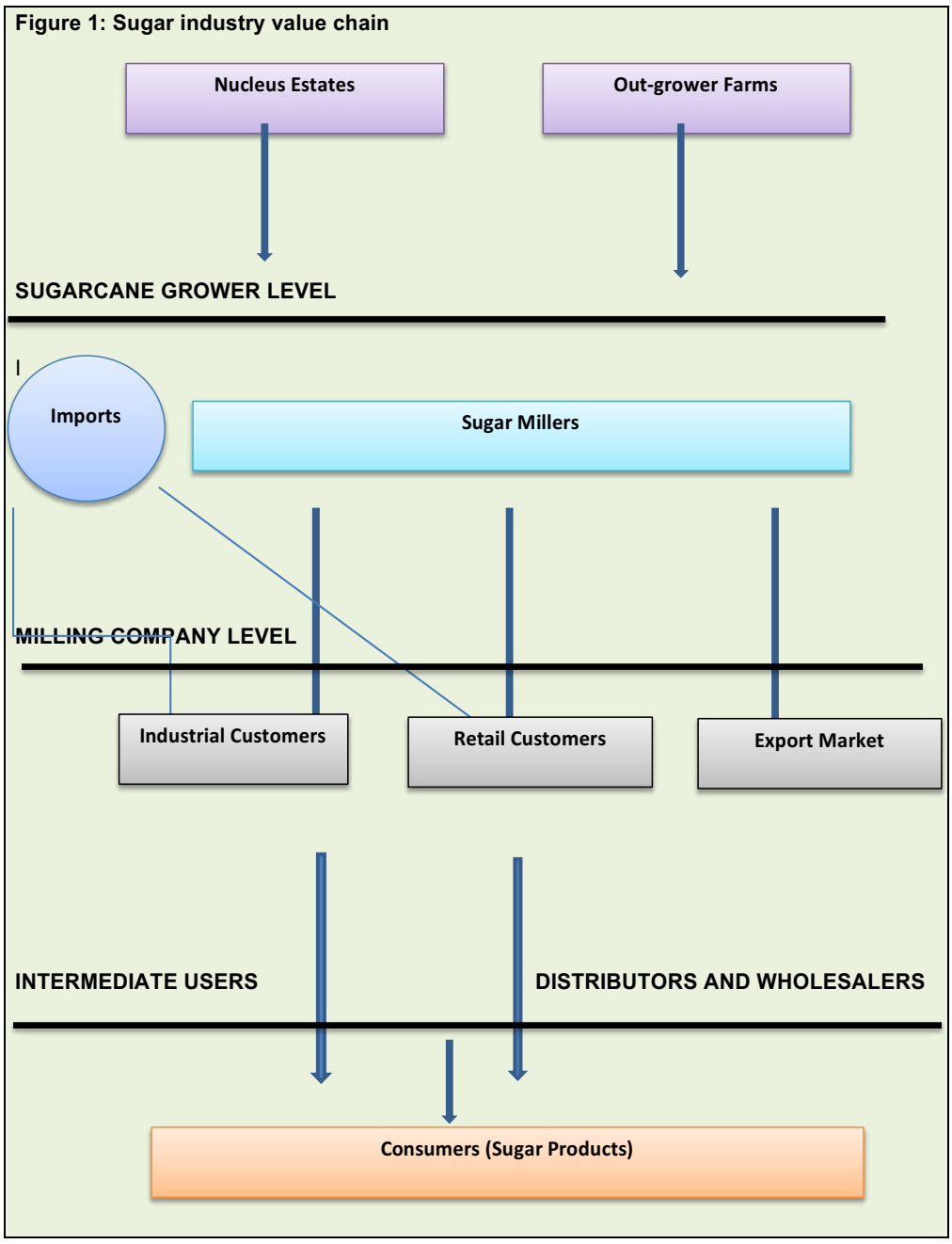
When millers farm on their own estates, they are able to control and secure the supply of sugarcane to their mills, which is an important competitive advantage. Productivity differences between millers and out-growers can be attributed to differences in the level of adoption of improved farming practices.

Generally, brown and white sugars are used by both household consumers (direct consumption) and manufacturers such as those in the baking, confectionary, beverage and food processing industries (industrial consumption).

Sugarcane is a low value, high volume, and bulky crop. High quality cane has good juice content with high sugar levels. The efficiency with which juice can be extracted from the cane is limited by the quality of cane delivered and the technology used. The yield of harvested cane can also be improved by ensuring that the cane is crushed as soon as possible after it has been cut, failing which the sugar begins to 'invert' into different sugars that will not set solid. This means that there is need to ensure that the systems for the delivery of cane to a particular mill are effective both in terms of time and distance. This, coupled with the fact that the millers are the only potential buyers of that cane, and that they also rely on large volumes of sugarcane for their operations, generally results in a market structure where there is direct coordination between growers and millers on mutually beneficial terms.

Figure 1 illustrates the basic structure of the sugar value chain, although there may be some differences across the focus countries.

Figure 1: Sugar industry value chain



b) **Market Structure: vertical agreements between growers and millers**

Cane supply agreements between growers and millers in Kenya are governed by the Agriculture Fisheries and

Food Authority (Sugar general) regulations. These agreements are typically negotiated between individual millers and growers. While in Zambia, only Zambia Sugar Plc has an established vertical relationships governed by exclusive contractual arrangements with growers in its supply chain, although cane is mostly supplied through nucleus estates. The sugarcane price is based largely on Estimated Recoverable Crystals (ERC) (or recoverable value) of cane delivered by a grower for crushing (a measure of cane quality), and shared proceeds from the sale of sugar.

Generally, growers enter into supply agreements with millers for the certainty that their cane will be processed, but in some instances the miller would offer some form of financial, technical or developmental assistance to the grower in exchange for cane supply. These agreements can range from having duration of one season to 50 years, with effective exclusivity. The expectation is that these cane supply agreements would be most prevalent in the countries where cane is mostly supplied by out-growers.

High transport costs negatively influence the competitiveness of sugar production. Transport costs account for approximately 29 percent in Zambia. In Kenya, cane transport is majorly done by the millers and charged on cane proceeds with a few growers transporting cane privately. Generally, the most significant components of growers' costs are fertilizers, transportation and labour costs.

Vertical cane supply arrangements and transportation costs affect the regional market in that inefficiencies at the grower level of the market reduce the supply of cane to local millers. In Kenya, challenges experienced at this level reduce the ability of millers to operate at optimal levels meaning that the domestic sugar market is undersupplied by local millers. The causes of these difficulties include poor payment of farmers (for instance, new mills tend to pay weekly while older mills pay monthly and sometimes delay payment) and low absorption of new farming technologies.

Whether the cane is transported to the mill by the grower, or if the miller makes arrangements (directly or via haulage companies) to collect the cane from the farm, lack of coordination and independent decision-making by growers can result in erratic cane supply for the miller.

c) Sugar production and consumption

COMESA is the leading sugar producing region in Africa accounting on average for 60 percent for the sugar produced in the continent for the period 2006-2012. COMESA produced 6,478,615 tonnes of sugar in 2012 reflecting 4 percent increase in comparison to the sugar produced in 2011.[5]

On average COMESA Member States produce 6,000,000 tonnes of sugar every year. Much of the sugar is made from cane which accounted for 83 percent of the total production in 2012. Sugar from beets accounted for 17 percent of the total production.

The leading sugar producers in the region in 2012 were: Egypt (33 percent,) Sudan (11 percent), Swaziland (10 percent), Kenya (8 percent), Zimbabwe (8 percent) Zambia (7 percent), Mauritius (7 percent) Uganda and Malawi (5 percent) while Madagascar, Congo DRC and Burundi each accounted for 1 percent or less.

5 Source: 2013 ISO Year Book

Out of the 11 sugar producing member states, only five are net exporters, that is, Malawi, Swaziland, Mauritius, Zambia and Zimbabwe, which jointly accounted for 37 percent (2.4 million tonnes) of the total COMESA sugar production in 2012. This shows that despite the countries being net producers of sugar, their total contribution to the sugar sector in COMESA was quite low. The combined production was almost the same as the total production by Egypt.

The total sugar consumption in COMESA varied from 6 - 8 million tonnes between 2006 and 2012. The region therefore registered a sugar deficit of 1.5 million tonnes in 2012. Egypt and Sudan consumed 40 and 20 percent respectively of this total while Kenya, Ethiopia and Zimbabwe consumed 11 percent, 6 percent and 5 percent respectively. The remaining 18 percent was consumed by the other Member States.[6]

The share of COMESA in the global total sugar consumption was 4 percent. COMESA is therefore not a heavy consumer of sugar as confirmed by the relatively low level per capita sugar consumption. In the period 2006-2012, per capita consumption of sugar in the region ranged from 18.41- 20.41 which was below the world average ranging 23.4 -24.7. Most of the COMESA Member States use sugar mainly for non-industrial purposes. This is attributed to the low level of industrial development in the region since countries with more industrial activity tend to use more sugar.[7]

COMESA is a net importer of sugar. In 2012, the intra-COMESA sugar export was US$ 237 million, while the extra-COMESA export was US$ 892 million. This shows that 68 percent of the total exports and 89 percent of the total imports is with third parties.

Sugar Farming Techniques and Production in COMESA

a) **Farming techniques and traditional practices among Kenyan sugar cane growers**

Commercial sugarcane production in Kenya began in 1922 with the establishment of Miwani Sugar Mill, followed by Ramisi Sugar Mill in 1927. The post-independence period saw increased involvement of the government in the sugar industry. The government's strategy was to develop the sugar industry to make the country self-sufficient in sugarcane production to meet both domestic and export needs. This was guided by the first Swynnerton Plan of 1954 (Adholla, 1984) and the Sessional Paper No. 10 of 1965.

The post-colonial period saw the establishment of Muhoroni Sugar Company (1966) and Chemelil Sugar Company (1968). This marked the beginning of direct participation of the State in the sugar industry in the form of ownership. Consequently, there was an increase in the area under cane especially in the period between 1966 and 1977. In 1973 the State established Mumias Sugar Company followed by Nzoia Sugar Company (1978) and South Nyanza Sugar Company (1979). This introduced contract cane farming. Henceforth, millers signed contracts directly with growers or through their Out-grower institutions to supply to specific millers. The establishment of West Kenya Sugar Mill in 1990 encouraged its growers to grow cane privately and applied cane harvesting permits at maturity to supply cane to the mill.

The regulatory framework and enabling environment during the COMESA safeguard period promoted

6 ISO 2013 Year Book

7 ISO 2013 Year Book

investment in sugarcane production with private investors establishing new sugar mills; Soin (2001), Kibos (2009), Butali (2011), Transmara (2011), Sukari (2011) and Kwale International Sugar Mills. This has resulted to an increase of 63 percent of the area under cane.

b) **Operational parameters prevailing among sugar producers**

A detailed analysis of the operational parameters is provided in Table 2.

Table 2: Operational parameters prevailing among sugar producers

Year	2004	2013	% Change	Remarks
No of operating mills	6	11	83	% increase in the no of mills is not matched by the increase in sugar production due to deteriorating performance of Mumias and Chemelil Sugar Companies, and to a smaller extent Nzoia and SONY sugar Companies. - No growth was noted for government controlled mills - Mumias Sugar Company is treated as a government controlled mill - Drop in production by the above mills has been compensated by the private millers viz West Kenya, Butali, Kibos, Sukari, and Transmara -The coming of KISCOL will further reduce the prominence of government mills - Area under cane has increased while cane crushed has reduced indicating declining productivity at farm level - Inconsistencies in the global indicators suggest a need to do individual analysis of performance at each mill
No. of private millers	2	7	250	
No. of Public Mills	4	4	0	
Sugar Produced	516,803	600,179	16	
Sugar produced by private mills	285,647 (55%)	421,075 (70%)	135,428 (47%)	
Sugar produced by public mills	231,156	179,104	(52,502) (23%)	
TC:TS ratio	9.37	11.31	(21)	
Area under cane	131,507	213, 920	63	
Cane yields (tc/ha)	74	55	(26)	
Cane crushed	4,805,887	6,810,338	42	

c) **Comparative analysis of farming techniques**

Table 3 shows that sugarcane production in Kenya is quite different from the other sampled countries in the region. Land is owned by individuals. Despite the existence of co-operatives and out-growers' associations, cane is grown by individual farmers on small land acreage, supplying 90 percent of the mill requirements.

In other selected countries, small holder cane production is done as a block under associations/ co-operatives/ groups to take advantage of economies of scale. The bulk of the cane supply is sourced from the millers' own estates. In Swaziland, growers only get involved in cane production after approval by the Quota Board.

Table 3: Comparative analysis of farming techniques

Component	Kenya	Zambia	Malawi	Swaziland
Land tenure system	**Individual private property**	**Commercial State-land with leasehold**	**Community**	**Community**
Percent Cane production/ supply	Estates - 10 Growers - 90	Estates - 70 Growers - 30	Estates - 85 Growers - 15	Estates - 60 Growers - 40
Average land size (ha) for small holder cane grower	0.6 mainly individual farmers	6 organized as large blocks in schemes	2 worked on as blocks	50 (Land managed as a block)
Model for cane production among small holders	-Individual growers grow cane privately and apply for cane supply contracts -Millers contract growers for cane development and supply - Small holder farmers develop cane through co-operative societies and supply to the mills	-Farmers organized into schemes. - Cane development and management done by experts within schemes - Cane harvesting and supply as a block organized within schemes - No direct link between individual farmers and millers	-Farmers organized into co-operatives and farmer groups. - Individual group members do weed management and fertilizer application in blocks - In co-operative, farm operations are managed by experts and members are involved as paid laborers/employees	Sugarcane Growers Association (SGA) is the umbrella body of smaller grower associations that manage cane development and supply on behalf of individual growers - Associations develops cane as per approved quota by the Quota Board
Cane production systems	Rain fed - 98% Irrigated - 2%	Irrigated	Irrigated	Irrigated
Nutrition requirements	Standard fertilizer regime	Soil subjected to soil analysis for nutrient availability.	Soil subjected to soil analysis for nutrient availability.	Soil subjected to soil analysis for nutrient availability.
Cane seed material supply	Sugar Research, Miller, Farmers	SASRI through Miller	SASRI through Miller	Supplied by the Swaziland Sugar Association (SSA)
Av. cane yields (Tcha)	Estates – 56 Growers - 58	Estates - 111 Growers - 120	Estates - 115 Growers - 100	Estates -102- Growers - 103
Cane Productivity (tchm)	2.8 – 5 (Western) 8 (Coastal region)	10	8. – 9.6	8.5
Harvesting age (Months)	18 – 24 in Western region and 12 -14 in coastal region	10 -12	9 -12	9 – 12

Harvesting method	Manual	Manual	Manual	Manual/ Mechanical
Average Ratoon crop	2 – 3	8 -10	8 – 10	8 -10
Cane payment	Weight based as per cane pricing formula. (In the process of shifting to sucrose based payment)	Sucrose based specific to schemes	Sucrose based to co-operatives or Farmer groups	Sucrose based to Associations. – Grower members are paid equally at harvest irrespective of land sizes
Research and Development	Sugar Research institute mandated to carry out research on sugarcane and sugar production	Benefit from Illovo Group resources which provide technical expertise in agriculture and sugar production to keep abreast with technical innovations	Benefit from Illovo Group resources which provide technical expertise in agriculture and sugar production to keep abreast with technical innovations	Benefit from Illovo Group resources which provide technical expertise in agriculture and sugar production to keep abreast with technical innovations

Favourable climatic and soil conditions, supported by good irrigation practices have significantly enhanced cane production with high sucrose content in Zambia, Malawi and Swaziland. In these countries, the cane matures within 12 months unlike in Kenya where the period varies from 18 to 24 months in the high altitude zones of Western Kenya. The revival of cane farming in the coastal region of Kenya will enhance the competitiveness of sugar production with cane maturing in 10 – 14 months under irrigation.

Kenya Sugar Industry

a) **Sugar Policy Environment in Kenya**

Out-growers supply approximately 92 percent of the sugarcane processed by Kenya sugar factories (KSB, 2013), while the remainder is supplied by factory-owned nucleus estates. Sugarcane out-growers in Kenya mainly consist of smallholder farmers (more than 250,000), who have low technical capacity, limited capital and who produce sugarcane under rain-fed conditions.

Ratoon cropping, a farming method which leaves the lower part of the plant uncut during harvesting so that it can re-grow the following season, has proven to be cost efficient for many sugarcane producers. This system allows farmers to harvest their crop several times before replanting, though the yield of the ratoon crop decreases after each cycle. Sugarcane farmers who maintain higher ratoon crops are able to obtain higher margins because they do not have to pay for land preparation and seed every growing season (KSB, 2012).

Harvesting and transportation represent the largest costs for sugarcane out-growers, accounting for 45 percent of total production costs (KSB, 2010). These two activities are often considered jointly due to the fact that sugarcane must be transported to processing facilities within hours of harvesting to forestall spoilage. Sugarcane harvesting is labour intensive, requiring an average of 71 Man-days (KSB, 2010). Additionally, it is a bulky crop, which makes it more expensive to transport (KSI, 2009). These costs are assumed by farmers, as they are deducted from the producer price paid at farm gate (KSB, 2010) except for cases of some private farmers who organize their own transport.

Transport-related costs include losses and costs occasioned by poor road infrastructure. The government undertook to improve the road network as part of the COMESA safeguard conditions through funding from the Sugar Development Fund, local authorities' access resources and the Kenya Rural Roads Authority.

Significant progress continues to be made, with the KSB embarking on bridge rehabilitation and maintenance and central government providing resources to the Kenya Rural Roads Authority. In spite of these efforts, sugar millers continue to commit resources, both financial and human, to infrastructure maintenance, which raises their operating costs.

Land fragmentation is a major challenge to out-growers. Land owned by individual out-growers continues to be subdivided into smaller parcels, decreasing the efficiency of farming activities (KSI, 2009). An umbrella organization of producers, known as the Kenya Sugar Cane Growers Association (KESGA), was established in 1982 to lobby the government for support and negotiate sector relations (GOK, 2007).

b) **Regulations and licensing procedures in Kenya**

The Agriculture Fisheries and Food Authority Act of 2013 governs the regulations on the licensing of importation and exportation of sugar in Kenya and it is amended from time to time. Importers and exporters of sugar and sugar by-products are required to register and apply for relevant licenses from the Sugar Directorate.

The Directorate issues pre-imports approvals to importers before issuing import licences for shipment of specific consignments. Import or export licences are issued to registered importers and exporters upon fulfilment of conditions set out by the regulations. The licences are issued only for the specific consignments imported or exported and to manufacturers entitled to import white refined sugar, which are not transferable.

The amount of refined sugar required by manufacturers and that intended for local consumption is determined annually by the Directorate taking into account the shortfall in the domestic production. The determination of the quantities to be imported or exported by the Directorate means that there is no free flow of sugar and makes the price of sugar in the domestic market higher than would be the case without these controls.

The administrative procedures of processing importation of sugar pose some bottlenecks that may hinder the fulfilment of the COMESA quota. All countries visited complained about the difficulties they encountered in trying to enter the Kenyan sugar market.

Comparison of Kenya's Sugar Industry with other Sugar Industries in COMESA

The cost of sugar production in Kenya is relatively higher compared to other COMESA countries due to its reliance on small holder farmers. This is due to greater variability in input use and field preparation, less timely and consistent crop care and higher harvesting and transport costs. Kenya's sugar production costs are at US$ 503.5 per metric tonne compared to Malawi US$ 216.5, Zambia US$ 231.6, Sudan US$ 297, Egypt US$ 276.9, and Swaziland US$ 276.9. The production costs in Kenya doubles those of the world's major sugar exporters; and its ex-factory prices are about 50 per cent higher than import prices from the COMESA Free Trade Area (FTA) exporters. Without major reforms in the sector, the industry cannot compete with other COMESA sugar producing countries.

The challenge that the Kenya sugar sector should address is the regional and international competitiveness and not amongst the national sector players. Tables 4A and 4B present summary information on selected operational parameters from different COMESA countries.

Table 4A: Overview of Regional Sugar Producers - Factories, Refineries and Activities, 2010 - 2012

Country	Kenya	Egypt	Malawi	Mozambique	Tanzania	South Africa	Sudan	Swaziland	Zambia
Estate/Irrigated or Rain-fed	Rain fed sugar cane estates	Irrigated sugar cane and beet sugar estates	Irrigated sugar cane estates	Irrigated sugar cane estates	Irrigated sugar cane estates	3 rain-fed sugar cane estates	Irrigated sugar cane estates	Irrigated sugar cane estates	Irrigated sugar cane estates
Sugar Factories and Refineries	11 sugar factories	8 sugar and 5 beet factories and several refineries	2 sugar factories and refineries	1 sugar factory	2 sugar factories	4 sugar factories, 1 including a refinery	2 sugar factories	1 sugar factory and refinery	1 sugar factory and refinery
Specialty Production	Specialty sugar production	Specialty sugar production	Specialty sugar production	---	---	Specialty sugar production	Specialty sugar production	---	Specialty sugar production
Co-generation	Electricity co-generation	Electricity co-generation	Electricity co-generation	Electricity co-generation	Electricity co-generation	Electricity co-generation	Electricity co-generation, 76 MW	Electricity co-generation; Electricity sales to national grid	Electricity co-generation, 40MW
Downstream Processing	Ethanol plant in Mumias Sugar company	Ethanol and feed stock production	---	---	Ethanol plant (12 mn litres) to be commissioned in 2012	3 down-stream plants, 50% share in Ethanol distillery	Ethanol plant (65 mn litres) commissioned in 2009; piloting sugar-based jet fuel; and feed stock production	---	Exploring plans for ethanol plant

Table 4B: Overview of Regional Sugar Producers - Selected Competitive Parameters Utilization - 2010/11 and 2011/12

Country	Kenya		Malawi		Mozambique		Tanzania		South Africa		Swaziland		Zambia	
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Yield, MT per Hectare	64	59	109	105	95	99	78	82	52	58	94	105	127	113
Cane crushed, '000MT	5,591	5,384	2,360	2,389			1,080	995					3,100	3,101
Sugar produced, '000MT	522	501	282	283	91	70	127	113	578	441	198	224	385	374
TC/TS	10.70	11.6	8.0	8.4			8.5	8.8					8.06	8.29
Cane Pol, %	11.33	11.16	14.41	14.06									15.06	14.88
Capacity Utilization, %	61.40	56.63	95	95	84	95	94	97	82	89	95	86	100	97

Sugar pricing and trade

In all the countries visited, the ex-factory prices for sugar were higher than the world prices. In the sugar industry the world price is not a good benchmark since it is depressed. Before 2006 world prices were viewed as artificially low due to distortions in the market such as domestic support in the EU (Nyberg, 2011). In the post 2006 period, the EU progressively phased out the subsidies such that the world prices have risen to competitive market levels.

The principal determinants of the ex-factory price of sugar are the cost of raw materials such as sugarcane, processing costs, agricultural overheads and margins. The ex-factory price can be administered or it can be set by the millers themselves. In the case of Zambia the price is set by the millers. In Kenya a cane pricing committee under the Sugar Directorate sets prices of cane and sugar in the domestic market.

Kenya is a less efficient producer with high levels of import protection for the domestic market. However, because of cane shortages and strong protection against cheaper imports, prices remain extremely high.

Zambia has increased domestic production since 2006 but domestic prices have also increased over the same period. Prices stabilized and declined for a short period between 2006 and 2009 before increasing rapidly between 2010 and 2012.

A comparison of the wholesale and retail prices shows that in 2011 and 2012, Kenya had the highest retail and wholesale price which was double the price in Swaziland. Table 5 shows that, it is only Zambia, which had prices close to Kenya prices.

Table 5: Wholesale and Retail Sugar Prices

Prices of white refined sugar in COMESA					
Representative Prices for Years 2011 and 2012 (US cents/lb)					
		Representative Prices			
		2011		2012	
Countries	Locality	Wholesale	Retail	Wholesale	Retail
Kenya	Whole country	62.61	69.05	55.32	65.39
Mauritius	Whole country	44.91	48.53	35.00	52.00
Sudan	Khartoum	47.17	48.08	54.00	55.00
Swaziland	Whole country	30.00	--	30.00	--
Uganda	Kampala	52.62	65.77	54.43	59.87
Zambia	Lusaka	61.24	65.77	--	--
Zimbabwe	Whole country	40.39	43.82	46.95	49.90

Impact of the Sugar Safeguard on Selected Kenya Stakeholders

The safeguard granted to Kenya was intended to shield the country's sugar sector from competition arising from lower cost producers. It was also expected that COMESA countries with export interest in the Kenya market would

not be disadvantaged by the protection provided under the safeguard.

Between 2002 and 2014, the fortunes of farmers and millers have improved significantly with prompt harvesting and payment for cane delivery. Investment in new mills has resulted to an increase in crushing capacity and innovative approaches by the new millers has led to efficiency in service delivery especially with regard to access to raw materials. Thus the safeguard has improved internal competitiveness among millers and enhanced sustainable livelihoods for cane growing households.

To improve business environment, the government put in motion a raft of regulatory and legislative reforms leading to consolidation of all laws on regulation and promotion of agriculture and by expansion of the sugar sector. Kenya sugar consumers are not able to identify with the COMESA FTA mainly because of the licensing procedures and the apparent emphasis on protecting farmers and millers without much regard to their interests.

Attempts to ensure year-round availability of duty-free sugar by spreading import permits over each import period did not achieve the objective. In 2007 when government reduced the rate of the Sugar Development Levy from 7 percent to 4 percent, which is mostly borne by consumers, there was no effect at all on the wholesale or retail prices of sugar on the domestic market

Conclusion and Recommendations

a) **Conclusions**

Kenya is quite different from the other sampled countries in the region. Land is owned by individuals. Despite the existence of co-operatives and out-growers' associations and canes are grown by individual farmers on small land acreage, supplying 90 percent of the mill requirements.

In other selected countries, small holder cane production is done as a block under associations/ co-operatives/ groups to take advantage of economies of scale. The bulk of the cane supply is sourced from the millers' own estates. In Swaziland, growers only get involved in cane production after approval by the Quota Board.

The cost of sugar production in Kenya is relatively higher compared to other COMESA countries due to its reliance on small holder farmers. This is due to greater variability in input use and field preparation, less timely and consistent crop care and higher harvesting and transport costs.

The COMESA sugar safeguard has enabled Kenya sugar milling companies to continue with operations, without which it is unlikely that all of them would be operating.

The safeguard has allowed Kenya sugar stakeholders to look beyond their borders and be better integrated with the COMESA region and other sugar players by bench-marking their operations against lower cost operators in all areas including cane varieties planted, factory efficiencies, downstream processing and other sugar by-products.

b) **Emerging policy issues**

Kenya must strategize and put in measures to reduce the cost of cane production by increasing farm level productivity from the current 3tchm to at least 8tchm and from 3-ratoons to a minimum of 8-ratoons per crop

cycle. This calls for government support in setting up irrigation infrastructure and providing subsidies on farm inputs such as fertilizers, land preparation services and cane transport. To take advantage of the economies of scale in sugar cane production there is need for land consolidation reforms to support block farming.

There is need for farmer-centred integrated extension services, involving strategic partnership with government, private sector and civil society organizations working within the agricultural sector in the sugar belt. The Kenya government should fast-track the privatization of the government owned sugar mills. The Kenya government should simplify the sugar importation and licensing procedures.

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Impact of Kenya's Sugar Safeguard Measures on Sugar Producers under the COMESA Trade Regime

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Abstract

The paper examined the impact of the COMESA Safeguard measures on sugarcane out growers and sugar millers in Kenya. It applied the MAFAP[5] methodology to compare domestic prices and constructed international reference prices of sugar. Using Data Envelopment Analysis the efficiency of Kenya sugar sector is compared to three other COMESA producers. Results show that the safeguard generated high profit margins for the out growers and that Kenya is a less efficient producer than Sudan and Zambia.

Introduction

Africa produced about 10 million tons of sugar annually in the period 2006-2012; with the COMESA region producing about 60 percent of this quantity. Sugar is produced in eleven COMESA member countries namely; Egypt, Sudan, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Swaziland, Uganda, Zambia and Zimbabwe. In these countries sugar production is a major employer from the farm or estate level to the cane crushing mill and the sugar refinery.

Large estates and associated mills employ many workers both directly and indirectly (COMESA 2014). Sugar is thus a strategic sector in the region for employment creation where it forms an important part of agricultural and development policy (SADC, 2009).

In 2012 the leading producers of sugar in the COMESA region were Egypt accounting for 33 percent of total production, Sudan 11 percent, Swaziland 10 percent, Kenya 8 percent, Zimbabwe 8 percent, Zambia 7 percent, Mauritius 7 percent, Uganda and Malawi 5 percent; with eighty percent of the sugar produced from sugarcane (COMESA 2014). Only five of the 11 sugar producing COMESA Member States (Malawi, Swaziland, Mauritius, Zambia and Zimbabwe) are net exporters; Kenya is a net importer.

In Kenya sugarcane is both a strategic and a political crop that ensures food security; improves rural lives and

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provides sustainable livelihoods for about 6 million persons (representing about 18 percent of the population). It accounts for about 15 percent of the agricultural GDP. Sugarcane production is dominated by smallholder farmers (out-growers), with a few factory-owned farms (nucleus estates). Production has increased gradually although yields have been decreasing steadily since 2008 due to the widespread use of low quality or poor sugarcane varieties, poor agricultural and land management practices and delayed harvesting of mature sugarcane (KSB, 2010). Other causes of low yield include; poor infrastructure in production areas, poor organization of out-growers and a land ownership structure that prevents land consolidation and large-scale production (KACC 2010). In 2013 the acreage under sugarcane was estimated at 86,875 ha with a total production of 6,671,199 tons (Republic of Kenya, 2014).

Sugarcane production in Kenya is primarily by smallholder farmers unlike in other COMESA producing countries where estates dominate and fertilization is based on soil analysis that ensures efficient fertilization. The sugarcane is grown predominately under rain-fed conditions unlike other COMESA producers where production is largely under irrigation that allows year round production regardless of the weather conditions (COMESA 2014).

Consequently yields are lower in Kenya at about 58 tons per ha compared to 102 tons tons/ha in Swaziland, 113 t/ha in Malawi and 114 t/ha in Zambia. Producers in Kenya have an average of 2.5 ratoon crops per crop cycle compared to 9 in other COMESA countries. Sugarcane farmers who maintain higher ratoon crops are able to obtain higher margins because they do not have to pay for land preparation and seed every growing season (KSB, 2012). Sugar producers in Kenya thus pay for land preparation and seed more frequently than their counterparts in other COMESA Countries.

There are 11 sugar mills in Kenya; and 92 percent of the sugarcane crushed is from smallholder farmers around the factory (out-growers). The total National factory installed capacity by 2007 was approximately 21,630 Tones Crushed per Day (TCD), capable of producing over 650,000 tons of sugar annually if operated efficiently (Wawire et al., 2007).

