Common Market for Eastern and Southern Africa



Key Issues

in Regional Integration. Vol 9

Harnessing intra-COMESA trade through the interface with African Continental Free Trade Area



KEY ISSUES IN REGIONAL INTEGRATION $\ IX$

Harnessing intra-COMESA trade through the interface with African Continental Free Trade Area

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Acronyms and Abbreviations

ACP	African Caribbean Pacific
AEC	African Economic Community
AGOA	African Growth and Opportunity Act
AMU	Arab Maghreb Union
ASEAN	Association of Southeast Asian Nations
AU	African Union
AUC	African Union Commission
BIAT	Boosting Intra-Africa Trade
CACM	Central American Common Market
CEN-SAD	Community of Sahel-Saharan States
CEPII	Centre d'Etudes Prospectives et d'Informations
CFTA	Continental Free Trade Area
CGE	Computable General Equilibrium
COMESA	Common Market for Eastern and Southern Africa
COMSTAT	COMESA Statistics
CPI	Consumer Price Index
CU	Customs Union
DRC	Democratic Republic of Congo
EAC	East African Community
ECCAS	Economic Community of Central African State
ECOWAS	Economic Community for West African States
EDD	Exporter Dynamics Database
EIA	Economic Integration Agreement
EPA	Economic Partnership Agreement
EU	European Union
FDI	Foreign Direct Investment
FE	Fixed Effects
FTA	Free Trade Area
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product

GEMPACK	General Equilibrium Modelling PACKage
GMM	Generalized Method of Moments
GSP	General System of Preferences
GTAP	Global Trade Analysis Project
HS	Harmonized System
IGAD	Inter-Governmental Authority on Development
IMF	International Monetary Fund
ITC	International Trade Centre
KRA	Kenya Revenue Authority
LPA	Lagos Plan of Action
LR	Likelihood Ratio
MFN	Most Favoured Nation
MU	Monetary Union
NAFTA	North American Free Trade Agreement
OAU	Organization of African Union
OLS	Ordinary Least Squares
PPML	Pseudo Poisson Maxumum Likelihood
PPMLHDFE	Poisson Pseudo Maximum Likelihood Estimator with Multi-
	way Fixed Effects
PPP	Purchasing Power Parity
PTA	Preferential Trade Area
RECs	Regional Economic Communities
RER	Real Exchange Rate
RTA	Regional Trade Agreements
RTA-IS	Regional Trade Agreements Information System
SACU	Southern African Customs Union
SADC	Southern African Development Community
SITC	Standard International Trade Classification
SPS	sanitary and phytosanitary Measures
SSA	Sub-Saharan Africa
TFTA	Tripatriate Free Trade Area
TMEA	Trademark East Africa
TRAINS	Trade Analysis Information System
TRALAC	Trade Law Office for Southern Africa
UMA	Arab Maghreb Union
UN	United Nations
UNCOMTRADE	United Nations Commodity Trade Statistics Database
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
US	United States
USAID	United States Agency for International Development
USD	United States Dollars
WAEMU	African Economic Monetary Union
WDI	World Development Indicators
WITS	World Bank World Integrated Trade Solutions
WTO	World Trade Organization



Key Issues in Regional Integration is an annual publication of COMESA Secretariat. To date eight editions have been published and this ninth edition focuses on "Harnessing Intra-COMESA Trade Through the Interface with African Continental Free Trade Area (AfCFTA)". The African Continental Free Trade Area (AfCFTA), once complete, will be a continent-wide free trade area for those states which have deposited instruments of ratification. It is more akin to a comprehensive partnership agreement because the disciplines will go beyond trade in goods to cover services, investment, competition, and intellectual property.

The main objectives of the AfCFTA are to create a single continental market for goods and services, with free movement of businesspersons and investments, and thus pave the way for accelerating the establishment of a continental customs union. It will also expand intra-African trade through better harmonization and coordination of trade liberalization and facilitation, instruments across the Regional Economic Communities (RECs) and across Africa in general. The AfCFTA is also expected to enhance competitiveness at the industry and enterprise level through exploitation of opportunities for scale

production, continental market access and better allocation of resources. The Regional Economic Communities (RECs) will not disappear for the foreseeable future. Member states will continue to trade under their respective REC trading regimes. In the AfCFTA Agreement, the Member States reaffirm their existing rights and obligations under other trade agreements of which they are members. Similarly, two of the principles outlined in Article 5 refer to the 'RECs' Free Trade Areas as building bloc[k]s for the AfCFTA and that best practices in the RECs are recognized. Another Principle mentions the "preservation of the acquis", which means that what has already been achieved as part of the implementation of REC obligations will have to be respected.

This volume consists largely of empirical and policy papers under the overall theme "Harnessing Intra-COMESA Trade Through the Interface with African Continental Free Trade Area (AfCFTA)". The papers address themselves to a wide range of topical themes namely: COMESA industrialization programmes and the AfCFTA; AfCFTA opportunities and challenges to boosting Intra-COMESA Trade; COMESA Role in Implementation of the AfCFTA; COMESA trade in services liberalization and the AfCFTA; and AfCFTA and COMESA trade regimes.

The purpose of this edition is to educate the reader on how to harness intra-COMESA trade through the interface with African Continental Free Trade Area. It stretches the scope of readership to cover researchers on international trade, government officials in various ministries and regional integration and avails to the reader insightful dimension of issues at the frontier of trade and integration debate in the COMESA region, African continent, and the globe at large.

The journey of writing this edition commenced with the call for extended abstracts in January 2020 which culminated to presentation of select research papers at the seventh COMESA-Annual Research Forum held virtually on 19-21 October 2020. 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 challenges. Some good papers were dropped for lack of relevant and up to date data and for the inability of the authors to complete revisions within scheduled timelines.

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 edition, however, is found in the empirical basis of analysis deployed and the participation of academia and industry at the Research Forum and peer review process.

Several institutions and people were instrumental in the process leading up to this publication and their involvement is gratefully acknowledged. The COMESA Secretariat under the leadership of the Secretary General Ms Chileshe Mpundu Kapwepwe, and the Division of Trade and Customs under the stewardship of Dr Christopher Onyango deserve special mention. The support of the editorial team (Benedict Musengele, Jane Kibiru, Frederick Msiska, Caesar Cheelo, Netta Gichuki and Mwangi Gakunga) is highly appreciated.



Estimating the Economic Effect of the African Continental Free Trade Area in COMESA

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Abstract

African countries have put up various initiatives to help boost intra-Africa trade. Among them is the establishment of the African Continental Free Trade Area (AfCFTA). COMESA, as the largest REC in Africa is expected to be more affected by AfCFTA implementation. This study was undertaken to establish the effect of AfCFTA implementation in COMESA. It employed the CGE model and GTAP data base to simulate the effect of elimination of import tariff by the rest of Africa on imports from COMESA and vice-versa.

The study found that removal of import tariffs led to an increase in COMESA exports and imports, and a fall in import prices within the region and the AfCFTA at large. Tariff removal also led to an overall welfare gain among the African countries. Additionally, implementation of the AfCFTA would lead to a marginal fall in COMESA's GDP which could be attributed to the increase in the region's imports.

The study recommended that COMESA Member States eliminate tariffs on trade with the rest of Africa to boost the region's total trade as well as intra-African trade; undertake measures towards greater reliance on non-tariff revenue to mitigate against the revenue loss; and sensitize producers to diversify and expand their production capacities in readiness for the expanded AfCFTA market opportunities.

1.0 Introduction

1.1 Background

The 18th Ordinary Session of the Assembly of Heads of State and Government of the African Union held in Addis Ababa, Ethiopia in January 2012, adopted a decision to establish an African Continental Free Trade Area (AfCFTA) by 2017. It was not until March 2018 (in Kigali, Rwanda) that the AfCFTA agreement was brokered by the African Union (AU) and signed by 44 of AU's 55 member states. The agreement initially required members to eliminate tariffs on 90 percent of goods, allowing free access to commodities, goods, and services across the continent. With 44 members signing the agreement, the AfCFTA promised to be the largest free trade area in the world in terms of participating countries since the formation of the World Trade Organization (WTO).

In May 2019, the agreement establishing the AfCFTA came into force with 24 countries having deposited their instruments of ratification. As at the end of 2019, 27 countries had signed and ratified the agreement (AfCFTA, 2019).

The objectives of the AfCFTA were, among others, to create a single market for goods and services, facilitated by free movement of persons in order to deepen the economic integration of the African continent. This is in line with the Pan African Vision of "An integrated, prosperous and peaceful Africa" enshrined in Agenda 2063. According to the United Nations Economic Commission for Africa (UNECA) and Trademark East Africa (TMEA) (2020), implementation of the AfCFTA will catalyze intra-regional trade and investment integration across the continent by bringing new opportunities for employment creation, income generation and poverty reduction.

The report estimates that the AfCFTA has the potential to boost intra-African trade by 52.3 percent by eliminating import duties, and to double this trade if trade facilitation is enhanced. A more integrated Africa is expected to strengthen the competitiveness of its industries, realize economies of scale and accelerate the rate of growth in trade and income. Saygili et. al., (2018) opined that despite the significant opportunities, the AfCFTA presents some challenges such as loss of tariff revenue and uneven distribution of costs and benefits in trade and income.

Box 1: Potential benefits of the AfCFTA

The AfCFTA offers enormous advantages for African countries if it will lead to deeper integration among the implementing countries. The potential benefits are:

- 1. Creating bigger and integrated regional market for African products.
- 2. Permitting producers to benefit from economies of scale and to access cheaper inputs.
- 3. Improving conditions for forming regional value chains and integrating to global value chains (GVCs).
- 4. Allowing consumers to access cheaper imported products from other African countries.
- 5. Enhancing efficiency in the allocation of resources and faster economic and trade growth.
- 6. Catalyzing the structural transformation of the countries from resource and low technologybased economies to more diversified knowledge-based economies.
- 7. Eliminating some challenges associated with multiple and overlapping trade agreements in Africa.
- 8. Encouraging both intra-African and external direct capital flows to African countries.
- 9. Stimulating cooperation in other areas such as technology transfer, innovation, investment and continent-wide infrastructure development.

Source: Saygili et. al., (2018)

With an estimated population of 583 million (2020), the COMESA region accounts for nearly half of the total population of the AfCFTA. Among the COMESA Member States who had ratified the AfCFTA by end of 2020 were; Democratic Republic of Congo, Egypt, Eswatini, Kenya, Rwanda, Uganda and Zimbabwe. The effect of the AfCFTA on these countries and the region is therefore expected to be enormous. Indeed, the AfCFTA can be considered as an opportunity for the region to grow its trade, output and employment levels while deepening regional integration.

1.2 Overview of Existing Trade Patterns in Africa

Africa's total merchandise trade grew from US\$ 558.9 billion to over US\$ 1 trillion over the period 2005-2012 and reduced to US\$ 920 billion by 2017. The continent was a surplus merchandise exporter before 2011 and became a net importer from 2012 onwards as shown in Figure 1.

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Figure 1: Trends in Africa's merchandise trade, 2005-2017

Source: World Bank (2018), World Development Indicators

The continent's total trade has recorded mixed growth over time while intra-Africa trade has remained low (African Export-Import Bank, 2018). The onset of the COVID-19 pandemic has hit African economies hard, especially countries which heavily relied on trade with countries outside Africa. The fundamental changes in global trade arising from the pandemic have hindered the role of extra-African trade as the engine for African growth, hence rekindling the debate on the need for expanding intra-African trade.

The share of intra-Africa trade in total trade ranged from 11 to 15 percent in 2008-2017. The relatively low level of intra-African trade has led to a number of initiatives such as the Tripatriate Free Trade Area (TFTA) and the AfCFTA to promote intra-African trade.



Figure 2: Intra-African trade 2008-2017

Source: International Monetary Fund, Direction of Trade Statistics database

In terms of exports, intra-African exports accounted for 18 percent of the continent's total exports, compared to 59 and 69 percent for intra-Asia and intra-Europe exports, respectively

in 2016 (Sow, 2018). A few EU countries like Netherlands, Portugal, Slovenia and Belgium exported more than 60 percent of their products to the EU (Eurostat, 2018).

As shown in Table 1, in 2019, the Southern African Development Community (SADC) was leading in total intra-Africa trade with 23.7 percent of its total trade. This was followed by the East African Community (EAC) at 21.6 percent and COMESA at 16.3 percent. These indicate the need for the Regional Economic Communities (RECs) to come up with deliberate efforts to boost intra-regional trade. Full implementation of the AfCFTA promises to boost the total intra-African trade. In the same breadth, it is expected to boost COMESA's trade with the rest of Africa.

Reporting Economy	Intra-REC trade	Rest of Africa Trade	Total Intra-Africa
SADC	21	2.7	23.7
EAC	11.5	10.1	21.6
COMESA	7	9.3	16.3
ECOWAS ³	10.7	5.6	16.3
IGAD ⁴	7.3	8	15.3
ECCAS ⁵	2.8	9.5	12.3
CEN-SAD ⁶	7.5	4.1	11.6
AMU ⁷	3.3	2.5	5.8

Table 1: Percentage of Intra-regional trade as a share of total trade for African RECs, 2019

Source: UNCTAD (2019)

1.3 Overview of Trade in COMESA

COMESA was initially established as a Preferential Trade Area (PTA) for Eastern and Southern Africa in 1981 and transformed to the Common Market for Eastern and Southern Africa in 1994. Currently, it has a membership of 21 countries namely: Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tunisia, Uganda, Zambia and Zimbabwe.

The COMESA Free Trade Area (FTA) was established on 31 October 2000 after a sixteenyear period of progressive trade liberalization through reduction of intra-COMESA tariffs. This has seen intra-COMESA exports grow from US\$1.5 billion in 2000 to US\$ 10.9 billion in 2019 (Musengele, 2021). However, as indicated in Table 1, intra-COMESA trade remains low at 7 percent. Similarly, COMESA's trade with the rest of Africa stands at 9.3 percent of total COMESA trade.

- 3 Economic Community for West African States (ECOWAS)
- 4 Inter-Governmental Authority on Development (IGAD)
- 5 Economic Community of Central African State (ECCAS)
- 6 The Community of Sahel-Saharan States (CEN-SAD)
- 7 Arab Maghreb Union (AMU)

1.4 Problem Statement

Intra-Africa trade lies below those of other regions such as EU and Asia. While Africa has increased its aggregate trade volume, the share of intra-African trade remains low. International trade agreements such as the African Growth and Opportunity Act (AGOA), the Economic Partnership Agreement (EPA), among others, have positively contributed to the continent's total trade. However, Africa is still the world's least connected continent in terms of trade and mobility of factors of production. Towards that end, African countries have come together to put in place a framework to promote intra-African trade by implementation of the AfCFTA. Implementation of the AfCFTA brings enormous opportunities, and some challenges for Africa. Indeed, empirical studies on trade liberalization generally indicate that long-run gains outweigh the short-run adjustment costs.

COMESA, being the largest REC on the continent, is expected to be affected by AfCFTA implementation. Questions abound on magnitude of the benefits and costs from implementation of the AfCFTA and how the region could position itself strategically to maximize AfCFTA benefits while minimizing any associated costs. As such, there is need to empirically establish the economic effect of AfCFTA implementation in COMESA.

1.5 Objective of the Study

The objective of this study was to estimate the economic effect of the implementation of AfCFTA in COMESA. The specific objectives were:

- i. To estimate the effect of removal of import tariffs on trade in the AfCFTA on COMESA trade; and
- ii. To estimate the effect of removal of import tariffs on trade in the AfCFTA on prices of imports in COMESA.

2.0 Literature Review

2.1 Theoretical Literature

Regional integration is considered as a form of selective trade liberalization since it involves liberalization with regional partners but does not necessarily imply any changes in trading relations with third parties (UNECA and TMEA, 2020). It involves removal of tariff and non-tariff barriers among the participating countries. This is expected to lead to growth in trade, output, employment and welfare.

The ideology of FTAs can be traced back to the Mercantilist era when economists believed that nations drew from a scarce "pot" of resources and that the wealth of a nation depended on favourable terms of trade. However, Smith (1776) stated that the "pot" is not limited and can grow over time as long as there exists free trade between nations. Smith's argument is formally referred to as the Absolute Advantage Theory of Trade. According to the theory, countries should specialise in production of commodities which they possess absolute advantage and export the surplus to facilitate importation of the commodities in which they have absolute disadvantage.

David Ricardo, in his theory of Comparative Advantage, stated that it would be beneficial for a country to specialise in production of goods in which it has a comparative advantage and to import those in which it has a comparative disadvantage (Wood, 1996).

These two theories imply that countries should endeavour to remove all tariff and non-tariff barriers in order to promote international trade and development. However, Smith's and Ricardo's trade theories do not really address the subject of regional integration despite their strong arguments for free trade among countries.

Viner, (1950) postulated that the effects of regional integration come in two forms; trade creation and trade diversion, which lead to a net trade creation effect. This implies that the trade created between trading partners within the regional bloc outweighs the value of the displaced trade with third-party countries. As such, the volume of intra-regional trade should increase as tariffs on intra-regional trade are removed. However, if regional integration favors less efficient producers (members) at the expense of more efficient producers (third-party countries) then there would be trade diversion.

The weakness in Viner (1950) argument is that it provides a static view of the effects of regional integration. Cooper and Massell, (1965) posit that for developing countries, trade diversion resulting from regional integration could be considered desirable. From a dynamic perspective, the immediate cost of trade diversion in the short-run may be a price worth paying to spur diversification of the regional economy in the long-run.

2.2 Empirical Literature

In analysing the impact of forming a regional bloc, various methodologies are applied. Specifically, the Gravity Model is applied for *ex-post* analysis where it is used to assess the trade effects of certain policies, for instance membership of a regional bloc. Partial or general equilibrium approaches are used for *ex-ante* simulations which focus on assessing the future

impact of trade policies. This section, therefore, focuses on previous studies on the impact of regional integration for African economies.

UNECA and TMEA (2020) applied partial equilibrium analysis, complemented by a Computable General Equilibrium (CGE) model to assess the potential gains of AfCFTA for East Africa. The CGE model was based on GTAP 10.0 database with the data referring to a 2014 baseline. Based on the availability of data, the report conducted simulations for six individual countries in East Africa while clustering other remaining countries as "Rest of East Africa" and aggregated the sectors into 10. The study establised that the implementation of the AfCFTA will result in welfare gains amounting to US\$ 1.8 billion for East Africa. On one hand, Partial Equilibrium results indicated that under full implementation of the AfCFTA, East Africa's intra-African trade would increase by around US\$ 737 million. On the other hand, the CGE model results indicated that AfCFTA would boost East Africa's exports to the rest of the continent by 16 percent or US\$ 1.1 billion. In addition, the integration would create more than two million new jobs, of which majority of the new opportunities emerged in sectors with predominance of female labour, thereby contributing to the economic empowerment of women in the region.

In assessing the potential long-term effects of AfCFTA on African Union member states, Saygili, *et al.* (2018) used a CGE model. The study distinguished 27 individual countries, five sub-regions in Africa and estimated 22 sub-categories of economic activities. The results indicated that the AfCFTA would lead to welfare gains, output and employment expansion as well as intra-African trade growth in the long-run. However, gains were not equally distributed among member states. Further, the results showed that countries were likely to bear some tariff revenue losses in the short-run which may not be distributed uniformly across the continent.

Mold and Mukwaya, (2016), applied the GTAP database and CGE model to measure the static effects of the establishment of the Tripartite Free Trade Area (TFTA) on industrial production, trade flows and consumption. The results showed that there was an increase in intra-regional exports due to tariff elimination. The manufacturing sectors were found to be the most benefiting sector.

Similarly, Walters, Bohlmann and Clace, (2016) employed the CGE model to analyse the effects of TFTA on the South African economy. The simulation results showed that South Africa's economy would gain following the implementation of the trade agreement with the GDP increasing by more than one percent compared to the baseline. The increased growth was leveraged on terms of trade increase and flow in regional trade that allowed for increased exports and imports.

Mukwaya and Mold, (2014) employed the CGE model to measure the static effects of the proposed continental FTA on welfare, trade flows, prices, consumption and production. The simulation results suggested a net welfare gain of US\$ 10.7 billion. However, the distribution of the gains were found to benefit mostly the consumers in Egypt, South Africa and Zimbabwe. The amplified industrial production as new firms enter the market across East Africa was expected to increase exports and imports.