Data on market share by domestic sugar production shows a concentrated structure, where the largest three factories produce more than 70 percent of the country's sugar and Mumias accounts for almost half of the total domestic sugar production. The Company also accounts for the largest share of national sugar sales (34 percent), followed by importers (25 percent) (KIPPRA, 2010).

Sugar processing in Kenya differs from other COMESA producers where mills are largely privately owned. In Kenya, mills have traditionally been owned and controlled by government but there has been a shift since 2007 with new privately owned mills (Kibos Sugar, Butali Sugar Company, Sukari, Transmara and Kwale International Sugar Company) entering the market. The total installed capacity of the sugar industry in 2014 was estimated at 33,619 TCD of which Government mills accounted for 12,369 TCD or 37 percent (COMESA 2014).

Between 2011 and 2012, capacity utilization by the Sugar Mills in Kenya was estimated at 59 percent compared to 85 percent in Swaziland, 95 percent in Malawi, 95.5 percent in Tanzania, 98.5 percent in Zambia and 100 percent in Sudan (COMESA 2014).

Over the last three decades, sugar consumption in Kenya outpaced domestic production with consumption being driven by population growth and a steady increase in industrial use for confectionary products, soft drinks

and other beverages (USDA 2011). Annual per capita consumption was estimated at 21 kgs of raw sugar in 2006-2012 compared to 19 kgs in COMESA and a world average of 24 kgs (COMESA 2014).

Total sugar production grew by about 1 percent from 488,997 tonnes in 2005 to 493,937 tonnes in 2013, while sugar consumption increased by about 14 percent from 695,622 tonnes in 2005 to 794,844 tonnes in 2013. Kenya's sugar deficit has been filled mainly through imports of raw sugar from the COMESA region with Egypt and Swaziland being the main import partners during the study period (GTA 2012).

The sugar industry in Kenya is closely linked to the government and is strongly influenced by domestic and international policies. Kenya participates in the COMESA Free Trade Area (FTA). It is therefore bound by the provisions of the FTA to allow duty and quota-free access to sugar from COMESA FTA countries. Kenya enjoys the privilege of exporting sugar to COMESA Member States.

When Kenya acceded to the COMESA FTA in October 2000, there was a marked surge of sugar imports from COMESA Member States and this had a negative effect on the performance of the domestic sugar industry. Consequently, Kenya was granted a COMESA safeguard in 2002 that limited duty free imports from the region to 200,000 tons. The safeguard was to allow the country to restructure and become an efficient sugar producer.

However, the safeguard has been extended several times since 2002. The sugar industry has been unable to compete with more efficient producers in the international market (MCI, 2008; USDA, 2011). In the COMESA Directive No. 1 of 2007 Kenya was expected to meet certain conditions in order to turn around the sugar sector and make it more competitive. Amongst the relevant ones to this study are; the import quota would be increased while the tariff rate applied on above import quota would be lowered in each successive year and the sugar industry would adopt a cane pricing formula based on sucrose content rather than weight of the delivered cane.

A further extension of the COMESA safeguards was negotiated and granted for one year in 2014. Sugar imports into Kenya from outside COMESA attract a tariff of 100 percent, in addition to VAT of 16 percent (COMESA 2014).

The objective of the study was to assess the effects of the safeguard on sugarcane prices and the price incentives created for producers and consumers.

Methodology

The methodological approach used in this paper is drawn from MAFAP (Barreiro-Hurle and Witwer, 2013). The method is based on the law of one price (LOP) (Blanchard, 2010) and on the border paradigm (Timmer, 1986) that together imply that there is only one prevailing price for sugar in a perfectly competitive market, without government interventions into the economy, and without political concern for the impact of income distribution. In such a world, any deviation of the domestic price from the international border price of sugar, whether import or export, reduces total welfare in the country because of deadweight loss (Gouel and Jean, 2015).

The one price method makes a number of assumptions including perfect information, complete markets, stable border prices, market determined foreign exchange rates and an absence of political impacts that affect the lives of the citizens (Valdes, 2014). This however, is far from reality and the MAFAP methodology provides a robust framework for working out the economic and political consequences of food and agricultural policies in both the short and long run. MAFAP is a disaggregated analysis of the trade and market measures affecting the incentives

associated with the production and marketing of sugar products and it estimates the joint effect of trade and market policies (input and output) on farm gate prices through direct price comparison.

The MAFAP analysis is based on the comparison between observed domestic prices and constructed reference prices. Reference prices (observed and adjusted) are calculated from the international price of sugar at the country's border. This price is considered the benchmark price free of influence from domestic policies and markets. Observed reference prices are those that producers and other marketing agents could receive if the effects of distortions from domestic market and trade policies, as well as overall market performance, were removed. On the other hand, adjusted reference prices exclude the effects of any additional distortions from domestic exchange rate policies, structural inefficiencies in the sugar cane value chain, and imperfect functioning and non-competitive pricing in international markets. Domestic sugar prices are compared to reference prices at the farm gate (usually at the main production area for sugar), the point of competition (usually the main wholesale market where domestic sugar competes with the internationally traded sugar) and at retail. The approach for comparing prices at each location is summarized in the next paragraphs.

Kenya imports sugar that arrives at the port of Mombasa at the benchmark price (usually the unit value CIF price at Mombasa). In the domestic market, we observe the price of sugar (of the same quality) at Nairobi wholesale market, and at the farm gate in Mumias. We also observed access costs associated with bringing the sugar to the market. These include; costs for processing, storage, handling, transport and the different margins charged by agents operating in the sugar value chain. The access costs are recorded between the border and wholesale, between the farm-gate and wholesale, as well as between wholesale and retail.

The benchmark price is made comparable to the domestic price at wholesale by adding the access costs between the border and wholesale, resulting in the observed reference price at wholesale. This takes into account all the costs incurred by importers and other agents to bring the sugar to market, which in effect, raises the price of the sugar.

The reference price at wholesale is made comparable to domestic price at retail by adding the access costs between the wholesale and retail resulting in the observed reference price at retail, which takes into account all the costs incurred by retailers and other agents to bring the sugar to the consumer.

The reference price at wholesale is further made comparable to the domestic price at the farm gate by deducting the access costs between the farm gate and wholesale, resulting in the observed reference price at farm gate which takes into account all the costs incurred by farmers and other agents in bringing the sugar to the wholesale market.

The equations for calculating the observed reference prices at wholesale (RP_{owh}) and farm gate (RP_{ofg}) for imported sugar are:

$$RP_{owh} = P_b + AC_{owh} \quad \text{.....(1)}$$

$$RP_{ofg} = RP_{owh} - AC_{ofg} \quad \text{.....(2)}$$

Where: AC_{owh} are the observed access costs from the border to wholesale, including handling costs at the border, transport costs from the border to the wholesale market, profit margins and all observed taxes and levies, except tariffs, and P_b is the benchmark price.

AC_{ofg} are the observed access costs from the farm gate to wholesale, including handling costs at the farm, transport costs from farm to wholesale market, processing, profit margins and all observed taxes and levies.

After observed reference prices are calculated, they are subtracted from the domestic prices at each point in the value chain to obtain the observed price gaps at wholesale and farm gate. Observed price gaps capture the effect of distortions from trade and market policies directly influencing the price of sugar in domestic markets (for example, price ceilings and tariffs), as well as overall market performance.

The equations for calculating the observed price gaps at wholesale (PG_{owh}), consumer level (PG_{ort}) and farm gate (PG_{ofg}) and can be expressed as:

$$PG_{owh} = P_{wh} - RP_{owh} \quad \ldots\ldots\ldots (3)$$

$$PG_{ort} = P_{rt} - RP_{ort} \quad \ldots\ldots\ldots\ldots (4)$$

$$PG_{ofg} = P_{fg} - RP_{ofg} \quad \ldots\ldots\ldots\ldots (5)$$

Where:

P_{fg} is the domestic price at farm gate,

RP_{ofg} is the observed reference price at farm gate,

P_{rt} is the domestic price at retail,

RP_{ort} is the observed reference price at retail,

P_{wh} is the domestic price at wholesale, and

RP_{owh} is the observed reference price at wholesale.

A positive price gap is caused by an excess of domestic price over the reference price, meaning that the policy environment and market functioning as a whole generate incentives (support) to wholesalers or retailers or producers. On the other hand, if the reference price exceeds the domestic price, resulting in a negative price gap, this means that the policy environment and market functioning as a whole generate disincentives (taxes) to wholesalers or retailers or producers.

In general, price gaps provide an absolute measure of the market price incentives (or disincentives) that

producers, wholesalers and retailers face. Therefore, price gaps at retail, wholesale and farm gate are divided by their corresponding reference price and expressed as a ratio, referred to as the Nominal Rate of Protection (NRP), which can be compared between years.

The Observed Nominal Rates of Protection at the farm gate ($\mathrm{NRP_{ofg}}$), wholesale ($\mathrm{NRP_{owh}}$) and retail ($\mathrm{NRP_{ort}}$) are defined by the following equations:

$$\mathrm{NRP_{ofg}} = \frac{\mathrm{PG_{ofg}}}{\mathrm{RP_{ofg}}} \; ; \; \mathrm{NRP_{owh}} = \frac{\mathrm{PG_{owh}}}{\mathrm{RP_{owh}}}; \mathrm{NRP_{ort}} = \frac{\mathrm{PG}_{ort}}{\mathrm{RP_{ort}}}; \ldots\ldots\ldots (6)$$

Where:

$\mathrm{PG_{ofg}}$ is the observed price gap at farm gate,

$\mathrm{RP_{ofg}}$ is the observed reference price at the farm gate;

$\mathrm{PG_{owh}}$ is the observed price gap at wholesale;

$\mathrm{RP_{owh}}$ is the observed reference price at wholesale;

$\mathrm{PG_{ort}}$ is the observed price gap at retail; and

$\mathrm{RP_{ort}}$ is the observed reference price at retail.

Sugar industry efficiency in Kenya and three selected COMESA sugar producing countries (Zambia, Malawi, and Sudan) was compared using Data Envelopment Analysis (DEA); a linear programming procedure for a frontier analysis of inputs and outputs that is commonly used to evaluate the efficiency of a number of producers.

The measure of efficiency for producer o is given by the following linear program:

$$\text{Min } \emptyset$$

$$\text{Subject to } \sum \lambda i \mathrm{X}i \leq \emptyset \; \mathrm{Xo}$$

$$\sum \lambda i \mathrm{Y}i \geq \mathrm{Yo}$$

$$\lambda \geq 0$$

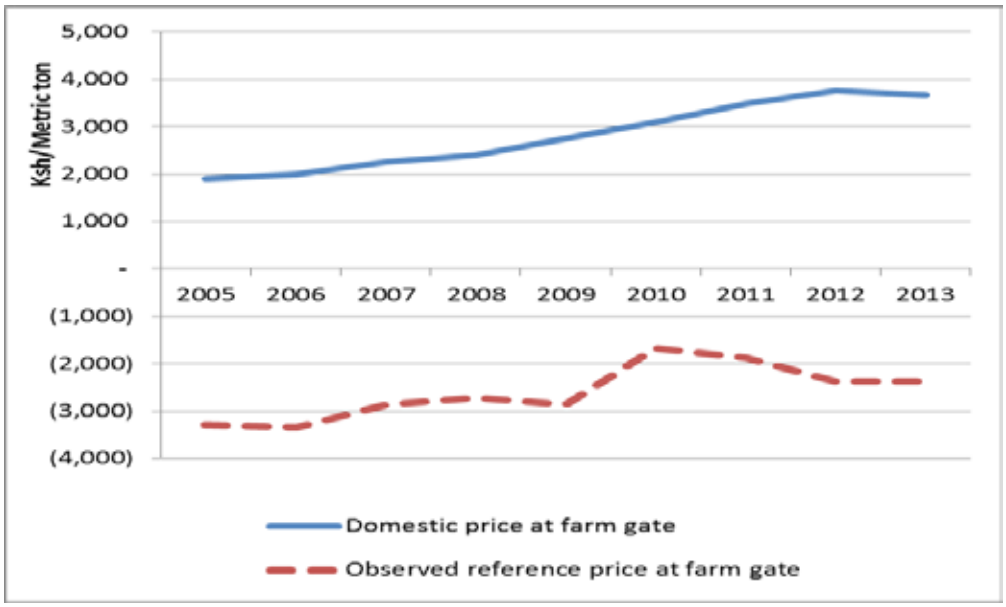
Where $\mathrm{X}i$ the vector of inputs is used by producer i; and $\mathrm{Y}i$ the corresponding vector of outputs. Xo are the inputs used by producer o for which we want to determine efficiency and Yo the outputs. So the X's and the Y's are the data. λi is the weight given to producer i in its efforts to dominate producer o and $\emptyset$ is the efficiency of producer o. The λ's and the $\emptyset$ are the variables.

Results

In the study period domestic trade, market policies and overall market performance had a positive price incentive on sugarcane producers (Figure 1) and on ex-factory/wholesalers (Figure 2). Sugarcane producers and millers

received a higher price than they would have received without the policy environment and overall marketing function created by the COMESA safeguard which had the effect of generating support to domestically produced sugar. Sugarcane production would be unprofitable in Kenya without the COMESA safeguard as farmers would receive a negative income without it (Figure 1). The COMESA safeguard acts as a subsidy to sugarcane producers and enables them to produce the crop.

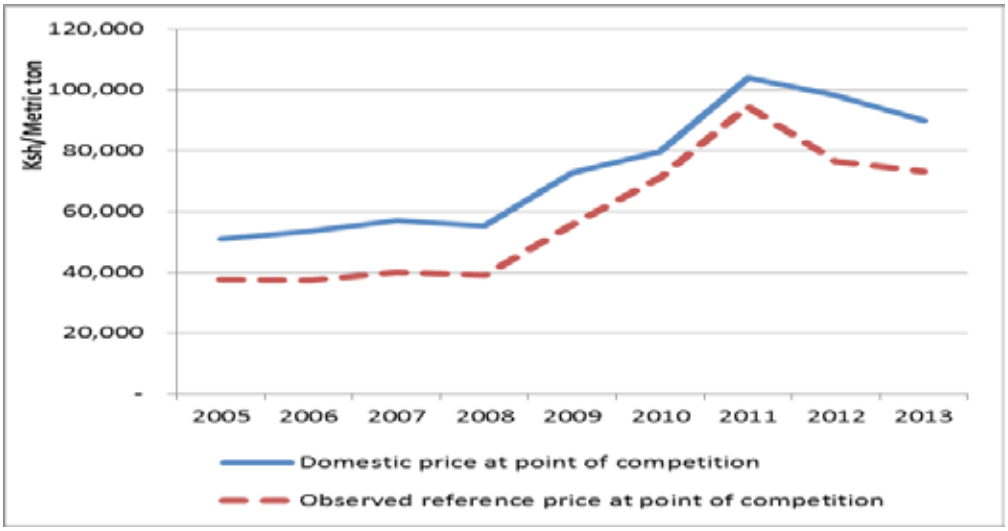
Figure 1: Domestic price vs. Observed reference prices at farm gate for sugar in Kenya, 2005-2013



Source: MAFAP results

Millers and wholesalers would receive a lower price per unit of sugar without the COMESA safeguard (Figure 2). The safeguard allows wholesalers/millers to earner a higher income than would be possible without it.

Figure 2. Domestic price vs. Observed reference prices at point of competition (wholesale) for sugar in Kenya, 2005-2013



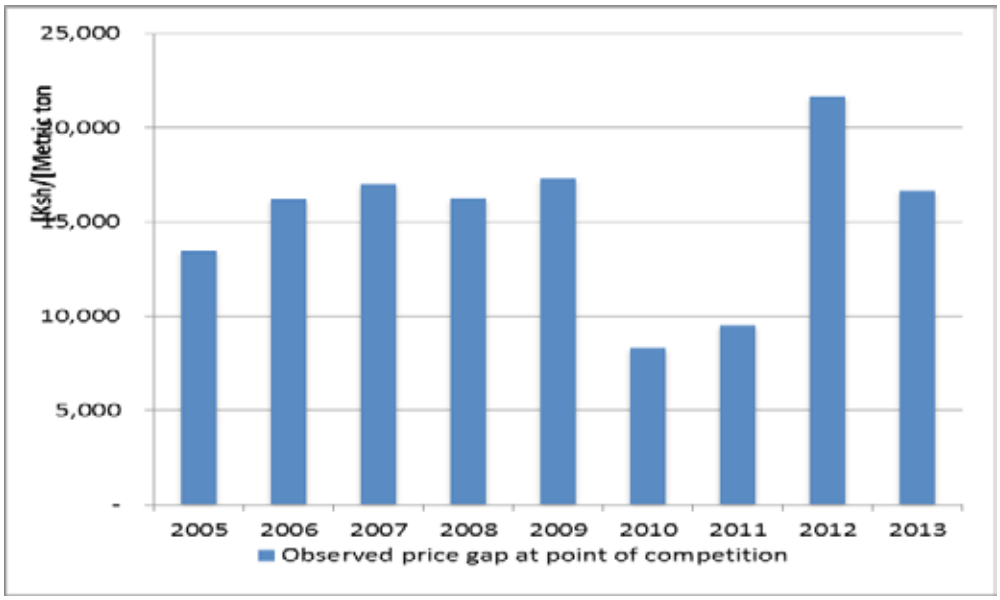
Source: MAFAP results

Observed Price Gap and Nominal Rate of Protection (NRP's) At Point of Competition

At the point of competition (Nairobi wholesale) the observed price gaps and NRPs were positive as shown in Figure 2 and Figure 3 indicating that the domestic value of sugar was higher than the international value equivalent and this signifies that sugar factories received market incentives and protection. Observed NRP declined from 43 percent in 2006 to 10 percent in 2010 but then increased in 2013 to 28 percent. The decline in 2010-2011 may be attributed to short term policy adjustments.

The observed price gaps at the point of competition were positive in all years as shown in Figure 3 and this indicates that sugar wholesalers received market incentives from the policy and market environment of between Ksh 8,000 and Ksh 21,000 per ton over the study period with the lowest support being in 2010 (Ksh 8,300) and 2011 (Ksh 9,500).

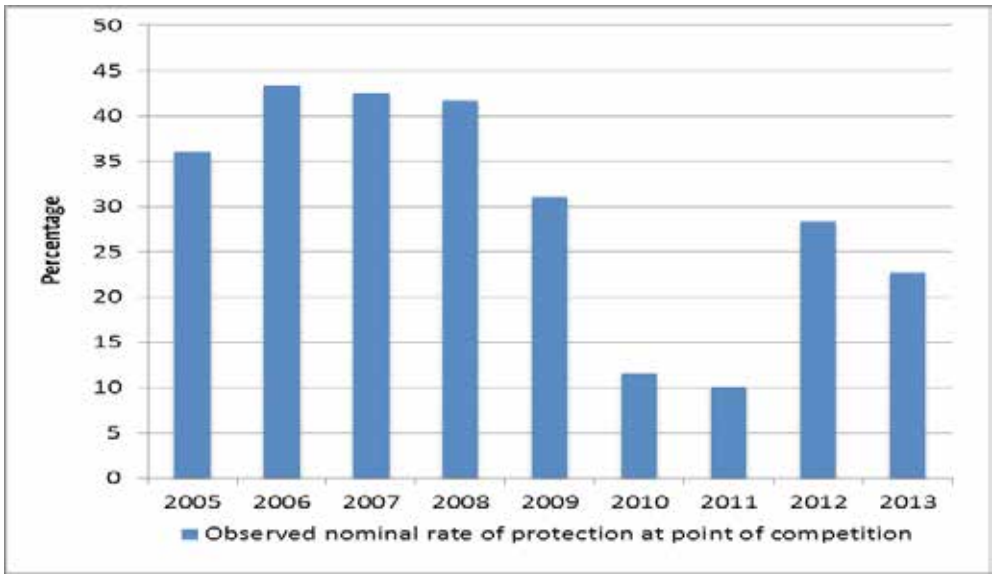
Figure 3: Observed Price Gap at Point of Competition (Ksh), 2005 to 2013



Source: MAFAP results

The observed nominal rate of protection at the point of competition for the period 2005 to 2013 is shown in Figure 4 and it was lowest in 2011 (10%) and in 2010 (12%) when there were delays in the granting of sugar import permits for duty free COMESA sourced sugar. The highest rates of protection were in 2006 and 2007 (43%) although the rates of protection have been consistently above 20% in the remaining years.

Figure 4: Observed Nominal Rate of Protection at Point of Competition (percent), 2005 to 2013

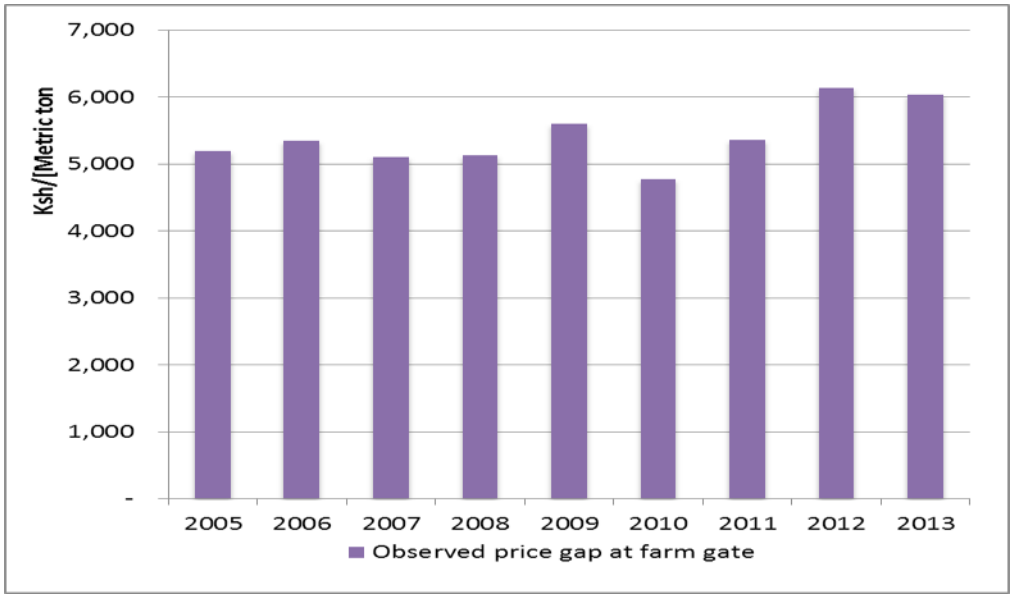


Source: MAFAP results

Observed Price Gap at Farm Gate

The observed price gaps at the farm gate are shown in Figure 5 and they were positive during the study period. Sugarcane producers received support of between Ksh 4,800 and Ksh 6,100 per ton from the policy environment and the functioning of the market.

Figure 5: Observed Price Gap at the Farm Gate (Ksh), 2005 to 2013

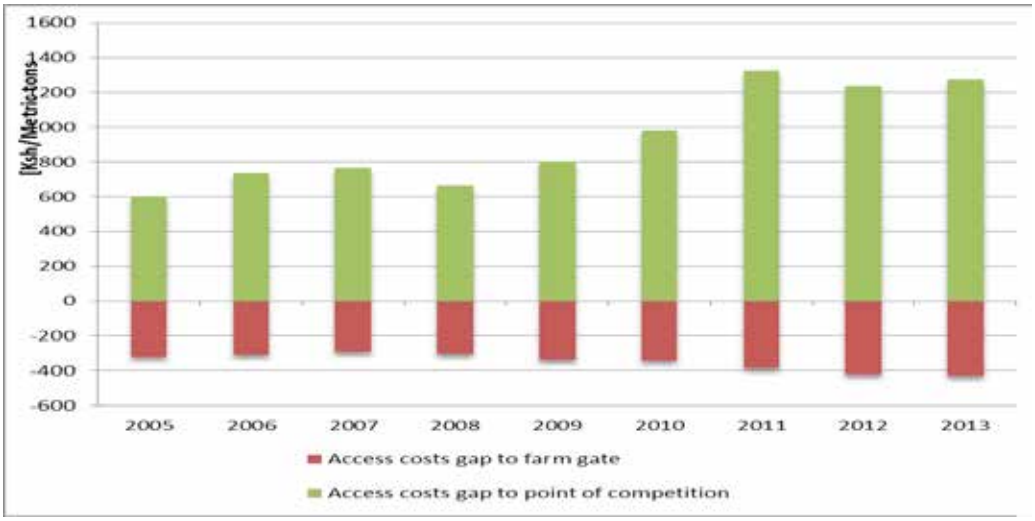


Source: MAFAP results

Access Costs

The positive access costs gaps at Point of Competition are due to the non-tariff costs of transporting the sugar from Mombasa to Nairobi. The identified access costs gaps doesn´t represent an important proportion of the observed access costs although this might be only due to the lack of complete information regarding non-tariff access costs. The access costs gaps at Farm Gate show the strong impact of the highly protected sugar industry structure on the farmers.

Figure 6.Access Costs at Point of Competition and at Farm gate

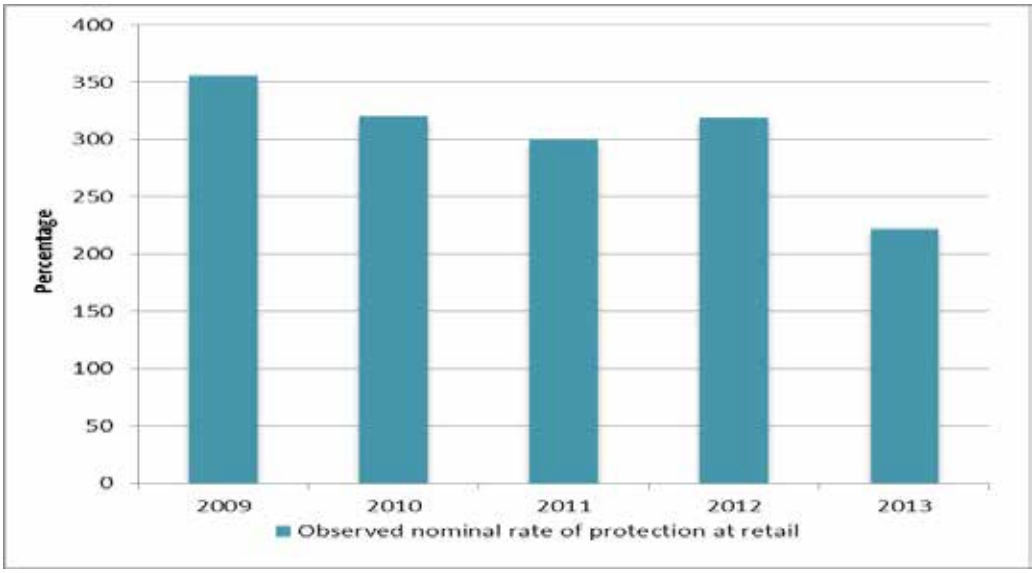


Source: MAFAP results

Observed Nominal Rate of protection at retail

Sugar retail prices were available from 2009 and the NRP at retail was positive in the period under review (2009-2013) as shown in Figure 7. Consumers were paying a higher price than they would have paid without the policy and market interventions.

Figure 7.Observed Nominal Rate of protection for sugar at retail (consumer) 2009 -2013



Source: MAFAP results

Industry Efficiency

Kenya is an inefficient sugar producer with an efficiency ratio of 0.8 with none binding input of production costs that imply that Kenya can produce the same level of output using a lower production cost of Ksh 12413.96. Non-binding outputs were capacity utilization, sucrose level of sugarcane, number of additional products processed and cane yield indicating that a more efficient producer would utilize 40.29 percent more milling capacity than Kenya does; it would process two additional downstream products; would use sugar cane varieties with 3.69 percent more sucrose content; and would increase farm yields by 56.89 tons/ha.

The Kenya sugar industry is not as efficient as that in Sudan or Zambia. These results are in line with the conditions of the COMESA Directive No. 1 of 2007 requiring Kenya sugar industry to diversify, farmers to adopt higher yielding varieties with higher sucrose content and government to privatize mills and thus utilize their capacity more fully.

Privatization of government owned Kenya mills has been a slow process as have been the efforts to process additional downstream products. The newer private mills could compete with other COMESA countries if given a chance to properly establish. Adoption of higher yielding, higher sucrose content varieties are likely be expedited when mills create incentives by pegging sugarcane prices to sucrose content.

COMESA safeguard has created incentives for producers and wholesalers/millers but has generated disincentives to consumers. The safeguard protects farmers and allows them to remain in production. It allows wholesalers to earn a higher income from sugar than would be possible but it penalizes consumers who pay much more for sugar. The Kenya sugar sector in its current state is incapable of meeting the national sugar demand and is much less able to become a net exporter. If the status-quo prevails without any significant changes then many companies and out-growers will not survive liberalization. Eventual but gradual market liberalization may act as a wake-up call to speed up agreed changes in the local industry.

Conclusion

The COMESA safeguard has created a subsidy for sugar producers that allow them to remain in production. The safeguard has also provided incentives to wholesalers/ millers allowing them to earn more from sugar than would be possible. This has given leeway for wholesalers/millers to have enough to pay farmers. But the safeguard has created a disincentive to consumers who pay more for sugar. The safeguard protects producers and wholesalers/millers but penalizes the consumer.

Kenya is an inefficient sugar producer relative to some COMESA producers and thus the lifting of the safeguard would be detrimental to sugar farmers and millers. The turnaround of the Kenyan sugar sector requires changes at the miller and farmer levels. The entry of private mills or the privatization of government owned mills - so that they compete favorably with other COMESA producers by using higher milling capacity (99.3%), lowering production costs to at least Ksh 30,935 per MT and producing at least two additional products - would result in increased industry efficiency. At the farm level, farmers would have to grow sugarcane varieties with higher sucrose content (Pol of 14.9%) and to improve farm yields to at least 118.4 t/ha.

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5

Financial Inclusion, ICT and Intra Regional Trade in COMESA

Angella Faith Lapukeni[1]

Abstract

The study used panel data for seventeen of the nineteen COMESA Member States to assess the effects of financial inclusion – both access and usage –on intraregional trade for the period 2004 to 2012. The study further assessed developments in ICT. Dynamic panel data models are used to assess the impact of financial access and usage indicators and the channels of ICT development, on intra-regional trade in COMESA. The study found that intra-regional trade can improve with increased usage of formal financial services and that mobile phone subscription has significant positive impact on trade through financial inclusion. The study recommends the need to promote policies that would improve usage of formal financial systems especially for SME's.

Introduction

Intra trade is especially important for Africa's many small, landlocked countries that face challenges trading internationally (Brookings Africa Growth Initiative, 2012). Africa's internal trade however, is low–making up only about 10 percent of its total trade (Brookings Institution, 2012).