2.3 Overview of the Literature

From the reviewed literature, it is evident that a few studies have sought to estimate the economic effect of the AfCFTA on COMESA. Most studies have undertaken *ex-ante* analysis by using partial and general equilibrium analysis in other regions such as Southern Africa (Walters, Bohlmann and Clace, 2016), African Union (Saygili, *et al.* 2018) and the EAC (UNECA and TMEA, 2020). This leaves a gap in literature regarding the effect of the AfCFTA on COMESA.

3.0 Methodology

3.1 Estimation Technique

Studies on regional integration and effects of trade policy change generally rely on two methodologies; Gravity Model Analysis and Computable General Equilibrium (CGE) based simulation analysis. The gravity model is used in performing post-implementation analysis while CGE based simulations are used to perform pre-implementation analysis. This study used CGE based simulation (pre-implementation analysis) since the AfCFTA was yet to be implemented by 2019.

A CGE model is derived from Economic Theory and is a system of equations which describes the economy, the interaction among its different sectors and actors. It includes exogenous and endogenous variables as well as the resource constraints. Endogenous variables are determined within the model while exogenous variables are from outside the model (Mold & Mukwaya, 2016). The equations are solved simultaneously to obtain an equilibrium of the economy. CGE modelling uses real world data, taking into account the inter-linkages between various sectors and actors while comparing the effects of a policy change with the baseline. The limitation of the CGE model in this type of study is that it has potential to overestimate or underestimate the effects of policy changes such as tariff reductions due to its inability to account for political economy factors and non-tariff barriers to trade. The model in this study is static given that it models the reactions of an economy at one point in time following a shock to the system.

The GTAP data was aggregated using GTAPAgg software to create a three region-three sector (3x3) database namely COMESA, Rest of Africa and Rest of World, and agriculture, manufacturing, and services, respectively. The aggregated database was then uploaded into the RunGTAPv3.7 (GEMPACK) software and a simulation done with two shocks; COMESA removing tariffs on imports from the rest of Africa and the rest of Africa removing tariffs on imports from the standard closure. The study limited the regional and sector aggregation of the GTAP data to 3x3 because of the limitation in accessing higher versions of the software which could further disaggregate the data into more regions and sectors.

3.2 Data Type and Sources

The data used in this study was generated from the Global Trade Analysis Project (GTAP) Version 7 database. The GTAP data is publicly available from the GTAP website and can be aggregated using GTAPagg software. GTAP data is useful for cross regional and multi sectoral studies.

4.0 Presentation and Discussion of Results

The simulation results show that implementation of the AfCFTA by way of removal of existing tariffs on intra-African trade will boost COMESA's aggregate exports by 7.48 percent which is the average of the exports sectoral increments as shown in Table 2. Agricultural, manufacturing and service sector exports by COMESA to the rest of Africa would increase by 32.21, 42.73 and 0.71 percent respectively. On average, implementation of the AfCFTA would lead to an increase in COMESA exports to the rest of Africa by 25.22 percent indicating an increase of COMESA trade in Africa, from the current 9.3 percent.

Implementation of the AfCFTA would lead to a marginal decrease in COMESA exports to the rest of the world. This implies that the region would not lose out substantially on its trade with the rest of the world due to implementation of the AfCFTA. Similarly, the AfCFTA will lead to marginal decline in intra-COMESA trade by 1.29, 6.31 and 0.14 percent in agriculture, manufacturing and service exports respectively. This indicates that implementation of the AfCFTA will boost COMESA trade with the rest of Africa.

Sector	Rest of Africa	Rest of World	COMESA
	Exports		
Agri (Agriculture)	32.21	-1.07	-1.29
Mnfc (Manufacturing)	42.73	0.7	-6.31
Services	0.71	-0.21	-0.14
	Imports		
Agri	27.99	-0.17	-1.29
Mnfc	96.47	-6.92	-6.31
Services	-0.16	0.08	-0.14

Table 2: Percentage change in COMESA exports and imports volume by sector

Source: GTAP simulation results

Aggregate COMESA imports would increase by 12.17 percent as shown in Table 2. The region's imports from the rest of Africa are expected to grow by an average of 41.43 percent, with manufacturing and agricultural sector imports increasing by 96.47 and 27.99 percent respectively. This indicates that manufacturing firms within the COMESA are likely to benefit more by exporting to other African countries. Contrary, imports of services are expected to decline marginally by 0.16 percent.

While the AfCFTA will promote intra-COMESA trade, this may not have an effect on overall trade balance given that increased intra-COMESA exports imply increased intra-COMESA imports. However, the implementation of AfCFTA is expected to boost competition and firm efficiency across the region as it opens to the rest of Africa.

The improved trade and efficiency within COMESA would ultimately benefit consumers. Removal of trade tariffs would not only lower product prices but also provide a wider range of commodities to consumers. The lower product prices can be attributed to a decline in prices of imported goods and services as indicated in Table 3. This finding is consistent with the results by UNECA and TMEA (2020). The benefit to consumers that arises from this price changes should be balanced with the decline in imports from the rest of the world who might be more efficient to avoid the problem of trade diversion.

Table 3: Average change in import prices

Pfm [**COMESA]	Agri	Mnfc	Services
Agri	-0.221	-0.221	-0.221
Mnfc	-1.27	-1.27	-1.27
Services	-0.004	-0.004	-0.004

Source: GTAP simulation results

COMESA would lose on average 3.97 percent in tax revenue due to removal of tariff barriers within the AfCFTA as shown in Table 4. This result compares with the findings in Mold and Mukwaya (2016) as well as UNECA and TMEA (2020).

Table 4: Change in tax revenue

	Pre	Post	percent Change
Rest of Africa	175,476	175,773	0.17 percent
Rest of World	16,138,546	16,137,474	-0.01 percent
COMESA	24,032	23,077	-3.97 percent

Source: GTAP simulation results

The revenue loss may be considered a necessary sacrifice given the added efficiency associated with the implementation of the AfCFTA. Tariff revenue loss by governments in the region would mean lower taxes paid by consumers and producers across the continent. Therefore, the tariff loss could imply redistribution of income from governments to producers and consumers. Member States could undertake measures towards greater reliance on non-tariff revenue to mitigate against the revenue loss.

In regard to GDP, the study found that implementation of the AfCFTA will lead to a 0.07 percent decrease in COMESA's GDP as shown in Figure 3. This marginal decrease could be attributed to the slightly higher increase in imports as compared to the increase in the region's exports. This result conforms with Mukwaya and Mold (2014). However, this could change in a dynamic model where imports act as intermediate inputs for production for final goods which are subsequently traded.



Figure 3: Percentage change in GDP by region

Source: GTAP simulation results



5.0 Conclusions and Policy Implications

5.1 Conclusions

The AfCFTA is a vital step towards integrating African economies and boosting intra-African trade. Its agenda is not only ambitious but far-reaching as it intends to hasten Africa's industrialisation and exploit the enormous opportunities in the various sectors through removal of existing tariff and non-tariff barriers to trade, among others. This is expected to improve development prospects for COMESA and allow firms within the region to tap into the fast-growing markets throughout the continent. The AfCFTA can therefore be seen as a timely opportunity for COMESA countries, and indeed African countries in the wake of globalization.

COMESA, as the largest REC in Africa is expected to be more affected by AfCFTA implementation. This study was undertaken to establish the effect of AfCFTA implementation in COMESA. It employed the CGE model and GTAP data base to simulate the effect of elimination of import tariff by the rest of Africa on imports from COMESA and vice-versa.

The study established that removal of import tariffs led to an increase in COMESA exports and imports, and a fall in import prices within the region and the AfCFTA at large. Tariff removal also led to an overall welfare gain among the African countries. Additionally, implementation of the AfCFTA would lead to a marginal fall in COMESA's GDP which could be attributed to the increase in the region's imports.

5.2 Policy Implications

The study recommends that :

- a) COMESA Member States to eliminate tariffs on trade with the rest of Africa to boost the region's total trade as well as intra-African trade.
- b) Member States to undertake measures towards greater reliance on non-tariff revenue to mitigate against the revenue loss.
- c) Member States to sensitize their consumers on the benefits of lower prices and accessibility to a wide range of products associated with the AfCFTA implementation.
- d) Member States to sensitize their producers to diversify and expand their production capacities in readiness for the expanded AfCFTA market opportunities.
- e) Further research to be undertaken on the potential impact of AfCFTA implementation using a dynamic CGE model to account for trade in inputs that are used to produce final goods and disaggregation of the trade flows into more product categories.



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Effects of the African Continental Free Trade Area on Intra-COMESA Trade

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Abstract

The study analysed the effects of the African Continental Free Trade Area (AfCFTA) on intra-COMESA trade, tariff revenue and welfare using the partial equilibrium model, World Integrated Trade Solution - Software for Market analysis and Restrictions on Trade (WITS-SMART). The study found that US\$520.9 million worth of new trade would be created with DR Congo, Zambia, Ethiopia and Tunisia being the main beneficiaries while a further US\$139.7 million will be diverted leading to a net trade effect of US\$660.7 million. This would constitute 37.8 percent of the total intra-Africa net trade effect of US\$1.75 billion. In addition, the region would lose tariff revenue worth US\$319.4 million, with DR Congo (US\$100.3 million), Zambia (US\$71.3 million) and Kenya (US\$48.9 million) being the most affected. Member States could mitigate against the losses by broadening their tax bases especially in countries that suffer higher revenue losses. In addition, domestic taxes could compensate for the lost tariff revenue through the trade gains.

The study recommended that Member States: establish and strengthen existing regional value chains within COMESA to enhance production and supply to the enlarged AfCFTA market and integrate into the global value chains; broaden the tax base to mitigate against their tariff revenue losses associated with the AfCFTA implementation by expanding their production capacities; and establish trade distribution hubs to maximise the enhanced AfCFTA trade opportunities with COMESA and non-COMESA African countries.

1.0 Introduction

1.1 Background

Continental integration has long been viewed by policy-makers in Africa as the ideal mechanism for improving intra-Africa trade, promoting economic growth, reducing poverty and integrating Africa into the global economy (Yongzheng and Gupta, 2005). A number of Regional Economic Communities (RECs) have been established over the years, but the African Continental Free Trade Area (AfCFTA) seems to enlarge the market through a consolidated Free Trade Area (FTA).

Studies have projected that implementation of the AfCFTA will generate significant gains for African countries, including employment, per capita income, intra-regional and inter-regional trade. United Nations Economic Commission for Africa (UNECA, 2018) projects that removal of tariffs by 90 percent will increase intra-Africa trade by 52.3 percent by 2022. In addition, International Monetary Fund (IMF,2019) estimates that removing tariffs on 90 percent of existing intra-Africa trade would increase intra-Africa trade by US\$16 billion if both tariff and non-tariff barriers are removed under the AfCFTA. United Nations Conference on Trade and Development, (UNCTAD, 2019) observes that removal of all bilateral tariffs across African countries would reduce trading countries' coffers by USUS\$4.1 billion while creating an overall welfare gain of USUS\$16.1 billion annually. Moreover, the African Development Bank (2019) projects that removal of bilateral tariffs across all African countries would boost intra-Africa trade by US\$10.1 billion in the long-run, while removal of both tariff barriers and ad valorem tariff equivalents of non-tariff measures across all African nations would in the long-run increase intra-Africa trade by US\$8.7 billion, before general equilibrium impacts.

These predictions raise hope that the AfCFTA could become a game changer at both intra- and inter-regional levels. This is premised on the fact that, elimination of bilateral tariff and non-tariff barriers across countries would boost intra-REC trade, and the benefits will extend to all Member States. According to Vivid Economics (2019), bilateral trade flows of two countries belonging to the same REC will increase by 45 percent if they join the AfCFTA. Although there are studies that have quantified the impact of AfCFTA on trade, revenue and welfare, there is scanty empirical literature on the Common Market for East and Southern Africa (COMESA). This study seeks to analyse the trade, revenue and welfare effects of the AfCFTA on COMESA.

1.2 The AfCFTA and Action Plan on Boosting Intra-Africa Trade

The 18th Ordinary Session of the Assembly of Heads of State and Government of the African Union, held in Addis Ababa, Ethiopia in January 2012, adopted a decision to establish a Continental Free Trade Area (CFTA) by an indicative date of 2017. The Summit also endorsed the Action Plan on Boosting Intra-Africa Trade (BIAT) which identifies seven clusters: trade policy, trade facilitation, productive capacity, trade related infrastructure, trade finance, trade information, and factor market integration.

The agreement establishing the African Continental Free Trade Area entered into force on 30 May 2019. As of December 2019, 54 of the 55 African Union states had signed the agreement,

except Eritrea. Thirty-one Member States had ratified the agreement, of which 28 had deposited their instruments of ratification (African Union [AU], 2020). Among the 28, nine are COMESA Member States: Djibouti; Egypt; Eswatini; Ethiopia; Kenya; Mauritius; Rwanda; Uganda; and Zimbabwe.

The agreement is being negotiated in two phases. Phase 1 covers trade in goods and services and dispute settlement. Tariff concessions, rules of origin and scheduled of specific commitment on trade in services are still being negotiated. Phase 2 focuses on cooperation on investment, competition and intellectual property rights.⁹ A summary of the modalities for the negotiation on tariff concessions is presented in Table 1.

	Non-LDCs	LDCs	G6 countries
Full liberalisation	90 percent of tariff lines	90 percent of tariff lines	90 percent of tariff lines
	5-year phase down	10-year phase down	13-year phase down
Sensitive products	7 percent of tariff lines	7 percent of tariff lines	7 percent of tariff lines
	10-year phase down (current tariffs can be maintained during first 5 years – phase down starting in year 6)	13-year phase down (current tariffs can be maintained during first 5 years – phase down starting in year 6)	(13-year phase down period)
Excluded products	3 percent of tariff lines	3 percent of tariff lines	3 percent of tariff lines
Notes: LDCs: Angola of Congo, Diibouti, F	ı, Benin, Burkina Faso, Burundi, Cer ritrea, Ethiopia, Gambia, Guinea, Gu	htral African Republic, Chad, Como unea-Bissau, Lesotho, Madagasc	pros, Democratic Republic ar. Malawi, Mali, Mauritania.

Table 1: Modalities for the Negotiation of Tariff Concessions

Notes: LDCs: Angola, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Lesotho, Madagascar, Malawi, Mali, Mauritani Mozambique, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, South Sudan, Sudan, Togo, Uganda, United Republic of Tanzania, Zambia

Source: Tralac, 2020

The AfCFTA negotiations and implementation are underpinned by the principle of variable geometry. The Least Developed Countries (LDCs) have 10 years to achieve 90 percent liberalisation, while non-LDCs have five years. The remaining 10 percent of tariff lines is divided into two categories. Seven percent is designated as sensitive products and three percent excluded from liberalization, but this should not account for more than 10 percent of the total trade. The non-LDCs have to phase down their 90 percent tariff liberalization for full implementation within five years, the LDCs within 10 years and a specific group of countries, the G6 countries (Ethiopia, Madagascar, Malawi, Sudan, Zambia, Zimbabwe) within 13 years. The non-LDCs have 10 years to phase down the sensitive products, while LDCs and G6 have 13 years.

The main objectives of the AfCFTA are to create a single continental market for goods and https://www.tralac.org/blog/article/14160-does-the-african-continental-free-trade-area-mean-business.html#_ftn3 services, with free movement of businesspersons and investments, and thus pave the way for accelerating the establishment of the Customs Union (CU). It will also expand intra-Africa trade through better harmonization and coordination of trade liberalisation, and facilitation instruments in the RECs and the continent in general. The AfCFTA is also expected to enhance industrial competitiveness through exploitation of opportunities associated with economies of scale, continental market access and better reallocation of resources. The establishment of the AfCFTA and the implementation of the Action Plan on BIAT provide a comprehensive framework to pursue a developmental regionalism strategy. However, AfCFTA implementation challenges include poor road and rail links, political unrest, and excessive border bureaucracy.

1.3 The Current State of Regional Integration and Trade Flows in COMESA

The current state of regional integration and trade in COMESA is shown in Table 2 in terms of selected indicators.

	Population (Mil-	GDP at Current	Doing Busin	ess Ranking	Access to the Sea	Income Level
	lions of people)	Prices, 2019	2019	2020		
Burundi	10	3078	46.5	46.8	No	
Comoros	۲	1203	47	47.9	Yes	
Congo, DR	89	47228	35.2	36.2	Yes	
Djibouti	·	1966	58.4	60.5	Yes	ΓW
Egypt	94	250895	58.5	60.1	Yes	ΓW
Eritrea	7	5933	21.5	21.6	Yes	
Eswatini	·	4704	58.7	59.5	No	ΓW
Ethiopia	66	84355	47.1	48	Yes	
Kenya	50	87908	71	73.2	Yes	ΓW
Libya	7	48320	32.7	32.7	Yes	NM
Madagascar	26	12100	47	47.7	Yes	
Malawi	20	7065	60.4	60.9	No	_
Mauritius	τ	14220	80.3	81.5	Yes	NM
Rwanda	12	9509	75.4	76.5	No	
Seychelles	0.1	1590	61.5	61.7	Yes	Н
Somalia	15	7484	20	20	Yes	
Sudan	39	40852	48	44.8	No	ΓW
Tunisia	12	39861	67.2	68.7	Yes	ΓM
Uganda	43	27477	58.4	60	No	
Zambia	16	26720	65.7	66.9	No	ΓW
Zimbabwe	14	31001	50.5	54.5	No	
COMESA	557	753469			•	·

Table 2: Selected indicators of COMESA Member States

Source: COMSTAT Database (2020); IMF (2019); World Development Indicators (2020)

COMESA consists of diverse countries in terms of income level and population size. The region has 11 low-income countries (60.3 percent of COMESA population), seven middle income countries (38.2 percent of population), two upper middle-income countries (1.4 percent of population) and one high-income country (0.01 percent of population).

The ease of doing business scores benchmark economies with respect to regulatory best practices (World Bank, 2020). When compared across years, the ease of doing business score shows how much the regulatory environment for local entrepreneurs in an economy has changed over time in absolute terms. Zimbabwe and Kenya have improved their rankings from 50.5 and 71 to 54.5 and 73.5, respectively between 2019 and 2020 as shown in Table 2. Kenya, Rwanda and Mauritius have best regulatory practices, and Rwanda has the lowest cost to start a business (0.0). Among the 21 Member States, 13 have access to the sea and eight are land-linked countries.

1.3.1 Status of Regional Integration

COMESA is the largest REC in Africa with 21 Member States¹⁰. The regional bloc includes countries from the other African Union recognized RECs¹¹, except the Economic Community of the West African States (ECOWAS) as shown in Figure 1. This large span positions COMESA as a key player in the implementation of the AfCFTA.

Africa is characterized by a plethora of trade regimes and trade policies. There are three broad elements characterising the trade regimes. First, there are preferential trade agreements between individual African countries and countries outside the continent. These include agreements under the General System of Preferences (GSP) and duty-free treatment for least-developed countries (LDCs), and preferential access to the US market under the African Growth and Opportunity Act (AGOA). Second, there are regional trade agreements between African countries and countries outside Africa. This grouping includes the various Economic Partnership Agreements (EPAs) that the European Union (EU) has negotiated with different countries and regional groupings on the continent, which also call for the partial and gradual opening of African markets to EU imports. Third, there is a web of intra-Africa trade agreements, including eight RECs, and four sub-regional groupings as shown in Figure 1.

¹⁰ The Member States of COMESA are: Burundi, Comoros, DR Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Swaziland, Seychelles, Uganda, Zambia and Zimbabwe.

¹¹ Community of Sahel–Saharan States (CEN-SAD); Economic Community of Central African States (ECCAS); Economic Community of the West African States (ECOWAS); Intergovernmental Authority on Development (IGAD); Southern African Development Community (SADC); East African Community (EAC) and Arab Maghreb Union (UMA/ AMU)







Source: Adapted from Economic Integration in Africa¹²

1.3.2 Trade Flows in COMESA

The share of intra-COMESA exports in total exports in 2018 varied for countries as shown in Table 3. Egypt had the highest share of 22.7 percent, followed by Kenya (15.6 percent), Zambia (11.7) and DR Congo (10.8 percent). This implies that Egypt, Kenya, Zambia and DR Congo combined export share constitute 61 percent of the total intra-COMESA exports. In contrast, intra-COMESA export share has been below one percent for Burundi, Comoros, Djibouti, Eritrea, Seychelles, Somalia and Zimbabwe. Regarding intra-COMESA imports, Zambia, Kenya and Libya had a share of more than 10 percent. This implies that majority of COMESA countries import from non-Member States. This could be explained by dominance of products from main import sources such as EU and China (COMESA, 2019).

A further analysis of intra-COMESA exports reveals that Burundi, Kenya, Malawi, Rwanda and Uganda export most of their products within COMESA. Egypt's intra-COMESA exports share of global exports is only 8.4 percent implying that bulk of the exports is directed towards non-Member States. Countries with higher propensity to import (middle income countries) do not import from their regional counterparts while the low-income countries import much of the goods from the region. Specifically, Burundi, Comoros, Eritrea and Somalia have higher intra-COMESA import shares of global imports.

					Intra-CON	IESA Ex-	Intra-COM	IESA Im-	Intra-COME-	Intra-COME-
	Global	Exports	Global I	mports	por	ts	por	ts	SA Exports	SA Imports
	Value US\$	Share	Value US\$	Share	Value US\$	Share	Value US\$	Share	as percent of Global	as percent of Global
	Millions	percent	Millions	percent	Millions	percent	Millions	percent	Exports	Imports
Burundi	125	0.11	793	0.40	37	0.36	166	1.62	29.92	20.90
Comoros	66	0.06	126	0.06	2	0.01	29	0.28	2.29	22.72
DR Congo	18991	16.74	7410	3.78	1115	10.84	527	5.17	5.87	7.12
Djibouti	972	0.86	1753	0.89	22	0.21	126	1.23	2.23	7.19
Egypt	27759	24.47	72478	36.95	2336	22.71	943	9.23	8.41	1.30
Eritrea	285	0.25	261	0.13	2	0.02	126	1.23	0.78	48.29
Eswatini	1851	1.63	1823	0.93	207	2.01	20	0.20	11.16	1.10
Ethiopia	1538	1.36	14897	7.59	213	2.07	394	3 [.] 86	13.85	2.65
Kenya	6050	5.33	17375	8.86	1603	15.58	1149	11.26	26.49	6.61
Libya	13406	11.82	6638	3.38	108	1.05	1209	11.85	0.81	18.22
Madagas- car	2356	2.08	3661	1.87	129	1.25	105	1.03	5.46	2.86
Malawi	972	0.86	2535	1.29	330	3.21	169	1.66	33.93	6.67
Mauritius	1964	1.73	5589	2.85	231	2.25	210	2.06	11.77	3.76
Rwanda	1085	0.96	2626	1.34	488	4.75	439	4.30	45.01	16.70
Seychelles	852	0.75	1669	0.85	25	0.24	61	09.0	2.88	3.65
Somalia	130	0.11	1258	0.64	12	0.12	326	3.19	9.27	25.88
Sudan	3603	3.18	8851	4.51	705	6.86	655	6.41	19.57	7.40
Tunisia	15565	13.72	22714	11.58	642	6.24	504	4.93	4.12	2.22
Uganda	2799	2.47	7755	3.95	781	7.59	791	7.75	27.89	10.20
Zambia	9052	7.98	9462	4.82	1202	11.69	1780	17.44	13.28	18.81
Zimbabwe	4038	3.56	6469	3.30	98	0.95	480	4.70	2.43	7.42
COMESA	113459	100	196145	100	10285	100	10208	100	9.07	5.20

Source: Author's computations from COMSTAT Database

Table 3: Trade flows in COMESA Member States, 2018, values in US\$ millions and percent shares

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The importance of trade in COMESA as measured by trade dependence index or trade openness measures is shown in Table 4. There is higher dependence or openness in Djibouti, Seychelles, Somalia, Tunisia and Libya with 328, 189, 126, 111 and 102 percent, respectively. The higher trade dependence index in these countries imply that they depend more on imports. The indexes of the other countries are below 100 percent. Since the trade openness index is determined by factors such as tariffs, non-tariff measures and foreign exchange regimes, this means majority of the countries have relatively higher trade restrictions or face higher restrictions from source markets.

A comparative analysis of the export propensity index or ratio of exports to GDP shows that majority of the countries in the region have higher propensity to export to non-Member States. The low values for the index at intra-regional level shows that domestic producers rely much on markets outside COMESA. Djibouti and Seychelles have highest global export propensities and trade dependence index, implying they are more vulnerable to changes in exchange rate regimes and export prices. The low export propensity in Egypt, Kenya and Zambia may mean that less of the domestic production is exported and may also be as a result of larger GDPs which negatively relate with total exports.

	Trade Depen- dence index	Intra-COMESA Export Propensi- ty index	Global Export Propensity index	Intra-COMESA Export Intensity Index	Intra-COMESA Import Penetra- tion Index	Global Import Penetration Index
Burundi	38	1.2	4.1	49.4	5.2	20.7
Comoros	43	0.1	5.5	26.1	2.3	9.5
Congo, DR	71	2.4	40.2	23.4	1.1	13.8
Djibouti	328	1.1	49.4	1.1	6.1	47.4
Egypt	48	0.9	11.1	9.2	0.4	22.6
Eritrea	26	0.0	4.8	1.0	2.1	4.2
Eswatini	84	4.4	39.3	12.2	0.4	28.8
Ethiopia	31	0.3	1.8	7.4	0.5	15.0
Kenya	36	1.8	6.9	31.4	1.3	16.8
Libya	102	0.2	27.7	1.3	2.4	12.1
Madagascar	63	1.1	19.5	4.1	0.9	23.4
Malawi	75	4.7	13.8	17.3	2.4	27.3
Mauritius	95	1.6	13.8	12.8	1.5	28.5
Rwanda	52	5.1	11.4	67.3	4.6	22.5
Seychelles	189	1.5	53.6	2.7	3.7	51.6
Somalia	126	0.2	1.7	I	4.2	14.4
Sudan	23	1.7	8.8	24.0	1.6	18.1
Tunisia	111	1.6	39.0	1	1.3	36.7
Uganda	48	2.8	10.2	29.0	2.9	22.5
Zambia	76	4.5	33.9	15.8	6.5	27.0
Zimbabwe	48	0.3	13.0	3.1	1.5	17.3

Table 4: Trade indicators of the COMESA countries

Source: Author's computations from COMSTAT Database and World Development Indicators

Import penetration index or ratio of imports to domestic demand reveals that much of COMESA imports come from non-Member States. Higher indexes in Djibouti and Seychelles indicate low self-sufficiency. Majority of the countries have low indexes which means they do not heavily rely on imports. This reflects low demand of COMESA-originating products in the respective countries.

The export intensity index is the ratio of a trading partner's share to a country or region's total exports and the share of the world's exports going to the same trading partner. An index of more than 1 (or 100 percent) shows that trade flow between countries in the region is larger than expected given their importance in world trade. COMESA's intra-export intensity index is below 100 percent, meaning it exports more outside the region. All COMESA Member States have ratios below 100 percent, implying that their trade flows are low. This could be partially explained by the preferential access given to COMESA Member States to the EU and the US markets through the "Everything But Arms" (EBA) initiative and the "African Growth and Opportunity Act" (AGOA), respectively.

1.4 Problem Statement

Continental free trade has long been viewed by policymakers in Africa as an ideal mechanism for improving intra-Africa trade and boosting Africa's trade global position. Various studies have shown that removal of tariffs will boost intra-Africa trade. Although these predictions raise hope for many nations in Africa, the overarching question is how the free trade area will affect trade, welfare and revenue in the respective countries. Since intra-Africa trade is concentrated within the RECs, it is important to analyse the intra-REC trade, revenue and welfare effects of the AfCFTA. This study, therefore, seeks to analyse the partial equilibrium effects of the AfCFTA on intra-COMESA trade.

1.5 Objectives of the Study

The overall objective of this study was to analyse the effects of the AfCFTA on intra-COMESA trade. The specific objectives were:

- i. To estimate the potential effect of AfCFTA on intra-COMESA trade; and
- ii. To determine the AfCFTA welfare and revenue effects on COMESA.

2.0 Literature Review

2.1 Theoretical Review

The international trade models (e.g., comparative advantage, factor endowment, and Stolper-Samuelson models) show that trade is not a zero-sum game in which one nation gains at the expense of others. Due to division of labour, specialisation, differences in relative prices, factor intensities and the advent of comparative advantage, these models were able to illustrate that countries gain by opening up to trade and integrating economically.

Viner (1950) hypothesis showed that FTAs and CUs do not always enhance welfare. Viner's static analysis separated the potential effects of economic integration into trade creation and trade diversion. Trade creation denotes a scenario where two or more economies enter into a trade agreement causing trade to shift from a high-cost supplier to a low-cost supplier Member State in the economic community. Trade diversion occurs when imports shift from a low-cost supplier of a non-member country of the community (third country) to a high-cost supplier who is a member of the economic community. This is usually the case when common tariffs are structured in a manner which protects the high-cost supplier in the union from the competition of non-member countries who are efficient producers (Gurova, 2014).

Viner (1950) asserted that trade creation increases the welfare of the home country while trade diversion reduces it. He also argued that the size of an economy matters in international trade because economies of scale to lead to more benefits in a free trade area (Mold and Mukwaya, 2015; Makochekanwa,2012).

The theory gives insight on CU where economies of scale lower the transaction cost of doing business. Although Viner's (1950) work was later modified by relaxing some underlying assumptions, the postulations by Viner were the basis of trade and welfare effects of free trade areas. Another school of thought viewed economic integration theories from the perspective of the nature of its gains. The earlier analysis by Viner (1937, 1950) focused only on the static effects of regional economic integration. However, dynamic theories bring to light those certain gains of regional economic integration can only be realized in the long run. Dynamic gains result in increased output growth in the medium and long-run whereas static gains are realised in terms of the immediate increases in trade volumes as a result of trade liberalisation.

Another class of scholars employ endogenous growth models to illustrate the dynamic effects of regional economic integration. The models show that countries can increase their economic growth and welfare through increases in Foreign Direct Investment (FDI). The FDI resulting from liberalised capital movement will induce the rate of technology diffusion (Hufbauer, 1970; Barro and Sala-i-Martin, 1997) while trade in intermediate goods raises the rate of technology adoption (Barro and Sala-i-Martin, 1997; Helpman, 1999).

2.2 Empirical Literature

Mevel and Karingi (2012) employed a MIRAGE Computable General Equilibrium (CGE) model to assess the effects of establishing a continental free trade area on intra-Africa trade. The study found that elimination of tariffs and non-tariff barriers in 2017 has the potential to double intra-

Africa trade share by 2022, using 2010 as the base year.

Makochekanwa (2012) used the World Integrated Trade Solution, the Software for Market Analysis and Restrictions on Trade (WITS-SMART) model to investigate the impact of the Tripartite Free Trade Area (TFTA). The study found that new trade worth US\$2 billion will be created when the TFTA enters into force. Approximately US\$ 454 million will be diverted resulting into a net trade effect of approximately US\$1.5 billion.

Spencer (2013) employed a SMART Partial Equilibrium model to estimate the effect of eliminating tariffs under the TFTA. The study found that removing internal tariffs created an additional US\$1.9 billion of trade and diverted US\$456 million leading to a net trade of US\$1.4 billion. Tariff revenues reduced by US\$836 million in the bloc and there was a welfare gain for consumers of US\$177million. Trade creation in DR Congo was US\$784 million of imports which accounted for 42 percent of the total trade created in the TFTA.

IMF (2019), using the CGE model, estimated the impact of AfCFTA on intra-Africa trade, considering reduction in both tariff and non-tariff barriers. The study found that implementation of the AfCFTA has potential to increase intra-Africa trade by US\$16 billion in the long run. In addition, improvement in trade facilitation services would reduce non-tariff barriers and eventually lead to higher intra-Africa trade.

Vivid Economics (2019) employed partial equilibrium analysis (a structural gravity model) to estimate the effects of AfCFTA. The study found that African countries would experience higher benefits in RECs. The adoption of the AfCFTA could increase intra-Africa trade by US\$3 billion in the long run.

The African Development Bank (2019) projected that removal of bilateral tariffs would boost intra-Africa trade by US\$10.1 billion in the long run. Likewise, removal of both tariff and ad valorem tariff equivalents of non-tariff measures, would increase intra-Africa trade by US\$74.3 billion. A summary of empirical literature is presented in Table 6.

Source	Estimated Impact of AfCFTA on Trade	Description of Methodologies used
Mevel and Karingi (2012)	Intra-Africa trade to increase by 52.3 percent or US\$34.6 billion by 2022	MIRAGE Computable General Equilibrium model: considers the removal of tariffs only
Vivid Economics (2019): Scenario 1	Intra-Africa trade increase by US\$5.7 billion	Partial equilibrium analysis using Structural Gravity Model: considers global estimate of joining an RTA, for countries joining AfCFTA
Vivid Economics (2019): Scenario 2	Intra-Africa trade to increase by US\$8.7billion	Partial equilibrium analysis using Structural Gravity Model: considers African-specific estimates of joining an RTA, for countries joining AfCFTA
African Development Bank (2019): Scenario 1	Intra-Africa trade to increase US\$10.1 billion	Partial equilibrium analysis using Structural Gravity Model. Long-run effect assuming the removal of bilateral tariffs across all African countries
African Development Bank (2019): Scenario 2	Intra-Africa trade to increase by US\$74.3 billion	Long-run effect assuming the removal of bilateral tariffs and removal of ad valorem tariff equivalents of non-tariff barriers on an MFN basis
IMF (2019)	Intra-Africa trade to increase by US\$16 billion	Computable General Equilibrium Model: Considers both tariff and nontariff barriers, and general equilibrium effects

Table 6: Summary of the estimated effects of AfCFTA on intra-Africa trade

2.3 Overview of Literature

The reviewed literature focused on the effects of AfCFTA on intra-continental trade and was scanty on the impacts on RECs. This has limitations given that trade in Africa is concentrated within RECs. This study sought to fill the gap by focusing on the effects of AfCFTA on intra-COMESA.

3.0 Methodology

3.1 Estimation Technique

This study employed a single market partial equilibrium simulation tool, WITS-SMART, to estimate the impact of implementing the AfCFTA on intra-COMESA trade. SMART is a Single Market Partial Equilibrium Simulation tool by WITS platform of the World Bank. The SMART model provides framework for estimating the trade, welfare and revenue effects resulting from a tariff reform by equating demand and supply for each product to a new import price. Reviewed literature showed that partial equilibrium simulation tools, predominantly the WITS-SMART model has been used to compute the static effects of numerous tariff reforms of FTAs.

SMART model has been found to be effective because of its ability to use data from numerous sources. Since computations can be done using standardised trade data, comparisons can be made from various FTA and/or scenarios with varying tariff rates and elasticities.

The SMART model is also able to perform trade simulations at the 2-digit, 4-digit and 6-digit level. The model provides the anticipated impact of reducing tariffs but disregards any adjustment processes which may accompany the change. The main limitation of the SMART model is that it is static and focuses the demand side.

The study assumed infinite export supply elasticity across all COMESA member countries. This is rational because their share of world trade is small, implying that changes in one country's supply does not significantly influence world supply. The study considered Armington's elasticity of substitution of 1.5 between suppliers and importers. This is rational for it suggests that similar commodities from different origins are imperfect substitutes.

3.2 Model Specification

The basic WITS-SMART model can be described in a series of identities and equations which were used for the simulations. The derivation of the model by Laird and Yeats (1986) begun with simplification of import demand and export supply functions and the equilibrium position. The importer country j's import demand function for *i*th commodity produced in exporter k can be expressed as¹³:

$$M_{ijk} = f(Y_j, P_{ij}, P_{jk})$$

(1)

The kth exporting country's export supply function for ith commodity can be written as:

13 Notations in the model	
M- Imports; X- Exports; P- Price W- Welfare; R- revenue; Y- National income ad valorem terms	Mn - imports from non-preference-receiving countries; t- tariff rate distortion
	V- output in the importing country
TC- trade creation	
TD- trade diversion	Em- Elasticity of import demand with respect to domestic price;
j-Subscript denoting commonly j-Subscript denoting domestic/importing country data k-Subscript denoting foreign/exporting country data	E - Elasticity of export supply with respect to export price;
- (In certain expressions the subscript K is used to	Es- elasticity of substitution with respect to relative prices of the
denote data for an - alternative foreign/exporting country)	same product from different sources of supply;

$$X_{ijk} = f(P_{ikj}) \tag{2}$$

The partial equilibrium equation relating equation 1 and 2 can be expressed as:

$$M_{ijk} = X_{ikj} \tag{3}$$

Assuming a free trade area situation, the domestic price of ith commodity in importer j's market will be equal to kth exporting country's export price plus insurance and transport charges. This implies that the change in price will be equal to the *ad valorem* incidence of any tariff or non-tariff applied the commodity as shown:

$$P_{ijk} = P_{ikj}(1 + t_{ijk}) \tag{4}$$

Consequently, the export revenue earned by kth exporting country is given by:

$$R_{ijk} = X_{ikj}.P_{ikj} \tag{5}$$

i. Trade Creation

Trade creation effect is the resultant increase in demand in importer country j for i^{th} commodity from k^{th} exporting country. The reduction or elimination of import tariffs and non-tariff barriers makes imports cheaper, thus, increasing the demand for imports, creating trade. To derive the trade creation equation, price equation (4) is differentiated completely to give:

$$\partial P_{ijk} = P_{ikj} \cdot \partial t_{ikj} + t_{ijk} \cdot \partial P_{ikj} \tag{6}$$

The elasticity of import demand (E_m) with respect to domestic price can be written as follows:

$$\frac{\partial M_{ijk}}{M_{ijk}} = E_m \cdot \frac{\partial P_{ikj}}{P_{ijk}} \tag{7}$$

Substituting equation (4) and (6) into equation 7, gives the following:

$$\frac{\partial M_{ijk}}{M_{ijk}} = E_m \cdot \left[\frac{\partial t_{ijk}}{1 + t_{ijk}} + \frac{\partial P_{ijk}}{P_{ijk}} \right] \tag{8}$$

The elasticity of export supply (E_x) with respect to world price can be expressed as follows:

$$\frac{\partial P_{ijk}}{P_{ijk}} = \frac{\partial X_{ikj}}{X_{ikj}} / E_{\chi} \tag{9}$$

From equation (3) it follows that:

$$\frac{\partial M_{ijk}}{M_{ijk}} = \frac{\partial X_{ikj}}{X_{ikj}} \tag{10}$$

Substituting equation (10) into (9) and the result into equation (8) produce the expression that can be used to compute trade creation effect. From equation (3) this is equivalent to kth exporting country's growth of exports for commodity i to country j. The expression for trade creation effect can be written as follows:

$$TC_{ijk} = M_{ijk} \cdot E_x \cdot \frac{\partial t_{ijk}}{(1+T_{ijk}) \cdot (1+E_m/E_x)}$$
(11)

The expression implies that if the elasticity of export supply with respect to world price is not finite then the denominator on the right-hand side of the equation (11) becomes unity and can be neglected.

ii. Trade diversion

When tariffs between members of a free trade agreement are eliminated or reduced, goods from FTA partners become more attractive than those from non-FTA members which still charge tariffs. Certainly, more imports will be sourced from inside the FTA, even when other countries produce the same goods more efficiently. This is referred to as trade diversion, and it reduces welfare since the imports will be sourced from less efficient partners than prior to tariff reform. Laird and Yeats (1986) note that trade diversion occurs not because of changes in export price but because of the elimination or introduction of preferential treatment for goods from one or more sources while treatment for other sources of goods remains unchanged.