The absence of a secure and reliable payment infrastructure within the COMESA region is a hindrance to development of the financial market. That is why the Regional Payment and Settlement System (REPSS) was introduced. The REPSS allows member countries to transfer funds within COMESA through respective Central Banks (Thakoor, 2012). The system operates through member countries' central banks and their corresponding banking systems.

With an increase in intra-COMESA imports from US $8.3 billion in 2011 to a projected amount of US $13 billion in 2019, the region would make an estimated savings of US $454 million in 2019 if the totality of the payment for that trade is channelled through REPSS. The system however, requires the importer/exporter to use their respective commercial banks. If member countries' adult population are still functioning outside the regulated financial system, then efforts of a system as beneficial as REPSS may prove futile as its reach will be limited.

Besides enabling access to such a payment system, financial inclusion has become more prominent on the global agenda in recent years. This is because when people participate in the financial system, they are better able to start and expand businesses, invest in education, manage risk, and absorb financial shocks (Demirguc-Kunt et al 2015). A greater access to financial services can contribute to an increase in the productivity of Micro, Small and Medium Enterprises (MSMEs), and greater formalization of firms. A common characteristic of the financially excluded is low incomes yet financial inclusion has the capacity to increase incomes.

At the macro level, there is evidence that an increase in access to financial services has positive effects on financial system stability, effectiveness of monetary policy, growth and inequality reduction. Besides, financial inclusion

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has a broader impact on growth and redistribution for poor people, it increases access to credit, savings and payment services, provides opportunities to increase incomes, remit money, trade in goods and services and reduce transaction costs.

Financial services facilitate trade flows by reducing cost and maximizing the developmental impact. Access to an affordable system such as REPSS is therefore important. The REPSS system is affordable with fewer expenses including the elimination of the need for confirmed Letters of Credit and associated costs. Thus, the initiative makes the process faster and cheaper for both the commercial bank and the importer/exporter. On the other hand, increased trade expands the demand for financial services and policy makers need to develop infrastructure to accommodate that demand. A system such as REPSS can increase the demand for regulated financial products.

Financial inclusion is one of the channels through which ICT (Information Communication Technology) affect both intraregional trade and economic growth. ICT developments such as mobile telephone subscriptions allow expansion and access to financial services to previously underserved groups in remote areas of developing countries. A recent initiative in this regard is the cross-border money transfer service such as Airtel Money launched in 2015 between the Democratic Republic of Congo (DRC), Zambia and Rwanda. This initiative is bound to deepen financial inclusion, increase remittances and lower the cost of trade in the region.

This study hypothesises that increased mobile phone subscriptions will increase intra-regional trade in COMESA through financial inclusion, as it is likely to lead to formalisation of informal firms. It measures the impact of financial inclusion and ICT on intraregional trade in COMESA.

Financial Inclusion, Developments in ICT and Informal Trade

a) **Financial Inclusion: Definitions and Current Status**

The World Bank (2014) defines financial inclusion as the proportion of individuals and firms that have access to or use financial services. Burkett and Sheehan (2009) define financial exclusion as "A process whereby a person, group or organisation lacks or is denied access to affordable, appropriate and fair financial products…"

According to World Bank (2014) about 62 percent of adults own an account at a formal institution (Demirguc-Kunt et al, 2015). This indicates global efforts by governments to increase financial inclusion. In Sub-Saharan Africa, 34 percent of the adult population was reportedly banked in 2014.

According to Demirguc-Kunt et al, (2015) financial systems in Africa lag behind most of the developing regions. The existing financial systems in Africa are underdeveloped mainly because credit reporting from financial institutions is lacking and the level of financial literacy is often poor. Financial inclusion is further limited by low-quality financial infrastructure and the small size of many African economies. An underdeveloped financial infrastructure makes it more expensive for financial institutions to provide their services. This may have a negative impact on business activities since customers are more likely to face higher transaction costs, thus reducing the overall demand for financial services.

Formal financial services are dominated by banks. Formal bank service is the most-used system in most developing countries with deposits being more common than loans. Financial inclusion varies widely within the COMESA Region. Over the period 2004 to 2013 there were on average 8 ATM's and 7 bank branches per 100,000 adults in the region. Access indicators using averages for the period are highest in Seychelles with 45

bank branches and 43 ATM's per 100,000 adults. The indicators are lowest in Burundi and Congo DR with the ATM's and commercial bank branches recording averages of 2.0 and 0.5 per 100,000 adults respectively.

Access to formal financial institutions however, does not necessarily translate to usage but in the case of COMESA, they follow a similar trend. According to World Bank (2011 and 2014) the region's average of adults with bank accounts was 19 percent and 32 percent in 2011 and 2014 respectively[2]. Mauritus had the largest number of adults with a bank/mobile account at 82 percent whilst Burundi was the lowest with 7 percent.

b) Developments in ICT and Financial Inclusion

The degree of financial inclusion is likely to increase in the next few years because of policy priority and new technologies such as mobile financial services which have reduced transaction costs and increased financial outreach (FI2020, 2013). Total mobile penetration has more than doubled in all the regions of the world since 2005. WTO (2013) underscores technology as one of the key fundamental economic factors that can shape the future of international trade. Waverman et al (2005) concluded that 10 more mobile phones per 100 people would increase GDP per capita growth by 0.6 percent. Studies focusing on developing countries, found this impact to be between 0.8 and 1.2 percent. Mobile phones have improved communication, social inclusion, economic activity and productivity in sectors such as agriculture, health, education and finance.

Mobile telephone subscriptions allow expansion and access to financial services for underserved groups in remote areas of developing countries and reduced the costs associated with running physical banks.

ICT and innovative business models have contributed to the growth of financial inclusion. In Kenya, for example, active bank accounts have grown more than fourfold between 2007 and 2012. The experience of countries where digital payments are more widely available suggests that this is a relevant and fast way of expanding access to financial services.

The expansion of the financial system however lags behind that of mobile telephone development not only in Africa but globally. This implies that there are mobile telephone users who are unbanked meaning that there is room to leverage the expansion of a more financially included Africa. The increase in ICT development provides the platform for financial inclusion to increase especially in Africa. Furthermore, ICT growth brings with it other macroeconomic benefits such as economic growth, employment and financial system stability through less information asymmetry. However, there is no specific policy in COMESA region to nurture this potential regulate stability of the financial system.

c) Informal Trade: Characteristics and Challenges

The existence of high levels of financial exclusion implies the existence of an informal economy. The informal economy is multi-faceted and can include informal labor markets, informal financial sectors and informal corporate or business sectors. This study focuses on informal corporate or business sector that is engaged in informal cross border trade (ICBT) and thus use informal payment systems.

The presence of the informal economy represents wastage and significant leakages from the circular flow of income, in the region. The fate of millions of potential entrepreneurs is trapped in a vicious circle of exclusion and they are unable to reap the fruits of integration in the region and globalization, due to the inadequacy of

2 Some countries had data missing when calculating the proxy. In 2011, Ethiopia and Mauritius had no data. In 2014, Comoros, Djibouti and Swaziland were missing data. Eritrea, Seychelles and Libya had missing data.

access to, and usage of the formal financial institutions. This therefore may work against efforts to improve intra-regional trade.

Informal economies play an important role by providing an alternative to entrepreneurs and small firms in developing countries. Informal trade represents the only type of exchange that is possible under conditions prevailing in some regional economic communities such as excessive barriers and poorly designed regulations.

This notwithstanding, there is limited information on the magnitude of ICBT. The situation has adverse effects on the estimation and reporting of intra-African trade meaning that there could be more trade than is reported. This study argues that an increase in financial inclusion in the COMESA region will not only address the issue of measurement of informal trade but will also reduce it. The argument is that financial inclusion can be the process of transforming the informal into formal sector through its instruments thus increasing reported intra-regional trade.

Access to finance is a major obstacle to informal trade and therefore one of the greatest needs of informal traders is improved access to financial services–not just loans, but savings, insurance, payments, pensions, and other products.

As a result of these barriers, many people continue to use informal or semi-formal savings clubs, associations and co-operatives to save money and access credit. The lack of appropriate and effective regulations over these schemes and participants' activities makes it difficult to leverage informal financial institutions' potential to contribute optimally to development. Enhancing the financial inclusion of informal firms can potentially help grow and integrate into the formal economy. Access to formal financial services can be achieved through consumer awareness, training, and availability of market information.

Literature Review

Becker and Greenberg, (2007) Manova, (2008) Amiti and Weinstrein, (2011) using cross-section and panel data for both developed and developing countries, found that countries' level of international trade is exogenously affected by the level of development of their financial sector. Huang and Temple, (2005) Klein and Olivei, (2008) argue that the financial sector development is an outcome of the supply and demand for finance as international trade increases.

Kletzer and Bardhan (1987) show that in a world in which countries have identical technology or endowments, comparative advantage may differ in the presence of credit market imperfections, such as incomplete information. They show that the country with less credit market restrictions specializes in the sector that uses external finance and the country with the higher level of credit market restrictions specialize in the sector that does not require working capital or external finance.

Beck (2003) verifies the link between financial development and trade structure. Empirical results provide robust evidence that countries with a higher level of financial development have higher export shares and trade balances.

Ebaidalla and Yahia (2013) assessed the performance of intra-COMESA trade using an out-of-sample approach. The analysis employed gravity model. The results show that all countries sampled are far from their potential trade level, implying unfavorable performance of the regional trade integration among COMESA members.

Seid (2013) applied the intuitive and theoretical gravity model of Anderson-van Wincoop in panel data framework conducted a study to uncover the main factors behind the low level of intra-regional trade and the role of RECs. The study found the traditional gravity model variables of GDP, bilateral distance, common border, common official language, common colonizer and land-lockedness were important determinants of bilateral trade flows in Africa. Besides these factors bilateral real exchange rate between partner countries and difference in preference and taste among countries do affect trade flows.

Thiemann et al (2012) employed a gravity model of international trade between major exporting and importing countries for the period 1995 to 2009 to test the hypothesis of an ICT effect on trade in bananas, oranges, tomatoes, and vegetables and fruit in general. The results suggest that mobile phone penetration significantly stimulates trade in vegetables and fruit and oranges by exporting countries, but its impact is less than that of fixed telephone usage which has an unexpected negative influence on banana imports. Internet usage has only a positive effect on trade in imports of tomatoes. Internet usage in exporting countries for fruit and vegetables are negatively associated.

Keane et al (2010) examined the effects of non-tariff barriers (NTB) on intra-regional trade in 4 countries in SADC using Generalized Methods of Moments (GMM) estimator for 2003-2006. The results showed that the introduction of one or more NTBs in a sector significantly penalises imports from other SADC countries in that sector (intra-regional trade) to the benefit of non-SADC countries, whose exports increase.

Zannou (2010) used the gravity model to capture factors affecting the importance of the Economic Community of West African States (ECOWAS) intra-community trade flows. The results suggested that remoteness and land-lockedness reduce the volume of intra-community trade while proximity (geographical, linguistic or monetary) stability of exchange rates and the openness of national economies increase it.

Geda and Kibret (2002) tests the determinants of trade flows using the conventional gravity model in the experience of COMESA. The study found that: the regional grouping has had insignificant effect on the flow of bilateral trade despite its perceived importance in the increasingly globalized world.

Outside of Africa Trivić and Klimczak (2015) identify factors that influence bilateral trade among the Western Balkan states for the period from 1995 to 2012. They use an augmented version of the gravity model on pooled data. The findings showed that the strongest influence on trade, values were ease of a direct communication and similarity of religious structures.

The reviewed literature shows that there is a relationship between financial development, of which financial inclusion is part, and international trade. Opinion is however mixed on the direction of causality. This study leans towards the argument that financial development will lead to increased intra-regional trade. One of the main reasons is that the level of international trade among countries in the region is already low and may not be sufficient to generate demand for such services. The gravity model stands out as the most widely used with panel data analyses of various types.

A clear gap in the literature is the missing aspect of financial inclusion levels in the countries under review, especially for African countries. Further, although infrastructure is a clear policy priority in most REC's, developments in ICT has not been extensively studied to assess empirical evidence of its impact on trade. Many times it is implicit due to its assumed impact on economic growth. It is this gap and subsequent policy

implications that this study intends to fill.

Data, Methodology and Empirical Results

a) ***Data and its Sources***

The study uses panel data from all COMESA Member States except Eritrea and Ethiopia for the period 2004 to 2012, based on availability of financial inclusion indicators. The data was obtained from various COMESA publications, World Bank Database, ITU World Telecommunication/ICT Indicators database and the IMF Financial Access Survey for the financial inclusion access[3] and usage indicators[4].

b) ***Methodology***

The study used dynamic panel data analysis and augmented the gravity model with financial inclusion access and usage indicators. The following panel data regression model was estimated:

$$y_{it} = \beta x_{it} + \nu_i + v_{it}, \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1) \quad i = 1 \ldots N \text{ (individuals)}, \quad t = 1,\ldots,T \text{ (time)}$$

Where:

x_{it} is the it-th observation on k explanatory variables,

β is the parameter vector,

ν_i denotes the unobserved individual-specific time-invariant effects, and

v_{it} the residual disturbance term has zero mean, constant variance, and is uncorrelated across time and individuals.

The variables are all expressed in log form. The advantage of using the log linear equation is that the estimated coefficients from the model can easily be interpreted as elasticities.

The study used loans as opposed to deposits as financial intermediation runs from deposits to lending. In addition, international trade is facilitated by trade credits. GDP is the control variable for country i, time period t. In this study, we use Real GDP growth rate based on the Gravity model. The coefficient of GDP is expected to be positive, as an increase of national income indicates more imports demand and exports supply.

Depending on the nature of ∂_i, two models in (1) can be distinguished as follows:

Random Effect Model (REM): We estimated β from the following general model:

$$Y_{it} = \alpha + \beta X_{it} + (u_i + v_{it}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where u_i is a fixed or random effect specific to individual (group) or time period that is not included in the regression, and errors are independent identically distributed, $v_{it} \sim (0, \sigma^2)$.

3 Access indicators include: Commercial bank branches per 1000 km^2 and per 100, 000 adults; ATMs per 1,000 km^2 and per 100,000 adults etc

4 . Usage Indicators include: Number of borrowers from commercial banks per 1000 adults; Outstanding loans from commercial banks (percent of GDP); Number of depositors with commercial banks per 1000 adults (or percent of adults who are banked) and Outstanding deposits with commercial banks (percent of GDP).

Fixed Effects Model (FEM): In these models, it is not necessary to assume no correlation between regressors and individual effects. Usually, "fixed effects estimators" are used to estimate the parameters. We can obtain them with an OLS estimation of a transformation of model (1) where individual effects are removed:

$Y_{it} = \beta_1 X_{it} + \alpha_i + u_i$ ………………………………………………………(3)

Where:

α_i (i=1….n) is the unknown intercept for each entity (n entity-specific intercepts):

Y_{it} is the dependent variable where i = country and t = year;

X_{it} represents one independent variable;

β_1 is the coefficient for X_{it} ;

u_{it} is the error term.

These estimators are unbiased and consistent

Ideally this is what we should use for our empirical analysis. However, one problem with a fixed effects model is that variables that do not change over time cannot be estimated directly because they are fixed effects and are therefore removed in estimates at the difference. Since some of our variables in the data do not change significantly over time as discussed below, we relying on the RE models instead of FE model. To help decide scientifically, the Hausman test statistic was applied to check further whether the fixed effects model is more appropriate than the random effects model.

This was not the case however and our initial hypothesis that a random-effects model adequately models the individual-level effects was rejected. However fixed effects model in a short panel such as this one is inconsistent, hence the use of the Generalised Method of Moments (GMM). The GMM model is used to base the conclusions of the models in this study. The study therefore settles for the dynamic panel model.

Dynamic Panel Model: These are panel models with regressors included as lagged dependent variables (4). The general model expressed as follows:

$y_{it} = \alpha y_{i(t-1)} + \beta x_{it} + \eta_i + v_{it}$,………………………………………………………(4)

Even if coefficients of lagged variables are of little interest, allowing for them may recover consistent estimates of other perimeters (Bond, 2002). The 'System Generalized Method of Moments (GMM) context, is an estimator designed for situations with: few time periods and many individual units which is thus ideal for this paper. Including $yi_{,t-1}$ is also another way of controlling for unobserved heterogeneity. Arellano and Bond (1991) derived a consistent generalized method-of-moments (GMM) estimator for this model.

c) *Estimation Results*

Descriptive Statistics

Descriptive statistics: mean, standard deviations, minimum, maximum observations were used on the initial

values of the variables for consistency, and robustness check. The results showed that average number of commercial banks and ATM's per 100,000 adults for each country varied between a minimum of 1 and a maximum 44 branches; and a minimum of 0 and maximum of 41 ATM's. The average for each country's intraregional trade between that country and the rest of COMESA varied between a minimum of 2 percent and a maximum of 35 percent of total trade whilst real GDP growth rate was between a minimum of 2 percent and a maximum of 11 percent in the period 2004 to 2012 and for the 17[5] countries in the sample. Commercial bank branches varied the least within the sample period whilst mobile phone penetration varied the most in the period, although both variables had an upward trend. (See appendix 1 for summary table).

The panel was strongly balanced as most of the countries had the selected variables available for the period 2004 to 2012. The following tests were done and corrected for where appropriate: The Goodness of Fit, Heteroscedasticity, Serial Correlation and heterogeneity.

Models with Financial Inclusion Indicators, without ICT Developments

Regressions were run on access indicators (GMM (A)) only; usage indicator (GMM (U)) only; and on financial inclusion as a whole (GMM (FI)), (Table 1) to determine the impact of financial inclusion on intra-regional trade in the absence of developments in ICT. The access indicator of both ATM's and commercial banks had the wrong signs in both analyses but commercial bank branches were significant in the model with all financial inclusion indicators (i.e. both access and usage indicators). The usage indicator of outstanding loans was insignificant in the model with usage indicators only but was significant in the model with all financial inclusion indicators.

This implies that although access indicators had the wrong sign because access does not necessarily translate to usage, usage indicators can only significantly affect intraregional trade when access indicators are included in the model. This should make sense as those who use informal financial services may not use formal services due to non-availability. This is due to factors that deter traders from formalisation such as costs and requirements for one to use commercial banks. On the other hand, one can only use a formal financial service when they have access to it thus usage can only be significant in the presence of access.

5 *Burundi, Comoros, D R Congo, Djibouti, Egypt, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.*

Table 1: Regression with Financial Inclusion Only[6]

Variable	GMM(A)	GMM(U)	GMM(FI)
Constant	2.01***	1.32***	-0.13
	(0.35)	(0.51)	(0.71)
LOG(ComesaL1)	0.01	0.04	-0.05
	(0.09)	(0.09)	(0.09)
LOG(ComesaL2)	0.15*	0.18**	0.20**
	(0.09)	(0.08)	(0.08)
LOG(Commercialbanks)	-0.27		-0.87***
	(0.28)		(0.33)
LOG(ATM)	-0.14		-0.14
	(0.20)		(0.19)
LOG(Loans)		0.27	2.11***
		(0.37)	(0.62)
LOG(RealGDP)	0.08	0.07	-0.15
	(0.20)	0.20	(0.21)
Wald Chi^2	13.00**	5.14	25.02***
No of Observation	106	109	106
No of Groups	17	17	17

From the analyses of the model GMM (FI), the wald chi^2 suggested that the financial inclusion indicator coefficients in the model are statistically significant. The results imply that if commercial bank branches per 100,000 adults increased by 1 percent, intra-regional trade in COMESA would decrease by 0.87 percent. On the other hand, if loans as a percentage of GDP increased by 1 percent, intra-regional trade in COMESA would increase by 2.11percent.

The GDP coefficient was not significant in all the three models, and had the wrong sign in the GMM (FI) regression. The second lag on COMESA trade was positive and significant at 5 percent. This suggests that trade from two periods, if increased by 1 percent, would increase trade by 0.2 percent.

The sign for commercial banks was negative. This may be because access to financial services does not necessarily guarantee use of the services. In this study, we have mentioned that informal firms are usually unregistered and do not possess regulatory requirements to function in the system hence a bank nearby may not mean one will have an account..

Model with ICT, without Financial Inclusion

Results in Table 2 suggest that the model does not fit the data well and the p-value on the wald chi^2 was not significant at all levels.

6 Standard errors are reported in parentheses. *, **, *** indicates significance at the 90percent, 95percent, and 99percent level, respectively.

Table 2: Regression results- Impact of ICT without Financial Inclusion[7]

Variable	GMM(CELLULAR)
Constant	1.72***
	(0.40)
LOG(ComesaL1)	0.47
	(0.87)
LOG(ComesaL2)	0.17**
	(0.09)
LOG(Cellular)	-0.06
	(0.14)
LOG(RealGDP)	0.08
	(0.21)
No of Observation	109
No of Groups	17

Model with Financial Inclusion, ICT and Intra Regional Trade in COMESA

Table 3 shows results from the robust pooled panel data, fixed effects, random effects and DPD model. The pooled panel data model has limitations in that it does not consider for heterogeneity, and no country specific effects are estimated, hence assumes all countries are homogenous in terms of cross-section and time. The pooled OLS estimator ignores the panel structure of the data. The results show that the commercial bank branches and GDP were significant although the former had the wrong sign.

Table 3 also presents the results of the fixed effects (FEM) and random effects (REM). Both models are not a good fit. The FEM suggests that if commercial bank branches in COMESA increase by 1 percent trade decreases by 0.32 percent. All other variables were not significant. In the REM, ICT is significant and commercial bank branches have a negative relationship with trade.

Finally, the results of the GMM model of dynamic panel data show that coefficients are statistically significant and the model fits the data well.

7 Standard errors are reported in parentheses. *, **, *** indicates significance at the 90percent, 95percent, and 99percent level, respectively. The table shows the results of (one-step) system GMM estimators.

Table 3: Final model with Pooled, Random, Fixed Effects and Final PDP Model

The dependent Variable is the total trade in COMESA				
Variable	**Pooled**	**FEM**	**REM**	**GMM**
Constant	1.87***	1.02	1.15	-1.18
	(0.52)	(0.83)	(0.83)	(0.81)
LOG(ComesaL1)				-0.07
				(0.09)
LOG(ComesaL2)				0.19***
				(0.09)
LOG(Cellularphone)	0.23	0.28	0.44*	0.91***
	(0.25)	(0.32)	(0.25)	(0.32)
LOG(Commercialbanks)	-1.09***	-0.32*	-0.63**	-0.84***
	(0.33)	(0.18)	(0.32)	(0.33)
LOG(ATM)	0.05	-0.05	-0.15	-0.83***
	(0.21)	(0.28)	(0.21)	(0.31)
LOG(Loans)	0.08	0.70	0.53	2.12***
	(0.36)	(0.72)	(0.66)	(0.62)
LOG(RealGDP)	0.50**	0.07	0.10	-0.04
	(0.26)	(0.26)	(0.22)	(0.21)
Wald Chi^2		0.93	5.74	32.47***
R2	0.15[1]	0.02	0.08	
No of Observation	133	133	133	106
No of Groups		17	17	17
No of Instruments				40

In the final GMM model, all the coefficients were significant except for real GDP. The coefficients on Loans and mobile phone penetration had the correct signs indicating that the two variables are important in increasing intra-regional trade in COMESA. A 1 percent increase in loans to GDP will increase intra-regional trade by 2.12 percent. Increased usage of formal financial services will boost intraregional trade in COMESA.

In addition, a 1 percent increase in mobile phone subscriptions will increase intraregional trade in COMESA by 0.91percent. The coefficient on cellular mobile phone subscriptions increases and has the correct sign, when financial inclusion is included in the model. This suggests that developments in ICT will have a positive impact on trade through financial inclusion.

However, without the mobile phone subscription variable, the coefficient on the usage indicator of financial

inclusion and outstanding loans was still significant. This may imply that as long as there is increased usage of formal financial services, more informal trade may be formalised through mobile payments and intraregional trade is likely to increase. This implies that financial inclusion has a positive impact even in the absence of ICT.

The access indicators of commercial bank branches and ATM's however, both had the wrong signs in all the models. This then suggests that access does not necessarily translate to usage of financial services. Financial inclusion policy therefore is beyond making services available but also making services affordable and relevant to users.

Conclusions and Policy Implications

Intra-regional trade is expected to rise with improvements in both financial inclusion and ICT. One major reason is that financial inclusion is likely to lead to formalization of those in the informal sector. The study found that both the increase in usage of formal financial system and mobile phone penetration (as a proxy for ICT development) had positive effect on intra-regional trade in COMESA. ICT on its own was not enough to impact intra-regional trade but financial inclusion was significant with or without ICT, though slightly higher in the presence of ICT.

The policy issues emerging from the study include the need for governments in COMESA region to promote and improve usage of formal financial systems especially for SME's. Further, central banks, commercial banks, microfinance corporations and mobile phone companies should devise a policy that would serve and protect the excluded population.

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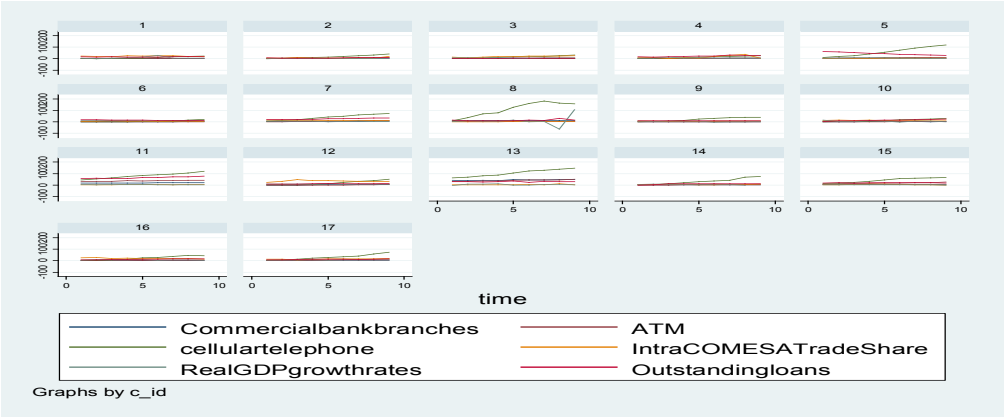
Appendix 1: Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Outstanding Loansper-centGDP	overall	19.29	15.46	0.97	76.86	N = 153
	between		15.13	3.15	64.40	n = 17
	within		4.71	5.48	37.62	T = 9
Commercial Bank Branches/ 100000 adults	overall	6.52	10.45	0.39	48.00	N = 153
	between		10.67	0.53	43.89	n = 17
	within		1.13	2.48	10.63	T = 9
atm machines/ 100000 adults	overall	7.86	12.54	0	50.91	N = 148
	between		12.47	0.15	40.77	n = 17
	within		2.62	-2.10	18.01	T-bar = 8.70588
Cellular phone subscrip-tion	overall	37.57	39.36	0.21	180.45	N = 153
	between		32.28	6.28	108.58	n = 17
	within		23.71	-61.93	109.44	T = 9
IntraCOMESA Trade/Total trade	overall	11.13	9.54	0	48	N = 153
	between		8.84	2	35.11	n = 17
	within		4.11	-0.76	35.24	T = 9
Real GDP	overall	5.73	10.49	-61.26	104.49	N = 152
	between		2.54	1.55	11.05	n = 17
	within		10.19	-65.31	100.44	T = 8.94118

Appendix 2: Graphs of Variables by Country[8]



8 1-17 represent the countries as numbered in Appendix 1

6

Interdependence of Stock and Foreign Exchange Markets: Implications for Financial Integration in the COMESA Region

By Dr Lucas Njoroge[1]

Abstract

The study applies multivariate Granger causality test for the short run analysis and the Johansen cointegration and Vector Error Correction (VEC) modeling for the long run analysis of the relationship between stock prices and exchange rates in the Common Market for Eastern and Southern Africa (COMESA). The short run results show bidirectional causality between the regional stocks and UK and US stock indices suggesting more integration of the regional stock markets with UK and US stock markets.

The study finds a stable long-run relationship between individual country exchange rates, stock indices and the UK and US stock indices and a positive relationship between the SP500 or FTSE100 with individual country's stock indices. There is no short run or long run relationship between stocks or exchange rates among COMESA countries indicating that the region is not integrated enough to support the required financial deepening for the establishment of a monetary union.

Introduction

The importance of understanding the relationship between stock prices and exchange rates especially in the Common Market for Eastern and Southern Africa (COMESA) region can be justified on the following grounds, among others. First, the relationship between stock prices and exchange rate has been a focus of empirical research since the advent of floating exchange rate regimes (Aydemir and Demirhan 2009). The collapse of the Bretton Woods System resulted in increased volatility and uncertainty of exchange rates. At the same time, many countries have opened up their economies to capital movement that has seen increased volatility of stock prices across countries.

Empirical research on this relationship has intensified with the liberalization of capital markets, higher cross-market return correlations and the progression of world trade and investment, whose consequence has been rapid growth in international trade in financial assets (Aloui, Aissa and Nguyen 2011; Chkili, Aloui, and Nguyen 2012; Phylaktis and Ravazzolo 2005). Increased globalization has created a systematic interdependency between and within the stock and foreign exchange markets across countries, increasing vulnerability to financial and currency crisis. At the heart of the relationship between the two financial variables, is the concern that even small

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fluctuations in stock prices and exchange rates can adversely and substantially affect individual wealth, company profitability and government policy decisions (Aydemir and Demirhan 2009; Chkili, Aloui, and Nguyen 2012; Dufrénot, Mignon and Péguin 2011).

Second, interdependence in stock prices across countries reflects economic integration in the form of increasing trade linkages and foreign direct investment. COMESA region has been implementing various initiatives including removal of both tariff and non-tariff barriers to commercial interaction aimed at deepening economic integration. COMESA's approach to integration is designed to lead to the achievement of full economic co-operation through a gradual process starting with the creation of a free trade area, customs union, followed by the establishment of a common market and ending with an economic and monetary union.

Third, although the stock exchanges in the region are relatively new, initiatives among COMESA member countries to follow through with macroeconomic convergence have seen some co-movement of underlying macroeconomic variables across national economies that may have led to co-movement of stock prices and convergence in stock market developments, which would be worthy discerning. Fourth, central banks of COMESA region are working towards not only trade integration but financial integration. Through Central Bank Governors, COMESA countries monetary harmonization programme is aimed at ultimately establishing a monetary union, which will require deeper financial markets integration. Investigating the relationship between stock prices and exchange rates will give insights on the extent of financial markets integration across the COMESA region, even as regional monetary harmonization continues.

Finally, COMESA economies also depend to a considerable extent on the US and Europe for trade and investments and therefore it is expected that such linkages would be reflected in stock markets. Increased stock market integration provides investors with more room for maneuver as they seek to diversify their assets. That is, any potential gain from international diversification of a portfolio is inversely related to the extent of stock market integration. A low correlation between returns on national stock indices allows investors to minimize portfolio risk by international diversification (Hatemi-J and Irandoust 2002; Hatemi and Roca 2005; Ibrahim 2000). Thus, an analysis of the long-run co-movement of national stock prices and international stock prices is important for a better understanding of the management of an international portfolio.

Policy makers need a deeper understanding of the relationship between stock prices and exchange rates in COMESA region given its ambitious economic integration agenda. Accurate information on the relationship between exchange rates and stock markets is important for economic and financial policy-makers and regulators, as a basis to formulate appropriate policies. Furthermore, there is limited, research in this field for COMESA countries. Besides, previous studies for other regions do not shed light on whether the regional economies have become more or less sensitive to other leading stock markets like UK and US markets (Gregoriou, Hunter and Wu 2009). This study adds to the existing empirical evidence on the relationship between stock prices and exchange rates for selected COMESA member countries, namely Egypt, Kenya, Mauritius, Uganda and Zambia. The other 16 COMESA member countries did not have complete data for the entire period under consideration. The study also incorporates the influence of the UK and US stocks markets by using the FTSE100 and SP500 stock indices in the analysis.

Literature Review

The theoretical underpinning of the relationship between stock prices and exchange rates is based on two main approaches. First, the flow approach attributed to Dornbusch and Fischer (1980) and Meese and Rogoff (1983) argues that when the Marshall-Lerner condition holds, a depreciation of the (real) exchange rate makes exports attractive for foreigners leading to increased output and revenues for firms. A rise in output and revenues in turn leads to increased profitability for firms which, via the dividend-discount model (DDM), translate into a rise in stock prices. This approach therefore predicts a positive relationship between stock prices and the exchange rate.

Second, the stock approach distinguishes a number of its variants that include the monetary, the portfolio balance and the portfolio rebalancing approaches. The monetary approach, attributed to among others, Canto, Findlay and Reinganum (1983) was initially designed to explain balance of payments adjustments during the fixed exchange rate regime. The monetary approach consists essentially of the purchasing-power parity (PPP) condition and an equilibrium condition for the money market in which the demand for money is negatively related to the rate of return. A rise in stock prices raises the rate of return, making money less attractive since it earns a zero return. The fall in the demand for money increases the price level which, via PPP, increases the exchange rate.

This argument is consistent with recent experience from the global financial and economic crisis in which, as the asset and credit bubbles formed in many countries simultaneously, stock- markets crashed and many currencies depreciated drastically. Therefore, congruent to the flow model, the monetary approach predicts a positive relationship between stock prices and the exchange rate. The portfolio balance approach attributed to Branson (1983) and Frankel (1983) assumes that investors hold an internationally diversified portfolio. Under the model, a rise in domestic stock prices attracts foreign investors to invest in such stocks, leading to capital inflow and an appreciation of the currency (a fall). Conversely, a decrease in domestic stock prices induces a reduction in domestic investor's wealth, leading to a fall in the demand for money and lower interest rates which cause capital outflows and a depreciation of the currency. The portfolio balance approach therefore predicts a negative relationship between stock prices and the exchange rate.

The portfolio rebalancing approach attributed to among others Hau and Rey (2004), argues that the internationally diversified investor finds the portfolio over-weighted in domestic assets following an increase in domestic stock prices. The investors therefore sell domestic and buy foreign stocks causing the domestic currency to depreciate (rise). Contrary to portfolio balance approach, the portfolio rebalancing approach therefore predicts a positive relationship between stock prices and the exchange rate.

Congruent to the theoretical literature, empirical literature on the relationship between stock prices and exchange rates remain inconclusive, with some supporting a negative relationship, others a positive relationship, yet other studies find no relationship between the two financial variables. First, for studies that find a negative relationship between the two variables, Soenen and Henningar, (1988) argued that a vibrant stock market characterized by increasing stock prices is an indicator of booming economic activities, which stimulates money growth as demand for loans rises. This leads to an increase in interest rates and, as a result, to capital inflows and an appreciation of the exchange rate. Second, a number of papers found a positive relationship between stock prices and exchange rate.

Aggarwal (1981) found a positive relationship between exchange rate changes on the stock market in the U.S. while Solnik (1984) found that exchange rate changes can substantially affect the values of firms, and the changes in the values of foreign currency denominated assets. Ajayi and Mougoue (1996) found a positive relationship between stock prices and exchange rate in both U.S and U.K. They argue that a vibrant stock market is an indicator of expanding economic activity and higher inflation expectations. High inflation expectation discourages foreign investors which results in capital outflow and currency depreciation. Keray (2009) using the VEC and Johansen Cointegration Test, found a long run relationship between the Stock prices and monetary variables (Exchange rate and M2) in Jamaica.

Third, there are a number of studies that do not find any relationship between stock prices and the exchange rate. Nieh and Lee (2001), using both Engel-Granger and Johansen's cointegration tests, found no significant long-run relationship between stock prices and exchange rates in G-7 countries. Rahman and Uddin (2009), found no relationship between stock and exchange rates in South Asian countries. Yau and Nieh (2006) using various linear and non-linear time series methodologies found no significant linkage or causal relationship between each of the stock prices of Taiwan and Japan and the New Taiwan Dollar (NTD) to Japanese Yen exchange rate, during the period January 1991 to July 2005.

Hatemi-J and Roca (2005), using bootstrap causality tests with leveraged adjustments, analyzed the relationship between the two financial variables before and during the Asian financial crisis of 1997, for Malaysia, Indonesia, Philippines and Thailand. Although the relationship had some form of directional causality before the crisis, they found that during the crisis period, the relationship between exchange rates and stock prices ceased to exist in any of the countries.

Finally, a large body of literature focuses on testing for Granger Causality, with little emphasis on whether the direction is positive or negative or none existing. Smyth and Nandha (2003), using both Engle and Granger two step and Johansen cointegration methods, investigated the relationship between the two financial variables for Bangladesh, India, Pakistan and Sri Lanka over the period 1995 to 2001. They found no long-run equilibrium relationship between these two financial variables in any of the four countries. However, they found uni-directional causality running from exchange rates to stock prices in India and Sri Lanka, but in Bangladesh and Pakistan exchange rates and stock prices were found to be independent.

Hatemi-J and Irandoust (2002) examined the relationship between the two financial variables in Sweden by testing Granger causality. They found that Granger causality was unidirectional and running from stock prices to effective exchange rates. Ibrahim (2000), using cointegration techniques and the Granger causality test examined the relationship between stock price index, exchange rate, reserves and money supply in Malaysia. The results supported a long-run relationship between these variables showing a unidirectional causality from the stock market to the exchange rate. The results further observed a feedback effect from the bilateral Malaysian Ringgit to US Dollar exchange rate (RM/US$) to the stock market.

Morley and Pentecost (2000), using Engle and Granger test for cointegration tested the relationship between stock prices and spot exchange rates for the G-7 economies for the period 1982 to 1994. They found that most of the countries tested did not have a common, bilateral long-term trend, with the exception of the UK and Canada. Philaktis and Ravazzolo (2005) using cointegration methodology and multivariate Granger causality tests examined the relationship between stock prices and exchange rates in Hong Kong, Indonesia, Malaysia,

Singapore, Thailand and the Philippines over the period 1980 to 1998. They found no long-run relationship between the two financial variables in each Pacific Basin country.

In conclusion, the empirical literature on the relationship between exchange rates and stock prices shows mixed results. At the same time there is very little empirical evidence for countries in the COMESA region. This paper attempts to address these gaps by providing empirical evidence for selected COMESA countries.

Methodology and Data

a) Data

The relationship between the Stock Prices and Exchange Rates for five COMESA countries namely Egypt, Kenya, Mauritius, Uganda and Zambia is investigated for the period 2009 to 2014. Use of daily data ensured that the length of the time period covered allowed enough degrees of freedom for the analysis. It is only for these five countries that daily data existed on the two financial variables for the entire time period. The source for the data is Reuters. Other COMESA countries stock exchanges that are left out are either relatively very new and hence lack data for the entire period or have considerable gaps resulting from periods when such stock exchanges were inactive over the study period.

For the stock prices indices, the study uses: top 30 companies in terms of liquidity and activity in the Egyptian Stock exchange denoted as EGX 30; Nairobi Securities Exchange all share index denoted by NSE ALL SHARE; Stock Exchange of Mauritius Official Market All Share Index denoted by SEMDEX; Uganda Securities Exchange All Share index denoted by USEASI; and, Lusaka Stock Exchange All share Index denoted by LASI, as representative stock prices in Egypt, Kenya, Mauritius, Uganda and Zambia respectively. We use egpusd, kshusd, mrpusd, ushusd and kwzusd to denote Egyptian pound, Kenya shilling, Mauritius Rupee, Uganda shilling and Kwacha exchange rates to the dollar in respective countries. We use egppd, kshpd, murspd, ushpd and kzampd respectively for the Egyptian pound, Kenya shilling, Mauritius Rupee, Uganda shilling and Kwacha exchange rates to the British Pound. The stock index SP500 denotes US Standard and Poor's 500 index and FTSE100 denotes the UK FTSE 100 index and are used as proxies to capture the effect of the international financial environment[2]. We use the natural logs (Ln) of the data for all the series.

b) Methodology

The study applies time series techniques including testing for unit roots and Granger (1988) multivariate causality tests for cointegration using the Johansen (1992) Cointegration Test to investigate the relationship between the various series.

3.2.1 Testing for stationarity and cointegration

The study uses the Augmented Dickey-Fuller (ADF) test for stationarity in the presence of serial correlation with the following specification of the log of the series:

$$\Delta Z_t = \beta + \rho Z_{t-1} + \sum_{i=1}^{n} \Delta Z_{t-i+1} + \omega_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

2 *It is worth noting that data for Egypt* was interrupted by the revolution for the period January 28th to 22nd March 2011. We controlled for this by carrying out analysis before and after this gap and the results were generally similar. We therefore report the results for Egypt after the revolution.

Augmented Dickey-Fuller (ADF) test is compared with Phillips-Perron test to determine the stationarity of a series. Only when the two gives consistent results, is the decision upheld. A host of other tests for stationarity results were not reported since they were consistent with the verdict of these two tests.

Using Johansen cointegration, we then tested to ascertain whether the linear combination of the series possessed a long-run relationship. The lag length for the Johansen test was determined by estimating a Vector Autoregressive model using the un-differenced data. Tests for stability of the VAR were also performed before conducting the Johansen Cointegration Test.

Within a VAR framework, the Johansen procedure entails the identification of rank of the n x n matrix ∏ in the specification given by:

$$\Delta Z_t = \alpha + \sum_{i=1}^{k-1} \Gamma i \Delta Z_{t-1} + \Pi Z_{t-k} + \varepsilon_t \quad \text{.....(2)}$$

Where Z_t is the vector of n variables, Δ is the difference operator, Γ and Π are the coefficient matrices, k denotes the lag length and α is a constant. The Johansen Maximum likelihood test provides a test for the rank of Π. In the absence of a cointegrating vector, Π is a singular matrix, which means that the cointegrating vector rank is equal to zero.

3.2.2 Stock prices and exchange rate relationship

We examined the relationship between stock prices and the exchange rate using the following models:

$$Er_t = \beta_o + \beta_k SI_{t-k} + \delta_k FTSE100_{t-k} + \epsilon_t \quad \text{.....(3)}$$

$$Er_t = \propto_o + \propto_k SI_{t-k} + \delta_k SP500_{t-k} + \varepsilon_t \quad \text{.....(4)}$$

Where:

Er is the Exchange rate

SI is the stock price index,

t is the time,

k the number of lags to a maximum of n lags, and ϵ and ε are error terms.

We included in the model the variable FTSE100 (for FTSE 100 Index for UK) and SP500 (for the Standard and Poor's 500 Composite Index for the US) to capture the possibility of "flight to safety" or to other international stock markets due to changes in international investor confidence. This inclusion also captures the possibility that a particular stock exchange is more financially integrated with other international stock exchanges. The use of FTSE100 and SP500 indices reflect the importance of the UK and US markets to COMESA stock exchanges by virtue of the two being more closely linked to the region's stock exchanges and also being among the most

vibrant markets in the world. It is worth noting that there are other important determinants of stock prices and/or exchange rates that could have been included in the analysis such as money supply, foreign exchange reserves among others.

However, the data for these other variables could not be accessed for most countries in COMESA. Besides, our analysis is consistent with others studies which restrict the analysis of relationship between stock prices and exchange rate to the two variables and their lags (Alagidede, Panagiotidis and Zhang 2011; Bahmani-Oskooee and Domac 1997; Chkili, Aloui, and Nguyen 2012; Granger, Huang and Yang 2000; Kanas, 2000).

The analysis of whether there is any causal relationship between the various markets involves estimating the following models:

$$Er_t = \beta_o + \sum_{k=1}^{n} \beta_k SI_{t-k} + \sum_{k=1}^{n} \alpha_k Er_{t-k} + \sum_{k=1}^{n} \delta_k FTSE_{t-k} + \epsilon_t \quad (5)$$

$$SI_t = \gamma_o + \sum_{k=1}^{n} \beta_k Er_{t-k} + \sum_{k=1}^{n} \vartheta_k SI_{t-k} + \sum_{k=1}^{n} \rho_k FTSE_{t-k} + \varepsilon_t \quad (6)$$

$$Er_t = \beta_o + \sum_{k=1}^{n} \beta_k SI_{t-k} + \sum_{k=1}^{n} \alpha_k Er_{t-k} + \sum_{k=1}^{n} \tau_k SPI_{t-k} + \epsilon_t \quad (7)$$

$$SI_t = \gamma_o + \sum_{k=1}^{n} \beta_k Er_{t-k} + \sum_{k=1}^{n} \vartheta_k SI_{t-k} + \sum_{k=1}^{n} \varphi_k SPI_{t-k} + \varepsilon_t \quad (8)$$

Appropriate exchange rates (a COMESA country exchange rate to the pound or US dollar) corresponding to the stock market (UK or US stock market) are used in each of the estimation respectively. The granger causality requires testing the following hypothesis:

H_o: $\beta_k = 0$ is the null hypothesis

H_a: $\beta_k \neq 0$ is the alternative hypothesis.

If we accept the null, this means granger causality does not occur.

Empirical Results

a) ***Unit Root Tests Results***

The results of unit roots tests are reported in *Appendix A1*. We use both ADF and Phillips Perron (PP) tests for unit roots for robustness check. The ADF results indicate that we cannot reject the null hypothesis of existence of unit root in levels for all the variables except FTSE 100 and SP500 that suggests stationarity in levels. However, the PP tests results indicates that we cannot reject the null hypothesis of existence of unit root in levels for all the variables including FTSE 100 and SP500. Based on the two tests, we fail to conclude that FTSE 100 and SP500 are stationary in levels and deduce that all the variables are none stationary in levels and hence have a unit root. Based on both the ADF and PP tests for unit roots, we therefore find that the null hypothesis of a unit root cannot be rejected in all the variables, for all the countries. We conclude that all the series used in the study are integrated of order one I(1), meaning that all the series become stationary after first difference. The graphs at the end of the paper attest to this and show that all the variables are mean reverting in first difference and not in levels.

b) ***VAR lag Order Selection Criteria Results***

The results of the VAR lag order selection criteria are reported in *Appendix A2* based on four criteria namely Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ). Most of the estimated VAR models suggest different lag length. Various criteria have their weaknesses and strengths and hence the correct lag length depends on the criteria or measure used. This is typical of these tests and researchers often use the criterion most convenient for their needs (Wong and Li, 2010). For instance, the SC criterion is generally more conservative in terms of lag length than the AIC criterion, i.e. it selects a shorter lag length than the other criteria. We report the minimum significant lag length to be the appropriate lag from whichever criterion, as reported in *Appendix A2*. In general, all our VARs have lag structures of 2 to 4 lags which we use for the analysis. Next, we tested for the properties of the VAR model by checking for the stability. Starting with the VAR with the minimum number of lags according to any of the information criteria (and checking whether there were problems with stability), we find that all our VAR models satisfy the stability condition since no root lies outside the unit circle as reported in *Appendix A3*[3].

Cointegration Tests

We then establish multivariate cointegration test using the Johansen methodology as reported in *Appendix A4*. This method is superior because it provides the number of cointegration relationships unlike other methodologies that do not specify the number of cointegration relationships (Katechos, 2011). All the ten VAR equations as reported in *Appendix A4* reveal that the trace and maximum eigenvalue statistics reject the null hypothesis of no cointegration at 5 percent levels of significance, providing evidence of cointegration in these models. The Trace test indicates 1 cointegrating equation at the 0.05 level in all the cases. The results suggest that the COMESA region stocks have a stable long-run relationship with UK and US stocks.

However, both the Trace test and the Maximum Eigen-value statistics for the series of exchange rate, country stocks with other COMESA stocks indicated absence of cointegration. For instance, the Kenya shilling to the dollar exchange rate, the Nairobi all share index, with the series of Egypt, Uganda, Zambia, and Mauritius stock indices rendered the variables not to be cointegrated. The process was repeated for every country stock relative to each other country stock and none of the triple series VAR yielded cointegration. The results remained generally the same whether we used the trace or the eigenvalue test or whether we allowed for a trend in the cointegrating vector or not.

We conclude that the stocks among COMESA countries do not have a stable long-run relationship. This suggests that the co-movement between stock prices and exchange rate in the COMESA region is not pronounced reflecting relatively low integration of financial markets in the region. One however needs to be cautious with this interpretation because the lack of cointegrating relations may also be the result of misspecification as other fundamental economic variables may work as channels through which the two types of financial markets (stock and foreign exchange markets) are linked in the long run. However, our findings of limited cointegration still resonates well with existing empirical literature (Alagidede, Panagiotidis and Zhang 2011; Chkili, Aloui, and Nguyen 2012; Granger, Huang and Yang 2000; Kanas, 2000).

3 *Corresponding tables and charts to show VAR stability were not reported in the paper to economize on space but can be provided upon request.*

Granger Causality Tests

We test for Granger causality using multivariate VAR model specified in first difference to ensure stationarity of the variables. The granger causality test assumes that the information relevant to the prediction of the respective variables is contained solely in the time series data on these variables. For two I(1) variables x and y, we say that x causes y if the lagged Δx variables in the Δy equation are jointly significant and *vice versa* for the causality from Δy to Δx. The results of the Granger Causality tests are reported in *Appendix A6*.

The results of the granger causality show either a rejection or acceptance of the null hypothesis. When the decision is reject the null hypothesis Ho: Y does not Granger Cause X, it means that Y granger causes X. For instance, when the null hypothesis ΔLNKSH_USD does not Granger Cause ΔLNSE_ALL_SHARE is rejected, meaning the exchange rate (KSH_USD) granger cause the stock price (NSE_ALL_SHARE) and vice versa.

Appendix A6 shows the following key patterns. For Kenya, there is bi-directional causality between FTSE100 and NSE, and SP500 and NSE suggesting that in the short run the respective stock exchanges are related. This imply that investors in NSE are keen on what happens in US and UK stocks probably affirming the significant role played by foreign investors from the two markets in the Nairobi Securities Exchange. The results also show unidirectional granger causality from Kenya shilling-US dollar exchange rate to NSE and Kenya shilling Pound exchange rate to NSE, suggesting that in the short run, the Kenya shilling exchange rate whether against the dollar or the pound affects foreign participation in the NSE. There is also a unidirectional causality from SP500 to Kenya shilling US dollar exchange rate suggesting the important influence of the US stock market on the Kenya shilling exchange rate. Similarly, the results for Zambia show that there is bi-directional causality between FTSE100 and LASI, and SP500 and LASI suggesting that in the short run the respective stock exchanges are related. This imply that investors in LASI also follow what happens in UK and US stocks probably affirming the significant role played by foreign investors from the two markets in the Lusaka Stock Exchange. Unidirectional relationship from SP500 and the Kwacha US dollar exchange rate, FTSE to Kwacha Pound exchange rate, LASI to the Kwacha US dollar exchange rate, and LASI to Kwacha Pound exchange rate and exists, suggesting that participation of foreign investors in the Lusaka stock exchange has an important influence on the Kwacha exchange rate.

Surprisingly, results for Egypt show that there is no causality between FTSE100 and EGX_30, and SP500 and EGX_30 implying that in the short run the respective stock exchanges are not closely interrelated. This suggests that Egypt could be more integrated with other neighbouring Arab countries than with the US and UK money and stock markets[4]. For Uganda, bi directional causality between FTSE100 and the USEASI (Uganda Securities Exchange All Share Index) and SP500 and USEASI also exist, suggesting the close short run interdependence between Uganda Securities Exchange and what happens in the UK and US stock markets. There is a unidirectional relationship between Uganda shilling to the US dollar Exchange rate and USEASI, SP500 and the Uganda shilling to the US dollar Exchange rate, the Uganda shilling to the UK Pound Exchange rate and the USEASI and FTSE100 and the Uganda shilling to the UK Pound Exchange rate suggesting short run interrelationship between the stocks and the exchange rate in Uganda.

Finally in Mauritius, a bi directional relationship exists between SP500 and SEMDEX (Stock exchange of Mauritius Official Market All Share Index) and FTSE100 and SEMDEX suggesting a close short run interdependence between

4 We verified the close correlations of the two financial variables between Saudi Arabia and Egypt.

the Mauritius Exchange and the UK and US stock markets. The results also show that there is a unidirectional relationship between Mauritius Rupee to the US dollar exchange rate and the SEMDEX, SP500 and Rupee US dollar exchange rate, SEMDEX and the Rupee UK pound Exchange Rate, and Rupee UK pound Exchange Rate and FTSE100 suggesting short run interrelationship between the stocks and the exchange rate in Uganda.

We also tested for the granger causality between the five selected stock exchanges in COMESA. The results indicated no causality between any of the five stocks exchanges in COMESA[5]. We concluded that the absence of short run causality between the stock markets in the COMESA region is an indication of lack of linkages between these stock exchanges, implying that the stock markets in the region are still not integrated enough to support a monetary union.

Vector Error-Correction (VEC) results

Since all the variables are I(1) and cointegrated, we use Vector Error-Correction Model (VEC) and not VAR which is appropriate when the variables are not integrated (Bubák *et al*, 2011). The VEC results are reported in *Appendix A5* where each of the equation is represented by the row. Starting with the first row, the output provides the elements of the cointegrating vector = (1.000, 0.112572, -0.328806), a constant, as well as the elements of the Error Correction Term vector = (-0.000652, -0.001897, -0.000125).

The equation is automatically normalized on the first variable to appear in the VAR, which in this case is Lnkshusd (log of the Kenya shilling to the US dollar exchange rate). As the coefficient on Lnkshusd equals 1, the equation explains Lnkshusd as a function of the other variables in the long-run relationship. Note that the coefficients on the other variables have the opposite sign from what theory would predict. This is because the independent variables are all assumed to appear on the left-hand side of the long-run equation. In other words, the cointegrating equation 1 (row 1) needs to be interpreted as follows:

Lnkshusd +0.112572lnseai- 0.328806lnsp500-2.568231 = 0 = I(0)

This long-run or cointegration equation can be written in the conventional form such that Lnkshusd is the single left-hand side variable is expressed as:

Lnkshusd = - 0.112572lnseai + 0.328806lnsp500 +2.568231 …1

Similar rearrangement of equation 2 (row 2) implies that:

LnkshPnd = -0.453916lnseai+ 1.751580lnftse100 -8.398423 …2

The two VEC equations for Kenya suggest that the signs are correct in both equations. The Nairobi stock exchange index is negatively related to the exchange rate of the Kenya shilling against the dollar and the British Pound in equation 1 and 2 respectively. This suggests that when the NSE is experiencing a bear run, investors shy away from the Nairobi Securities Exchange leading to increased pressure for the Kenya shilling to depreciate and hence the negative relationship. Similarly, when the SP500 or FTSE100 are experiencing a bull run, Kenyan investors tend to be outward looking and hence takes the advantage by purchasing stocks in London and US markets, through buying dollars from the forex market thereby putting pressure on the shilling to depreciate

5 We did not report the results in the paper for economy of space but can be provided on request.

and hence the positive relationship between the Kenya shilling exchange rate and the SP500 or FTSE100. Alternatively, a depreciation of the Kenya shilling exchange rate positively influence international stock returns.

However, from the standard errors and t-statistics, equation 1 indicate that only the coefficient on SP500 is statistically significant suggesting the Kenya shilling to the dollar exchange rate is sensitive to developments in US stocks in the long run. Equation 2 indicates that both the NSE index and the FTSE100 are significant long run determinants of the Kenya pound exchange rate. It is however surprising that the performance of the NSE does not statistically influence the Kenya shilling US dollar exchange rate in the long run although it could possibly be explained by the unpredictable nature of African stock markets such that in the long run, foreign investors tend to shy away especially during periods excessive volatility. We can also see that the Error Correction term in equation 1 has both the Kenya dollar exchange rate and NSE being statistically significant, implying that they both play an important role in the adjustment process while in equation 2 only NSE is statistically significant in the adjustment mechanism.

For different countries and models, each of the variables (exchange rate, local stock indices and international stocks indices – FTSE100 and SP500) tend to differ in their statistical significance in the adjustment process, but in general each model tends to have one or more such variables with coefficients that are statistically significant in the Error Correction Term. This suggests that in each of these equations, adjustments towards equilibrium takes place through these statistically significant variable(s). We therefore do not interpret the Error Correction Term for every model since the interpretation remains generally similar across equations.

In equation 3 and 4 for Egypt, following similar rearrangement, we find that the signs are correct in both equations. However, the standard errors and t-statistics indicate that both SP500 and FTSE are not significant long run determinants of the Egyptian Pound dollar exchange rate and the Egyptian Pound UK pound exchange rate in equation 3 and equation 4. The insignificance of these variables indicates minimal influence of UK pound and US Dollar denominated investments in the Egyptian stock exchange. Equation 5 and 6 for Zambia show that the signs are plausible in both models. However, equation 5 indicates that only the coefficient on SP500 is statistically significant, suggesting that the Kwacha Dollar exchange rate is sensitive to developments in US stocks in the long run. Equation 6 shows that both the Lusaka stock index (LASI) and the FTSE100 are significant long run determinants of the Kwacha Pound exchange rate. The results for Zambia are generally consistent with the results for Kenya.

The results in equations 7 and 8 and equations 9 and 10 for Uganda and Mauritius respectively, are generally similar. The signs are correct in all the equations and the interpretation is the same as in the previous cases. In equations 7 and 9, the stock indices in the Uganda (USEASI) and Mauritius (SEMDEX) and the SP500 index are statistically significant determinants of the Dollar-Uganda shilling exchange rate and the Dollar-Mauritius Rupee exchange in the long run. In equation 8 and 10, the stock indices in the Uganda (USEASI) and Mauritius (SEMDEX) and the FTSE100 index are statistically significant determinants of the Pound Uganda shilling exchange rate and the Pound Mauritius Rupee exchange in the long run.

Conclusion and Policy Implications

The short run results based on multivariate VAR Granger Causality tests indicates bi-directional causality between FTSE100 and SP500 and the respective individual country stock indices. This relationship suggests that

in the short run the respective COMESA country stock exchanges are closely interrelated with UK and US stock exchanges with the exception of Egypt. The bi-directional causality between stock indices of the region and the international stock indices indicate deeper financial integration with UK and US markets. The results confirm the significant role played by foreign investors in COMESA region stock exchanges. The short run analysis also show that there is unidirectional relationship between exchange rate and stock indices and between international stock indices and the exchange rates, suggesting short run interrelationship between the stocks and the exchange rate in the COMESA region.

The short run results therefore suggests that the US and UK stocks markets play an important role in the performance of both the currency markets and stock markets in the COMESA region. This implies that the movement in the exchange rates and stock prices mirror international trade interaction in the COMESA region. However, granger causality results between the five selected stock exchanges in COMESA indicated no causality between any of the stocks exchanges[6]. The absence of short run causality between the stock markets in the COMESA region is an indication of lack of linkage between these stock exchanges and possibly an indication that the stock markets in the region are still not integrated enough to support the required financial deepening for the establishment of a monetary union.

The long run multivariate Johansen cointegration and VEC results indicate that in all cases, the signs of the estimated coefficients are plausible. In the long-run, a bullish stock is negatively related to the exchange rate of the local currency against the dollar or the British Pound. This imply that when the regional stocks indices are experiencing a bearish run, investors shy away from such stock exchanges and instead purchase hard currencies from the local foreign exchange market to invest in US and UK markets, leading to increased pressure for the regional currency to depreciate and hence the negative relationship. Similarly, when the SP500 or FTSE100 are experiencing a bullish run, investors tend to be outward looking and hence take advantage by purchasing stocks in the international markets (London and US markets) through buying dollars from the local foreign exchange market thereby putting pressure on the local currency to depreciate and hence the positive relationship between the exchange rates (to the dollar or Pound) and SP500 or FTSE100.

The VEC results reveal the following key findings. First, that SP500 index is a statistically significant long-run determinant of the dollar exchange rate in all countries. Second, the FTSE100 index is also a statistically significant long-run determinant of the Pound exchange rate in all the countries. Third, except for Egypt, country stock indices are all statistically significant long-run determinants of the pound exchange rates of the respective countries. Fourth, except for Kenya and Zambia, local stock indices are all statistically significant long-run determinants of the dollar exchange rate. Finally, for Uganda and Mauritius, respective local stock indices and international stocks are statistically significant determinants of both the pound and dollar exchange rates in the respective countries. The error correction estimates of the VEC indicates that stock prices (both specific country stocks or SP500 or FTSE100 indices) and exchange rates or some combinations of the same within the country, adjust to correct for deviations from long-run relationships, across all the countries in COMESA.

To minimize exposure to short term capital flows that could emanate from developed countries such as US and UK, there is need to ensure: first, the stability of the financial system in member countries by implementing the COMESA Framework for Assessing Financial System Stability in order to minimize the exposure to capital flows from such markets. Second, that COMESA Member States should strive to achieve the agreed macroeconomic

6 We did not report the results in the paper for economy of space but can be provided on request.

convergence criteria in order to make the region a zone of macroeconomic stability. Third, COMESA Regional Investment Agency should aggressively promote COMESA as an investment destination to ensure inflow of long term capital as opposed to hot money. In addition, lack of interdependence between COMESA member states stock prices and exchange rates imply that there is need to: first, promote integration of stock markets in the region. Second encourage the development of capital markets in all member countries. Third, ensure implementation of the COMESA Action Plan for Financial System Development and Stability in order ensure financial sector deepening in the region. Fourth, fast track implementation of the COMESA Free Trade Area in order to increase the volume of intra-COMESA trade and attract both regional domestic and foreign investment.

Finally, there is an urgent need to ensure full utilization of COMESA Regional Payment and Settlement System in order to increase intra-regional trade and enhance deeper trade integration in the region.