Trade diversion in the SMART model is calculated using the elasticity of substitution. The degree of trade diversion depends upon elasticity of substitution and in SMART it is calculated as follows:

$$TD_{ijk} = \frac{M_{ijk}}{\sum_k M_{ijk}} \cdot \frac{\sum_k M_{ijk} \sum_k M_{ijk} E_s \frac{d(P_{ijk}/P_{ijK})}{P_{ijk}/P_{ijK}}}{\sum_k M_{ijk} + \sum_k M_{ijk} + \sum_k M_{ijk} \cdot E_s \frac{d(P_{ijk}/P_{ijK})}{P_{ijk}/P_{ijK}}}$$
(12)

iii. Net trade effect

The net trade effect (TE) is the aggregation of trade creation and trade diversion effects, which can be written as follows:

$$TE = TC_{ijk} + TD_{ijk} \tag{13}$$

iv. Revenue Effect

The revenue effect is given by the difference between product of old or initial tariff and initial import value and the product of new tariff and new import value (World Bank, 2013). The change in revenue is equivalent to the sum of change in imports and change in prices. This can be obtained by differentiating equation 5 with respect to import price and import value as follows:

$$dR_{ijk} = P_{ijk} \cdot dX_{ikj} + X_{ijk} \cdot P_{ikj}$$
⁽¹⁴⁾

If the expression is divided by equation 5 the result is as follows:

$$\frac{dR_{ijk}}{R_{ijk}} = \frac{P_{ijk}.dX_{ikj} + X_{ijk}.P_{ikj}}{P_{ijk}.X_{ijk}}$$
(15)

Substituting from equation 10, the expression can be reduced to:

$$\frac{dR_{ijk}}{R_{ijk}} = \frac{dM_{ijk}}{M_{ijk}} + \frac{dP_{ijk}}{P_{ijk}}$$
(16)

This can be re-written as follows:

$$\frac{dR_{ijk}}{R_{ijk}} = \left(\frac{dt_{ijk}}{1+t_{ijk}}\right) \cdot E_m \cdot \left(\frac{1+E_x}{E_x+E_m}\right) \tag{17}$$

v. Welfare Effect

The welfare effect arises from the benefits that importing country's consumers derive from lower domestic price after reduction or removal of tariffs or ad valorem incidence of non-tariff distortions. Cline (1978), "for the pre-existing level of imports, any price reduction to the consumer merely represents a transfer away from the government of tariff revenue formerly collected on the import and, therefore, no net gain to the country as a whole. But for the increase in imports, there is a net welfare gain equal to the domestic consumers' valuation of the extra imports minus the cost of extra imports at supply price (excluding tariffs)". Net welfare gain can be estimated as a product of import value and the average of initial and new ad valorem incidence of a tariff. This welfare gain can also be thought of as the increase in consumer surplus. It can be expressed as follows:

 $W_{ijk} = 0.5(\Delta t_{ijk}, \Delta M_{ijk}) \tag{18}$

3.4 Data and Estimation Parameters Set

The WITS-SMART simulation approach combines the UNCTAD-TRAINS (Trade Analysis and Information System) database and UNCOMTRADE data at HS 6-digit level. All the data used in the simulations is in-built in SMART. The analysis was conducted using the most recent year currently available for each COMESA Member State. SMART requires the users to set elasticity parameters to determine the sensitivity of demand and supply to a specified tariff reform. In this analysis, the 1.5 SMART elasticity was used, and the scenario was based on 90 percent removal, in keeping with the objective of the AfCFTA. The trade, revenue, and welfare effects were estimated for 17 COMESA Member States¹⁴.

4.0 Presentation and Discussion of Results

4.1 Effects of the AfCFTA on intra-COMESA Imports

The simulation results are presented in Table 7. Removal of tariffs at the AfCFTA would create an additional intra-COMESA trade of US\$520.9 million and divert US\$139.7 million resulting into net intra-COMESA trade of US\$660.7 million. In addition, the study found that the AfCFTA will lead to US\$1.75 billion increase in intra-Africa trade. The intra-COMESA net trade effect resulting from the AfCFTA constitutes 37.8 percent of the net intra-African trade.



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Country	Irade C	reation	Irade D	Version	Intra-CC Net Trad	iMESA e Effect	Intra-Africa Net Trade Effect	Intra-COME- SA Net Trade Effect as percent of In- tra-Africa Net Trade Effect
	Value	percent Share	Value	percent Share	Value	percent Share	Value	percent
Burundi	183.31	0.04	62.38	0.04	245.68	0.04	510.16	48.16
Comoros	20.01	0.00	20.56	0.01	40.57	0.01	13711.48	0.30
DR Congo	345777	66.38	47541.12	34.01	393318.10	59.53	1079349	36.44
Djibouti	9994.10	1.92	3696.61	2.64	13690.72	2.07	18143.79	75.46
Egypt	302.49	0.06	254.95	0.18	557.43	0.08	53933.48	1.03
Eswatini	58.58	0.01	40.00	0.03	98.58	0.01	59.15	166.67
Ethiopia	33452.29	6.42	25581.25	18.30	59033.55	8.93	153287	38.51
Kenya	0	0.00	-5795.50	-4.15	-5795.50	-0.88	84694.34	-6.84
Madagascar	418.94	0.08	349.85	0.25	768.80	0.12	40332.39	1.91
Malawi	54.28	0.01	65.54	0.05	119.81	0.02	384.77	31.14
Mauritius	5.97	0.00	10.48	0.01	16.45	0.00	876.07	1.88
Rwanda	990.86	0.19	318.74	0.23	1309.60	0.20	21449.42	6.11
Seychelles	292.42	0.06	575.52	0.41	867.94	0.13	4974.65	17.45
Tunisia	30752.68	5.90	26465.82	18.93	57218.49	8.66	117318.5	48.77
Uganda	9493.71	1.82	8238.27	5.89	17731.98	2.68	31692.43	55.95
Zambia	89125.08	17.11	32341.69	23.14	121466.8	18.38	104433.9	116.31
Zimbabwe	8.10	0.00	6.71	0.00	14.81	0.00	21115.86	0.07
Total	520929.80	100	139774	100	660703.80	100	1746267	37.84
Source: Author's own c.	alculations from WITS-	SMART simulation rest	ılts					

The results indicate heterogeneous effects of the AfCFTA in COMESA. Regarding trade creation, US\$345.7 million would be created in DR Congo, accounting for 66.4 percent. This could be explained by the fact that DR Congo is yet to join the COMESA FTA. More than 60 percent of the trade created in the DR Congo is with Zambia, Uganda and Kenya (*Appendix 1*) and comprises of iron and steel, products of the milling industry, salt and Sulphur and mineral fuels (*Appendix 2*).

Zambia accounts for 17.1 percent of the trade created in COMESA. More than 90 percent of the trade creation consists of exports of mineral fuels and oils from Kenya. Tunisia and Ethiopia account for about 9 percent of the intra-COMESA trade creation each in miscellaneous manufactured articles, miscellaneous edible preparations and plastic products with Egypt (*Appendix 1 and 2*).

Simulation results indicate that Burundi, Comoros, Egypt, Eswatini, Madagascar, Malawi, Mauritius, Rwanda, Seychelles and Zimbabwe have trade creation of less than 1 percent. The low trade creation levels for Burundi, Comoros, Seychelles, Madagascar, and Zimbabwe can be attributed to their low intra-regional share of exports.

A 90 percent reduction in import duties in the AfCFTA would lead to US\$139.8 million worth of trade being diverted from low-cost COMESA countries to the rest of Africa. The countries that experience highest trade diversion are DR Congo, Ethiopia, Tunisia, and Zambia with US\$47.5 million, US\$25.6 million, US\$26.5 million and US\$32.3 million respectively. These four countries represent approximately 94.4 percent of the total trade diverted. The high trade diversion for DR Congo, Ethiopia and Tunisia could be explained by the fact that they were not in COMESA FTA by 2019, so reduction in tariffs could possibly shift their imports from low-cost producer outside the FTA to high-cost producer in FTA.

4.2 Effects of the AfCFTA on Revenue and Welfare on COMESA

The simulation results for revenue and welfare effects of the AfCFTA on COMESA are shown in Table 9. Implementation of the AfCFTA will lead to a tariff revenue loss of US\$319.4 million in COMESA. Similarly, it will increase COMESA welfare by US\$56.8 million.

The analysis shows that the revenue effect will vary across countries with DR Congo losing US\$100.3 million; Zambia US\$71.3 million; Kenya US\$48.9 million; Tunisia US\$ 40.1 million and Ethiopia US\$38.6 million. These constitute 90 percent of the revenue loss in COMESA associated with AfCFTA implementation. These findings conform with Makochekanwa (2012) and Spence (2013) who found out that liberalization of tariffs under EAC-SADC-COMESA TFTA resulted in Kenya and DRC losing revenue worth US\$214 and US\$211 million respectively.

Mauritius, Eswatini, Comoros, Malawi and Zimbabwe would experience low revenue losses given that they have already liberalised or reduced their tariffs to very low levels under different trade arrangements.

Although the welfare effect as a percentage of COMESA's GDP is quite low, DR Congo (US\$29.8 million or 52.4 percent) and Kenya (US\$7.6 million or 13.4) would have the highest welfare improvement following the AfCFTA implementation.

	Revenu	e Effect	Welfare	e Effect
Country	Value	percent Share	Value	percent Share
Burundi	-186.78	0.1	11.61	0.0
Comoros	-26.796	0.0	3.041	0.0
DR Congo	-100345	31.4	29794.96	52.4
Djibouti	-7060.96	2.2	1568.148	2.8
Egypt	-229.89	0.1	13.686	0.0
Eswatini	-68.142	0.0	1.759	0.0
Ethiopia	-38621.5	12.1	5432.693	9.6
Kenya	-48883.7	15.3	7592.511	13.4
Madagascar	-413.178	0.1	43.323	0.1
Malawi	-67.738	0.0	7.261	0.0
Mauritius	-10.743	0.0	1.009	0.0
Rwanda	-717.299	0.2	106.16	0.2
Seychelles	-724.074	0.2	64.652	0.1
Tunisia	-40076.4	12.5	5734.8	10.1
Uganda	-10578.4	3.3	807.83	1.4
Zambia	-71347.1	22.3	5664.01	10.0
Zimbabwe	-6.753	0.0	1.086	0.0
Total	-319364	100.0	56848.54	100.0

Source: Author's own calculations from WITS-SMART simulation results

Note: Sudan, Libya and Somalia have no data for estimation and Eritrea was left out because it is not a member of AfCFTA.

5.0 Conclusion and Policy Implications

5.1 Conclusions

The study used WITS-SMART to analyse the trade, revenue and welfare effects of AfCFTA implementation on COMESA. The study findings show that implementation of the AfCFTA would boost intra-COMESA trade. The AfCFTA would lead to intra-COMESA trade creation of US\$520.9million and trade diversion of US\$139.7 million resulting in a net trade creation of US\$660.7 million. This would constitute 37.8 percent of the total intra-Africa net trade effect of US\$1.75 billion. In addition, the region would lose about US\$319.4 million. The simulation results indicate that some economic sectors such as minerals and manufacturing would gain more than others.

This shows that most COMESA Member States would benefit from AfCFTA implementation with few experiencing tariff revenue losses. Member States could mitigate against the losses by broadening their tax bases especially in countries that suffer higher revenue losses such as DR Congo, Zambia, Kenya, Ethiopia, and Tunisia. In addition, domestic taxes could compensate for the lost tariff revenue through the trade gains.

5.2 Policy Implications

The study recommends that:

- Member States to establish and strengthen existing regional value chains within COMESA to enhance production and supply to the enlarged AfCFTA market and integrate into the global value chains;
- b) Member States to broaden their tax base to mitigate against their tariff revenue losses associated with the AfCFTA implementation by expanding their production capacities; and
- c) Member States to establish trade distribution hubs to maximize the enhanced AfCFTA trade opportunities with COMESA and non-COMESA African countries.

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Bur	undi								IMPORTIN	IG COUN	ITRIES							
		Co- moros	DR Con- go	Djibouti	Egypt	Ethio- pia	Eswatini	Kenya	Mada- gascar	Mala- wi	Mau- ritius	Rwan- da	Sey- chelles	Tuni- sia	Uganda	Zambia	Zimba- bwe	
	Burundi		0.0	2817.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.4	0.0	0.0	-106.3	0.7	0.0
	Co- moros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0
	DR Congo	170.2	0.0	0.0	0.0	159.7	0.0	0.0	0.0	0.4	0.0	0.0	1095.4	0.0	0.1	14656.8	10.2	0.0
	Djibouti	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0.0	4.2	0.0
	Egypt	-0.1	-0.2	3082.4	6081.8	0.0	42292.4	0.0	0.0	-32.8	0.0	-0.5	-0.8	128.1	47005.1	-51.8	5745.3	0.4
	Eswatini	0.0	0.0	0.0	0.0	30.9	815.6	0.0	0.0	0.0	0.0	0.0	214.3	2.6	15.0	73.6	-14.5	0.0
	Ethiopia	69.5	0.0	0.0	5147.4	202.6	0.0	0.0	0.0	114.2	65.9	0.0	27.8	22.5	126.7	-1477.6	9.6	0.0
SE	Kenya	-2.3	0.0	87644.8	612.4	-6.9	14165.7	1.1	0.0	-21.0	-1.1	0.0	-25.3	95.7	70.2	0.0	142213.0	0.0
пят	Libya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4679.4	0.0	0.0	0.0
соли	Mada- gascar	0.0	0.0	6.0	9.0	0.0	33.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.2	120.6	-0.1	27.1	0.0
ÐNI	Malawi	0.0	0.0	2124.5	0.0	0.0	837.7	0.0	0.0	0.0	0.0	0.0	0.0	5.8	1947.6	-0.2	250.8	0.1
тяоч	Mauri- tius	0.0	0.0	0.0	0.0	0.0	241.7	0.0	-2314.1	-4.9	0.0	0.0	-0.8	622.1	144.4	-0.4	-27827.5	0.0
кэ	Rwanda	-8.5	0.0	9.6069	0.0	0.0	0.5	0.0	0.0	0.0	-0.1	0.0		0.0	0.9	0.0	1.3	0.0
	Sey- chelles	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	3.1		0.0	2.5	-0.1	0.0
	Somalia	0.0	0.0	0.0	1780.1	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	168.4	0.1	0.0
	Sudan	0.0	0.0	0.0	0.0	175.0	-42.0	97.5	0.0	0.0	2.2	0.0	5.6	0.5	2195.2	4418.4	0.0	1.7
	Tunisia	36.5	40.8	0.0	65.6	-0.2	491.9	0.0	0.0	652.8	51.5	16.5	72.4	0.2	0.0	48.7	3.7	6.9
	Uganda	-19.3	0.0	143436.6	2.8	23.8	100.6	0.0	-2392.8	59.9	2.8	0.6	-76.1	55.3	176.0	0.0	50.2	0.0
	Zambia	-0.1	0.0	134956.8	0.0	-27.3	6.5	0.0	-637.7	0.0	-0.4	0.0	-0.7	0.0	0.0	0.0	0.0	5.7
	Zimba- bwe	0.0	0.0	12340.3	0.0	-0.1	74.7	0.0	-442.9	0.0	6.0-	0.0	-0.9	0.0	710.5	0.0	959.0	0.0
	e. Author's own	n calculatio	n from W	TS-SMART cir	mulation rec	Ilte NO	te. Sudan	e evdi l	nd Som	alia ha		lata for	ectimati		Fritrea w	as left or	it heralis	ט. t: ם

Appendices: Appendix 1: Net bilateral trade effects of the AfCFTA (in 1000 USD).

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Bur	undi	Con	noros	DRC	obuo	Djib	outi	Eg	ypt	Esw	atini	Eth	liopia	Kei	ıya	Madag	lascar
HS Code	Net Trade Effect																
40	55.90	63	15.48	72		27	2864.40	74	123.32	15	97.49	21	6856.40	17	-2839.93	52	157.69
25	28.63	39	11.09	11	84797.91	85	1755.39	12	120.11	96	0.96	39	6041.14	44	-642.26	15	129.13
33	27.93	19	10.58	25	26052.99	12	1337.88	52	97.65	44	0.12	15	5345.81	10	-610.55	85	111.08
e	21.76	20	3.43	27	24595.85	87	859.59	25	55.94	63	0.02	11	3492.08	ω	-293.69	32	74.48
85	20.79	1	1	24	12887.72	6	824.02	73	24.37	1	,	34	3187.36	72	-227.97	11	56.44
70	13.68	1	1	17	12084.81	21	635.13	7	19.55	1	1	06	2815.19	33	-224.36	6	41.27
62	13.10	1	I	34	10771.96	63	545.98	76	17.39	1	,	96	2770.83	22	-219.94	39	35.58
87	11.86		1	4	9502.26	48	416.77	85	17.21	1	,	27	2266.94	23	-203.67	63	30.07
44	10.68	I	T	39	8814.28	06	396.40	94	12.16	ı	,	73	2111.41	7	-196.22	28	17.62
-	7.68			15	8492.85	34	373.76	6	10.32	1	,	76	2015.69	85	-123.75	84	17.30
12	7.35	ı	I	87	8377.57	39	363.71	6	10.12	1		40	1867.71	87	-30.05	48	13.14
41	7.20			10	7876.40	24	285.63	62	10.01	1	,	24	1772.42	39	-18.79	55	12.20
21	3.13	1	1	2	6166.99	84	247.08	48	8.16	1	,	74	1643.51	6	-13.38	73	11.31
ω	2.35	1	ı	44	5307.58	69	243.31	5	7.82	1	1	85	1434.59	-	-12.51	42	10.65
4	1.79	1	1	73	5183.23	88	240.94	4	5.98	1	,	87	1371.08	48	-10.69	62	9.19
96	1.73	1	I	22	4599.90	22	207.63	39	5.39	1	,	28	1268.75	61	-10.37	35	8.72
69	1.61			63	4445.02	73	194.65	63	2.55	1	,	48	1146.44	94	-10.36	74	8.53
18	1.49	1	ı	84	4416.49	80	183.60	ω	2.16	1		83	936.14	64	-9.15	49	6.22
52	1.45			-	3523.33	33	179.44	41	1.98	1	I	70	929.50	62	-9.01	76	4.08
48	1.26	1	ı	33	3276.16		152.47	84	1.94	1	I	38	877.98	4	-8.50	70	3.87
92	0.58			74	2892.12	25	126.47	17	0.97	1	,	33	743.24	76	-8.00	69	3.83
Others	3.74			Others	35267.86	Others	1256.47	Other	2.35	1		Others	8139.41	Other	-72.36	Others	6.70
Total	245.68	Total	40.57	Total		Total	13690.72	Total	557.43	Total	98.58	Total	59033.60	Total	- 5795.50	Total	769.08

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Ma	lawi	Maı	uritius	Rv	vanda	Seyc	helles	Ĭ	unisia	ñ	ganda	Z	ambia	Zimb	abwe
HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect	HS Code	Net Trade Effect
87	19.22	42	7.02	44	448.02	22	713.60	96	51959.38	71	11879.79	27	104915.04	85	7.91
85	17.50	33	4.74	52	312.78	ω	134.37	7	2201.14	33	2147.18	06	1799.79	87	4.78
63	10.95	94	1.54	82	130.55	9	34.35	06	1947.63	22	1745.55	85	1616.41	63	1.17
94	10.94	63	1.37	94	57.72	21	26.41	24	710.51	44	753.83	39	1288.48	26	0.44
69	10.85	39	1.02	85	34.78	6	13.35	84	196.94	6	351.88	34	1246.74	88	0.29
48	10.84	87	0.47	33	30.04	24	7.03	41	176.03	18	174.17	44	1098.08	38	0.08
73	7.26	34	0.13	24	30.04	44	1.43	88	14.99	24	159.74	21	1014.57	82	0.07
44	6.80	40	0.05	e	23.22	39	0.95	6	10.99	8	122.59	49	975.49	84	0.03
70	6.22	85	0.05	84	22.87	63	0.43	85	0.89	17	79.93	73	894.16	72	0.02
39	4.65	44	0.05	10	21.31	49	0.31	1	1	35	73.31	70	720.05	06	0.01
22	2.85	96	0.02	7	20.14	I	ı	,	,	21	45.61	48	461.20	1	1
84	1.78		ı	96	20.11	1	ı	1	1	15	43.71	63	456.80	1	1
42	1.44	,	I	64	18.50	ı	I	1	1	62	27.04	20	437.81	I	1
82	1.38	ı	ı	39	14.00	ı	ı	1	1	39	23.66	67	434.91		
62	1.17	,	I	41	11.98	1	I	1	1	48	18.81	96	419.82	1	1
40	1.16		ı	62	10.53	1	ı	1	1	42	11.90	19	378.72	1	1
20	1.03	ı	ı	63	10.10	ı	ı	1	1	27	9.68	6	332.08		
89	0.75	,	I	6	8.17	1	I	ı	1	46	9.54	72	303.00	1	1
83	0.75	ı	ı	23	6.71	ı	ı	1	,	63	8.80	32	295.81		1
17	0.70	ı	ı	34	6.10	ı	ı	1	1	87	7.59	61	272.45	1	
95	0.49	,	I	വ	4.52	ı	I	ı	1	94	5.43	94	267.01	1	1
Others	1.10	,	I	Oth-	67.40	I	I		-	Other	32.27	Other	1838.37	1	1
-		-	1	ers •		-		- - -		-		- - 		-	
Total	119.81	Total	16.45	Total	1309.60	Total	932.23	Total	57218.50	Total	17731.98	Total		Total	14.81
Source: Aut	hor's own ca	Iculation f	rom WITS-SI	MART simu	ulation results										