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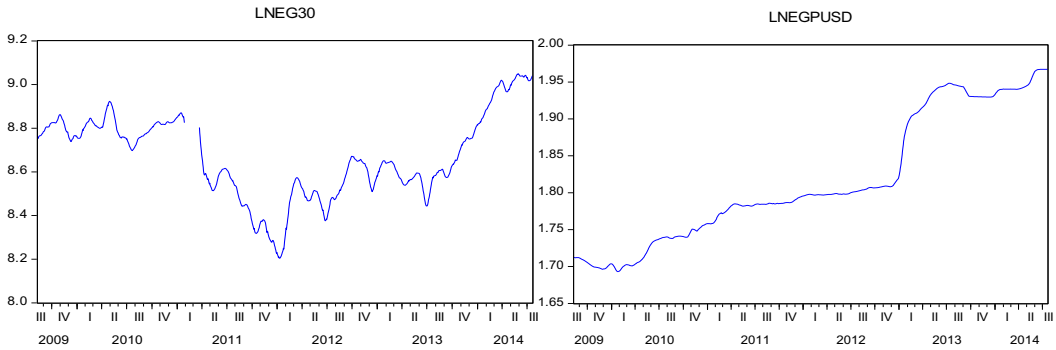
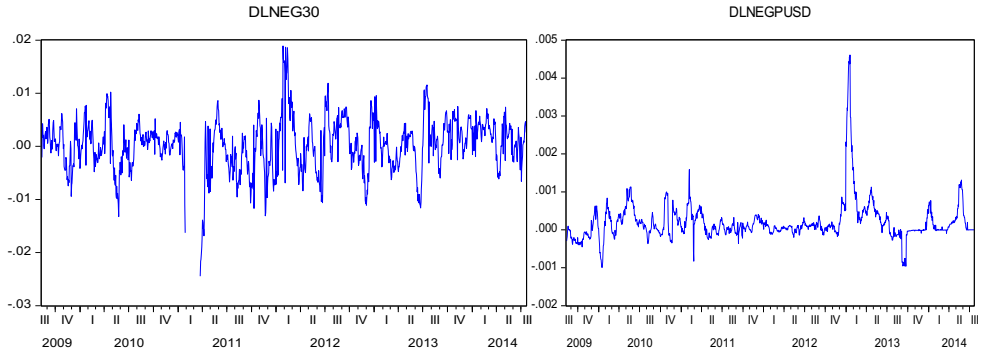
Appendices

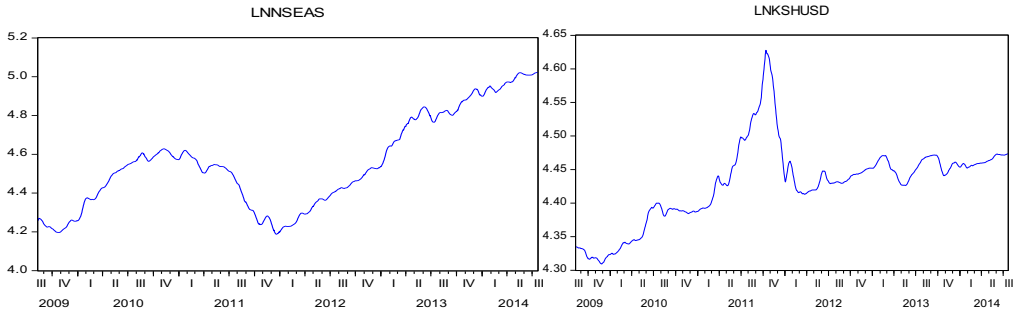
Graphs

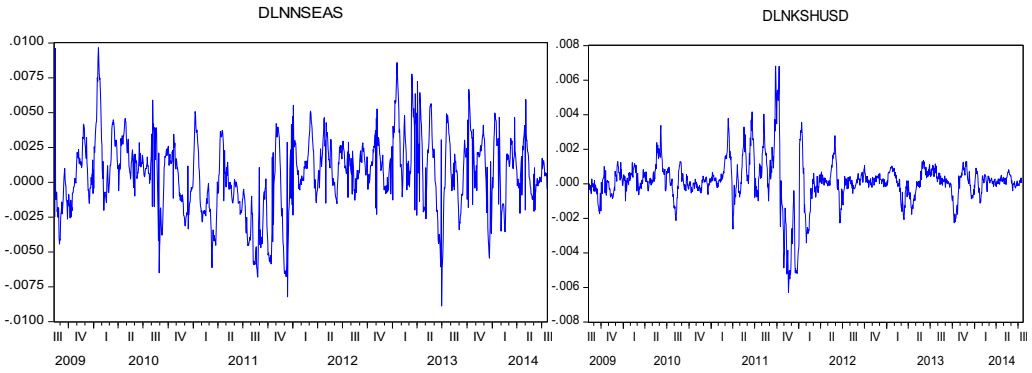
I. Egypt





II. Kenya





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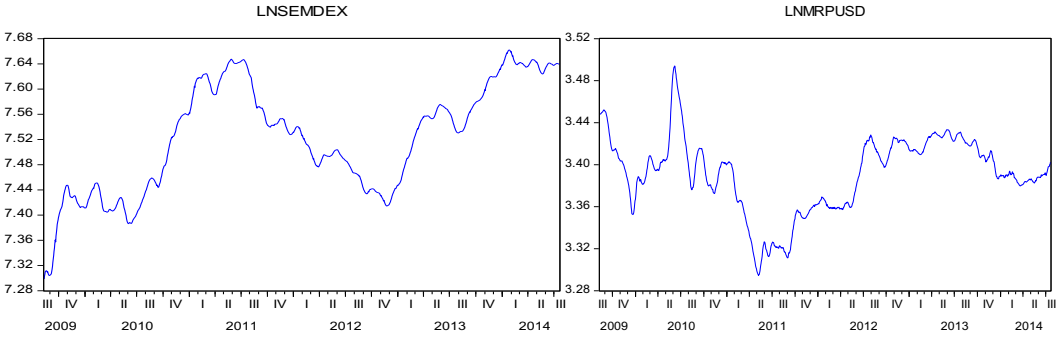
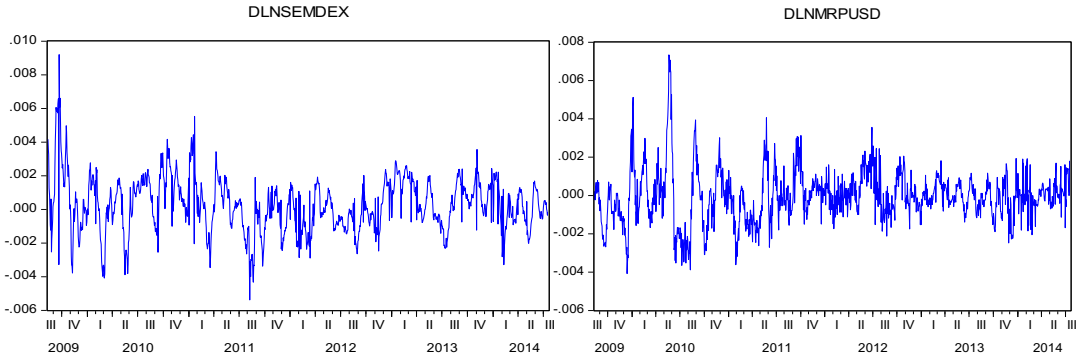
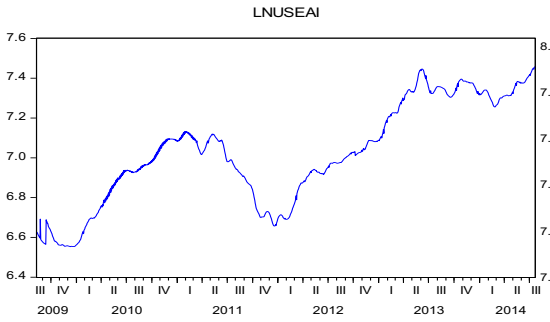
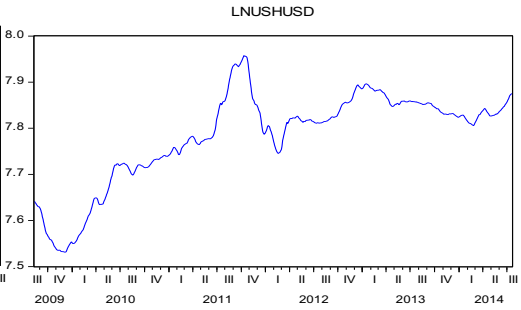
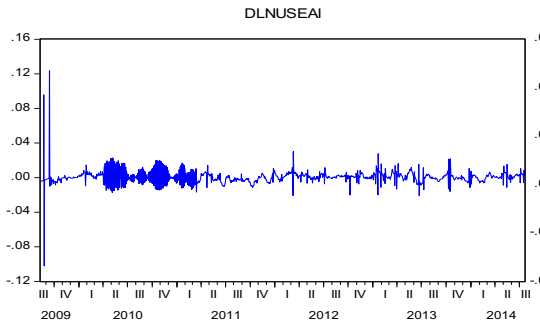


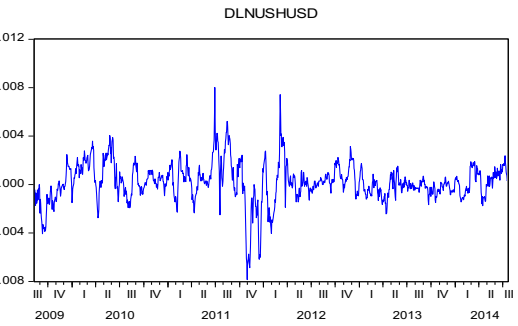


IV. Uganda

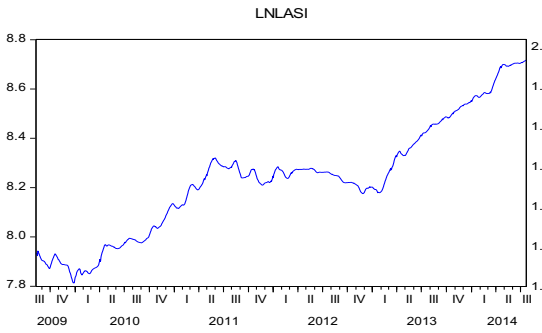


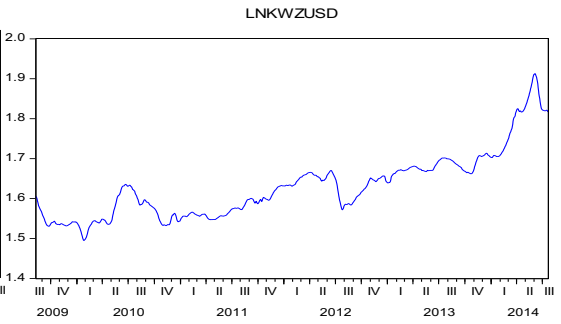


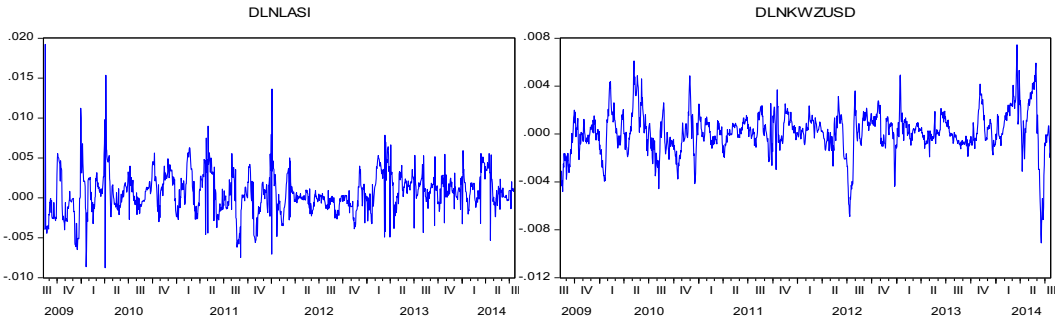




V. Zambia







Appendix

A1: The Unit Roots Tests Results

Country/Variable

Egypt	ADF test		PP Tests	
	None	Trend & Intercept	None	Trend & Intercept
Lneg30	1.301	-2.055	2.157	-1.441
Lnegpusd	1.484	-1.641	2.587	-0.991
ΔLneg30	-4.940***	-5.121***	-6.622***	-6.931***
ΔLnegpusd	-2.210**	-3.890**	-3.017***	-3.352*
Kenya				
Lnnseas	2.491	-2.264	3.940	-1.429
Lnkshusd	0.648	-3.904	0.845	-2.311
ΔLnnseas	-4.495***	-5.862***	-8.334***	-9.637***
ΔLnkshusd	-3.481***	-3.539**	-4.814***	-4.860***
Mauritius				
Lnsemdex	0.880	-3.015	1.578	-2.096
Lnmrpusd	-0.595	-1.651	-0.250	-2.026
ΔLnsemdex	-3.526***	-3.622**	-7.482***	-7.765***
ΔLnmrpusd	-6.005***	-6.016***	-14.847***	-14.823***
Uganda				
Lnuseai	1.736	-1.694	3.014	-1.286
Lnushusd	0.747	-2.131	1.430	-1.098

ΔLnuseai	-4.923***	-5.140***	-21.236***	-21.772***
ΔLnushusd	-4.890***	-4.944***	-4.997***	-5.052***
Zambia				
Lnlasi	2.317	-3.105	5.045	-3.166*
Lnkwzusd	1.021	-3.059	1.707	-2.049
ΔLnlasi	-4.138***	-4.895***	-11.324***	-12.897***
ΔLnkwzusd	-4.773***	-4.834***	-4.563***	-4.60***
Others				
LnFTSE100	0.928	-4.198***	2.105	-2.488
LnSP500	1.947	-3.243*	3.452	-1.743
ΔLnFTSE100	-7.938***	-8.002***	-8.212***	-8.276***
ΔLnSP500	-7.960***	-8.234***	-8.746***	-9.034***

The table reports t-statistics of both ADF and PP tests. *,**, *** reflect 10%, 5% and 1% levels of significance for the null hypothesis that the variable has a unit root. The rejection of the null hypothesis therefore means that all the variables with asterisk are stationary at the specified level of significance.

A2: VAR Lag Order Selection Criteria Results

Variable	Lag	LR	FPE	AIC	SC	HQ
Lnkshusd, lnseai lnsp500	3	211.8640	4.01e-19	-33.84701	-33.72635*	-33.80171*
Lnkshpd, lnseai, lnftse100	3	222.0605	9.12e-19	-33.02517	-32.90451*	-32.97986*
Lnegpusd, lnegx30, lnsp500	3	102.4620	1.19e-19	-35.06033	-34.93607*	-35.01359
Lnegppd, lnegx30, lnftse100	3	127.8829	2.53e-18	-32.00630	-31.88204*	-31.95956*
Lnkzamusd,lnlasi, lnsp500	4	110.8011	2.45e-18	-32.03787	-31.88101*	-31.97898*
Lnkzampd, lnlasi, lnftse100	4	106.7948	3.61e-18*	-31.64847*	-31.49161*	-31.58957*
Lnushusd, lnuseasi, lnsp500	4	92.94267	1.61e-17	-30.15206	-29.99520*	-30.09316
Lnushpd, lnuseasi, lnftse100	2	4441.995	4.76e-17	-29.06954	-28.98508*	-29.03782
Lnmursusd, lsemdex, lnsp500	3	365.0908	3.87e-19	-33.88173	-33.76107*	-33.83643*
Lnmurspd, lsemdex, lnftse100	3	319.3401	5.29e-19	-33.56996	-33.44930*	-33.52466*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

A3: VAR models stability conditions

Variable	Roots	VAR Stability Condition
Lnkshusd, lnseai lnsp500	No root lies outside the unit circle.	Satisfies
Lnkshpd, lnseai, lnftse100	No root lies outside the unit circle.	Satisfies
Lnegpusd, lnegx30, lnsp500	No root lies outside the unit circle.	Satisfies
Lnegppd, lnegx30, lnftse100	No root lies outside the unit circle	Satisfies
Lnkzamusd,lnlasi, lnsp500	No root lies outside the unit circle	Satisfies
Lnkzampd, lnlasi, lnftse100	No root lies outside the unit circle.	Satisfies
Lnushusd, lnuseasi, lnsp500	No root lies outside the unit circle.	Satisfies
Lnushpd, lnuseasi, lnftse100	No root lies outside the unit circle.	Satisfies
Lnmursusd, lsemdex, lnsp500	No root lies outside the unit circle.	Satisfies
Lnmurspd,lsemdex, lnftse100	No root lies outside the unit circle.	Satisfies

A4: Johansen Cointegration Tests with UK and US stocks

Series	Eigenvalue	Trace Statistic	0.05 Critical Value	Cointegration Decision
Lnkshusd, lnseai lnsp500	0.017515	37.01558	35.01090	1 cointegratingeqn
Lnkshpd, lnseai, lnftse100	0.019304	46.66962	42.91525	1 cointegratingeqn
Lnegpusd, lnegx30, lnsp500	0.055911	0.3464000	0.2979707	no cointegratingeqn
Lnegppd, lnegx30, lnftse100	0.020062	0.3632917	0.3501090	no cointegratingeqn
Lnkzamusd,lnlasi, lnsp500	0.011573	25.24660	24.27596	1 cointegratingeqn
Lnkzampd, lnlasi, lnftse100	0.026802	46.07159	29.79707	1 cointegratingeqn
Lnushusd, lnuseasi, lnsp500	0.022811	44.53499	42.91525	1 cointegratingeqn

Lnushpd, lnuseasi, lnftse100	0.041751	66.73866	29.79707	1 cointegratingeqn
Lnmursusd, lsemdex, lnsp500	0.023048	35.98186	29.79707	1 cointegratingeqn
Lnmurspd,lsemdex, lnftse100	0.019773	38.51070	35.01090	1 cointegratingeqn

The trace and maximum eigenvalue statistics reject the null hypothesis of no cointegration at 5 percent levels of significance, providing evidence of cointegration in these models. The Trace test indicates 1 cointegrating equation at the 0.05 level in all the cases.

The Trace tests for the series of exchange rate, country stocks with other COMESA stocks for instance Kenya shilling to the dollar exchange rate, the Nairobi all share index, with the series of either Egypt, Uganda, Zambia, and Mauritius stocks rendered the variables not to be cointegrated. The process was repeated for every country and none of the triple series yielded cointegration.

A5: Vector Error Correction Estimates Results

Equations	Y	X1	X2	Constant	Error Correction Term ΔY	ΔX1	ΔX2)
1. Lnkshusd, lnseai, lnsp500, c	1.000	0.112572 (0.10066) [1.11839]	-0.328806 (0.13424) [-2.44947]	-2.568231	--0.000652 (0.00026) [-2.48751]	-0.001897 (0.00078) [-2.43124]	-0.000125 (0.00062) [-0.20051]
2. Lnkshpd, lnseai, lnftse100,c	1.000	0.453916 (0.15387) [2.94991]	-1.751580 (0.40870) [-4.28570]	8.398423	--0.000278 (0.00024) [-1.16338]	-0.001670 (0.00045) [-3.73514]	0.000640 (0.00034) [1.85779]
3. Lnegpusd, lnegx30, lnsp500,c	1.000	0.000387 (0.00071) [0.54649]	-0.247161 (0.16270) [-1.51907]	1.836142	-0.001213 (0.00040) [-3.00812]	-0.021901 (0.00573) [-3.81920]	0.006071 (0.00219) [2.77776]
4. Lnegppd, lnegx30, lnftse100,c	1.000	0.197163 (0.12641) [1.55973]	-0.001786 (0.00108) [-1.64659]	21.65951	-0.000178 (0.00016) [-1.09265]	-0.226218 (0.02867) [- 7.89142]	0.001297 (0.00028) [4.62360]
5. Lnkzamusd,lnlasi, lnsp500,c	1.000	0.771559 (0.04744) [16.2630]	-0.829824 (0.20964) [-3.95842]	2.326011	-0.001177 (0.00033) [-3.55752]	]-2.972009 (0.54348) [-5.46850]	0.001300 (0.00051) [2.55249]

6. Lnkzampd, lnlasi, lnftse100,c	1.000	2.275873	-9.002783	57.42529	-7.24E-05	-0.000617	0.000277
		(0.59123)	(1.55556)		(5.9E-05)	(0.00015)	(6.9E-05)
		[3.84938]	[-5.78750]		[-1.23672]	[-4.21975]	[3.99445]
7. Lnushusd, lnuseasi, lnsp500,c		-0.194329	1.646545	-17.73974	-4.10E-06	-0.004122	-0.002878
		(0.07814)	(0.22866)		(0.00026)	(0.00379)	(0.00054)
	1.000	[-2.48702]	[7.20080]		[-0.01548]	[-1.08822]	[-5.30842]
8. Lnushpd, lnuseasi, lnftse100,c	1.000	0.398976	-1.982690	6.321979	-0.000611	-0.012966	0.000789
		(0.11805)	(0.32996)		(0.00024)	(0.00206)	(0.00028)
		[3.37975]	[-6.00897]		[-2.51103]	[-6.30682]	[2.83121]
9. Lnmursusd, lsemdex, lnsp500,c	1.000	0.414187	-0.169310	-5.284138	-0.004318	-0.000197	0.002706
		(0.06968)	(0.03318)		(0.00084)	(0.00093)	(0.00123)
		[5.94455]	[-5.10294]		[-5.12097]	[-0.21183]	[2.19100]
10. Lnmurspd,lsemdex, lnftse100,c	1.000	0.488103	-1.830414	8.296160	-0.000432	-0.000399	0.001913
		(0.23039)	(0.35047)		(0.00037)	(0.00033)	(0.00042)
		[2.11862]	[-5.22281]		[-1.17062]	[-1.19742]	[4.53207]

Note: Y, X1, X2 and c denotes the dependent variable with X1 and X2 being the dependent variables and c is the constant respectively as per each row or equation or row ordering, while values provided under each represent the respective coefficients, Standard errors in ( ) and t-statistics are in [ ] brackets. The error correction term follow the same order of variables.

A6: The Results of Granger Causality Tests

Country	Null Hypothesis: Ho	F-Statistic	Prob.	Results
Kenya	ΔLNSE_ALL_SHARE does not Granger CauseΔLNKSH_USD	0.76971	0.5110	Accept Ho
	ΔLNKSH_USD does not Granger CauseΔLNSE_ALL_SHARE	3.87573	0.0090	Reject Ho
	ΔLNFTSE100 does not Granger Cause ΔLNSE_ALL_SHARE	13.7705	8.E-09	Reject Ho
	ΔLNSE_ALL_SHARE does not Granger Cause ΔLNFTSE100	4.64306	0.0031	Reject Ho
	ΔLNSP500 does not Granger Cause ΔLNKSH_USD	3.92837	0.0083	Reject Ho
	ΔLNKSH_USD does not Granger Cause ΔLNSP500	0.82483	0.4802	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLNSE_ALL_SHARE	13.4230	1.E-08	Reject Ho
	ΔLNSE_ALL_SHARE does not Granger Cause ΔLNSP500	4.22473	0.0055	Reject Ho
	ΔLNSE_ALL_SHARE does not Granger Cause ΔLNKSH_ PD	19.2950	3.E-12	Reject Ho
	ΔLNKSH_PD does not Granger Cause ΔLNSE_ALL_SHARE	2.91599	0.0332	Reject Ho
	ΔLNFTSE100 does not Granger Cause ΔLNKSH_ PD	3.67688	0.0118	Reject Ho
	ΔLNKSH_ PD does not Granger Cause ΔLNFTSE100	0.12830	0.9433	Accept Ho

Egypt	ΔLNEGX_30 does not Granger Cause ΔLNEGP_USD	0.86333	0.4220	Accept Ho
	ΔLNEGP_USD does not Granger Cause ΔLNEGX_30	6.01874	0.0025	Reject Ho
	ΔLNSP500 does not Granger Cause ΔLNEGP_USD	4.12323	0.0164	Reject Ho
	ΔLNEGP_USD does not Granger Cause ΔLNSP500	0.97720	0.3767	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLNEGX_30	12.8004	3.E-06	Reject Ho
	ΔLNEGX_30 does not Granger Cause ΔLNSP500	3.24796	0.0212	Reject Ho
	ΔLNEGX_30 does not Granger Cause ΔLNEGP_ PD 12	0.75083	0.5219	Accept Ho
	ΔLNEGP_ PD does not Granger Cause ΔLNEGX_30	2.78635	0.0396	Reject Ho

	ΔLNFTSE100 does not Granger Cause ΔLNEGP_ PD	13.8025	7.E-09	Reject Ho
	ΔLNEGP_ PD does not Granger Cause ΔLNFTSE100	0.03582	0.9648	Accept Ho
	ΔLNFTSE100 does not Granger Cause ΔLNEGX_30	9.91775	2.E-06	Reject Ho
	ΔLNEGX_30 does not Granger Cause ΔLNFTSE100	2.17138	0.0897	Reject Ho
Zambia	ΔLNLASI does not Granger Cause ΔLNKZAM_USD	2.36824	0.0692	Reject Ho
	ΔLNKZAM_USD does not Granger Cause ΔLNLASI	0.66771	0.5719	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLNKZAM_USD	12.1172	8.E-08	Reject Ho
	ΔLNKZAM_USD does not Granger Cause ΔLNSP500	1.17528	0.3179	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLNLASI	4.54000	0.0036	Reject Ho
	ΔLNLASI does not Granger Cause ΔLNSP500	3.35877	0.0182	Reject Ho
	ΔLNLASI does not Granger Cause ΔLNKZAM_ PD	2.29200	0.0576	Reject Ho
	ΔLNKZAM_ PD does not Granger Cause ΔLNLASI	0.51023	0.7282	Accept Ho
	ΔLNFTSE100 does not Granger Cause ΔLNKZAM_ PD	3.88509	0.0038	Reject Ho
	ΔLNKZAM_ PD does not Granger Cause ΔLNFTSE100	1.27474	0.2779	Accept Ho
	ΔLNFTSE100 does not Granger Cause ΔLNLASI	3.86274	0.0040	Reject Ho
	ΔLNLASI does not Granger Cause ΔLNFTSE100	2.83743	0.0233	Reject Ho

Uganda	ΔLNUSEASI does not Granger Cause ΔLNUSH_USD	1.14424	0.3341	Accept Ho
	ΔLNUSH_USD does not Granger Cause ΔLNUSEASI	2.70165	0.0293	Reject Ho
	ΔLNSP500 does not Granger Cause ΔLNUSH_USD	6.83282	2.E-05	Reject Ho
	ΔLNUSH_USD does not Granger Cause ΔLNSP500	0.19715	0.9399	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLNUSEASI	3.35846	0.0096	Reject Ho
	ΔLNUSEASI does not Granger Cause ΔLNSP500	3.41177	0.0333	Reject Ho

	ΔLNUSEASI does not Granger Cause ΔLNUSH_ PD	0.98604	0.4140	Accept Ho
	ΔLNUSH_ PD does not Granger Cause ΔLNUSEASI	14.5274	6.E-07	Reject Ho
	ΔLNFTSE100 does not Granger Cause ΔLNUSH_ PD	4.35547	0.0130	Reject Ho
	ΔLNUSH_ PD does not Granger Cause ΔLNFTSE100	0.19414	0.8236	Accept Ho
	ΔLNFTSE100 does not Granger Cause ΔLNUSEASI	13.0749	2.E-06	Reject Ho
	ΔLNUSEASI does not Granger Cause ΔLNFTSE100	4.94956	0.0072	Reject Ho
Mauritius	ΔLSEMDEX does not Granger Cause ΔLNMURS_USD	0.63236	0.5942	Accept Ho
	ΔLNMURS_USD does not Granger Cause ΔLSEMDEX	3.01719	0.0290	Reject Ho
	ΔLNSP500 does not Granger Cause ΔLNMURS_USD	6.82552	0.0001	Reject Ho
	ΔLNMURS_USD does not Granger Cause ΔLNSP500	0.96837	0.4068	Accept Ho
	ΔLNSP500 does not Granger Cause ΔLSEMDEX	13.6185	1.E-08	Reject Ho
	ΔLSEMDEX does not Granger Cause ΔLNSP500	3.08171	0.0266	Reject Ho
	ΔLSEMDEX does not Granger Cause ΔLNMURS_ PD	2.83012	0.0373	Reject Ho
	ΔLNMURS_ PD does not Granger Cause ΔLSEMDEX	1.66716	0.1723	Accept Ho
	ΔLNFTSE100 does not Granger Cause ΔLNMURS_ PD	0.20812	0.8908	Accept Ho
	ΔLNMURS_ PD does not Granger Cause ΔLNFTSE100	2.64603	0.0478	Reject Ho
	ΔLNFTSE100 does not Granger Cause ΔLSEMDEX	9.82442	2.E-06	Reject Ho
	ΔLSEMDEX does not Granger Cause ΔLNFTSE100	3.87573	0.0090	Reject Ho

Note: Reject the null hypothesis H_o: Y does not Granger Cause X, means that Y granger causes X. e.g. When the null hypothesis ΔLNKSH_USD does not Granger Cause ΔLNSE_ALL_SHARE is rejected, it means the exchange rate (KSH_USD) granger cause the stock price (NSE_ALL_SHARE) and vice versa.

7

Enhancing Fiscal Policy For Effective Domestic Resource Mobilization In The COMESA Region

Ibrahim A. Zeidy[1] and Dr. Lucas Njoroge[2]

Abstract

Recent trends in THE fiscal performance of most countries in the COMESA region demonstrate shrinking fiscal space as revenue mobilization has been slow compared to increasingly faster growth. As a result, there has been a widening in the gap between total investment needs and domestic resource mobilization for most COMESA Member States. This examines the relationship between fiscal policy and domestic resource mobilization in the COMESA region, with the aim of discerning policy solutions for enhancing the mobilization of resources to support growth and poverty reduction. The results suggest that in the COMESA region, as indeed it is elsewhere, fiscal policy can be used effectively to foster growth, reduce short term fluctuations of economic activity and to maintain economies close to their potential growth paths. The necessity for achieving this growth objective would however need to be realized through the application of a set of fiscal policy measures that espouse required reforms and the removal of sources of inefficiency, among other policies.

Introduction

One of the key lessons from the Euro debt crisis of 2011 has been the importance of long-term fiscal sustainability in economic development. The crisis in Greece and Spain was largely attributed to fiscal indiscipline over a long period of time. Recent trends in fiscal performance of most countries in COMESA region demonstrate shrinking fiscal space as revenue mobilization has been slow compared with the fast increasing growth. There is a wide gap between total investment needs and domestic resource mobilization for most COMESA Member States. In order to achieve sustained growth, COMESA member States are therefore, expected to pursue prudent fiscal policies supported by increased domestic resource mobilisation in order to ensure faster pace of monetary integration which will culminate in monetary union.