Appendix 2: Net Trade effects of the AfCFTA at product level (in 1000 USD) cnt'd

Note: Sudan, Libya and Somalia have no data for estimation and Eritrea was left out because it is not a member of AfCFTA

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		Intr	a-COMESA	Trade Eff	ects			-	ntra-Africa Tı	rade Effect	S		- - -
Country	Trade Creat	tion	Trade Diver	sion	Net Trade E	Effect	Trade Creat	noi	Trade Divers	noi	Net Trade E	fect	tra-COME- SA Net Trade Effect as percent of Intra-Af- rica Net Trade Effect
	Value	per- cent Share	Value	per- cent Share	Value	percent Share	Value	per- cent share	Value	percent share	Value	per- cent share	
Burundi	183.304	0.04	62.379	0.04	245.683	0.04	330.571	0.0	179.586	0.1	510.162	0.0	48.16
Co- moros	20.007	0	20.556	0.01	40.573	0.01	13479.64	0.9	231.834	0.1	13711.48	0.8	0.30
DR Congo	345777	66.38	47541.12	34.01	393318.1	59.53	986384.2	68.5	92965.08	30.2	1079349	61.8	36.44
Djibouti	9994.098	1.92	3696.61	2.64	13690.72	2.07	14030.6	1.0	4113.18	1.3	18143.79	1.0	75.46
Egypt	302.485	0.06	254.945	0.18	557.43	0.08	20756.35	1.4	33177.12	10.8	53933.48	3.1	1.03
Eswatini	58.578	0.01	40.004	0.03	98.583	0.01	58.578	0.0	0.571	0.0	59.15	0.0	166.67
Ethiopia	33452.29	6.42	25581.25	18.3	59033.55	8.93	103264.7	7.2	50022.34	16.2	153287	8.8	38.51
Kenya	0	0	-5795.5	-4.15	-5795.5	-0.88	53839.06	3.7	32855.28	10.7	84694.34	4.9	-6.84
Libya	I	1	-	-	I	I	-	I	I	I	I	I	I
Mada- gascar	418.938	0.08	349.854	0.25	768.795	0.12	29867.92	2.1	10464.46	3.4	40332.39	2.3	1.91
Malawi	54.283	0.01	65.539	0.05	119.809	0.02	304.203	0.0	80.566	0.0	384.77	0.0	31.14
Mauri- tius	5.968	0	10.48	0.01	16.45	0	543.868	0.0	332.201	0.1	876.069	0.1	1.88
Rwanda	990.856	0.19	318.744	0.23	1309.598	0.2	18591.4	1.3	2852.022	0.9	21449.42	1.2	6.11
Sey- chelles	292.42	0.06	575.521	0.41	867.938	0.13	2665.121	0.2	2309.534	0.7	4974.65	0.3	17.45

Appendix 3: Intra-COMESA and Intra-Africa trade effects of the AfCFTA on COMESA Member States

Key Issues in Regional Integration IX

ı	1	48.77	55.95	116.31	0.07	37.84	
1	1	6.7	1.8	6.0	1.2	100.0	
I	I	117318.5	31692.43	104433.9	21115.86	1746267	
I	I	14.1	4.1	4.7	2.6	100.0	
1	1	43501.94	12557	14438.62	8159.002	308240.3	
1	I	5.1	1.3	6.2	0.0	100.0	
I	1	73816.53	19135.45	89995.25	12956.85	1440020	
1	1	8.66	2.68	18.38	0	100	
I	I	57218.49	17731.98	121466.8	14.809	660703.8	- -
I	I	18.93	5.89	23.14	0	100	
1	I	26465.82	8238.269	32341.69	6.713	139774	
I	I	5.9	1.82	17.11	0	100	-
1	I	30752.68	9493.712	89125.08	8.097	520929.8	-
Somalia	Sudan	Tunisia	Uganda	Zambia	Zimba- bwe	Total	

Source: Author's own calculation from WITS-SMART simulation results

Note: Sudan, Libya and Somalia have no data for estimation and Eritrea was left out because it is not a member of AfCFTA

Appendix 4: HS Code Product descriptions

1	Live animals				
2	Meat and edible meat offal				
3	Fish and crustaceans, molluscs and other aquatic invertebrates				
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not else- where specified or included				
5	Products of animal origin, not elsewhere specified or included				
6	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage				
7	Edible vegetables and certain roots and tubers				
8	Edible fruit and nuts; peel of citrus fruit or melons				
9	Coffee, tea, mate and spices				
10	Cereals				
11	Products of the milling industry; malt; starches; inulin; wheat gluten				
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder				
13	Lac; gums, resins and other vegetable saps and extracts				
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included				
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes				
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic inverte- brates				
17	Sugars and sugar confectionery				
18	Cocoa and cocoa preparations				
19	Preparations of cereals, flour, starch or milk; pastrycooks' products				
20	Preparations of vegetables, fruit, nuts or other parts of plants				
21	Miscellaneous edible preparations				
22	Beverages, spirits and vinegar				
23	Residues and waste from the food industries; prepared animal fodder				
24	Tobacco and manufactured tobacco substitutes				
25	Salt; sulphur; earths and stone; plastering materials, lime and cement				
26	Ores, slag and ash				
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes				
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of ra- re-earth metals, of radioactive elements or of isotopes				
29	Organic chemicals				
30	Pharmaceutical products				

31	Fertilisers			
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks			
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations			
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster			
35	Albuminoidal substances; modified starches; glues; enzymes			
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations			
37	Photographic or cinematographic goods			
38	Miscellaneous chemical products			
39	Plastics and articles thereof			
40	Rubber and articles thereof			
41	Raw hides and skins (other than furskins) and leather			
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)			
43	Furskins and artificial fur; manufactures thereof			
44	Wood and articles of wood; wood charcoal			
45	Cork and articles of cork			
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork			
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard			
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard			
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans			
50	Silk			
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric			
52	Cotton			
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn			
54	Sewing thread of man-made filaments, whether or not put up for retail sale			
55	Man-made staple fibres			
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof			
57	Carpets and other textile floor coverings			
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery			
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use			

60	Knitted or crocheted fabrics
61	Articles of apparel and clothing accessories, knitted or crocheted
62	Articles of apparel and clothing accessories, not knitted or crocheted
63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags
64	Footwear, gaiters and the like; parts of such articles
65	Headgear and parts thereof
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof
67	Prepared feathers and down and articles made of feathers or of down; artificial flow- ers; articles of human hair
68	Articles of stone, plaster, cement, asbestos, mica or similar materials
69	Ceramic products
70	Glass and glassware
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals; cermets; articles thereof
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal
83	Miscellaneous articles of base metal
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
85	Electrical machinery and equipment and parts thereof; sound recorders and re- producers, television image and sound recorders and reproducers, and parts and accessories of such articles
86	Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds
87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
88	Aircraft, spacecraft, and parts thereof
89	Ships, boats and floating structures

90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof
91	Clocks and watches and parts thereof
92	Musical instruments; parts and accessories of such articles
93	Arms and ammunition; parts and accessories thereof
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed fur- nishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings
95	Toys, games and sports requisites; parts and accessories thereof
96	Miscellaneous manufactured articles
97	Works of art, collectors' pieces, and antiques

Antecedents to the AfCFTA: Lessons from Kenya's **Export Survival under COMESA**

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Abstract

Policy discourse on intra-African trade is currently dominated by discussions on the potential benefits of the African Continental Free Trade Area (AfCFTA). This study contributes to this discussion by drawing lessons for the AfCFTA from Kenya's export survival under COMESA and other Economic Integration Agreements (EIAs) in Africa. The study estimated a probit model using monthly firm-product-destination customs transaction data for the period January 2006 to December 2017, in 52 African countries and 20 COMESA countries.

The study found that about 70 percent of export firms survive beyond the 1st month of exporting to COMESA countries. Half of the exporting firms survive beyond the 12th month and less than 10 percent live beyond the 108th month. Membership in Economic Integration Arrangements enhances export survival in African countries. The study recommends that countries complete the pending policy issues (state aid, public procurement, environmental laws and labour market regulations) both at the AfCFTA and COMESA to maximise on the firms'export survival; and improve trade facilitation policies and programmes since high cost of importing as well as distance reduce export survival.

JEL Classification: F14, F15, C35, C41

Key words: Export survival, Export duration, Discrete-time models, Economic Integration Agreements

1.0 Introduction

1.1 Background

The African Continental Free Trade Area (AfCFTA) will be the largest free trade agreement in the world upon its full implementation (Abrego et al., 2020; Aniche, 2020). It was launched on 21 March 2018 in Kigali, Rwanda with an aim of creating a single market for goods and services among 55 members of the African Union. The agreement has so far been signed by 54 countries and ratified by more than a half of African countries (TRALAC, 2021).

Trading under the AfCFTA started on 1 January 2021 with implementation of the first phase of negotiations. There are ongoing negotiations on trade in goods and services with a focus on rules of origin, tariff concessions and schedules of specific commitments on trade in services. Phase 2 negotiations on competition policies, investment and intellectual property rights protocols are expected to be completed by December 2021 (Africa Renewal, 2021).

Consensus on several policy areas that affect merchandise trade has already been achieved as shown in the first column of Table 1. They include: tariffs on manufactured and agricultural goods, customs, export taxes, investment and competition policy, antidumping, technical barriers to trade, intellectual property rights and movement of capital. Pending policy areas are state aid, public procurement and environmental laws.

Policy	AfCFTA	COMESA
Tariffs on manufactured goods	Yes	Yes
Tariffs on agricultural goods	Yes	Yes
Export taxes	Yes	Yes
Customs	Yes	Yes
Competition policy	Yes	Yes
Technical barriers to trade	Yes	Yes
Antidumping	Yes	Yes
Investment policy	Yes	Yes
Movement of capital	Yes	Yes
Intellectual Property Rights	Yes	No
Environmental laws	No	Yes
State aid (Government support)	No	Yes
Public procurement	No	No

Table 1: Status of policy areas covered on trade in goods under AfCFTA and COMESA

Source: Based on data from Hofmann et al. (2017; 2019)

Nonetheless, assessment of the potential benefits of the AfCFTA, by scholars and policy makers, is ongoing. Using the Computable General Equilibrium (CGE) models and gravity models, studies have projected that AfCFTA is likely to improve economic indicators such as employment, Gross Domestic Product (GDP), welfare and infrastructure (UNECA, 2020; World Bank, 2020). International trade is also expected to grow through increased intra-regional trade and a reduction in tariffs (Valensisi et al., 2016; Afreximbank, 2018; Geda and Yimer, 2019; Mukwaya, 2019; Abrego et al., 2019; World Bank, 2020).

Duration of trading under an agreement has a "timing" effect which is either positive or negative. It is negative when firms that start trading after an agreement has been formed are small and less productive. Hence, they are likely to exit when faced by a negative shock on demand in the foreign market or their own productivity. It is positive when the newcomers are highly productive, meaning that they are likely to trade for the foreseeable future. The overall effect depends on the dominant outcome among these two opposing effects (Besedeš et al., 2016; Oanh and Linh, 2019)

Existing literature shows that the effect of Economic Integration Agreements (EIAs) on trade survival is heterogenous. Besedeš and Blyde (2010) started this line of thought by establishing the drivers of export survival in Latin America using the Cox model. They showed that countries which shared an FTA had a higher rate of export survival than those without. Evidence from Africa shows that intra-Africa trade cooperation enhances export survival (Kamuganga, 2012). However, the effect is more on deeper EIAs such as Customs Unions (CUs), Common Markets (CMs) and Monetary Unions (MU) than shallow ones like Preferential Trade Agreements (PTAs).

This study contributes to the discussion on the avenues through which AfCFTA is likely to impact international trade. The study specifically focused on export survival with the knowledge that creating new trade relationships, which AfCFTA promises, does not guarantee their sustainability. According to Brenton et al. (2010), export growth is low in developing countries because of their low export survival rates notwithstanding their high chances of creating new trade relationships compared to developed countries. Export survival also varies by the nature of trade agreements (Besedes et al., 2016; Blyde et al., 2015). It is expected to be higher for deeper trade agreements such as Common Markets as opposed to shallower ones like preferential trade agreements (Türkcan and Saygili, 2018).

The study assessed the effect of AfCFTA by drawing lessons from Kenya's current levels of export survival across various EIAs in Africa with a specific focus on the Common Market for Eastern and Southern Africa (COMESA). Kenya has been among the top 18 and top 6 exporters in Africa and COMESA respectively, between 2006 and 2017 as shown in Figure 1. This implies that it is a top exporter in Africa and COMESA. Nonetheless, it has suffered from episodes of low export growth in recent years. The growth of total exports between 2006 and 2017 was below 10 percent and it grew by -6.16 percent in 2017 (Majune et al., 2020). Kenya's export survival rate is also low. In Kenya, between 20 percent and 52 percent of new export relationships die in their first year of trading with 90 percent failing by the 13th year (Kinuthia, 2014; Chacha and Edwards, 2017, Majune et al., 2020).



Figure 1: Kenya's rank of export performance in Africa and COMESA, 2006-2017

Source: Authors' own computations using WITS Data.

1.2 Problem Statement

The AfCFTA agreement is projected to enhance bilateral trade in goods in Africa. However, this evidence only indicates how trade flows by value and volume will be affected by the agreement. The aspect of trade survival under AfCFTA is missing in literature yet it is vital in indicating the sustainability of existing trade relationships. According to Brenton et al. (2010) and Besedeš and Prusa (2011), differences in sustaining existing relations is a more significant indicator of export growth than the ability to create new trade relations. Kenya is an appropriate case study given that it is among the top exporters in Africa and COMESA yet it has suffered from low export growth and survival.

1.3 Objectives

The main objective of the study was to draw lessons for the AfCFTA based on Kenya's export survival under COMESA and other EIAs in Africa. The specific objectives were to:

- i. Establish determinants of export survival under EIAs in Africa; and
- ii. Establish the survival of exports and its determinants in COMESA.

1.4 Justification of the Study

Establishing and identifying factors that affect export survival is important towards suggesting policies that deepen existing trade relationships and improve long-term export growth in COMESA and the AfCFTA. Assessing export performance by survival shows the vulnerability of business relationships.

2.0 Literature Review

2.1 Theoretical Literature Review

Mainstream trade theories of Absolute Advantage, Comparative Advantage, and Heckscher-Ohlin, illustrate why and how international trade occurs. As explained by Geda (2012), the Absolute Advantage theory postulates that countries export commodities which they produce with less labour cost (possess absolute advantage) and import those whose labour cost is high (have absolute disadvantage). The Comparative Advantage theory predicts that trade occurs between countries due to their respective opportunity costs (comparative production costs). The Heckscher-Ohlin theory claims that international trade between countries arises from the difference in their factor endowments. Nonetheless, these theories do not explain firm's export survival and duration of trade.

The Product Cycle theory by Vernon (1966) explains duration through the evolution of a product. Due to skilled labour and advanced technology, a product is initially produced by an advanced country. The country exports the product to a less developed country. However, with time, the product gains mass acceptance. As a result, the less developed country adopts the production technique which has cheap labour albeit less skilled. The less developed country acquires a comparative advantage in producing and exporting the product because it has a lower cost of production. In contrast, the advanced country abandons production of the product or develops a better version of it. Whereas this process explains the death and resurgence of a product, it might not be instant. Therefore, this theory fails to explain short-term trade relations that often occur in real life (Hess and Perrson, 2011; Besedeš and Prusa, 2006b).

Export survival is also explained by the Search and Matching theory. Based on Rauch and Watson (2003), a trade relationship between a seller and a buyer undergoes different stages. The first stage entails searching and matching of buyers and sellers since they are in different countries. Once a buyer has identified a seller, the seller starts exporting their product in small quantities. The reliability of the seller determines whether the trade relationship will deepen or halt. A halt will mean that the trade relationship ceases, and the buyer reverts to re-matching with another buyer. A trade relationship is deemed brief if the buyer and seller abandon the relationship soon (Besedeš, 2008). From this theory, the duration of a trade relationship is determined by the search cost, level of asymmetry in information and size of export volume at the start of a relationship.

The model by Bernard et al. (2010) on product switching links export survival to demand in foreign markets. Products that receive negative demand in the foreign market are switched. Those that receive positive demand continue to be traded. Therefore, deserting or adding a product is determined by characteristics of the firm, destination and product. Duration is accounted for by the possibility of introduction and product turn-over in a foreign market.

The model by Besedeš et al (2016) predicts that trade liberalization enhances export survival by reducing the per unit trade cost thereby raising entry rates. Before a seller establishes a reliable buyer, they have to be productive following Melitz (2003). This level of productivity together with the per unit trade cost and set-up costs will determine their chances of entering a foreign

market. The model predicts that trade liberalization reduces per unit trade cost and set-up costs. As a result, the number of trade relationships and their duration increases.

In general, this section shows that the duration of trade is explained through theoretical frameworks such as the product cycle theory, Search and Matching theory and Product Switching theory form the basis of empirical debate on survival and duration of trade. The model by Besedeš et al (2016), is relevant for this study for it links trade liberalization to export survival.

2.2 Empirical Literature Review

Export survival is the amount of time (months or years) a firm's export of a product to a specific destination remains uninterrupted. This concept was first tested by Sabuhoro et al. (2006), and Besedeš and Prusa (2006a, 2006b) in the context of trade. Besedeš and Prusa (2006a) found that importers had a 67 percent chance of surviving beyond their first year of trading in the United States of America (US) while Sabuhoro et al. (2006) found that Canadian firms had a 42.2 percent chance of surviving beyond the 12th month. Most trade survival/duration studies that followed these pioneering works used macro data. These include Nitsch (2009) in Germany, Brenton et al. (2010) and Carrère and Strauss-Kahn (2017) in developing countries, Hess and Persson (2011; 2012) in European Union-15 and in the US, respectively, and Türkcan and Saygili (2018) in Turkey. Lately, with the availability of firm-level data, many trade survival studies are based on firms¹⁸. The findings of these studies affirm that exporters have a short life span in foreign markets.

A number of macroeconomic and firm-specific factors have been identified as determinants of export survival by past studies. However, the role of trade agreements, which is of interest in this study, is less studied.

Kinuthia (2014) used bilateral data between Kenya and 221 partners for the period 1995 to 2010. By applying the Cox Proportional Hazard model, the study found that East African Community and COMESA did not improve export survival of products from Kenya. Chacha and Edwards (2017) arrived at the same conclusion, using same model and firm-level Customs transaction data, between 2004 and 2013.

Majune et al. (2020) estimated a discrete-time random effects logit regression model on data ranging from 1995 to 2016 in Kenya. The study found that COMESA and the African Growth and Opportunities Act (AGOA) increased export survival in Kenya while on the other hand EAC reduced it. Whereas these Kenya-specific studies are insightful, it is important to establish how duration of trading under an agreement affects export survival. This was not done in these studies.

Besedeš (2013) assessed export survival for North American Free Trade Agreement (NAFTA) members . The study used two variables, NAFTA members and NAFTA-in-effect, to assess this effect. NAFTA-in-effect, which represents the period of existence of NAFTA in a country, reduced survival in all countries apart from Canada. The study found that being a member of <u>NAFTA increased</u> survival in Canada and the US while the effect was negative in Mexico.

Kostevc et al. (2020) in Slovenia.

Besedeš et al. (2016) in a comprehensive study derived the theoretical model linking export survival to liberalization and analysed the effect of EIAs in terms of their existence and trade relationships that start after an EIA has been implemented. By estimating a discrete-time random effects probit regression model, the study concluded that EIAs increased export survival but the effect was positive for trade relationships that started before an EIA was formed. Trade relationships that started after implementation of EIA were likely to die faster besides suffering a decline in their volumes of trade.

Degiovanni et al. (2017) advanced the study by Besedeš et al. (2016) by focusing on Latin America. The latter study was based on 180 countries in the world. It established that deeper EIAs increased export survival than shallow ones. Trade relationships that existed after a trade agreement was signed had a lower chance of ceasing although it depended on the depth of an agreement. The effect of spells that existed prior to an agreement also differed by the depth of agreement. Using the methodology by Kohl et al. (2016), the study constructed an index of quality of trade agreement and established that high quality agreements enhanced survival more than low quality ones.

Oanh and Linh (2019) introduced diversion effects of EIAs, using Probit model, analysed Standard International Trade Classification (SITC) 4-digit level data for 149 countries between 1962 and 2000. Two variables, exporter-outsider and -importer outsider, were used to describe the diversion effect. The study results revealed that both variables reduced export survival. Hence, a new EIA increased the failure rate of products exported/imported under an existing EIA. The effect was higher in manufactured than agricultural products.

Türkcan and Saygili (2018) explored how EIAs affected Turkey's export survival. The study applied a discrete-time Probit model with random effects in the analysis of four integration arrangements, namely Non-Reciprocal PTAs, PTAs, FTAs, and CUs. It assessed the effect of each arrangement by its existence, whether it was in effect between an importer and Turkey in a specific year, whether a trade relationship started after implementation of an integration arrangement, and duration of in which the arrangement was active. The study found that integration arrangements increased the chance of a trade relationship surviving, particularly FTAs and PTAs. However, trade relationships that started after an agreement had been established were likely to die.

2.3 Overview of Literature

Empirical studies so far indicate that trade agreements boost export survival although the degree differs by the depth of integration. Deeper integration levels such as Customs Unions, Common Markets and Monetary Unions have a higher impact than shallow ones like Preferential Trade Agreements. Studies on Africa and Kenya in particular are scarce. The studies found that COMESA improves export survival. Nonetheless, this evidence is largely at macroeconomic level, relies on annual data and covers a panel of countries. This study makes an improvement to existing literature by using monthly firm-level data and adding to the scarce literature on export survival in Africa.

3.0 Methodology

3.1 Empirical Model

This study used a discrete-time Probit model to assess the survival of exports in COMESA and under existing EIAs in Africa. A Probit model falls within the class of discrete-time duration models. These models have three advantages over continuous-time models such as the Cox Proportional Hazard of 1972 (Cox, 1972). Firstly, they deal with frailty (unobserved heterogeneity). Secondly, they account for tied durations when trade relationships end at the same time, and lastly, they disregard proportional hazards assumption which assumes that covariates have a similar impact on the hazard rate over time (Hess and Persson, 2011; 2012).

The first step of understanding discrete-time duration models is formulating a life table estimator survival function as follows:

$$\hat{S}(j) = \Pr(T_i > j) = \prod_{m=1}^{j} \left(1 - \frac{d_m}{r_m} \right) = \prod_{m=1}^{j} (1 - h_m)$$
(1)

Where T_i is the number of consecutive months a firm exports a specific product to a specific destination (spell). The failure (hazard) rate is h_m which occurs after a spell has ended. d_m is the time interval of a spell whereby $d_m = (t_m, t_{m+1})$, for m = 1, ..., j. t_m and t_{m+1} are the start and end of the time interval. r_m is the adjusted number of spells at risk of failure at the midpoint of the time interval. It is written as: $r_m = R_m - \frac{d_m}{2}$ where R_m is the number of relationships likely to fail at the beginning of the interval. Estimating equation 1 establishes the survival rate of an exporting firm beyond month j. To assess the impact of covariates on the failure rate of exporting a product, the hazard function is defined as follows:

 $h(x_{im}) = Pr(T_i < t_{m+1}|T_i > t_m) = \Phi(x'_{im}\beta + \gamma m + v_i)$ (2)

 $h(x_{im})$ is the hazard rate from equation 1. It occurs after period T_i where a trade relationship is active. x_{im} is a vector of independent variables while β are their respective coefficients. γm represents the baseline hazard rate. It shows the variation of the hazard rate across periods. Since its function is unknown, it is presented as a dummy variable identifying the duration intervals of each spell. v_i is a Gaussian distribution random effects indicator that deals with the problem of unobserved heterogeneity (frailty). Overlooking this problem may introduce a severe bias into the nature of the duration dependence and estimates of the covariate effects (Hess and Persson, 2012).

This is solved by including random effects in the hazard function. Consequently, the discretetime probit model accounts for frailty (firm-specific variations) by using random effects at the firm-partner-product level as seen in equation 2. Dummies for months are also included in the model to control for endogeneity problem. $\Phi(.)$ is a probit distribution function that ensures the hazard rate falls within the range of zero (0) and negative one (-1). It is estimated by maximizing the following log-likelihood function:

$$\log L = \sum_{i=1}^{n} \sum_{m=1}^{J} [y_{im} \log(h_{im}) + (1 - y_{im}) \log(1 - h_{im})]$$
(3)

L is an expression of likelihood for the whole sample, in this case importing countries from i=1,..., n. Small m is the time interval in terms of the spell from m=1,..., j. y_{im} is a binary dependent variable, which takes the value 1 if spell *i* is observed to cease during the *mth* time interval, and zero otherwise. h_{im} is the hazard rate whose functional form has been specified in equation 2. Results are interpreted as follows. A specific variable decreases survival if the sign of its coefficient is positive and vice versa.

Left-censoring bias of spells is accommodated by excluding all active trade relationships in the first month (January 2006). This is because the exact month a firm started exporting a particular product to a specific destination is unknown. Annual studies often exclude the first year of trading (Békés and Muraközy, 2012; Anwar et al., 2019)¹⁹. However, the last month of trading is recorded (right-censoring problem). This is because the survival model automatically solves this problem (Anwar et al., 2019). Completed spells are recorded as they are while multiple spells are treated as dummy variables (Besedeš et al., 2006a; Fu and Wu, 2014)²⁰.

3.2 Data Type and Sources

This study used monthly firm-product-destination export data from the updated Exporter Dynamics Database (EDD) by the World Bank and actual customs transactions data from the Kenya Revenue Authority (KRA). The data ranges from January 2006 to December 2017. Transactions are recorded for each exporter by product (at 8-digit HS level), destination, date of export and value of export. Exporters are identified by their tax ID. As a first step, trade flows are aggregated to establish the monthly value of a firm's exported product since the data is recorded at the transaction level. Next, trade flows are aggregated at the 6-digit level to form a list of HS 6-digit categories that are comparable internationally. This is important since HS classification has undergone several major revisions over time (Cebeci, 2012; Bellert and Fauceglia, 2019). Thus, the study applied the product concordance prepared by Cebeci (2012) to form a consistent HS 6-digit classification. This process reduced the number of HS 6-digit codes from 5,138 to 4,067. At last, the value of these products was converted from Kenya shillings to US dollars using exchange rate values from the International Monetary Fund (IMF).

Data on EIAs is obtained from Baier and Bergstrand's website and WTO's Regional Trade Agreements Information System (RTA-IS) database. These data sets record six levels of economic integration at a bilateral level for 195 countries. That is PTA, Non-reciprocal PTAs (NR-PTA), FTA, CU, CM and Economic Communities (ECs). The study considered four types of regional integration arrangements since CMs and ECs were not operational in any of the African Regional Economic Communities (RECs) during this period.

Following the approach by Besedes et al. (2016), Türkcan et al (2018) and Oanh and Linh (2019), the study created three variables to fully establish the effects of EIAs on export duration. The first variable labelled *EIA exists* is a dummy indicating whether Kenya shares a trade agreement with a partner or not. In the case of this study, sharing an agreement with an African country represents the effect of AfCFTA while a COMESA partner depicts COMESA's effect on export survival. The second variable is labeled *Duration of EIA* to capture the length of a trade

20 Multiple spells occur when a trade relationship recurs after collapsing. This can happen more than once.

This is another advantage of using monthly data since data that is lost is only for one month other than one year as is the practice in annual studies.

agreement (in months). The third variable is *Spell starts after EIA*, a dummy that represents trade relationships that start after an agreement has been made.

The effect of COMESA on export duration was separately reviewed. This was done by considering whether an importer is a member of COMESA, and the duration they have been in this agreement. The variable, *Spell starts after EIA*, was dropped since most countries were members of COMESA by January 2006.

Apart from the above-mentioned explanatory variables, several country-specific and firmspecific variables were used. This was informed by related studies (Hess and Persson, 2011; Cadot et al., 2013; Stirbat et al., 2015; Besedes et al., 2016; Majune et al., 2020). First, country-specific variables were included to show how a firm's export survival rate is affected by characteristics of the destination country. Country-specific variables consist of distance, common border, real exchange rate and importer's GDP. Gravity literature posits that countries which share a border or are geographically close have low trade costs. Hence, the survival rate of firms is expected to be high. The GDP of the importer is a proxy for market thickness (total flow of buyers and sellers) (Brenton et al., 2010) and it is expected to increase the survival of exports. Furthermore, the change in the relative real exchange rate is included to assess the effects of the changes in exchange rates on the survival rate. It is assumed that an appreciation of the importer's currency reduces chances of exports failing (Hess and Persson, 2011). Finally, the analysis also includes cost-to-import of the partner variable to determine the extent to which trade cost affects export survival. The study envisages that variable cost-to import increases the export hazard rate.

Firm-specific variables were used to explore how experience in a particular foreign market and diversification (in terms of products and markets) affected the duration of exports. The first firm-specific variable, *initial export value*, was included to evaluate the existence of ex-ante trust between trading partners, which was expected to reduce export hazard (Rauch and Watson, 2003). The *lagged duration*, which is the number of months that a previous export spell lasted, was included to assess the impact of a firm's previous experience on the hazard rate. Moreover, the total value of the exports of a firm was also added to the analysis to account for the effects of the exporter's experience on duration. Both variables were expected to have a negative effect on the hazard rate (Hess and Persson, 2011; Stirbat et al., 2015).

The effects of diversification on firm export survival were captured by three variables, namely the total number of firms selling the same product in the same destination (*network effects*), the number of export markets to which a given product is exported by the same firm (*geographical diversification*) and the number of export products that a given firm exports to the same destination (*product scope*). Following Tovar and Martinez (2011), Cadot et al. (2013) and Bari and Jayanthakumaran (2020), these variables are expected to impact the hazard rates negatively. The definitions and data sources of all variables are provided in Table A.1 in the appendix.
4.0 Presentation and Discussion of Results

4.1 Descriptive Statistics

The descriptive statistics for the value of exports across various dimensions are presented in Table 2. On average, between 2006 and 2017 Kenya exported to Africa US\$ 130.1 million per month. The least value of exports from Kenya to Africa per month was US\$ 57 million while the highest was US\$ 206 million. Most exports from Kenya, between 2006 and 2017, were imported by countries in the Eastern Africa region followed by those in the middle of Africa, Northern Africa, Western Africa and Southern Africa respectively. On average, exports worth US\$ 30,768 were traded with countries that shared an EIA. Average exports to the COMESA market over the study period were US\$ 29,413 with the highest export destination for Kenya being Uganda. Summary statistics for other variables are displayed in Table A.2 in the appendix.

Table 2: Summary statistics for exports by overall trade and trade agreements in different regions (US\$)

Variable	Obs.	Mean	Std. Dev	Min	Мах
Export trade					
Total monthly export value (US\$ mil)	616,576	130.13	39.53	56.93	206.10
Region					
Eastern Africa	408,354	31,587.13	166,529.20	0.01	19,700,000
Middle Africa	60,042	29,690.36	96,290.93	0.21	2,487,219
Northern Africa	113,130	28,207.57	268,340.50	0.01	21,300,000
Southern Africa	19,906	22,653.07	150,878.30	0.12	7,222,396
Western Africa	15,144	27,446.84	129,302.00	0.09	3,180,345
Agreements					
EIA	573,621	30,767.91	186,486.00	0.01	21,300,000.00
COMESA	488,252	29,413.11	191,716.40	0.01	21,300,000.00

The results of the Kaplan-Meier survival functions were used to describe the survival of Kenyan exports. This is a non-parametric survival function whose results are shown in Figure 2. The figure shows that operating under an EIA increases export survival to African countries than operating without an agreement. The graph on the right-hand side indicates that about 70 percent of exports survive beyond the first month of exporting to COMESA markets and about 50 percent live to the 12th month. Less than 10 percent of exports to the COMESA market survive beyond the 108th month.



Figure 2: Kaplan-Meier survival function for total exports by presence of EIA and COMESA

4.2 Regression Results

The Probit regression results are presented in Table 3. The dependent variable, likelihood of a trade relationship ending, was regressed on a set of country-specific and firm-specific variables along with other control variables. A positive sign on a coefficient indicates failure of an export relationship (increase in the hazard rate) while a negative coefficient signifies an increase in survival of an export relationship.

The first three columns of the Probit regression results consider the pooled EIA. In the first specification, results show that having an EIA significantly increases export survival in Kenya. This affirms earlier results in Figure 2 that having an agreement improves survival chances of exporters from Kenya. In the context of this study, this result implies trading under an agreement within Africa improves export survival. Thus AfCFTA is likely to improve export survival since its initiatives, such as progressive elimination of tariffs and non-tariff barriers (NTBs) to trade in goods, reduces entry and trading costs in existing markets. These results confirm with the findings by Besedeš et al. (2016) for 180 countries, Degiovanni et al. (2017) for Latin America, and Türkcan and Saygili (2018) for Turkey.

Table 3: Probit regression results for export survival in Kenya

	EIA		COMESA		
	(1)	(2)	(3)	(1)	(2)
Distance	0.097***	0.101***	0.097***	0.179***	0.200***
	(8.22)	(8.58)	(8.23)	(12.88)	(14.31)
Common border	-0.006	0.001	-0.006	0.012	0.0396**
	(-0.30)	(0.05)	(-0.30)	(0.67)	(2.18)
Cost to import	0.001***	0.001***	0.001***	0.001***	0.001***
	(4.39)	(3.88)	(4.39)	(5.18)	(4.49)
Partner's GDP	-0.046***	-0.047***	-0.046***	-0.053***	-0.060***
	(-12.09)	(-12.38)	(-12.09)	(-14.81)	(-16.69)
Real exchange rate	0.001	0.001	0.001	0.001	0.001
	(0.69)	(0.64)	(0.69)	(0.67)	(0.78)
Initial export value	-0.070***	-0.070***	-0.070***	-0.070***	-0.071***
	(-62.79)	(-62.98)	(-62.79)	(-62.90)	(-63.52)
Lag duration	-0.020***	-0.020***	-0.020***	-0.020***	-0.020***
	(-39.73)	(-39.83)	(-39.73)	(-39.76)	(-39.82)
Number of firms	-0.001*	-0.001*	-0.001*	-0.001	-0.000
	(-1.84)	(-1.83)	(-1.84)	(-1.82)	(-1.09)
Number of export products	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-36.04)	(-35.98)	(-36.04)	(-35.65)	(-35.37)
Number of export	-0.030***	-0.030***	-0.030***	-0.030***	-0.030***
markets	(-43.73)	(-43.66)	(-43.73)	(-43.75)	(-43.23)
Total exports	-0.040***	-0.040***	-0.039***	-0.040***	-0.040***
	(-27.17)	(-27.45)	(-27.17)	(-27.55)	(-27.90)
EIA exists	-0.050***	-0.238**	-0.071	-0.086***	-0.137***
	(-3.63)	(-2.19)	(-0.67)	(-7.12)	(-11.38)
Duration of EIA		0.023***			0.031***
		(8.62)			(22.29)
Spell starts after EIA		0.029	0.021		
		(0.27)	(0.20)		
Constant	2.918***	2.875***	2.918***	2.352***	2.359***
	(42.33)	(41.65)	(42.32)	(24.14)	(24.24)
Duration dummy	Yes	Yes	Yes	Yes	Yes
Spell dummy	Yes	Yes	Yes	Yes	Yes
Monthly dummy	Yes	Yes	Yes	Yes	Yes
Observations	568,656	568,656	568,656	564,575	564,575
Log-likelihood	-290,127.9	-290,090.6	-290,127.9	-290,110.8	-290,015.0
Rho	0.160	0.159	0.160	0.159	0.158
	(51.05)	(50.95)	(51.05)	(50.91)	(50.75)

Note: Z statistics in parenthesis. Asterisk indicates the level of significance * p<0.10, ** p<0.05, *** p<0.01.

On EIA duration, the study found that the longer an agreement existed, the higher the chances of a trade relationship ceasing. This conforms to the findings by Besedeš et al. (2016), Türkcan and Saygili (2018) and Oanh and Linh (2019). The findings imply that whereas formation of EIAs facilitates entry of firms that would otherwise not have traded, these firms are likely to exit if they are small and less productive. These firms are susceptible to negative shocks on their productivity or demand in the foreign market (Besedeš et al., 2016; Türkcan and Saygili, 2018; Oanh and Linh, 2019). In the context of AfCFTA, the agreement could entice firms that are weak, by size and productivity, to start exporting yet they are vulnerable to shocks.

The impact of trading with COMESA members on the survival of exports from Kenya is shown in Table 3. The coefficient was negative and significant, meaning that exporting under COMESA improved Kenyan export survival. These results conform to findings of Kinuthia (2014) and Majune et al. (2020), which established a positive effect of COMESA on survival of exports from Kenya. Chacha and Edwards (2017) also found that COMESA improved export survival, although the effect was not significant.

The result indicates that COMESA has progressively deepened its regional integration, thus reducing market entry and operation barriers for exporters. As shown in Table 1 only two policy areas, i.e. public procurement and intellectual property rights (IPRs), are yet to be agreed in COMESA. Others such as tariffs on manufactured goods, tariffs on agricultural goods and export taxes have been agreed upon *inter alia*. Compared to other PTAs within Africa, such as the EAC and AfCFTA, COMESA has the least number of policy areas that are yet to be covered (World Bank, 2020).

The lag duration of COMESA coefficient was found to be negative and significant, implying that the presence of COMESA improved survival of Kenyan exports. However, the coefficient of the duration of COMESA was positive and significant. This indicates that most new firms that export to COMESA are less productive and small, thus raising their chances of exiting in the face of a negative shock.

In line with the literature, the coefficients on most of the country-specific variables had the predicted signs on export hazard rates except for the effect of the common border (under COMESA). In addition, results were relatively similar across EIA and COMESA. Hence, export survival rates in COMESA and EIA improved with an increase in the importer's GDP. An increase in the GDP of an importer signals improved demand and the enlarged GDP is one of the reasons for advocating for AfCFTA (World Bank, 2020). Results also showed that an increase in cost to import reduced export survival under COMESA and EIA. The cost to import signifies the role of trade facilitation as it entailed the costs associated with border clearance of a container in a partner country.

The estimated coefficients for the firm-specific variables were also mostly significant, with the predicted signs. The initial export value lowers the probability of export failure. Thus, the presence of ex-ante trust between trading partners improves export survival. Lagged duration also lowers the probability of export failure which suggests that a firm's previous experience and knowledge is important for survival of exports abroad. Total export value was also associated with a higher probability of export survival, suggesting that a firms' export experience could be

key in achieving higher export survival rates.

In all regression results, product and market diversifications coefficients were significant, with negative effects on the export hazard rate. The network effects, proxied by the number of firms, also have the expected effects on the probability of export failure in the case of EIAs. Accordingly, the results suggest that prior experience, product and market diversification and strong networks of firms increases the duration of firm exports.



5.0 Conclusion and Policy Implications

5.1 Conclusions

This study sought to draw lessons for the AfCFTA based on Kenya's export survival under COMESA and other EIAs in Africa. The main policy variables were the EIA and the COMESA trade arrangement. The study used monthly level customs transactions data.

The study found that exporting under a trade arrangement enhanced export survival as opposed to trading with a country that Kenya had no trade arrangement. About 70 percent of exports from Kenya survived beyond the first month of trading in COMESA. Half of them survived to the 12th month and less than 10 percent of them beyond the 108th month.

The trade arrangements export survival enhancement effects implies that the AfCFTA is likely to improve survival of exports besides diversifying the market. Progressive discussions on key policy issues in COMESA have deepened its trade arrangement, hence enhancing its capacity to improve export survival.

5.2 Policy Implications

The study recommends that:

- a) Countries to complete the pending policy issues (state aid, public procurement, environmental laws and labour market regulations) both at the AfCFTA and COMESA to maximise firms'export survival;
- b) Countries to improve trade facilitation policies and programmes at both AfCFTA and COMESA, since high cost of importing as well as distance reduce export survival;
- c) Firms to gather information on markets before entry and during operations and network with existing firms to improve their chances of survival; and
- d) Firms to improve their productivity to enhance their product and market diversity through participation in regional and global production value chains.