The justification for prescribing prudent fiscal policy to enhance regional integration is to ensure the viability and sustainability of the monetary integration programme. This is to ensure that a member state does not out pace other members in terms of budget deficit and inflation rates. Prudent fiscal policies also protect member

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countries from being exposed to contagion effects of macroeconomic instability in one or more member countries. It also contributes to effective domestic resource mobilization for increased investment. In order to achieve fiscal prudence in member countries, the COMESA Summit in 2012 adopted the COMESA Multilateral Fiscal Surveillance Framework. (See annex 1 for detailed discussions of the elements of the Framework). The Surveillance process is based on countries developing national convergence programmes that will be the subject of the Multilateral Fiscal Surveillance Mechanism.

The aim of this study is to examine the relationship between fiscal policy and domestic resource mobilization in the COMESA region. The overall goal of the study is to assess issues for policy that would enhance the mobilization of resources to accelerate growth and facilitate poverty reduction.

The role of fiscal policy in economic development

The role of fiscal policy in developed economies is to achieve full employment and stabilize growth. In contrast, developing countries use fiscal policy to create an environment for rapid economic growth. The various roles fiscal policy plays can be summarized as follows:

a) **Mobilization of domestic resources**: Developing economies are characterized by low levels of income and investment, which are linked in a vicious circle. This can be successfully broken by mobilizing domestic resources for investment.

b) **Resource allocation to achieve accelerated growth**: Fiscal policy entails use of government expenditure and tax policies to boost efficiency and improve long term economic performance by dealing with critical sources of market failure. For instance, government provisions of infrastructure, research and development, or education among other public goods which the private sector itself is unable to provide in optimal quantity or quality because of market failure, are good examples. However, benefits of a change in public expenditure need to be weighed against how expenditure is financed. Most taxes generate distortions and efficiency costs, while public borrowing and growing debt affect growth. The government has not only to mobilize more resources for investment, but also to direct resources to channels where the revenue yield is higher and the goods produced are socially acceptable.

c) **Reduce inequality by investing in human capital:** This can be achieved by increased spending on education and health. Spending that improves the quality of health and education services at all levels will ensure the population with the necessary tools to take advantage of opportunities and to reduce inequality. It is therefore, imperative that budgets provide adequate resources to build human resources for the future, through improved school infrastructure, educational materials and equipment, clinics, and hospitals. Inequality can also be mitigated by explicit policies to enhance social protection, food security and nutrition; as well as development of low income housing.

d) **Increasing employment opportunities:** Fiscal incentives, in the form of tax-rebates and concessions, can be used to promote the growth of those industries that have high employment generation potential. Moreover public investment (including PPPs) on infrastructure such as transport, logistics,

energy, water resource development, schools, and hospitals would help to create employment directly in the formulation and construction of projects, the production of inputs for the projects, and the operation and maintenance of new facilities. Public investment also crowds in private investment and so would create employment indirectly by improving the efficiency of the economy and laying the basis for faster growth.

e) Macroeconomic stabilization: This entails using countercyclical fiscal policy in the short run to offset the impact of macroeconomic shocks that create large or persistent gaps between aggregate demand and potential output, thereby helping to avert both excessive cyclical unemployment and inflationary pressure. In the long run, macroeconomic stabilization entails managing fiscal deficits and public debt on a sustainable path, so that public finances do not themselves become sources of macroeconomic instability**.**

The effectiveness and performance of fiscal policy depends on the domestic capacity to mobilize resources particularly public revenue. Effective mobilization of domestic resources can generate the following benefits, among others:

(i) Taxation, which is the major component of domestic resource mobilization for most countries in the COMESA region, is generally associated with more efficient resource use, accountability and greater public participation required for the success of development process.
(ii) Reliance on domestic resources negates the effects of Dutch disease commonly associated with external inflows, and reduces vulnerability to speculative attacks on currencies or even financial crises.
(iii) Domestic resources bring about a sense of patriotism and ownership of development policies and outcomes unlike foreign aid that comes with conditionalities, constraining a country's ability to maneuver and adopt policies that are consistent with its national development goals. That is, domestic resources give governments' the latitude to use fiscal policy to achieve development objectives.
(iv) Domestic resources are predictable, less volatile and stable compared to external finance sources. Reliance, on foreign aid has faced serious head winds due to donor fatigue, unmet conditionalities, the mismatch between pledges and actual disbursements, and changing donors' motivations which complicate the process of resource mobilization. Falling foreign aid resources and volatility of commodity prices have only exacerbated the situation, calling for renewed efforts to accelerate mobilization of domestic resources as well as for reforms to increase spending efficiency.

Challenges to Fiscal Policy Implementation

COMESA member states have faced a number of challenges in implementing fiscal policies over the years. These challenges have included the following:

(v) Low level of private savings, partly on account of a large informal sector where transactions are not intermediated through the formal banking system; low incomes due to the high level of poverty; and inadequate incentives for low income earners to save through the banking system.
(vi) Most economies in COMESA are non-monetized, which renders fiscal measures ineffective.

(vii) Lack of credible statistical information on key indicators including incomes, expenditure, savings, investment, employment and others that together complicate the ability of public authorities to formulate rational and effective fiscal policies.

(viii) Large-scale tax evasion has had an adverse impact on fiscal policy and its benefits.

(ix) The implementation of fiscal policy often requires efficient administrative machinery. Most developing economies have corrupt and inefficient administrations that fail to implement requisite measures of fiscal policy.

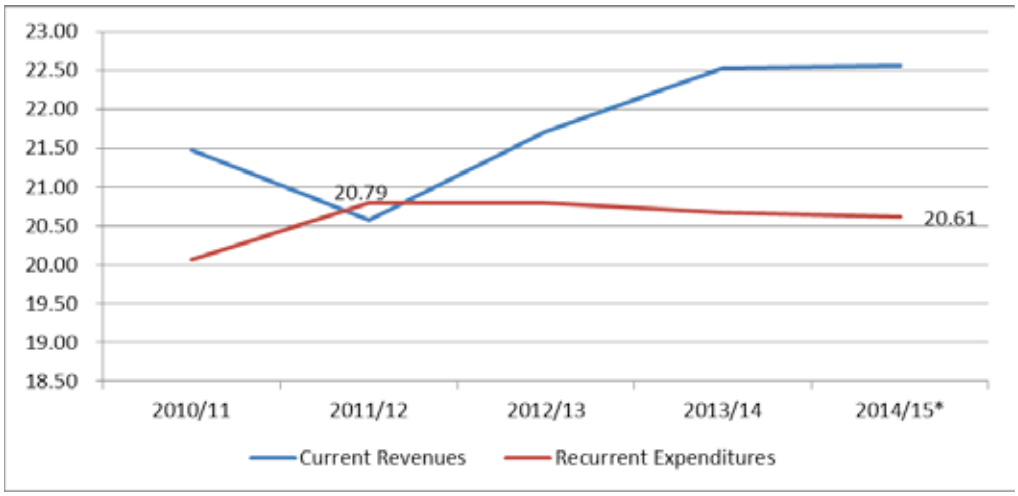
(x) Private capital flows, especially in form of foreign direct investments, have not had a noticeable impact in filling resource gaps. This is mainly because many countries in the region have not been attractive to investment flows. Political instability, insecurity, endemic infrastructure deficit and low incomes are some of the factors that have inhibited foreign direct investment inflows to the region.

The pattern of fiscal performance of member countries

a) **Expenditures and revenues**

Beginning 2010/11, many countries in the region increased their recurrent expenditures despite weaker fiscal revenues (Figure 1). However, the increase in recurrent expenditures reflects increased war related expenditures in some countries that experienced political turmoil over the period. This is besides pressures owing to growing population in the region which has placed high demand on the financing of public services including: health, education and maintenance of infrastructure, among others.

Figure 1: Recurrent expenditures and current Revenues *(in percent of GDP[3])*



Source: Based on IMF Staff Reports Data

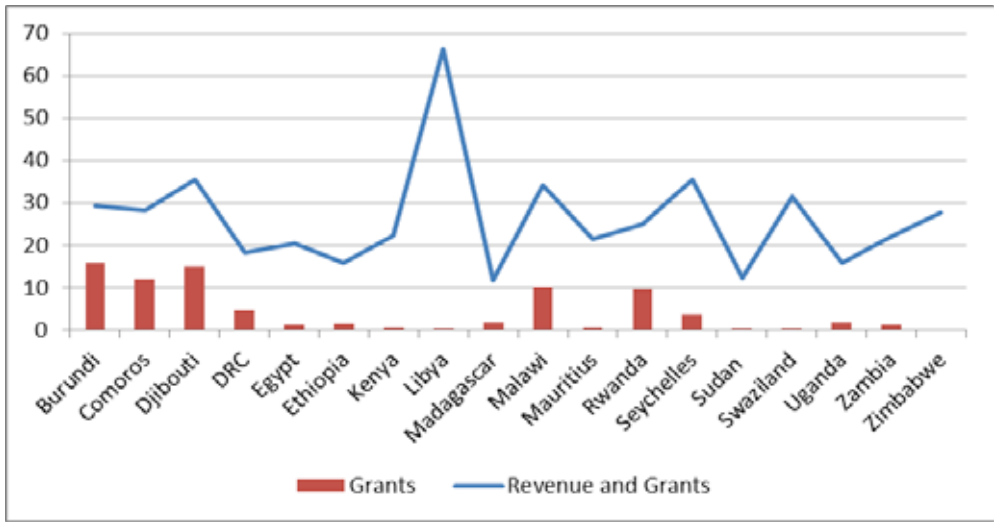
The trend of current revenues and recurrent expenditure depict the pro-cyclical nature of fiscal policy in the COMESA region. In a sense, it demonstrates the scope of fiscal policy which has been largely expansionary during

3 Data used in this study is based International Monetary Fund country reports over the period 2010/11 to 2014/2015.

booms and contractionary when economies are in depression in the region (Thorton, 2008). The reasons for the procyclicality of fiscal policy include; the persistence of limited fiscal space due to conditionalities attached to external financing which to a large extent have constrained policy choices and options for responding to shocks; uncertainty which obscures public borrowing options and limit the use of counter-cyclical fiscal measures to address financial shortfalls; some countries implemented fiscal rules aimed at ensuring fiscal sustainability which in turn complicated chances of using alternative counter cyclical fiscal measures necessary for off-setting the impact of shocks; and political economy considerations may have prevented government authorities to pursue counter-cyclical fiscal policies that would otherwise have moderated increased expenditures during the course of booms (Delong and Summers, 2012).

Total Revenues and grants as a percent of GDP for the region average 26 percent of GDP (Figure 2), while high revenues observed for some countries during the period reflected the contribution of oil revenues to total revenues. Grants specifically averaged 4 percent of GDP. Overall expenditure as a percent of GDP for the region averaged 28 percent of GDP during the period 2010/11 to 2014/15. Capital expenditure to GDP ratio averaged 8 percent for the region (Figure 3). In some countries where capital expenditures were unusually high, spending was in line with the objective of enhancing fixed capital formation in productive areas. By contrast, civil strife in some other countries resulted in inflated military expenditure.

Figure 2: Revenues *(in percent of GDP)* (2010/11 to 2014/2015)[4]



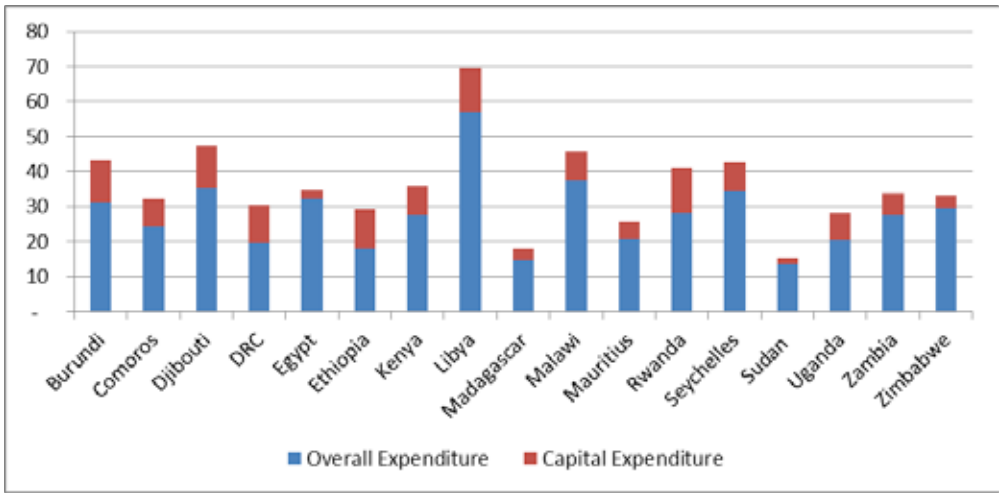
Source: Based on IMF Staff Reports Data

Despite the pursuit of the objective of promoting growth through higher productive investments, most member countries had only modest capital expenditures devoted to this purpose due to a number of factors: some countries relied on conditional donor funds before disbursements which caused delays or shortfalls in total capital expenditures; bureaucratic and administrative red tape as well as inadequacies of government counterpart funds to finance domestic portions of capital expenditures also caused delays in the release of donor funds; and in a bid to meet overall budget targets, governments tended to reduce on capital expenditure rather

4 Data for Sudan exclude South Sudan after July 2011 onwards.

than cutting wages and salaries, or raise taxes.

Figure 3: Overall Expenditures (2010/11 to 2014/15) *(in percent of GDP)*



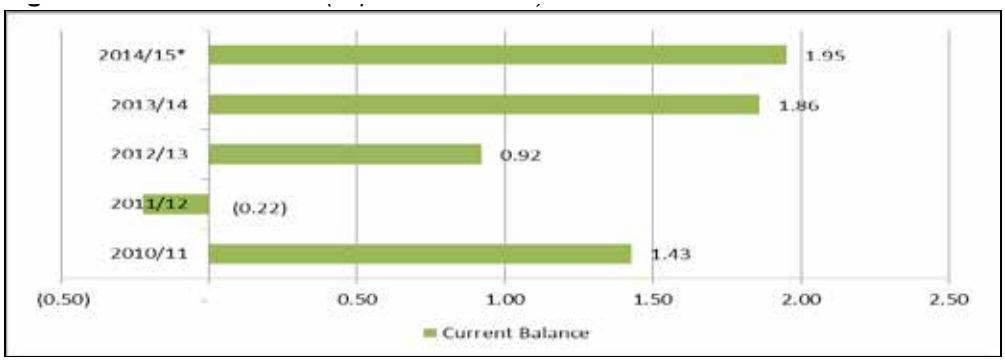
Source: Based on IMF Staff Reports Data

b) Current balance

The Current balance (in percent of GDP) which is the difference between current revenues (excluding grants) and recurrent expenditures helps to gauge government's contribution to public sector savings[5]. Figure 4 indicates that on average the economies of the region set aside a significant proportion of their resources to support public investment. For all COMESA member countries, the current balance on average improved from a deficit of 0.2 percent of GDP in 2011/12 to a surplus of 1.86 percent of GDP in 2013/2014. This trend was projected to improve further to an average of 1.95 percent of GDP in fiscal year 2014/2015. However, developments in the current balance were mixed for individual member country.

5 This is based on the assumption that none of the capital expenditure items fall under recurrent expenditures.

Figure 4: Current Balance *(in percent of GDP)*

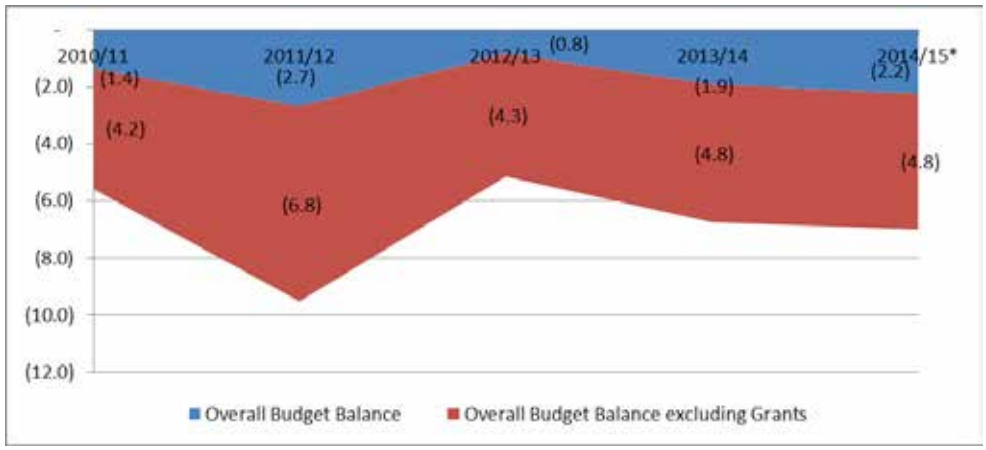


Source: Based on IMF Staff Reports Data

c) **Overall Budget Balance (**in percent of GDP**)**

The overall budget deficit (excluding and including grants) deteriorated for most of the period except between 2011/12 and 2012/2013. The worsening in the overall budget deficit reflected higher overall expenditures that outpaced the growth in overall revenues for most countries in the region. The overall budget deficit including grants averaged 1.8 percent compared to the average overall budget deficit excluding grants of 5 percent for the entire region, which in part reflects the importance of grants received by a number of COMESA countries. As reflected in Figure 5, the performance of the overall budget balance was in sharp contrast to the performance of the current balance, indicating the regions greater reliance on increased capital expenditure to attain overall fiscal objectives. Capital expenditure for the region averaged 8 percent of GDP.

Figure 5: Overall Budget Balance including and excluding grants *(in percent of GDP)*

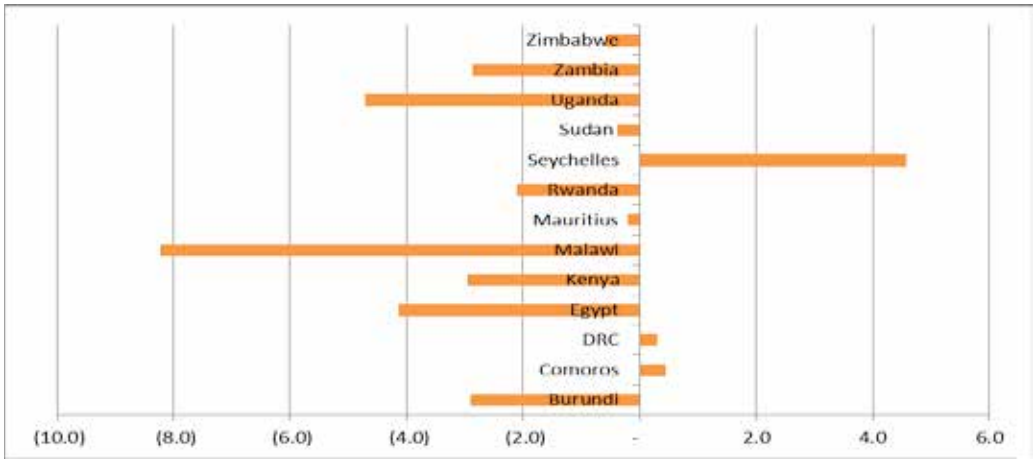


Source: Based on IMF Staff Reports Data

d) Primary Balance

Debt service obligations remained a challenge to a number of COMESA member countries. The main source of concern was attributed to the primary balance (the overall balance excluding interest payments). For the entire period, the primary balance averaged at -1.8 percent for the region (Figure 6). This suggests that for some countries, interest payments constituted a significant proportion of overall expenditure, driven mainly by overreliance on external financial assistance.

Figure 6: Primary Balance *(in percent of GDP)*

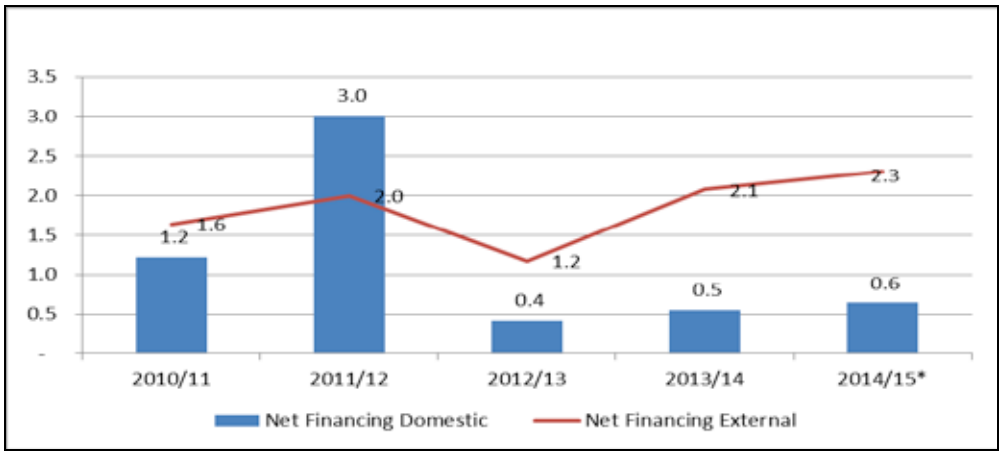


Source: Based on IMF Staff Reports Data

e) Financing

The proportion of the COMESA region's deficit financed through foreign sources averaged 1.8 percent of GDP (Figure 7). This means that the flow of foreign resources to the region increased over the period except in a few cases. The increase in external financing was not matched by increases in public capital formation for a number of countries, even though external financing sources generally helped to sustain recurrent expenditures in the region.

Figure 7: Financing *(in percent of GDP)*



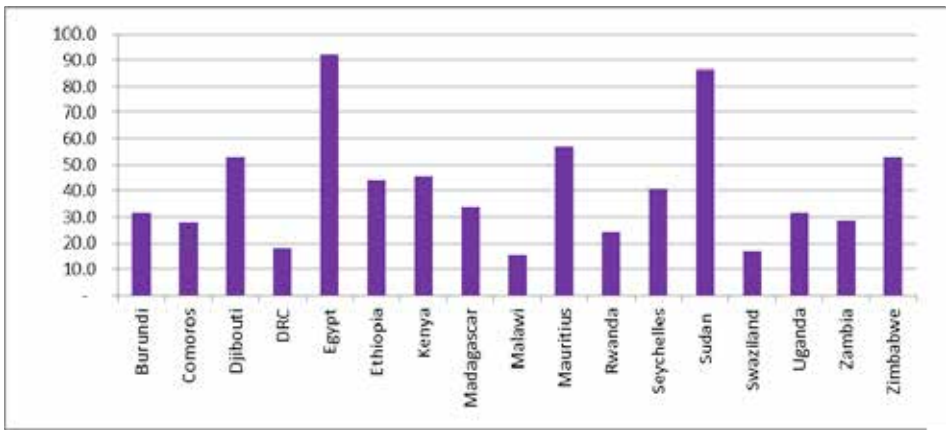
Source: Based on IMF Staff Reports Data

The financing of the deficits through domestic sources in the region averaged 1.2 percent of GDP. Except for a few outliers, the average net financing from domestic sources (mostly domestic bank borrowing) remained low due to prudent macroeconomic management. Nevertheless, many member countries also tended to rely on other sources of financing. These included sovereign borrowing through the issuance of sovereign bonds, commercial (syndicated loans) and foreign concessional borrowing. The only downside of excessive reliance on these alternative sources of financing was that those channels could have been counter-productive since they tend to crowd out the private sector from accessing savings, while potentially imposing an additional interest burden on the economy for purposes of attracting private savings.

f) Public Debt

The region's level of public gross nominal debt averaged 41.2 percent of GDP over the period under consideration (Figure 8). A number of countries had debt to GDP ratio of over 60 percent (figure 8). The relatively low levels of debt can be largely attributed to debt relief initiatives that benefited a number of countries in the region.

Figure 8: Public Debt (as a percentage of GDP**)**



Source: Based on IMF Staff Reports Data

The low public debt levels in the region suggest that concerns about fiscal sustainability in the region was perhaps less of a constraint at that time, even though worries about the procyclicality of fiscal policies in most African countries continued to linger on (Ilzetzki and Vegh, 2008). The challenge with pro-cyclical fiscal policies is that they tend to prolong depressions or conversely slow down economic expansions.

Recent Fiscal and Structural Reforms in Member Countries

Most COMESA member countries have undertaken three major types of structural adjustments in fiscal policy areas in the last decade, namely: privatization or liquidation of public enterprises, and improvements in pricing and efficiency regimes in those that remain; improvements in tax structures and/or improvements in tax administrations; and the introduction of Public Finance Management Reforms and preparations of Medium Term Financial Frameworks.

(a) Privatization and liquidation of public enterprises.

Significant progress has been made in most member countries in undertaking comprehensive reforms of public enterprises, even though there were some delays in some few due to legal and technical complexities involved. In some cases, considerable difficulties were faced in finding credible private sector purchasers with the required capital. However, many member countries generated significant amounts of funds from their privatization processes. For those enterprises that remained in the public sector domain in some countries, there was also an effort to improve the quality of management through grants of autonomy and other incentives such as performance contracts that specify clear objectives. In general, the main focus of public enterprise reforms which did not involve privatization was to improve the efficiency of public enterprises by reducing their reliance on budget subsidies and the use of bank credits to finance operations. The removal of credit subsidies and reduced reliance on bank credits to existing public enterprises tended to release additional financing for the private sector.

(b) Tax reforms and tax administration

In an attempt to improve the tax regimes, member countries undertook the following tax reforms: significant effort was made to reduce reliance on the taxation of international trade and to shift the tax system toward domestic transactions and sources of income; VAT was introduced in almost all member countries, and by implication tax reforms became instrumental in shifting excise tax valuations from specific to ad valorem basis; almost all COMESA countries undertook to simplify and improve the equity and efficiency of personal income tax regimes by scaling down the highest marginal rates, reducing income tax rates, and reducing the structure of exemptions and tax rebates or deductions; and tax administration frameworks in almost all countries improved, with special emphasis placed on the provision of adequate trained manpower and other infrastructural facilities to enable the attainment of revenue targets and objectives.

(c) Public Finance Management Reforms and preparations of Medium Term Financial Framework (MTFF)

Public finance management and improvements in medium term financial frameworks are another set of areas that drew attention under the fiscal reforms undertaken by member countries in recent years. The reforms in these areas covered improvements in the transparency of budget accounts through: the introduction of Public Finance Management Systems (PFM). PFMs require the budget to be comprehensive enough to include all financial operations of the Government covering the current and capital budget and other off-budget items (including contingencies). This was to help with the coordination of policies within a macroeconomic policy framework and to enable easier assessments of the sustainability of fiscal policies over the short and medium term. A robust PFM serves as a requirement for meeting COMESA Multilateral Fiscal Surveillance Framework guidelines.

Recommendations for enhancing domestic resource mobilization

a) Public Resource Mobilisation

Recent global uncertainties have posed significant challenges to fiscal policies of COMESA member countries, even though global efforts have been exerted towards maintaining dialogue on domestic resource mobilization in Africa in order to effectively and sustainably bridge persistent gaps in development financing. Public finances have been strained in the region as traditional aid support providers have endured significant fiscal shortfalls at home and undertaken fiscal adjustments of their own. These factors combined demonstrate the importance of building potentials for increasing domestic resources in COMESA region instead of overreliance on external financing sources. The following are a set of recommendations for enhancing domestic sources for public revenue mobilization:

i. Sustained economic growth is a necessary condition for successful revenue mobilization. A growing formal economy tends to create jobs and increases the pool of effective tax payers. This entails that economies of the region should undertake policies that should transform their economies towards the generation of revenues, increased formalization and diversification into other sectors of economic

activity. Such structural changes could then assist in reducing dependence on commodities as a source of public revenue.

ii. There is considerable scope and potential for increasing revenues through: the reduction or removal of tax exemptions on corporations, increase of VAT rates on luxury consumption items, and imposition of property taxes and excise duties. The region could design and implement a strategy of formalization of the region's economies by advancing the transformation of the informal sector into the tax net. A number of approaches have already been adopted in some African countries (for instance Ghana, Zambia and Algeria) to achieve this objective.

iii. Reliance on trade taxes in an environment characterised by increased global economic integration poses considerable difficulties for African countries. Reducing vulnerability from this source requires efforts to increase revenue from non-trade taxes through diversification of the tax structure.

iv. Diversification of tax revenue sources as well as improvements in tax and customs administration arrangements are essential elements for improving revenue collections. This in part could be achieved without the need for increasing tax rates, computerization of tasks, improved tax audits and reporting, and training and capacity building of tax officials. Member countries of COMESA should therefore develop legislation aimed at fighting the practice of improper transfer pricing whereof transnational corporations that may take advantage of different tax regimes could be tempted to maximize their after tax profits at the expense of host countries. This has revenue implications for the host countries.

v. COMESA countries should seek to enhance extractable natural resource revenues given their vast natural resource potentials. These natural resource extractive activities have already proved to be essential revenue sources for many member countries although some sectors have continued to meet challenges that include corruption due to confidentiality and outright secrecy about related contracts and abuse of resources derived from those contracts.

vi. Curtailment of illicit financial flows in form of money illegally earned, transferred, or utilized, including proceeds of theft, bribery and other forms of corruption by government officials, proceeds of criminal activities including drug trafficking, racketeering, counterfeiting, contraband and terrorist financing and proceeds of tax evasion and laundered commercial transactions.

vii. Good governance is yet another important factor for the successful mobilization of resources. At national levels, it is necessary for COMESA countries to improve measures for efficiency and accountability in the use of public resources, which should also be linked to tax collection and service delivery, better public financial management, and transparency in resource use. At the international level, some advanced countries should begin to take measures against tax haven institutions where public officials from developing countries tend to hide stolen assets.

viii. An effective strategy for domestic resource and revenue mobilization in the COMESA region requires a framework for confronting the growth and persistence of the external debt overhang of the region.

Sustained and high external debt levels often result in future capital out-flows and may induce sustained debt-servicing difficulties with adverse consequences for resource mobilization, especially in times of unforeseen shocks which in turn may fuel overall economic instability. In view of such drawbacks, it has been variously advised that African governments should rather begin to finance their activities through domestic borrowing, even though such an approach has its own set of risks that include undesirable pressures on real interest rates which in turn may crowd out private sector credit opportunities.

ix. Governments of the region should embark on a sustainable path of reducing fiscal deficits by emphasising productive spending. This should be accompanied by public sector and enterprise reforms to minimize undue excessive strains on national budgets and to extricate reliance on budget subsidies.

x. Along with public sector reforms, COMESA countries ought to strengthen institutional capacities for strengthening medium term fiscal policy frameworks safeguard social safety nets and are responsive to addressing infrastructural gaps, while ensuring a reliable framework for the mobilization of additional revenues on a sustainable basis. In this regard, careful public spending choices should become a cornerstone of budgeting and revenue collection. The choices should ensure the sustainability of social spending as efficiency gains are realized to foster equity.

xi. More importantly, countries have to ensure that countercyclical policies during periods of downturn do not cause long term deterioration in fiscal sustainability. In such circumstances, it may be necessary for member states to strengthen fiscal buffers so as to reduce vulnerability to downside risks.

b) Improving private sector resource mobilisation

During the past decade, all of the region's governments have embraced the concept of private sector led development strategies, partly spurred by results on the ground. Although governments do not control private sector domestic resource mobilization directly, they can however indirectly influence this practice within the private sector. In this regard, the following are recommendations for enhancing private domestic resource mobilization in the region:

i. Strengthen domestic financial institutions by providing market incentives that encourage financial institutions to mobilise savings and to channel them into productive investment. Where necessary, efforts should also be devoted to create linkages between formal and informal financial institutions so as to help open up and improve access of small scale businesses to formal financial services. On the part of government, it perhaps may also be necessary to revisit the argument for rebuilding public financial institutions that are solvent. Such institutions could serve to expand opportunities for generating savings for intermediation in the banking system for long term development finance. The development of capital markets can also contribute to private domestic resource mobilsation in the region. However, this effort can be constrained in the region by the limited sizes of capital markets, weak financial market infrastructure, equity capital inadequacies, difficulties in obtaining information,

the absence of appropriate regulatory frameworks, weak market governance structures and the lack of investor confidence in stock exchanges.

ii. Microfinance institutions could also contribute to resource mobilization efforts, especially in rural areas and within the urban informal sectors.

iii. There are other ways of stimulating savings in the region which can be pursued. Such avenues could include the creation of additional sources of funding to strengthen bank lending through increased savings and the creation of new financial instruments for portfolio diversification and financial risk management such as the issuance of corporate bonds.

c) Other sources of Resource mobilization

Other measures of resource mobilization in the region could potentially include:

i. Remittances from abroad which for some time have supported countries' balance of payments and provided incomes to families to mitigate poverty. It is notable that the total inward remittances of the region from abroad increased from US dollars 3.9 billion in 2000 to over US dollars 22.3 billion in 2014 and this course is expected to continue to contribute to private savings in the region.
ii. Support from the implementation of the African Financial Market Initiative which is designed to strengthen domestic resource mobilization efforts through private equity funds and bond markets.
iii. Official Development Assistance (ODA) support which has played an important role in closing financing gaps of member countries given the region's confounding challenges of low savings rates and limited access to international financial and capital markets.

c) A resource mobilization strategy for enhancing regional integration

The COMESA region has a sufficient resource base to support regional integration activities, and there are by far a range of instruments that the region can put to use to enhance the realization of this objective. Among those are the following: member countries should ensure that the COMESA Infrastructure Fund is fully funded so as to address infrastructural development needs of the region; the Comprehensive Africa Agriculture Development Programme (CAADP) should be used as a vehicle for mobilizing finance for the development of the agricultural sector in the region; and COMESA should seek new innovative means of resource mobilization such as the institution of a levy on insurance premiums, international travel and others in order to finance its regional projects.

Summary and Conclusions

In the COMESA region as indeed it is elsewhere, fiscal policy can be used effectively to foster growth, reduce short term fluctuations of economic activity and to maintain economies close to their potential growth paths. The necessity for carrying out tasks to achieve these objectives is re-emphasized in the following conclusions:

(i) Challenges posed due to persistent low domestic revenue to GDP ratios in the COMESA region provides a case for the use of fiscal policy in addressing domestic resource mobilization as well as revenue mobilization difficulties. Required policies may therefore need to espouse: the reduction of tax exemption incentives, increase of VAT rates on luxury consumption goods, improvements in outreach towards the use of property taxes and excise duties, and reduction in dependence on trade taxes, among other policies.

(ii) The COMESA region could refocus efforts towards removing inefficiencies and improving tax and custom administration regimes of countries. Refinements of good governance disciplines will need to become integral to dealing with impediments such as corruption, tax evasion and avoidance as these disciplines are linked to tax collection efficient delivery of services. The need to contain external debt to sustainable levels is necessary for enhancing domestic resource mobilization. High external debt exposures results in future capital outflows and debt–servicing difficulties, with attendant risks of high debt related vulnerabilities and macroeconomic instability, which together constrain growth.

(iii) The public sector can contribute to domestic resource mobilization by indirectly boosting private savings through a number of ways, including: creating good physical and social environment conditions and economic policies which in turn can enhance domestic resource mobilization.

(iv) Public investment is essential for fostering growth in the region. This means that a pragmatic approach to dealing with fiscal deficits should be found and sustained in the region so as to free resources for public expenditure.

(v) In the COMESA region, private saving is constrained by poverty of households and the underdevelopment of the formal sector. Raising the savings rate in the region needs to become a long term objective that can be achieved through the development of medium and large scale private enterprises and raising the income of the workers. Remittances from both workers who are temporarily domiciled abroad and long-term diaspora households represent a potential for savings and investment. Governments should therefore design schemes to bring some remittances into formal financial channels.

(vi) The reversal of capital outflows (capital flight) could have a dramatic impact on resource mobilization. Independent research has suggested that these outflows remain significant. An efficient mechanism for retaining even a small proportion of these outflows could help significantly in boosting public revenues.

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Annex 1
Elements of COMESA Multilateral Fiscal Surveillance Framework (MFSF)

1. Establishment of a Convergence Council with membership of the Ministers of Finance, Governors of Central Banks and Ministers of Trade with the responsibility for multilateral surveillance.
2. All member countries undertake reviews of PFM Systems based on PEFA assessment and formulate PFM reform programmes. Member countries which did not have a previous PEFA assessment should undertake that exercise with appropriate outside assistance. If this is not possible they may make a self-assessment on PEFA model that will form the basis for their PFM reforms;
3. An 'Excessive Slippages Procedure' (ESP) should be established as the heart of the MFSF. The following are the salient "Guidelines for the Excessive Slippage Procedure".
   - In addition to budget deficit, convergence criteria should include a quantitative debt ratio expressed either as a 50% of GDP, or 250 percent of government revenue (excluding grants), with the other as a warning "benchmark ratio";
   - Embed trade integration surveillance with fiscal surveillance by including as a "bench mark" a member State's improvement in its ranking in the World Bank's Doing Business Index to cluster within 5 ranking numbers of the average of the three best Member State performers;
   - Each Member State should be required to formulate and implement a Medium Term Country Convergence Programme (MTCCP) indicating its objectives, targets, and intended policies aimed at reaching at its own prioritizing and sequencing, but in a reasonable time period;
   - The MTCCP should be submitted to the Convergence Council for its approval and assessment to ensure that it is consistent with the aims and objectives of the regional integration programme, and subsequently to the country's national assembly to give it a legal status;
   - Slippage is defined as the excess in the actual realization of budget deficit, or debt ratio over the MTCCP target.
4. A COSWAP Facility to provide liquidity in case of financial crisis in a member country should be set up. Governors of the Central Banks should work out its modalities. The following are the salient features of the Facility:
   - The facility addresses short term balance of payment difficulties that member states may face, thereby fulfilling the "crisis management aspect of the surveillance framework;
   - The facility will have its own resources, subscribed by member countries and supplemented by possible further contribution from development partners. The individual Member States drawing rights will be related to their subscription to the Facility;
   - Member countries contribution to the facility should be an amount equal to the lesser of the amount of foreign exchange reserves a Member State holds over and above a threshold equivalent of two and half months' imports, or an amount equal to 10% of that excess. Countries that have less than the threshold amount will only make a token payment of say US $1 million to the facility, but would be expected to make the required contribution once their reserves exceed the threshold, calculated in reference to the imports of the base year when the Facility becomes operational;
   - Member countries maximum drawing eligibility should be a multiple of five of its subscriptions, subject to a minimum of SDR 20 million and a maximum of SDR 100 million;
   - The managing Committee will have five members who are also the members of the Convergence

Council;

- In its initial stages, the Facility will operate as a swap facility whereby the borrower Member State would swap its currency for equivalent convertible currency from the lending country;
- This arrangement would last until a monetary union is established and a single currency is in circulation when the contribution amounts will be deposited in a common pool with the COMESA Central Bank. The following are the eligibility criteria for the use of the Facility's funds:

® Member state has made its calculated contribution to the facility;

® The Member State has incurred, or is facing an immediate balance of payments crisis due either to external circumstances or policy slippages from its Convergence Programme;

® The Member State has a 'use of fund resources' arrangement with the IMF, or has requested the Fund for such assistance and the IMF has expressed its readiness to negotiate a suitable arrangement with the Member State; and

® The amount of assistance from the Facility will be decided by the Managing Committee of COSWAP, subject to the maximum rights allotted to the Member State.

8

Effect of Aid for Trade Facilitation on Kenya's Exports to COMESA

Paul Odero Owino Otung[1]

Abstract

The study, using a gravity model on panel data for the period 2003 to 2012, examined whether Aid for Economic infrastructure is more effective relative to Aid for Policy and regulations in increasing exports of Kenya to COMESA. Results indicate that both aid categories are effective in increasing Kenya's exports. Aid for Economic Infrastructure is significant, even when Aid for Policy is excluded in the model. There is need to invest in economic infrastructure and policy reforms to promote regional trade.

Introduction

Trade is identified as one of the means to increase economic development and poverty reduction (Vigil 2012). In the last five decades (1950 - 2004) global trade has increased on average by 5.9 per cent and 7.2 per cent per annum for manufactured commodities (Hummels, 2007). The expansion in world trade comes after successive multilateral trade negotiation under General Agreement on Tariffs and Trade (GATTS) and its successor the World Trade Organisation (WTO) in 1995. The outcome from these multilateral trade negotiations have been broad trade liberalisation and binding commitments by countries to minimise measures that distort trade like high tariff policies and product subsidies. Consequently, there has been a gradual decline in the applied tariffs rates and international transactions costs across the world.

The global picture however, disguises the mixed trade performance occurring in many countries and regions. There is an increasing concern that non-tariff factors such as restrictive policy and regulations, poor trade infrastructure and communication continue to restrict international trade flow (Busse *et al*., 2011). However, due to regional heterogeneity and income disparities, some countries have not fully integrated into the global supply chains. These include thirty-one landlocked developing countries around the world, whose transaction costs still remain high when compared to the coastal countries (Kharel and Belbase, 2010; Chowdhury and Erdenebileg, 2006).

Sub-Saharan Africa (SSA) has not achieved much progress in global trade. This is evident from its marginal share

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of world merchandize trade that was about 2.8 per cent of total world exports and 2.5 per cent of imports between 2000 and 2010 (UNECA, 2013). This could be partly attributed to poorly executed trade liberalisation policies and weak institutional framework (Iwanow and Kikpatrick, 2007; Turkson 2012).

In addition, the continent's poor capital endowments limit investments in modern transport systems and other trade related infrastructure (Turkson, 2012). Sachs *et al*., (2004) link the poor trade performance to hostile geographical features occasioned by harsh tropical climate, long distances and landlocked territories. Thus, SSA is perceived as a high cost and great risk investment destination with limited opportunities for trade (Iwanow and Kirkpatrick, 2007; Collier and Gunning, 1997).

High transactions costs are identified to be particularly severe among the landlocked SSA countries where an estimated 60 per cent of trading costs is directly attributed to poor transport infrastructure in comparison to 40 per cent in coastal countries (Limao and Venables, 2001). Further cross-border traders encounter additional trade barriers like cumbersome procedures, transit delays and absence of clear certification mechanisms (Vigil 2012). Aid for Trade is therefore key in mitigating these constraints.

In recognition of this, Overseas Development Assistance (ODA) was redesigned to provide funds for trade facilitation. This was to acknowledge that trade reforms defined under trade facilitation are beyond reducing cumbersome border procedures to include the entire trade supply chains. Therefore, with limited public resource and capacity, the reforms were deemed costly to implement in many developing countries (Harllert, 2012).

But is there any relationship between aid for trade and trade outcomes? Llyod *et al*., (2010) argues that aid stimulates trade flows if targeted towards addressing supply side constraints. ODI, (2013) and Busse *et al*., (2011) assert that aid improves productive capacity, reduces transactions delays and allows firms to diversify, thus integrating into global supply chains. Aid for trade thus serve a complementary role to domestic savings, investment promotion and economic growth through induced public expenditure (Vijil and Wagner, 2010, Suwa-Eisenman and Verdier, 2007; Adam and Bavan, 2006). However, there is limited empirical work addressing whether aid for trade results into more trade among the aid recipient countries.

Aid for Trade

Aid for Trade are funds given to developing countries intended to expand exports, increase market access and integrate these countries into world trade (WTO 2005). The WTO thus outlined four broad categories of such funds meant for: trade policy and regulations, economic infrastructure, increasing productive capacity, and trade related adjustment. The categories addressed both the instruments and form of delivering aid for trade and established a borderline that distinguishes aid for trade form other types of development assistance. WTO emphasized that the definition was inclusive of the main challenges which increase the costs of trade in poor countries (OECD/WTO, 2011).

An alternative meaning of aid for trade facilitation as used by the World Bank (2006), categorized aid for trade by the funded programmes, such as macro-economic adjustments, addressing supply side constraints like poor road infrastructure, and trade regulations and adjustments resulting from trade preference erosion. Similarly, OECD focused on factors which limit trade in recipient countries including poor infrastructure and transport networks, logistics performance at the ports of entry, conformity to international product standards, enhancing

capacity in border procedures and building productive capacity of countries (Hoekman and Shepard, 2013; Hoekman and Njinkeu, 2007; Hoekman and Wilson, 2010).

Trade Facilitation

Trade facilitation has become a key trade policy agenda in many countries and regions especially in SSA. This is being driven by aid for trade covering trade facilitation programmes such as infrastructure development, policy and regulation reforms, and building productive capacity, as well as reducing the effects of trade barriers (Lemi, 2014). Furthermore, countries are increasingly integrating trade facilitation programmes in the Regional Trade Agreement (RTA).

COMESA Aid for Trade Strategy 2012-2015, seeks to remove trade barriers, build productive capacity and alleviate supply side constraints COMESA (2012). This will enhance regional supply chain, improve global competeveness and strengthen regional and global trading systems.

The COMESA region is no exception to the constraints imposed by poor trade facilitation due to challenges of coordination and market failure. The daily costs that trucks incur while waiting border clearance within COMESA-EAC- SADC region is estimated to be between US$ 200 and US$ 400 (Pearson 2011). While market failures are manifested through port inefficiencies and inadequate infrastructure for example in port of Mombasa (EABC, 2011). Thus, the implementation of the Comprehensive Tripartite Trade and Transport Facilitation Programme (CTTTFP) will lower trade costs and increase trade integration among the countries.

Kenya is among the top AfT recipients in SSA (OECD/WTO, 2013). According to World Bank, (2014) Kenya remains among the poor performers on most trade facilitation indicators ranked at number 75, despite its efforts in implementing measures such as one-stop-border posts, 24-hour border operations, electronic customs clearance, harmonising technical standards and investment in the Northern transport corridor (International Trade Centre, 2012).

ODA disbursement to Sub-Saharan has been on an upward trend save for a drop in 2013. However, ODA to COMESA countries, show certain variations in the distribution of aid for trade among the countries. Burundi, Djibouti, Mauritius, Swaziland and Seychelles are among the countries whose aid basket is comparatively smaller. The details of Aid for Trade within the region are shown in Appendix 1.

The extent to which increasing trade barriers and by extension trade costs affects trade outcomes and effectiveness of AfT in improving trade flows in Kenya has not been fully understood. This study partially fills the empirical gap on the effect of AfT facilitation on Kenya's exports to COMESA.

The broad objective of this paper is to examine the extent that aid for trade determines trade. The specific objectives are:

i. Establish the relative significance of aid for economic infrastructure compared to aid for policy reforms on exports.

ii. Determine the important export trade facilitation factors.

iii. To make policy recommendations based of the research findings.

The main research question is: how effective is aid for trade in promoting trade flows? This study addressed the following specific questions;

i. To what extent does Aid for Trade improve Kenya's export to COMESA?

ii. What factors facilitate Kenya's exports?

Empirical Literature

Ferro *et al,* (2011) using the input-output tables in five service sectors evaluated the impact of AfT for 48 countries. The conclusion is that aid channelled to transportation and energy sectors was effective in increasing exports, but less robust to the business sector. The results from developing countries underscore one of the biggest challenges to trade; poor infrastructure is a great barrier for both domestic and international trade in these countries.

Portugal-Perez and Wilson (2010) examined the effect of AfT on 101 developed and developing countries within an extended gravity model using trade barriers information. The results indicated that infrastructure variable had a larger impact within the mining industry in comparison to textiles and manufactures sectors. When aid was delivered to ICT, the effect was seen in the fuels sector though it was negative and it significantly related to ores and metals industries.

Busse *et al*, (2011) estimated the effect of AfT on the cost of trading using fixed-effects panel data by aggregating aid meant for trade policy and regulations for both developing countries including 33 LDCs and non-LDCs top 20 aid recipients. The results showed that AfT was significant in lowering the costs of trading; however the effect depended on the aid category. When channelled into more specific areas, like trade policy and regulations, AfT was effective than general aid for trade. While effectiveness of AfT in reducing transaction time was less robust, aid directed towards policy and regulations was significant, but of marginal effect in reducing the period of transactions.

Helble *et al,* (2009) used a gravity model with panel fixed-effects for 172 developed and developing countries on OECD-CRS data. The authors used trade policy, trade development, and infrastructure as the main variables. The overall result was that increasing AfT facilitation by 1 per cent could generate an increase in global trade by US dollar 415 million.

Ivanic *et al,* (2006) used a CGE model by first estimating the effects of trade promotion on world transaction costs and AfT was found to be welfare enhancing.

Wilson *et al,* (2004) Using data in the manufacturing industry for 75 countries for the period 2000 to 2001 in a gravity model. The study demonstrated that when aid is directed to the four variables, exports and imports increased. Further, results showed that improvements in countries rated below-average to half of global average increased export and imports. In developing countries importers benefited the most from better customs administration and port efficiency.

Empirical Model Specification and Definition of Variables

Gravity model, has gained popularity in empirical studies on international trade due to its empirical robustness (Novy, 2011). The model is adaptable hence allows for augmenting with key variables to answer specific research questions. Some of the control variables included in gravity models are; economic size, population, trade intensity, infrastructure, language, REC, colonial ties, borders, trade cost variables and distance. We extend the work of Hoekman and Nicita (2008) and Anderson and van Wincoop (2003) by explicitly examining how AfT disbursed for policy reforms and economic infrastructure relates with export trade. The foundational structure of gravity model derived from the Dornbursh Fisher Samuelsson (DFS) theoretical framework (Appendix 2) is expressed as:

$$X_{ij} = \frac{Y_i Y_j}{Y_w}\left[\frac{T_{ij}}{P_i P_j}\right]^{1-\sigma} \qquad 1.$$

Where:

Y_i Y_j and Y_w define the economic size of countries *i*, *j* and the world, in that order;

Tij is the trade costs variable and other transaction barriers;

Pi and Pj give equilibrium prices;

σ is the constant elasticity of substitution (CES) between all goods in the utility function as derived from the DFS model; and

T_{ij} gives the obstacle due to geography.

This study uses trade policies/regulations and density of infrastructure in Kenya as the trade facilitation barriers, identified in the gravity model as *Pi* and *Pj* as shown in Equation 1. The baseline model for estimation in a gravity model is usually given by equation (2).

$$X_{ij} = f(\beta_o Y_i^{\beta_1} Y_j^{\beta_2} N_i^{\beta_3} N_j^{\beta_4} D_{ij}^{\beta_5} A_{ij}^{\beta_6}) \qquad 2$$

Where the variable;

Xij- gives the trade in volume or value between the two countries *i* and *j*;

Y-is the income levels given either by GDPs or GDP per capita of the two trading countries;

N-is the population size of the trading countries;

D-defines either geographical or commercial distance between them; and

A is a set of dummies of other factors that influence trade included in the traditional gravity model.

We achieve our objective to determine whether AfT is effective in facilitating trade flow in Kenya by augmenting equation (2) with the variables that capture AfT facilitation through policy and regulatory measures and infrastructure density. Subsequently, AfT is defined by two categories using an infrastructure variable, and policy and

regulations variable.

Accordingly, we estimate three linear regression equations: the first estimation is performed with all the AfT variables, the second with aid for policy and regulations variable and the third with aid for economic infrastructure variable. The estimation equation is done in natural logarithm for the continuous variables to allow for the interpretation of the coefficients as elasticities. The estimation equation is as shown in equation 3.

$$LXA^{k}_{mit} = \alpha_0 + \alpha_1 + \beta_1 LGDP_{mt} + \beta_2 lGDP_{it} + \beta_3 LPCGDP_{it} + \beta_4 LPCGDP_{mt} + \beta_5 LPOP_{it} + \beta_6 LPOP_{mt} + \beta_7 LINF_{it} + \beta_8 LAfT_{it} + \beta_9 LPol\,\mathrm{Re}g_{mt} + \beta_{10} LD_{ij} + \beta_{11} \sum_{h} D_{mih} + \mu_{mit} \quad 3$$

Where:

i and m = exporting and importing countries in COMESA[2];

Trade Flow (Export) = $XA_{mit}{}^{k}$ is the variable for trade flow from country (i) to country; and (m) in the broad product category (k) in period (t).

Y is the gross domestic product (GDP)

PCGDP is GDP per capita of countries i and m

INF_{it} is infrastructure density existing in the exporting, and importing country within Eastern and Southern Africa region at time t.

AfT_{it} is Aid for Trade Facilitation. The variable is categorised into three: Total Aid for Trade, Aid for Economic Infrastructure, and Aid for Policy and Regulations.

PoReg is policy and regulatory environment in the exporting country.

Dij is Bilateral Distance between countries i and j.

$\sum \beta_h D_{mih}$ are Dummy Variables used to express the different dummy variables expected to influence trading within a gravity model.

Data, Sources and Analysis

We used annual secondary data for the period 2003 to 2012 for the empirical analysis. The exports and imports data was sourced from COMSTAT, World Development Indicators for internet access data, GDP per capita, GDP

and population while fixed telephone subscriptions are from the World Telecommunication Organisation. In addition, the policy and regulatory indicators was sourced from World Bank in their Worldwide Governance Index (WGI) data. The Aid for Trade data was obtained from the World Bank as reported by the OECD Creditor Reporting System (CRS) aid database and data on distance (in kilometres) between the economic capitals of the trading partners was obtained from CEPII website at (www.cepii.fr).

Data Analysis

We use in natural log form the real export values in current US dollars; real GDP per capita; population; fixed telephone subscriptions; internet per 1,000 persons; regulatory quality and bilateral distance. In the tradition of gravity model estimations, the dummy variables included are sharing common borders, membership to an RTA and a common language.

The descriptive statistics (Appendix 3) show that mean value of trade flows from Kenya to the COMESA region varied from the standard deviation. Aid for policy and regulations seems not to change much, aid for economic infrastructure is widely dispersed, and, regulatory quality and fixed telephone line both in Kenya and importer countries are varied.

Though GDP per capita of the importing countries are widely dispersed, Kenya's GDP per capita seems not to have varied over the years. We conducted a pre-estimation test for possible correlation among the variables, indicating that the VIF was 10.93 and thus within the range allowable for low correlation.

The Hausman specification test was carried out to choose between random and fixed effects method. The fixed effects estimation was rejected in favour of the random effects method.

Table 1 presents the full estimation results based on the random effects model. There are four columns showing the variables used, when different aid for trade categories are included. The first column showing when all the AfT variables are included in the regression, second column when only aid for policy and regulations and third when only aid for economic infrastructure are introduced in the model. We account for possible reverse causality in the model by estimating Hausman-Taylor model that allows for the inclusion of time invariant dummy variables. The results are shown in Table 2.

Analysis of the Effect of Aid for Trade in Kenya

The results (Table 1) indicate that AfT when jointly disbursed exerts significant and positive effects on export trade in Kenya. By increasing aid for economic infrastructure by 1 per cent, export trade increases by 1.5 per cent, while increasing aid for policy and regulations increases regional exports by 0.1 per cent. The magnitude for policy effect is smaller, since such funds are generally low and directed at policy reforms with the attendant divergence between trade reforms and implementation. The findings get credence from those in Lemi (2014) who estimated the role of all the AfT categories and trade between donors and recipient countries in SSA.

Though the coefficient for aid for policy and regulations had the expected sign, the variable turns to be non-significant when singularly included in the estimation. This indicates the possible complementarity between aid for economic infrastructure and aid for policy and regulations. The regulatory quality variable as a measure for policy and regulation reforms was significant and had the expected positive signs in all the estimations. Enhanc-

ing the quality of regulation in the country boosts exports by 0.1 per cent.

The results relating to infrastructure indicators (fixed telephone subscriptions and internet) were mixed. When used in the data set with the two aid categories, the coefficient was positive, however this turned negative when only policy and regulatory aid for economic infrastructure funds were included in the estimation. The explanation is traced back to the fact that receiving only one kind of aid either for policy or infrastructure does not generate the requisite threshold for regional exports. Thus, the country's (Kenya) exporters find it easier to export to other regions, probably traditional export destinations, with already well-established communication infrastructure rather than within the region with similar infrastructure status.

The variables used to control for the economic size (population), in terms of production and market size had the expected positive signs and significant determinants of trade in all the data specifications. It turns out that Kenya's trade depends much on the production size of Kenya and its trading partners with a one per cent increase in Kenya's GDP increasing trade by 5.6 per cent while increasing the partners GDP by one percent raises Kenya's trade by 0.9 per cent.

Equally, the GDP per capita variable which is a measure of the purchasing power and productivity for both the exporting (Kenya) and importing countries (COMESA countries) was positive and significant in relation to Kenya's exports. However, Kenya's GDP per capita negatively relates with its exports. One per cent increase in GDP per capita in importing country increases trade by 0.5 per cent while GDP per capita for Kenya reduces trade by 1.9 per cent. The implication of the finding is that Kenya's export trade is driven more by her GDP rather than per capita or productivity.

Geographical distance coefficient that as a measure for the resistance (such time to export) between the trading pairs had the expected sign (negative) and exerted a significant effect on trade flows in all the estimated models. The implication is that Kenya is trading more with closer than distant countries in the COMESA region. Increasing distance by one per cent reduces trade by about 3 per cent which is similar to the findings of Mahona and Mjema (2014).

Table 1: Random Effects Estimation Results

Variables	(1) All aid for trade	(2) Aid for policy and regulation	(3) Aid for economic infrastructure
Aid for Policy Regulations	0.1044**	0.0865	
	(0.0509)	(0.0535)	
Aid for Economic Infrastructure	1.4773***		1.4473***
	(0.2062)		(0.2138)
Regulatory Quality	6.8294***	1.9411**	7.2015***
	(1.1645)	(0.9038)	(1.1531)
GDP per capita of Kenya	-1.9157	-0.9006	-1.1207
	(1.7007)	(1.7872)	(1.4166)
GDP per capita of Importer country	0.5220**	0.5249**	0.5269**
	(0.2064)	(0.2094)	(0.2118)
Population of Kenya	5.5635**	13.1048***	5.6130**
	(2.5682)	(2.0814)	(2.5638)
Population of importer country	0.9269***	0.9314***	0.9305***
	(0.1416)	(0.1477)	(0.1437)
Tel per 1,000 persons Kenya	0.9085***	-0.6224**	-0.9505***
	(0.2859)	(0.3131)	(0.3006)
Tel per 1,000 persons Importer	0.0178	0.0070	0.0113
	(0.1381)	(0.1346)	(0.1354)
Internet per 1,000 persons Kenya	0.2872***	-0.2232***	-0.2459***
	(0.0596)	(0.0645)	(0.0501)
Internet per 1,000 persons importer	0.0574	0.0566	0.0557
	(0.0377)	(0.0369)	(0.0374)
Sharing of borders	-0.0503	-0.0306	-0.0494
	(0.6426)	(0.6339)	(0.6388)
Geo Geographical distance	-2.7774***	-2.7448***	-2.7562***
	(0.8038)	(0.8043)	(0.8089)
Co Common language	-1.1463	-1.1504	-1.1425
	(0.7219)	(0.7266)	(0.7207)
Member to RTA(EAC-CU)	-0.0735	-0.0441	-0.0495

	(0.2356)	(0.2407)	(0.2283)
Co Constant	94.3275**	205.8608***	-97.9532**
	(40.3978)	(34.6490)	(40.2873)
Ob Observations	180	180	180
N Number of country	19	19	19
Overall R-sq	0.702	0.696	0.701
F tes t	0.789	0.779	0.788

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results from the Hausman-Taylor estimation (Table 2) determined that aid for economic infrastructure was still significant in determining trade in all the estimations, even when disbursed solely. It appears that aid for economic infrastructures explain much of export trade by Kenya, since the increase constant term increases when this type of aid is excluded from the estimation. However, aid for policy when introduced alone turns out to generate a negative effect on trade, though it is not a significant determinant.

The explanation is that introducing stringent conformity standards for example, may impose compliance burden to traders without complementary improvement in infrastructure. The variable on regulatory quality was positive on trade flows. Fixed telephone and internet access variables in Kenya turned to negatively affect Kenya's exports, but not in a significant manner. This highlights that when possible endogeneity in the model is accounted for, the country's (Kenya) trade shifts away from the region and the country trade more with the alternative markets, possibly donors.

Table 2: Hausman-Taylor Estimation Results

Variables	(1) All aid for trade	(2) Aid for policy and regulation	(3) Aid for economic infrastructure
Aid for policy regulations	0.1030	-0.0070	
	(0.0920)	(0.0834)	
Aid for economic infrastructure	1.4749***		0.9067**
	(0.4472)		(0.4364)
Tel per 1,000 persons Kenya	-0.9134***	-0.3808*	
	(0.2676)	(0.2251)	

Tel per 1,000 persons importer	0.0492	0.0130	
	(0.1900)	(0.1944)	
Internet per 1,000 persons Kenya	-0.2872***		-0.0680
	(0.0937)		(0.0732)
Internet per 1,000 persons importer country	0.0501		0.0515
	(0.0394)		(0.0393)
GDP per capita of importer	0.6297*	0.7683**	0.5133
	(0.3509)	(0.3687)	(0.3384)
Population of Importer country	0.9170*	0.3949	0.9073**
	(0.4790)	(0.8984)	(0.3921)
Membership to RTA(EAC-CU)	-0.0460	0.0939	0.0127
	(0.3740)	(0.3745)	(0.3851)
Population of country in Kenya	5.6356	6.2279***	0.8042
	(4.3929)	(1.8262)	(4.2891)
Regulatory quality Kenya	6.7672***	3.7949***	5.2932**
	(2.2240)	(1.3544)	(2.2151)
GDP per capita of Kenya	-1.9483	0.1959	-1.2546
	(1.3841)	(1.2190)	(1.2265)
Sharing of borders	-0.0595	1.2363	-0.0004
	(2.2183)	(4.5134)	(1.7842)
Geographical distance	-2.9002*	-2.6070	-2.6805**
	(1.5072)	(2.9925)	(1.1935)
Common language	-1.2672	-1.3629	-1.1230
	(1.5717)	(3.2138)	(1.2729)
Constant	-94.6018	-92.4554**	-16.7253
	(69.9167)	(38.8552)	(67.0863)
Observations	180	190	180
Number of countries	19	19	19

Summary of Findings and Conclusion

The study used the random effects method to estimate the effect of Aid for Trade (AfT) facilitation on Kenya's exports to COMESA.