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Appendix

Table A.1: Detailed description of variables

Variable	Description	Source
Number of firms	Number of firms selling the same product in the same destination. This measures the network effects	Customs Transaction Data
Number of export markets	Number of destinations to which a given product is exported by the same firm. This measures geographical diversification	Customs Transaction Data
Number of export products	Number of products that a given firm exports to the same destination. This measures the product scope	Customs Transaction Data
Initial export value	Value of export at product level measured in USD for the previous month	Customs Transaction Data
Total exports	Total value of exports per firm measured in Kenya shillings	Customs Transaction Data
Lag duration	Length of the previous spell for repeated spells	Customs Transaction Data
EIA exists	Dummy, 1 if Kenya and its partner have an agreement at some point, and 0 otherwise.	Baier and Bergstrand's website: www.nd.edu/ jbergstr and WTO's RTA- IS database.
Duration of EIA	Measures the length of an agreement (in months)	Baier and Bergstrand's website: www.nd.edu/ jbergstr and WTO's RTA- IS database.
Spell starts after EIA	Dummy, 1 if a trade relationship starts after an agreement has been made, and 0 otherwise	Baier and Bergstrand's website: www.nd.edu/ jbergstr and WTO's RTA- IS database.
Partner's GDP	Log of GDP (current 2010 US\$) of partner	World Development Indicators (WDI)
Real exchange rate	Percentage change in log relative RER: Yearly percent change in the log of the relative real exchange rate between Kenya and its trading partner	WDI
Distance	Log of geographical distance in Kms between the capital city of Kenya (Nairobi) and those of partners	CEPII's GeoDist database: http://www. cepii.fr
Cost to import	Cost to import (US\$ per container) for partner	WDI
Common border	Dummy, 1 if a country shares a border with Kenya, and 0 otherwise	CEPII's GeoDist database: http://www. cepii fr

Table A.2: Summa	y statistics	for o	covariates
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Variable	Obs.	Mean	Std. Dev.	Min	Max
Distance	570848	6.997	0.6769	6.227	8.836
Common border	570848	0.616	0.4863	0	1
Cost to import	500604	31.173	30.1484	0	97.020
Partner's GDP	570848	23.801	1.1437	18.777	27.065
Real exchange rate	423651	0.127	8.5806	-40.958	886.827
Initial export value	570848	7.393	2.4559	-4.868	16.797
Lag duration	570848	1.732	4.4067	0	135
Number of firms	570848	3.973	6.4708	1	101
Number of export products	570848	11.052	17.2322	1	178
Number of export markets	570848	1.981	2.7704	1	80
Total exports	570848	10.544	2.8948	-4.868	17.543

The Comparative Growth-Enhancing Effects of the African Continental Free Trade Area and COMESA Trade Regimes

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Abstract

Based on the principle of acquis, the AfCFTA is founded on the existing AU recognized eight RECs, which are at different stages of regional integration. The focus of this paper was to analyse and compare the growth enhancing effect of COMESA and AfCFTA trade regimes. The focus of this paper was to analyse and compare the growth enhancing effect of COMESA and AfCFTA trade regimes. The focus of this paper was to analyse and compare the growth enhancing effect of COMESA and AfCFTA trade regimes. The study empirically modelled both static and dynamic effects of economic integration, and used static panel data techniques of the pooled, fixed effects and XTGLS models, and the dynamic system GMM model.

The study found absence of mutual positive compatibility between the COMESA and AfCFTA trade regimes. While intra-Africa trade was found to enhance growth in the pooled model, intra -COMESA trade did not. In the fixed effects model, both regimes were found not to enhance economic growth. The Dynamic model revealed that intra-COMESA was growth enhancing with or without other RECs, while intra-Africa trade was not. The most important drivers of economic growth in Africa were found to be intra-Africa trade, growth in capital stock and financial development. The labour force had mixed effects on economic growth in Africa. The positive effect conforms with expectation of labour as a factor of production, but the negative effect reflects the high unemployment rates combined with low job opportunities in the continent.

The study recommended that COMESA: enhance trade promotion initiatives and deepen its integration to increase its contribution to regional and continental growth; intensify supply-side measures to improve its productive capacities, to maximize the regional integration economic growth enhancing opportunities; and fast-track negotiations on trade in services and relax regulations on movement of capital and labour to maximize the gains from regional integration.

1.0 Introduction

1.1 Background

In the African context, regional integration has been pursued alongside other trade liberalization initiatives: joining the General Agreement on Tariffs and Trade (GATT) after gaining independence and later the World Trade Organization (WTO) from 1994; and joining the Preferential Schemes, initially with former colonial European powers, which culminated in the first Lome Convention of the European Union (EU)-African Caribbean Pacific (ACP) partnership in the mid-1970s. The trade relationship shifted from non-reciprocity to reciprocal relation with the Cotonou Agreement and the EU commitment to promote regional integration among ACP Member States.

African countries have also participated in the African Growth and Opportunity Act (AGOA) preferential scheme that was initiated by the United States of America Government in 1999. The countries have since 1980s implemented market-oriented liberalization and reform programmes based on the Washington Consensus neoliberal philosophy. This started as conditionality for accessing finance from the World Bank and the International Monetary Fund (IMF). In these programmes, market liberalization took the form of domestic and external trade liberalization.

The formation of Regional Economic Communities (RECs) in post-colonial Africa was earmarked to serve two purposes namely, to act as building blocs to the establishment of an African Economic Community (AEC) and to facilitate economic, political, and social development of the African countries. Under the auspices of the Organization of African Unity (OAU), the initiative to establish an AEC was formalized by the Lagos Plan of Action (LPA) and the Final Act of Lagos (FAL) in 2000 (Organization of African Unity, 2015). However, in the Abuja Treaty of June 1991 the African continent developed a comprehensive plan to establish the AEC by 2027. The key aims of the Treaty were to intensify the process of integration of African economies through free movement of factors of production, promotion of cooperation, coordination and harmonization of policies (OAU, 1991).

These objectives were to be achieved through strengthening of existing and establishment of other RECs (Qobo, 2007, African Union, 2002). The Abuja Treaty recognized five regions: North, West, Central, East and Southern Africa. In addition, it identified six stages to achieving an economic union starting with free trade areas and customs unions, common markets, monetary unions and eventually the AEC.

The Abuja Treaty which entered into force in 1994 did not lead to successful implementation of the intended integration process. Instead, there was multiplicity of RECs with overlapping membership which had several drawbacks (Economic Commission for Africa and African Union, 2006):

- fragmented economic spaces and approaches to regional integration;
- · increased cost of membership in regional economic communities;
- unhealthy rivalry for donor funds;

- · contradictory obligations and loyalties for member countries;
- · inconsistent objectives and conflicting operational mandates;
- · duplicated efforts; and
- reduced ability for regional economic communities to pursue coherent and effective integration programmes.

The African Union (AU) was established by the Sirte (Libya) Declaration of October 1999 and operationalized with the signing of the Constitutive Act of the AU in Lome, Togo in July 2000 (AU, 2000; OAU, 1999). To rationalize RECs as the building blocs to the AEC establishment, the African Union Commission (AUC) froze the formation of new ones (AU, 2019) and recognized eight.²³

The RECs are at different stages in the implementation of the continental objective of regional integration for achieving accelerated growth and development as shown in Table 1. Those beyond the FTA stage have a more liberal trade regime than the African Continental Free Trade Area (AfCFTA) trade regime.



Table 1: RECs in Sub-Saharan Africa - progress towards economic integration

1.2 Trade Regimes and Flows in COMESA and AfCFTA

COMESA was initially started as a preferential trade area (PTA) for Eastern and Southern Africa in 1981 and changed to the Common Market for Eastern and Southern Africa in 1994. The bloc

Arab Maghreb Union (UMA), Community of Sahel-Saharan States (CEN-SAD), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of West African States (ECOWAS), Economic Community of Central African States (ECCAS), Inter-Governmental Authority on Development (IGAD), and Southern African Development Community (SADC).

is the largest regional economic community in Africa, with 21 Member States with a population of 583 million, an area of 11.8 million km² and a combined GDP of US\$ 805 billion as of 2019 (Musengele B., 2021). In an effort to achieve the African integration as enshrined in Abuja Treaty, COMESA, EAC and SADC decided to establish the Tripartite Free Trade Area (TFTA) in 2008. However, as of February, 2019 only eight countries had ratified the TFTA which was less than the threshold of 14 Member States to come into force.

The process to establish the AEC was concretised, after two years of negotiations, with the adoption of the Agreement towards the formation of the AfCFTA in Kigali, Rwanda, in March 2018. The AfCFTA entered into force in May, 2019 after ratification by the 22nd Member State; and trading commenced on 1 January 2021 (AU, 2018; Musengele B., 2021).

The Africa Continental Free Trade Area (AfCFTA) once operational will bring together 55 AU Member States with a total population of about 1.3 billion and a combined GDP of about US\$ 3.4 trillion (Musengele B., 2021). Agreement establishing the AfCFTA recognizes, *inter alia*, the principles of recognizing RECs' Free Trade Areas (FTAs) as its building blocs, preservation of the acquis and best practices in the RECs (AU, 2018).

The AfCFTA covers the following policy areas: tariffs on manufactured goods, tariffs on agricultural goods, export taxes, customs, competition policy, state aid, antidumping, countervailing measures, state trading enterprises (STEs), technical barriers to trade (TBTs), general agreement on trade in services (GATS), sanitary and phytosanitary (SPS) measures, movement of capital, public procurement, intellectual property rights (IPRs), investment, environmental laws, labour market regulations. However, COMESA FTA covers all the policy areas by AfCFTA except three; STEs, public procurement and IPRs (Hofmann, Osnago, and Ruta (2017), and Maliszewska and Ruta (2020)).

The AfCFTA tariff liberalization ambition is 90 percent, slightly less than that of COMESA, at 100 percent. In terms of trade flows, intra-COMESA exports grew from US\$ 1.5 billion in 2000 to US\$ 10.9 billion in 2019, though up to 93 percent average of annual trade was with non-COMESA Member States. The intra-Africa trade stood at 15 percent as of 2019, implying that 85 percent was with non-African countries. The AfCFTA is, therefore, expected to increase intra-REC and intra-Africa trade by opening more markets in the continent through infrastructure connectivity improvement; creating a larger market; and enhancing competitiveness, value addition and productivity (Musengele B., 2021).

The United Nations Economic Commission for Africa (UNECA, 2018) estimated that implementation of the AfCFTA would increase the value of intra-Africa trade by 15 to 25 percent (US\$50 to US\$70 billion) in 2040, depending on liberalization efforts. This would increase industrialisation and improve welfare of African citizens.

1.3 Economic Growth in COMESA and Africa

Regional integration in Africa dates back to 1910 when the Southern African Customs Union (SACU) was formed. However the continent's economic growth has remained low. In COMESA, economic growth was 1.8 percent in 2014 and averaged 2.9 percent between 1994 and 2010.

The growth rates are inadequate to eradicate poverty or achieve the Sustainable Development Goals (SDGs) in the region by 2030 (COMESA, 2018; Tumwebaze & Ijjo, 2015). There are minimal structural changes in terms of Gross Domestic Product (GDP) composition with the share of extractives and agriculture remaining higher than that of manufacturing²⁴. Most recently, the COVID-19 pandemic has presented shocks to economic growth, with Africa's GDP expected to grow at low rates²⁵. This will worsen the economic growth situation given the decline from 7.5 to 4.7 percent in 2017 and 2018 respectively. The trends in GDP growth (annual percentage) for COMESA and sub-Saharan Africa (SSA) are shown in Figure 1.



Figure 1: COMESA and SSA GDP Growth (Annual %)

Source: Author's calculations from World Development Indicators(WDI)

Economic growth in COMESA and SSA ranged between 2-4 percent between 1994 and 2000. COMESA's GDP growth averaged about 4.3 percent between 2000 and 2010 while SSA grew by about 1.1 percent. The average GDP growth of 4.7 percent between 2010 and 2019 in COMESA was 1.2 percent higher than that of SSA, possibly due to the increased membership of COMESA FTA.

1.4 Statement of the Problem

In the context of economic growth and development challenges, regional trade agreements (RTAs) have prominently been featured in policy debates since the establishment of the World Trade Organization (WTO) in 1995. This liberal philosophy has been embraced and enshrined in policy documents on the justification of RECs formation and intensification of intra-Africa trade. In the context of regional integration, trade liberalization is expected to lead to both static and

Note: COMESA average excludes Somalia, Eritrea and Djibouti due to data unavailability

For countries such as Malawi, agriculture has consistently been above 25 percent of GDP, yet manufacturing has declined to the single digits, far from the targeted >20 percent by 2026 (SADC, 2020; COMESA, 2017).

The African Union Commission (AUC) projects a fall in Africa's economic growth from 3.4 percent in 2019 to between -0.8 percent to -1.1 percent in 2020; IMF projects economic growth in SSA in 2020 at −1.6 percent; while the World Bank projects a sharp fall in growth from 2.4 percent in 2019 to between -2.1 percent to -5.1 percent in 2020.

dynamic gains. COMESA has experienced improved economic integration with membership from the recognized AUC-RECs, except ECOWAS²⁶. Intra-COMESA trade increased from 5.6 to 12.2 percent between 1995 and 2015 (UNCTAD, 2016). The increased foreign trade is expected to increase intra-industrial specialization and competition as well as create opportunities for technological transfer. However, economic performance in the region remains unsustainable. Given that there is scarce empirical literature on the effects of intra-Africa and intra-regional trade on economic growth, this study will analyse and compare the growth-enhancing effects of COMESA and AfCFTA trade regimes.

1.5 Objectives of the Study

The overall objective of this study was to analyse and compare the growth-enhancing effects of the AfCFTA and COMESA trade regimes. Specifically, the study sought to:

- i. Establish quantitatively the contribution of intra-Africa trade to the continent's economic growth; and
- ii. Examine the comparative contribution of COMESA to continental economic growth.

1.6 Significance of the Study

This study contributes to the achievement of some of the AfCFTA objectives and principles such as the operationalization of the goals of Agenda 2063, especially the eradication of poverty. It motivates the importance of existing RTAs and reorient implementation of its existing agreements. In addition, it lays a foundation for monitoring and evaluation of future continental trade integration efforts.

2.0 Literature Review

2.1 Theoretical Review

Since the 1950s, literature on trade and growth has been dominated by the application of traditional free trade theories to show the superiority of openness to the inward-looking approaches of socialism and import substitution industrialization strategy. The classical and neoclassical trade theories laid the foundation for the case for free trade to enhance productivity and efficient growth. The new theories of trade emphasise the exploitation of economies of scale.

The growth-effect of regional integration is controversial because it is neither non-discriminatory free trade nor completely closed trade regime (Antimiani & Salvatici, 2015). It therefore falls in the realm of the theory of the second best. The question has been whether or not partial trade liberalization among countries leads to multilateral liberalization; that is, whether the welfare gains from partial liberalization are achieved at the expense of countries that are excluded from a given regional grouping. This is summed up in a question that has been asked 'are regional groupings stumbling blocks or enabling blocs to multilateralism?'

Notwithstanding these controversies, the theory of Customs Union (CU) has identified static and dynamic channels through which growth may be enhanced. In the static channel, a CU is beneficial when on net basis trade creation exceeds trade diversion. The dynamic channel focus on the impact of the CU on the rate of output growth on a country or countries in the medium term. The traditional dynamic gains of trade liberalization have been summarized as follows: provides competition for countries to realize their comparative advantage and enhance efficiency; firms might realize economies of scale especially for inter-industry trade; the wider market provides opportunity for expansion and might attract investment from both within and outside the region. These goals have been enshrined in the RECs as their key economic targets.

Lipsey (1960) pointed out that the theory of CUs had not yet dealt with effects on changes in economic growth. By the late 1990s, theory had not yet answered Lipsey's fundamental observation and Vamvakidis (1999) argued that empirical evidence on the impact of regional integration on growth may provide stylized facts and show the direction that future theoretical work should follow. Vamvakidis (1998) posed the questions: Should a country form or join an RTA or reduce trade barriers for all countries? Free trade is beneficial for growth, but what kind of free trade – regional or non-discriminatory?

2.2 Empirical Review

Vamvakidis (1998), using sources-of-growth model, analysed the impact of trade openness on economic growth for developing countries. He included dummies for countries belonging to different regional groupings²⁷ that existed since 1960s and 1970s. The study found that countries that opened their markets to free international trade during the past two decades realized rapid economic growth. Free trade and growth were found to be positively correlated during the 1970s and 1980s. In addition, trade liberalization in the EU was found to have positive impact on economic growth and no impact in the other RTAs.

²⁷ Association of Southeast Asian Nations (ASEAN), Andean Common Market (ANCON), Central American Common Market (CACM), European Union, and Union Douaniere et Economique de Afrique Centrale (UDEAC).

Gnimassoun (2019) assessed if regional integration in Africa contributed to improved incomes and if there was a dominant channel between intra-Africa migration and trade. He used intra-Africa trade (import plus export) as a share of GDP and the intra-Africa immigration share in each country's population. The study found that intra-Africa integration had weak impact on real per capita income while intercountry migration had positive impact. He concluded that intra-regional trade had significant growth effects in Africa.

In terms of the role of African RECs on economic growth, various studies used econometric techniques such as feasible generalized least squares (FGLS) and panel corrected standard error (PCSE) estimators, and had mixed findings. Some studies have found COMESA to have welfare gains from the CU which would only be realized after full implementation COMESA FTA (Sawkut & Boopen, 2010; Ejones, Agbola, & Mahmood, 2021). Other studies found that regional integration had no growth impact in COMESA (Tumwebaze & Ijjo, 2015; te Velde, 2008).

Ogbuabor et al. (2019) found that regional integration had no growth impacts in the West African Economic Monetary Union (WAEMU). te Velde (2008) found regional integration to have net trade effects in the EAC. Deme and Ndrianasy (2017) found regional integration to have welfare effects in the Economic Community of West African States (ECOWAS).

Bong and Premaratne (2018) and Nwosu, et al. (2013) found regional integration in the ASEAN region to have a positive impact on economic growth. Henrekson, et al. (1997) and Shah (2021) found that membership to South Asian and European regions was growth-enhancing.

2.3 Overview of the Literature

Literature on the role of regional integration on growth remains scanty for the continent. Most studies focus on non-discriminatory openness, while others are devoid of econometric analyses. Studies that take econometric approach have included factors such as RECs of interest, growth in price levels, physical capital stock and human resource, intra-Africa trade and financial development in their models. However, the findings on the link between regional integration and economic growth in Africa are inconclusive.

3.0 Methodology

3.1 Conceptual Framework

The choice of the methodology for this study is based on the standard framework which distinguishes between static and dynamic growth effects of trade integration. The study adopted the standard Solow growth model, starting with a Cobb-Douglas production function with constant returns to scale Shah (2021), specified as follows:

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} \tag{1}$$

where *Y* stands for output/GDP, *A* technological progress, *K* physical capital, and *L* labour force. The basic production function was extended to include impacts of key proximate growth determinants (investment and labour force growth). In addition, the model was augmented with non-proximate variables, including trade, inflation and financial development. The study included landlocked-ness variable to capture features of geography and frictions to trade. To capture the static and dynamic growth effects of intra-Africa trade, the study used both static and dynamic panel data models. While static models compare fixed effects and random effects based on the assumption of randomness of the error terms, dynamic models capture the dynamics of adjustment, for national income. Unlike previous studies which used static econometric modeling, this study undertook dynamic modeling of economic growth effects of trade.

3.2 Model Specification

The study adopted and modified the following specification by Gnimassoun (2019):

$$\ln y_{it} = \alpha_0 + \alpha_1 T_{it}^{Afr} + \alpha_2 M_{it}^{Afr} + \alpha_1 \ln \text{Size}_{it} + \sum_k \delta^k X_{it}^k + \varepsilon_{it}$$
(2)

where for country i and time period t: **y** represents the real GDP per capita at Purchasing Power Parity (PPP)s; T^{Afr} represents intra-Africa trade (import plus export) as a share of GDP; **M**^{Afr} is the intra-Africa immigration share of the population; Size controls for country size (population and area), X is other control variables, and ε stands for the error term and accounts for unobserved log of income per capita determinants. With some variables estimated in logarithmic forms, the model was specified as follows:

$$\begin{split} & lnPCY_{it} = \alpha_0 + \alpha_1 IntAfrTrd_{it} + \alpha_2 Inflation_{it} + \alpha_3 FinancialDevt_{it} + \alpha_4 Investment_{it} + \\ & \alpha_5 lnLabour_{it} + \alpha_6 COMESA_{it} + \alpha_7 Landlocked_{it} + \sum_{i=1}^3 X_{jit} + \epsilon_{it} \end{split}$$

where *X* represents three other regional communities (SADC, EAC and ECCAS), and the variables are explained in Section 3.3 below.

3.3 Variable Definition and Measurement

PCY: This is the dependent variable, measured as real GDP per capita at PPPs - constant at 2017.