The results indicate that aid for economic infrastructure was a key determinant for export trade by Kenya. Equally, better regulatory environment facilitates Kenya's trade in COMESA. More specifically, availing both kinds of aid

for policy reforms and economic infrastructure is necessary.

In addition the findings established that increased connectivity through internet and fixed telephone could be driving Kenya's exports away from the region to other destinations. The intuition is that with better communications, exporters from the country find it easy to link with other traders outside the COMESA region.

The study supports the argument that AfT is trade enhancing and not just between donors and recipient countries but trade among AfT recipient countries. Further, the study highlights that giving aid while improving the communications systems can serve as an avenue to diversify export trade into different markets both within and without the region. Addressing the policy and regulatory challenges is important too. This is necessary in reducing within the border factors such as number of trade documentations required, customs procedures, weigh bridge inspections, and standard conformity assessment, to facilitate easy flow of goods within the region.

The policy issues are: support development of new infrastructure as well maintain the existing ones including the port, access roads and border facilities; policy reforms around harmonizing standards and reducing bureaucratic procedures and joint regional investments on trade facilitation; constant monitoring, identification and elimination of non-tariff barriers along the trade corridors, encourage Good Manufacturing Practices (GMP) by exporters and finally institutional advocacy and support to increase transparency in trade process in the region.

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APPENDIX I

Appendix 1: Aid for Trade to Economic Infrastructure and Trade Policy to Selected COMESA/EAC Members States (2003-2011)

Country	Aid type from DAC donors (US$)	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kenya	Economic infrastructure	66230960	101213259	88401022	103358163	227078423	199129474	245182012	237910699	379069648
	Trade policy and regulations	345471	111065	523763	3255029	1600525	505737	1354197	1256207	1718552
Uganda	Economic infrastructure	57592602	122103105	80364286	102985579	302551981	294468563	263590945	317063289	308075604
	Trade policy and regulations	230515	48864	1553240	1190672	14702446	2460758	4235075	7682068	10883070
Rwanda	Economic infrastructure	23595029	29540961	56707512	32292187	52349366	96348232	103246742	87414914	153607612
	Trade policy and regulations	9798	11050	182	74485	62648	84043	12582907	3061144	27146009
Burundi	Economic infrastructure	3746524	6636827	8136149	19365021	29569122	54707965	54390281	85976871	81702117
	Trade policy and regulations	-	-	-	54699	36955093	292205	6495925	7064361	9692826

Source: OECD/WTO (2011)

APPENDIX II: DORNBUSH FISHER SAMUELSSON DFS-MODEL

This part demonstrates the derivation of the Eaton and Kortum (2002) model and Diagne et al,. (2012), who employ DFS 'ice-berg view' by letting the producer be given by i while the importer is indexed by m. The efficiency of country i in producing continuum of commodities $j \in (0,1)$ is given by $z(j)$.

The input cost for producer i is represented by the price of agricultural labour denoted by w_i the cost of producing one unit of intermediate agricultural product j is $\frac{w_i}{z_j}$ assuming constant returns to scale. Following the "Ice-berg" view, trade costs for a unit from country i to country m means producing dmi units. Importers in country m are assumed to share and maximize the constant-elasticity-of-substitution (CES) utility function as:

$$U_m = \left[\int_0^1 Q(j)^{(\sigma-1)/\sigma} d_j\right]^{\sigma/(\sigma-1)} \quad \text{Subject to} \quad X_m \qquad 1$$

$Q_{j'}$ is the amount of purchased goods, $\sigma \succ 0$ is the elasticity of substitution among the capital and intermediate products and X_m is aggregated total spending/imports by country.

Under perfect market conditions the price of commodity j that m pays from country i is given by:

$$P_{mi}(j) = \left[\frac{w_i}{Z_i(j)}\right] d_{mi} \qquad 2$$

Equation 2 gives the unit cost of production multiplied by the geographical barrier. The rationality assumption ensures importers in country m source from the most competitive price for agricultural capital or intermediate product j, from all source countries i, up to N countries as:

$$P_n(j) = \min\{P_{ni}(j); i = 1.....N\} \qquad 3$$

EK (Eaton and Kortum, 2002) defines (z_j) and its associated price as a random variable, the distribution of prices is defined by extreme value distribution, country m chooses the least-cost supplier, therefore the Fréchet extreme value distribution of random variable (Zj) is expressed as:

$$F_i(z) = \Pr[Z_j \leq z] = \exp(-T_i, z^{-\theta}) \qquad 4$$

Where Ti > 0 is the state of technology in country i, and defines the location of yield distributions, with higher T_i meaning higher yield in country i. θ > 1 influences yield distributions, such that a lower θ implies a broader agricultural product yield distribution for each agricultural product in each country. Under comparative advantage frameworks high-productivity agricultural products will be exported and low-productivity agricultural products will be imported. Note that $P_{mi}(j)$ defines the

price that country i supplies to country m as random variable. Therefore, cumulative distribution function is derived by incorporating the price equation (2) into the yield distribution (4) for $\forall$ p>0. As demonstrated by EK (2002), the probability that country i supplies country m at the lowest price is:

$$\Pr\left[P_{mi}(j) \leq \min\left\{P_{ns}(j); s \neq i\right\}\right] = \frac{T_i\left(w_i d_{mi}\right)^{-\theta}}{\sum_{i=1}^{N} T_i\left(w_i d_{mi}\right)^{-\theta}} \quad 5$$

Equation 5 shows that m's probability of buying from i is conditional on the state of technology $\left(T_i\right)$, represented here by agricultural product yield in country i the trade costs between m and I, $\left(d_{mi}\right)$ and the cost of land in i $\left(w_i\right)$. Due to better technology, lower input cost and trade barriers, country i exports a wider range of goods to country m. Equation (5) relates m's share of spending on agricultural products from i such that X_m is country m's total spending on agricultural products, and X_{mi} is m's spending on capital and intermediate agricultural products from country i, with i = m when a country is in the domestic market. The sum from all supply sources gives $\sum_{i=1}^{N}\left(X_{mi}/X_m\right)$.

Due to the assumption of continuum of goods, the share of country m expenditure used to trade from country i is equal to equation (5), hence giving the following

$$\frac{X_{mi}}{X_m} = \frac{T_i\left(w_i d_{mi}\right)^{-\theta}}{\sum_{i=1}^{N} T_i\left(w_i d_{mi}\right)^{-\theta}} \quad 6$$

Equation (6) is linked to data on trade shares and the initial determinants of why countries trade, like yield $\left(T_i, \theta\right)$, geographic barriers $\left(d_{mi}\right)$and price of agricultural product land $\left(w_i\right)$. Where X_m is country's m total spending of which X_{mi} gives the Cost Insurance and Freight (CIF) on goods from i.

Equation (6) therefore links to the theoretical foundation of a standard gravity equation since it posits that bilateral trade is a function of importers total expenditure and negatively related to geographical barriers. Exporters total sales is given as Q_i which is expressed as:

$$Q_i = \sum_{m=1}^{N} X_{mi} = T_i c_i^{-\theta} \sum_{m=1}^{N} \frac{d_{mi}^{-\theta} X_m}{\Phi_m}$$

$T_i c_i^{-\theta}$ can be solved and substituted back into (6) while bringing equation (5) to give;

$$X_{mi} = \frac{\left(\frac{d_{ni}}{p_n}\right)^{-\theta} X_n}{\sum_{m=1}^{N}\left(\frac{d_{mi}}{p_m}\right)^{-\theta} X_m} Q_i \qquad 7$$

Equation 7 gives a standard gravity equation; exporters' total sales Q_i and importers total purchases X_m enter the equation with unit elasticity. The geographical barrier is deflated by any importers price level P_m, competition reduces the price P_m reducing country i's, access to m markets similar to geographical barriers. Thus, $(d_{mi} / p_m)X_m$ is the market size (GDP) of the buying country m as perceived by the exporter country i.

9

Informal Cross Border Trade (ICBT) In Staple Foods In Eastern And Southern Africa

by

Julliet Wanjiku[1], Maurice Juma Ogada and Paul Guthiga

Abstract

The study estimated the volume of informal cross border trade for selected countries in the Eastern and Southern Africa (ESA) using data obtained from various agencies involved in monitoring informal trade in ESA region. The study found that the volume of informal trade in the region has been increasing between 2010 and 2014. The study recommends that infrastructure for collecting and collating informal trade data in the region should be strengthened.

There is need for additional investments in data collection for informal trade to monitor more borders, identify borders with significant trade and enhance capacity for the monitors involved in ICBT monitoring.

Introduction

There is no universal definition of ICBT within trade literature as noted by Afrika and Ajumbo (2012). It generally refers to trade in processed or non-processed merchandise which may be legal imports or exports on one side of the border and illicit on the other side and vice-versa, on account of not having been subjected to statutory border formalities such as customs clearance (Afrika and Ajumbo, 2012). The means of transporting the goods vary from use of bicycles, haulage by beasts of burden, porters, boats or even motorized transport. In this study, ICBT is defined as unrecorded trade transactions undertaken across the borders (UBOS, 2009). It includes goods moved through unofficial and official trade routes.

Trade in staple food is important for food security in the ESA region. The region has a wide range of biophysical (soils, altitude) and climatic factors which lead to a diversified agricultural production base which encourages movement of agricultural products from surplus to deficit areas (Karugia *et al.*, 2009). Much of cross border trade in staple foods in the region is informal. Thus, ICBT plays a key role in increasing regional food and nutritional security, as well as income generation. For example, in Africa, it is estimated that ICBT represents 43 percent of official Gross Domestic Product (GDP) (Schneider, 2002; Lesser *et al*., 2009). In Uganda informal trade with neighbouring countries grew by 300 percent between 2007 and 2009, accounting for about 86 percent of

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the exports (OECD, 2009). Informal trade in staple foods alone accounted for 67 percent of the value of trade between Uganda and her neighbours in 2008 (UBOS, 2009).

While various studies indicate that informal trade still represents a significant proportion of regional cross-border trade, a substantial volume remains unrecorded (Ackello-Ogutu, 1996; Minde and Nakhumwa, 1998; Macamo, 1999; UBOS, 2006; Lesser *et al*., 2009). Yet, trade information is important for investment decisions by private and/or public sector, development partners and policy-makers. No substantial research effort has been directed towards understanding the volume of ICBT and dynamics of ICBT (UBOS, 2009). Perhaps this is attributable to paucity of data on this form of trade due to lack of consistent and reliable measurement tools. This is against the backdrop of the need to estimate national statistics more accurately for appropriate macroeconomic policies.

This study estimates the volumes of ICBT in ESA region. It makes policy suggestions for improving the tracking of informal trade in the region.

Dynamics of ICBT in the ESA region

Informal traders are characterized by small quantities of traded products that are carried by head, carts or bicycles among others. ICBT in staple foods is driven by several underlying factors: cumbersome documentation processes and delays at the formal border points that discourage formal trade and act as incentives for informal trade; borders between countries that separate foodsheds, people and communities that share common ancestry, culture and social interactions and on-going efforts of COMESA and EAC are encouraging countries to trade more freely and without inhibitions.

Instability and conflicts in some parts of the region are also encouraging ICBT. For instance instability in South Sudan and eastern parts of DRC create situations in which local food production become untenable hence increased ICBT with neighboring countries to close the food deficits.

Poor transport network affects trading in agricultural commodities especially the perishable commodities. The informal traders do not also have access to good storage facilities.

The border stations are also reported to have high levels of corruption. Officials at various border posts take advantage of the lack of knowledge and information of the informal cross border traders on customs procedures.

Implications of Informal Trade in the ESA Region

Paucity of informal trade data leads to unreliable trade statistics, which in turn hinders effective formulation and implementation of domestic, regional and international trade policies. ICBT causes revenue losses to governments through evasion of taxes and duties. Tax revenue loss in Uganda arising from the estimated informal imports from its five neighboring countries excluding oil during the 2004/5 period was estimated at US $ 10.1 million, representing approximately 3 percent of Uganda's total customs revenues (Lesser *et al*, 2009).

ICBT lowers the efficacy of policy measures to ensure public safety and environmental protection. Agricultural commodities which are traded informally evade sanitary and phytosanitary border controls. The quality standard of maize traded in EAC has 13.5 percent moisture content but there is a likelihood of violation of this standard through ICBT.

ICBT may lead to competition with the formal enterprises thereby adversely affecting investment. On a positive note, ICBT enhances greater food security and is a source of employment.

Literature Review

Studies available on ICBT provide minimal content on the volumes of intra-regional ICBT in ESA.

Nkendah (2013) used the monitoring method to estimate the volume/value of unrecorded cross-border trade between Cameroon and its CEMAC's neighbours. The findings indicated that knowledge of ICBT magnitude, determinants, and consequences was inadequate and it resulted to undervaluation of figures in the national accounts.

Olanda *et al*. (2005) carried out a rapid assessment of ICBT on the Mozambique-Malawi Border regions. They noted the large volume of trade in maize, beans and pigeon peas flowing from Mozambique into Malawi.

UBOS (2006) used a border monitoring method to collect data on the volume of ICBT. Their findings confirmed that Uganda was actively involved in informal trade with immediate neighbours. Kenya was reported to be the major informal trading partner with total trade of US$ 42.8 million followed by DR Congo with total of US$ 25.9 million. Uganda remained the net food exporter to all the neighbouring countries. Main agricultural commodities traded included maize, beans, groundnuts, millet grains and sorghum. Informal trade exports were found to fetch lower prices than the officially recorded exports.

Ackello-Ogutu (1996) using data obtained from border monitoring by various agencies in the ESA region confirmed high informal trade in Kenya, Tanzania, Malawi and Mozambique.

A joint Famine Early Warning Systems Network (FEWS NET) and World Food Programme (WFP) report in year 2004 also noted that ICBT played a significant role in averting widespread food insecurity in Southern Africa during the major regional drought of 2002 and 2003. The assessment revealed that trade barriers between Zimbabwe and her neighbours were the major constraint to informal food trade. However, between July and October 2004, the informal cross border food trade monitoring initiative in Southern Africa captured close to 48,000 MT of unrecorded maize trade. About 84 percent of this trade was in maize exports to Malawi from surplus areas of northern Mozambique.

Tchale (2001) summarizes the trends in informal bean trade in Eastern and Southern Africa and concludes that Tanzania and Mozambique were the major informal exporters of beans, while Malawi, Zambia, Uganda, Kenya, and DRC were the major importers of the same. The amount of beans traded informally among countries in ESA was found to be well below the formal trade figures for those countries.

Ackello-Ogutu and Protase (1998) used primary data obtained through border monitoring techniques to quantify the ICBT trade on food security in Tanzania. The study found that unrecorded cross-border trade was significant for the region's economic development.

Ackello-Ogutu and Protase (1997) used border observation techniques to quantify cross border trade between Kenya and Uganda. The study found that informal trade contributed significantly to regional trade and food

security.

Njoku *et al*. (2013) carried out a study to establish the profitability of the ICBT using four selected borders of Botswana. The study found that men were engaged in trading in agricultural products while women were involved in trading in industrial commodities.

Macamo (1999) in a study of Mozambique, found that the monthly net income obtained from informal trade was on average, equivalent to more than four times the minimum salary paid in the formal sector while the average income earned by informal traders was about two times the cost of essential goods for a family of five people.

The reviewed studies show the potential impact of ICBT. However, most of the studies do not estimate the volumes of the ICBT especially at regional level due to lack of reliable data. The current study has tried to fill this gap by estimating the volumes of ICBT in ESA region using trade data for the period 2010-2014.

Methodology and Data Sources

There are three possible approaches to data collection: border observation, tracking movement of vehicles and stock-taking at open markets (Ackello-Ogutu, 1996). The approaches may be used singly or in combination, depending on circumstances at specific borders.

Under border observation, well-trained enumerators are positioned strategically at border points to carefully observe and record all merchandise entering or leaving a country between 7 am and 6 pm. The enumerators also work closely with selected border traders as key informants on cross-border flows and commodity prices. For data quality control, the enumerators work under supervisors and coordinators. Among the variables captured are the magnitude (weight or count) of trade, direction of flows and price. Data collected is transmitted to a central database on a daily basis. Although this approach is the least disruptive, it is costly and may not be carried out throughout the year.

Tracking technique is useful to capture the unrecorded part of the cargo arising from under-declaration at the customs. Such under-declaration is possible where traders collude with customs authorities, especially to evade taxes through under invoicing, misspecification of goods and other malpractices. Tracking is done for only 10 percent of trucks passing through selected borders. It involves following the cargo from the port of entry to the declared destination and comparing the findings with the official customs records. Thus, it can only be done secretly and by experienced persons, either former customs or police officers.

Stock-taking is used in open border markets. It is possible in markets where all commodities moving in and out of a country are assembled or stored. The approach estimates quantity of goods bought/sold from either country, taking into account stock carryover and replenishment. An estimate of the goods traded is taken at the end of each trading day. From the daily estimates, weekly or monthly estimates are made. This approach requires to be combined with border observation to cover the non-market days.

Because of the highly porous borders in the ESA region, our collaborating agencies use direct observation technique to capture cross-border trade data. The robustness of this approach in the region has previously been tested (Ackello-Ogutu, 1996; UBOS, 2003; MAS, 2010).

About 47 border points are monitored. UBOS monitors 22 border points, EAGC and FEWSNET-EA collectively monitor 30 (sharing 5 with UBOS) while ACTESA monitors 10 borders. Where a border is monitored by UBOS and any other agency, UBOS data takes precedence. This is because UBOS has been in the business of collecting informal trade data for a longer time than the rest of the agencies. Where a border is shared by MAS group (EAGC and FEWSNET-EA) and Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), MAS group data takes precedence. Preference is informed by longer experience of MAS group over ACTESA in informal trade data collection. Double counting is, therefore eliminated in our approach.

To compute the annual volume of informal cross-border trade between any two neighbouring countries, recorded exports were aggregated as illustrated in equation (1):

$$Y_{ijt} = \sum_{b=1}^{k} X_{ijb} \quad \text{..... (1)}$$

Where:

Y_{it} is the volume of export of the given commodity from country i to country j at time t; and

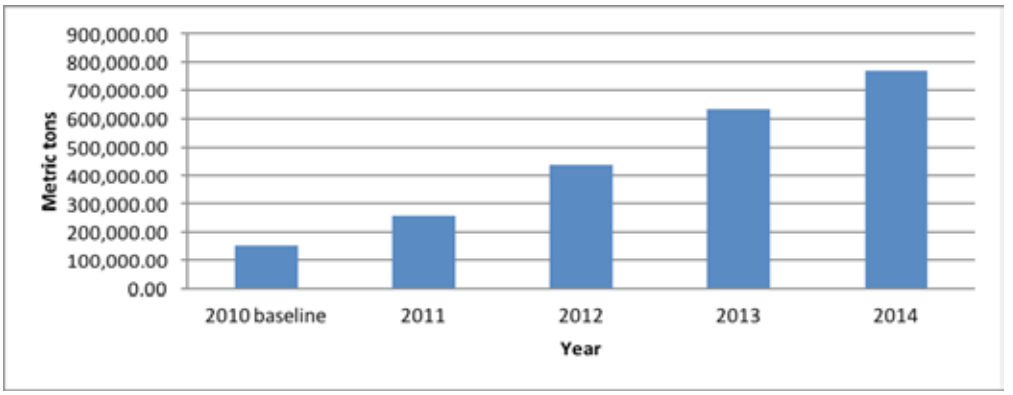
X_{ijb} is the recorded export of the same commodity from country i to country j through border b for the same period.

The computation is repeated for each country and commodity under consideration for the different calendar years. Resultant data is analysed across time to understand the trends and dynamics of this form of trade.

The Volume of ICBT in Selected Countries in ESA Region

ICBT flows were computed in volume (Tons) terms. Figure 1 shows the estimated informal exports among selected countries for selected staples in ESA region. Informal trade in the ESA region consistently grew during the period of reference. In 2010, the volume of intra-ESA informal trade in staple foods was estimated at about 285,760MT. In 2011 the informal trade volume decreased to 275,537 MT. The volume rose to 434,877 MT, 634,987 MT, and 768,473MT in 2012, 2013 and 2014, respectively (Annex 1 and 2).

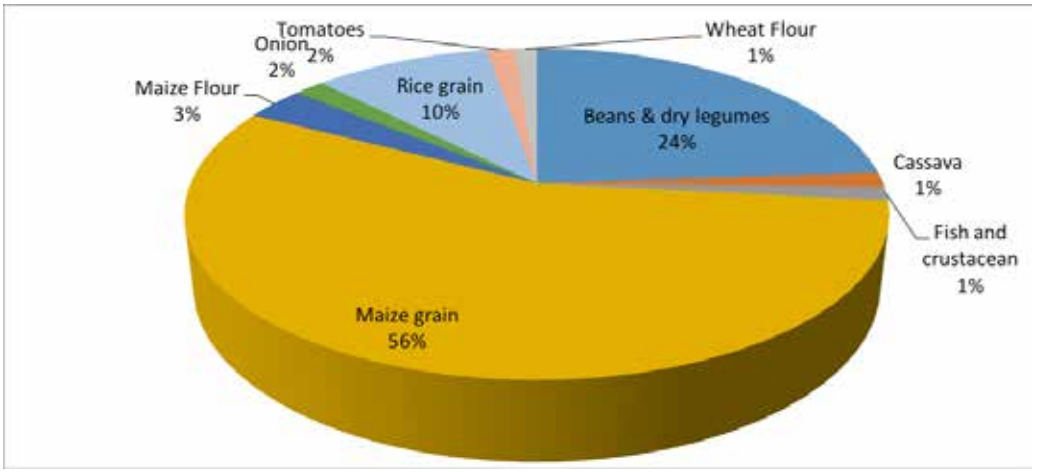
Figure 1: Estimated intra-regional Informal staple food exports in ESA



Data source: UBOS, EAGC, FEWSNET, ACTESA

Maize grain, rice, beans and dry legumes were the most traded commodities in 2014 (Figure 2).

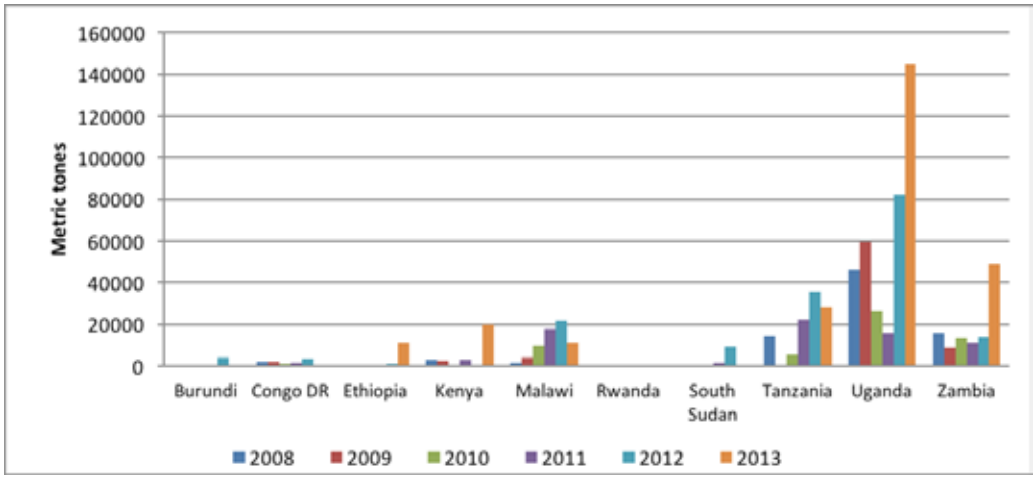
Figure 2: Staple food commodities informally traded in ESA in 2014



Data source: ACTESA, UBOS, FEWSNET and EAGC

Uganda, Tanzania and Zambia have the highest potential for informal cross border trade in maize in the region (Figure 3). However, this needs to be interpreted with caution since not all countries monitor ICBT.

Figure 3: Informal intraregional maize trade in ESA



Data source: UBOS, EAGC and FEWSNET

The livestock traded informally between Uganda and immediate neighbors (DR Congo, Kenya, Tanzania, Rwanda, and South Sudan) includes cattle, goats, pigs, piglets and sheep. A total of 35,326 heads of cattle were traded informally in 2013 from Uganda to the neighbouring countries (Table 1). A total of 217,796 livestock was exported from Uganda to neighbouring countries compared to an import of 1,528 livestock. Highest livestock trade was reported between Uganda and DR Congo (Table 1).

Table 1: Livestock traded informally between Uganda and neighbors in 2013

Type/Destination	Number of livestock Export[1]	Type/Origin	Number of livestock Import[2]
Cattle	**35326**	**Cattle**	**57**
DR Congo	1598	DR Congo	4
Kenya	4	Kenya	51
Sudan	33690	Sudan	2
Tanzania	34		
Goats	**133139**	**Goats**	**996**
DR Congo	19376	DR Congo	693
Kenya	126	Kenya	16
Rwanda	64	Rwanda	149
Sudan	113560	Sudan	64
Tanzania	13	Tanzania	75
Piglets	**1236**	**Piglets**	**23**
DR Congo	1236	DR Congo	19
		Kenya	5
Pigs	**1867**	**Pigs**	**293**
DR Congo	1707	DR Congo	282
Kenya	5	Kenya	11
Sudan	155		
Sheep	**46227**	**Sheep**	**159**
DR Congo	7998	DR Congo	151
Kenya	33	Kenya	3
		Rwanda	2
		Sudan	2
		Tanzania	2
Grand Total	**217796**	**Grand Total**	**1528**

Data source: UBOS

Summary and Conclusions

This study estimated the volume of ICBT in the region using data from the four main agencies monitoring ICBT in the region. Although ICBT represents a significant proportion of cross-border trade in ESA region, there are few agencies monitoring the informal sector trade.

The missing informal trade data leads to unreliable statistics which affects effective formulation, implementation and monitoring of domestic, regional and international trade policies. It is therefore difficult to assess the impact of any trade related policy initiatives in the region. Governments also lose revenue in unpaid custom taxes and duties because the volume of informal trade is increasing with liberalization of cross-border trade in staple foods in the region.

Based on the findings, there is need to invest in ICBT data collection infrastructure, specifically national governments should: invest in collection of informal trade data and identifying borders with significant trade volumes; consider joint collection of data for common borders; strengthen partnerships between various agencies involved in data collection; and invest in capacity development of those tracking/monitoring ICBT.

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Appendices

Annex 1: Informal intra-regional staple food exports in ESA in 2013 (MT)

Product	Burundi	DRC	Djibouti	Ethiopia	Kenya	Malawi	Rwanda	South Sudan	Tanzania	Uganda	Zambia	Grand total
Grain &pulses	**203**	**2279**	**5**	**18735**	**62542**	**16711**	**1463**	**637**	**81005**	**181435**	**55706**	**420720**
Dry legumes and pulses	0	1134	0	7809	17240	183	1374	47	30928	33808	4616	97140
Maize grains	203	551	1	10926	19713	10727	39	1	28042	144543	48939	263686
Rice	0	594	4	0	25588	5800	50	588	22034	3084	2151	59894
Livestock/products	**0**	**59**	**0**	**0**	**536**	**-**	**5**	**186**	**1835**	**93165**	**-**	**95786**
Bovine meat	0	0	0	0	3	-	0	7	0	333	-	343
Milk and cream	0	6	0	0	64	-	4	164	24	2058	-	2321
Fish and crustaceans	0	52	0	0	469	-	0	14	1811	90775	-	93122
Processed flour	**21**	**6**	**0**	**12712**	**4416**	**22**	**39**	**139**	**8479**	**66336**	**3138**	**95308**
Maize flour	9	4	0	0	8	22	36	135	2346	58603	3138	64302
Wheat flour	12	2	0	12712	4408	-	3	4	6133	7733	-	31006
Roots & tubers: Cassava	**0**	**779**	**0**	**0**	**27**	**-**	**1**	**10**	**674**	**6846**	**-**	**8337**
Vegetables	**126**	**40**	**0**	**1156**	**247**	**-**	**12**	**0**	**4360**	**8895**	**-**	**14835**
Onions	126	0	0	1156	201	-	0	0	4349	25	-	5857
Tomatoes	0	40	0	0	47	-	12	0	10	8869	-	8978
Grand Total	**350**	**3164**	**5**	**32603**	**67768**	**16732**	**1520**	**972**	**96352**	**356677**	**58844**	**634,987**

Data Source: UBOS, EAGC, FEWSNET

Annex 2: Informal intra-regional staple food exports in ESA in 2014 (MT)

Product	Burundi	Djibouti	Dr Congo	Ethiopia	Kenya	Malawi	Rwanda	South Sudan	Tanzania	Uganda	Zambia	Grand Total
Grains & pulses	**263**	**27**	**2935**	**1837**	**20721**	**11268**	**9296**	**780**	**119000**	**501635**	**18486**	**686247**
beans & dry legumes			2219	954	3808	422	9199	86	16835	185283	3643	222448
maize grains	263	1	399	883	2890	8367	58	4	37186	315928	13041	379022
rice grains		26	317		14023	2479	38	690	64979	423	1802	84777
Livestock products			**33**		**124**		**19**	**148**	**132**	**14442**		**14898**
bovine meat			0		11		0	23	1	294		329
milk and cream			2		98		17	118	21	1198		1453
fish and crustacean			31		16		1	8	109	12950		13116
Processed flour	**438**	**10**	**1**	**357**	**7489**	**1**	**14**	**126**	**1282**	**32512**	**1902**	**44130**
maize flour	201	4	1	1	6	1	13	122	18	29813	1902	32082
wheat flour	236	6	0	356	7482		1	4	1264	2699		12048
Roots & tubers			**1579**		**0**		**4**	**13**	**405**	**5043**		**7045**
cassava			1579		0		4	13	405	5043		7045
Vegetables	**508**		**323**	**30**	**287**		**136**	**4**	**1952**	**12914**		**16153**
onions			219	30	269		48	2	1714	6020		8302
tomatoes	508		105		18		88	1	238	6894		7851
Grand Total	**1208**	**37**	**4872**	**2224**	**28622**	**11268**	**9468**	**1071**	**122770**	**566546**	**20388**	**768473**

Data Source: UBOS, EAGC, FEWSNET and ACTESA

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