IntAfrTrd: This variable represents intra-Africa trade (trade integration) and was measured using the ratio of sum of exports and imports of a country with the rest of Africa to the country's nominal GDP in US\$.

Inflation: This was measured as the annual change in Consumer Price Index (CPI).

Financial Development: This was proxied by domestic credit to private sector (as percentage of GDP).

Investment: This was proxied gross fixed capital formation as a percentage of GDP.

Labour: This was captured by growth in the total labour force.

COMESA: This is a dummy variable taking 1 for countries that are members of COMESA and 0 otherwise.

Landlocked: This is a dummy taking 1 for countries that are landlocked and 0 otherwise.

Other RECS: This is a dummy variable taking 1 for countries that are members of SADC, EAC and ECCAS and 0 otherwise.

The variables used in the study, their definitions, sources and expected signs are presented in Table 2.

Variable	Definition/Measurement	A Priori Ex- pected Sign	Data Source
Economic Growth	Growth in GDP per capita, PPP (constant 2017 international \$)		WDI
Intra-Africa Trade	$\frac{(X+IM)^{Afr}}{(Trade)^{World}}$	+	WITS
Inflation	Inflation, CPI (annual %)	-	WDI
Financial Devt.	Domestic credit to private sector (% of GDP)	+	WDI
Investment	Gross fixed capital formation (% GDP)	+	WDI
Labour	Labour force, Total	+	WDI
COMESA Dummy	1 if country is in COMESA; 0 if not	()	Constructed
SADC	1 if country is in SADC; 0 if not	()	Constructed
EAC	1 if country is in EAC; 0 if not	()	Constructed
ECCAS	1 if country is in ECCAS; 0 if not	()	Constructed
Landlocked	1 if country is Landlocked; 0 if not	-	Constructed

Table 2: Variable definitions and expected signs

3.4 Data Type and Sources

The study adopted a panel of 39 of the 54 AfCFTA countries for the period 2000-2018. Chad, Djibouti, DRC, Equatorial Guinea, Eritrea, Guinea-Bissau, Liberia, Libya, Sao Tome and Principe, Sierra Leone, South Sudan, Somalia and Zimbabwe were excluded due to lack of data. Annual secondary data was obtained from the World Bank WDI, World Bank World Integrated Trade Solutions (WITS), COMESA COMSTAT, International Trade Centre (ITC) and the Penn World Table version 9.0 (PWT9.0).

3.5 Estimation Technique

To check for robustness in achieving the research objectives, various panel model techniques were adopted, namely; static panel models (fixed effects and random effects models) and dynamic panel regression model. Apart from giving more informative data and being able to capture the dynamics of adjustment, panel regression models have the main advantage of controlling for individual heterogeneity as would be expected among the different African economies (Baltagi B. , 2013). The study used the static and GLS estimation techniques and validated the findings using the Arellano-Bover/Blundell-Bond linear dynamic panel-data estimator.

3.6 Diagnostic Tests

For static panel models, important diagnostic tests include tests for heteroskedasticity, autocorrelation and cross-sectional dependence especially in the case where number of cross-sectional units are greater than time periods.

Consistency for all system GMM estimators is attained if and only if the moment conditions are valid. The Sargan test of overidentifying restrictions was employed to check if the overidentifying restrictions were valid, given that there is no method to test if moment conditions from an exactly identified model are valid. With a null hypothesis that overidentifying restrictions are valid, rejection of the null calls for a modification of the model or instruments. Consistency in the estimator also depends on the absence of autocorrelation as tested using the Arellano-Bond test for zero autocorrelation in first-differenced errors.

4.0 Presentation and Discussion of Results

4.1 **Descriptive Statistics**

The summary descriptive statistics are presented in Table 3.

|--|

	Obs	Mean	SD	Min	Max	Skew	Kurt
GDPpc, PPP	702	4,926	5,082	687	27,572	1.83	6.03
COMESA Goods Exports*	674	364	1,220	0	10,300	6.23	45.17
COMESA Goods Imports*	674	202	398	0	2,790	3.58	17.67
Africa Exports*	609	1,320	3,400	0.0150	27,600	5.61	38.04
Africa Imports*	610	1,140	1,690	0.1723	13,300	3.43	18.46
Intra-Afr. Exp. (% Tot. Exp.)	593	17	16	0	92	1.65	6.80
Intra-Afr. Imp. (% Tot. Imp.)	594	21	21	0	132	1.55	5.39
Intra-Afr. Trade (% Tot. Tr.)	591	19	16	0	83	1.28	4.38
Total Trade (% GDP)	683	73	36	19	225	1.27	4.81
Land Area (KM ²)	684	461,200	421,686	460	1,266,700	0.55	1.91
Total Population (000)	702	21,400	30,400	81.20	196,000	2.97	13.37
Exchange Rate (Ann. avg)	686	523	1,070	1	9,088	4.72	30.57
Gross Fix.C Form. (% GDP)	654	22	8	4	61	1.15	5.49
Inflation (CPI, %)	648	7	9	-60	98	2.30	31.01

Note: * Values are in millions. All monetary values measured in US\$

Source: Authors' calculations from various data sources

The statistics show that the overall per capita GDP averaged US\$ 4,926, with the lowest US\$ 687 for Mozambique in 2001 and the highest US\$ 27,572, for Seychelles in 2018. Total trade as a share of GDP ranged from 19 to 225 percent over the period 2001-2018. COMESA, African exports, population and area had the largest standard deviation, while inflation had the smallest. Trend in intra-COMESA trade over the period 2000-2017 is shown in Figure 2.





Source: Computed using COMSTAT Data

The share of intra-COMESA exports as percentage of total COMESA exports was 12 percent in 2001, declined to a low of 4 percent in 2006, steadily recovered to 10 percent in 2011, and declined to 5 percent share in 2017. Intra-COMESA exports were steady at 5 percent up to 2010, increased to 12 percent in 2015 and thereafter declined to 9 percent in 2017. These shares are below the comparative intra-Africa import shares which averaged 21 percent over the same period. Intra-COMESA trade was 8 percent in 2001, declined to 5 percent in 2006, rose to 8 percent in 2011, thereafter experienced a downward trend up to 2017. Intra-COMESA trade was below the intra-Africa trade which averaged 19 percent over the same period. These can be further confirmed from Table 4 which compares various dimensions of intra-COMESA and intra-Africa trade.

Period Averages							
	2001- 2018	2001- 2005	2006- 2010	2011- 2015	2016- 2018		
All African Economies							
GDPpc, PPP	4,926.12	4,182.49	4,784.11	5,355.48	5,686.59		
COMESA Goods Exports*	364	147	348	519	499		
COMESA Goods Imports*	202	86.7	190	279	293		
Africa Exports*	1,320	434	1,230	2,020	1,710		
Africa Imports*	1,140	505	1,080	1,660	1,390		
Intra-Afr. Exp. (% Tot. Exports)	16.74	15.51	16.94	18.40	15.36		
Intra-Afr. Imp. (% Tot. Imports)	21.24	23.57	20.73	21.12	18.53		
Intra-Afr. Trade (% Tot. Trade)	19.09	19.74	18.90	19.80	17.03		
Intra-Afr. Trade (% GDP)	14.65	15.50	13.83	15.91	12.40		
Total Trade (% GDP)	68.78	65.78	74.61	75.26	71.84		
Land Area (KM ²)	461,200	461,188	461,191	461,213	461,213		
Total Population (000)	21,400	18,000	20,400	23,200	25,700		
Exchange Rate (Annual avg)	523.08	415.06	464.16	577.45	728.36		
Gross Fix.Cap Form. (% GDP)	22.18	19.33	22.40	24.35	22.57		
Inflation (CPI, %)	7.14	7.46	7.31	6.60	7.28		
Domestic Credit (% GDP)	24.19	19.25	22.86	27.63	29.23		

Table 4: Period average values for variables for African countries

Note: * Values are in millions. All monetary values measured in US\$

Source: Authors' calculations from various data sources

4.2 Estimation Results

This Section presents the estimation results of both the static and dynamic panel models. For the static panel models, using the Hausman test, the fixed effects model was chosen. A number of diagnostic tests were also conducted: the Wooldridge test for autocorrelation in panel data revealed presence of serial correlation (*F*=111.397,*p*=0.0000); and the likelihood ratio (LR) test showed presence of heteroskedasticity (*LR chi-sq*=760.67,*p*=0.0000); and the Pesaran's (2015) test for weak cross-sectional dependence revealed dependence among the errors (*CD* = -0.264,*p*= 0.791).

To resolve the problems, the study estimated the panel GLS (XTGLS) model. To ensure robustness of the results, a pooled OLS estimator was estimated before the fixed effects model. A dynamic model was estimated, since an economy's level of income in one period may

affect its income level in the next period. Therefore, Blundell/Bond's system GMM estimator was also estimated. The study therefore interprets the results of the XTGLS and dynamic panel models. Various robustness checks were also done on the results.

Case I: Growth Effect of Total African Trade

Case I as shown in Table 5A presents the estimation results of growth effect of total African trade.

	Pooled	Fixed Effects	XTGLS	System GMM
Total Trade (% GDP)	0.0044***	-0.0009**	0.0050***	0.0004***
	(0.001)	(0.000)	(0.001)	(0.000)
Inflation	0.0083**	0.0005	0.0111***	-0.0004**
	(0.003)	(0.001)	(0.003)	(0.000)
Financial Development	0.0150***	0.0056***	0.0169***	-0.0007***
	(0.001)	(0.001)	(0.001)	(0.000)
Investment	0.0056	-0.0005	0.0050	0.0008***
	(0.004)	(0.001)	(0.004)	(0.000)
Log (Labour)	-0.1500***	0.5474***	- 0.1303***	0.0146***
	(0.022)	(0.031)	(0.024)	(0.004)
COMESA	0.0578	0.0265	-0.0729	0.0398***
	(0.061)	(0.060)	(0.063)	(0.015)
Landlocked	-0.5296***	-	-	-0.0580***
	(0.060)			(0.019)
L. Log (PCY)	-	-	-	0.9743***
				(0.007)
_cons	9.6361***	-0.2880	9.1228***	-
	(0.384)	(0.469)	(0.401)	
chi2	-	-	435.205	19210913.525
Р	0.000	0.000	-	0.000
Ν	601	601	601	601

Standard errors in parentheses

p < 0.10, p < 0.05, p < 0.01, p < 0.01

The results show a significant and positive coefficient for the total trade variable, except in the fixed effects model. This means that total trade is growth enhancing in all except the fixed-effects model. The positive and significant COMESA dummy coefficient observed from the system GMM model show that belonging to COMESA is growth enhancing only in the dynamic case. To test the robustness of the results, a sensitivity test was carried out by adding dummies for other RECs and the results are shown in Table 5B.

	Pooled	Fixed Effects	XTGLS	System GMM
Total Trade (% GDP)	0.0025**	-0.0010***	0.0035***	0.0004***
	(0.001)	(0.000)	(0.001)	(0.000)
Inflation	0.0064*	0.0006	0.0101***	-0.0004***
	(0.003)	(0.001)	(0.003)	(0.000)
Financial De- velopment	0.0147***	0.0054***	0.0172***	-0.0008***
	(0.001)	(0.001)	(0.001)	(0.000)
Investment	0.0079**	-0.0004	0.0081**	0.0007**
	(0.004)	(0.001)	(0.004)	(0.000)
Log (Labour)	-0.1400***	0.5409***	-0.1151***	0.0153***
	(0.023)	(0.032)	(0.024)	(0.004)
COMESA	0.0948	0.0307	-0.0001	0.0326**
	(0.064)	(0.058)	(0.067)	(0.015)
SADC	0.2111***	-0.1573***	0.0917	0.0264**
	(0.064)	(0.048)	(0.066)	(0.013)
EAC	-0.1849**	0.0342	-0.2566***	-0.0003
	(0.090)	(0.032)	(0.094)	(0.010)
ECCAS	0.3141***	0.2683***	0.3663***	-0.0162
	(0.073)	(0.054)	(0.077)	(0.012)
Landlocked	-0.5388***	-	-	-0.0639***
	(0.061)			(0.019)
L. Log (PCY)	-	-	-	0.9726***
				(0.008)
_cons	9.4876***	-0.1759	8.8502***	-
	(0.387)	(0.471)	(0.401)	
chi2	-	-	484.141	19162032.692
Р	0.000	0.000	-	0.000
Ν	601	601	601	601

Table 5B: Using total African trade as a % of GDP - many RECs

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

After inclusion of the other RECs dummies, the results showed that total trade and COMESA coefficients were robust at 5 percent level of significance. In addition, the SADC and ECCAS RECs both yielded positive contributions to per capita income, contrary to the growth depressing effect for the EAC REC. These finding conformed to te Velde (2008), but were contrary to Ejones et al. (2021), who found that EAC without Kenya had a positive and significant effect on economic growth in the EAC. This could be explained by Kenya being one of the biggest economies within EAC.

Case II: Growth Effect of Intra-Africa Trade

The comparative growth-enhancing effects of intra-Africa trade and COMESA were tested using total intra-Africa trade as a percentage of nominal GDP for each African country. The estimation results are shown in Table 6A.

	Pooled	Fixed Effects	XTGLS	System GMM
Intra-Africa Trade (% GDP)	0.0093***	-0.0010**	0.0033*	0.0001
	(0.002)	(0.000)	(0.002)	(0.000)
Inflation	0.0081*	-0.0003	0.0124***	-0.0005**
	(0.004)	(0.001)	(0.004)	(0.000)
Financial Development	0.0157***	0.0068***	0.0179***	0.0000
	(0.001)	(0.001)	(0.001)	(0.000)
Investment	0.0116***	-0.0009	0.0103***	0.0006**
	(0.004)	(0.001)	(0.004)	(0.000)
Log (Labour)	-0.1557***	0.5030***	-0.1740***	0.0117***
	(0.022)	(0.035)	(0.023)	(0.004)
COMESA	0.0618	-0.0606	-0.1513**	0.0436***
	(0.069)	(0.067)	(0.068)	(0.015)
Landlocked	-0.6046***	-	-	-0.0319
	(0.070)			(0.020)
L. Log (PCY)	-	-	-	0.9798***
				(0.008)
_cons	9.7328***	0.3222	9.9153***	-
	(0.362)	(0.513)	(0.384)	
chi2	-	-	394.456	15305646.432
Р	0.000	0.000	-	0.000
Ν	510	510	510	510

Table 6A: Intra-Africa trade defined as total intra-Africa trade % of GDP -COMESA

Standard errors in parentheses

p < 0.10, p < 0.05, p < 0.01

The coefficient for intra-Africa trade is significant and positive in the pooled and XTGLS models, and negative in the fixed effects model. This means intra-Africa trade is growth enhancing as per the pooled and XTGLS model results, but growth-retarding as per the fixed-effects model. The COMESA dummy variable coefficient was positive and significant in the system GMM model, indicating that its membership was growth enhancing. This could be explained by the fact that members of the COMESA FTA enjoy benefits of free trade, thereby improving their income levels. To test the robustness of the results, a sensitivity analysis was carried out by adding other major RECs in the estimation. The results are presented in Table 6B.

	Pooled	Fixed Effects	XTGLS	System GMM
Intra-Africa Trade (% GDP)	0.0076***	-0.0011***	0.0016	0.0001
	(0.002)	(0.000)	(0.002)	(0.000)
Inflation	0.0072*	-0.0002	0.0110**	-0.0005**
	(0.004)	(0.001)	(0.004)	(0.000)
Financial Development	0.0149***	0.0066***	0.0168***	-0.0000
	(0.001)	(0.001)	(0.001)	(0.000)
Investment	0.0117***	-0.0009	0.0108***	0.0007**
	(0.004)	(0.001)	(0.004)	(0.000)
Log (Labour)	-0.1410***	0.5159***	-0.1534***	0.0112**
	(0.023)	(0.036)	(0.025)	(0.005)
COMESA	0.0824	-0.0579	-0.1083	0.0311*
	(0.074)	(0.065)	(0.074)	(0.017)
SADC	0.1936***	-0.1513***	0.2115***	0.0033
	(0.073)	(0.044)	(0.077)	(0.014)
EAC	-0.1753*	0.0188	-0.2388**	-0.0082
	(0.095)	(0.030)	(0.100)	(0.011)
ECCAS	0.2687***	0.2227***	0.2817***	-0.0339***
	(0.083)	(0.064)	(0.088)	(0.013)
Landlocked	-0.5854***	-	-	-0.0314
	(0.069)			(0.021)
L. Log (PCY)	-	-	-	0.9812***
				(0.009)
_cons	9.4655***	0.1520	9.5587***	-
	(0.384)	(0.529)	(0.406)	
chi2	-	-	435.103	15161826.519
p	0.000	0.000	-	0.000
Ν	510	510	510	510

Table 6B: Intra-Africa trade defined as total intra-Africa trade % of GDP - many RECs

Standard errors in parentheses

p < 0.10, p < 0.05, p < 0.01

The robustness results above confirmed the effect of intra-COMESA trade on continental growth. SADC REC was found to be growth-enhancing on average, while the EAC was found to have potentially negative effects on growth, just as the case of total trade depicted in Table 5B. Both of these RECs do not have dynamic growth effects. The ECCAS REC has a strong growth-enhancing effect in the static models only and negative effect in the dynamic model.

Across all the estimation results the following key observations can be made. While intra-Africa trade's coefficient indicates significant growth-enhancing effects in the pooled model, COMESA REC coefficient had no effect. The coefficient for intra-Africa trade had significant and negative growth effects in the fixed-effect model, while COMESA REC coefficient had no growth effect. In the estimation results, both trade regimes' coefficients were found not to enhance economic growth.

Dynamic modelling with System GMM results revealed that while intra-Africa trade had no significant growth effect, the COMESA regime was growth enhancing, both in the presence and in absence of other RECs. With inclusion of dummies for other major RECs (SADC, EAC and ECCAS), the most robust drivers of economic growth in Africa over the period are found to be intra-Africa trade, growth in capital stock and financial development.

The empirical findings of this study contradict Vamvakidis' (1998) who found the EU to be the only growth-enhancing among the five regional groupings; and Gnimassoun (2019) who found that African integration had no impact on real per capita income in Africa. Differences in findings between this study and those of Vamvakidis' (1998) and Gnimassoun (2019) can be attributed to the extra step taken in separating static from dynamic growth effects, as well as the novelty in testing for, *inter alia*, cross-sectional dependence and consequently favouring the GLS estimator.

The results showed a positive and significant coefficient for investment, implying long-run effect on economic growth. This conforms to Ejones et al. (2021) who estimated the same for SSA countries. The effect of labour force growth was ambiguous, showing that growth in the labour force had a mixed relationship with economic growth in Africa. The positive effect conforms with expectation of labour as a factor of production, but the negative static growth effect reflects the high unemployment rates combined with low job opportunities in the continent. The most robust drivers of economic growth in Africa over the period were found to be intra-Africa trade, growth in capital stock and financial development, which was in line with findings by various previous studies (Golit & Adamu, 2014).

An attempt was made to investigate whether trade in COMESA enhances economic growth, by interacting the trade variable with the COMESA dummy, and the results are shown in Table 6AA in Appendix A. The results showed that coefficients of the interactive term in all models were insignificant, therefore interpretation of the estimation results excluded model with interactive term.

5.0 Conclusions and Policy Implications

5.1 Conclusions

Based on the principle of acquis, the AfCFTA is founded on the existing AU recognized eight RECs, which are at different stages of regional integration. The focus of this paper was to analyse and compare the growth enhancing effect of COMESA and AfCFTA trade regimes. Although a pool of studies has devoted to establishing the trade-growth nexus, empirical studies on the comparative gains from the newly instituted AfCFTA – vis-à-vis the existing trade blocs remains inconclusive. Augmenting the traditional sources-of-growth model, the AfCFTA was represented by intra-Africa trade while a dummy variable was used for membership to COMESA. The study empirically modelled both static and dynamic effects of economic integration, and used static panel data techniques of the pooled, fixed effects and XTGLS models, and the dynamic system GMM model.

The study found absence of mutual positive compatibility between the two regimes. While intra-Africa trade was found to enhance growth in the pooled model, intra -COMESA trade did not. In the fixed effects model, both regimes were found not to enhance economic growth.

The Dynamic model revealed that intra-COMESA trade was growth enhancing with or without other RECs, while intra-Africa trade was not. The most important drivers of economic growth in Africa were found to be intra-Africa trade, growth in capital stock and financial development. In addition, investment had a long-run effect on economic growth in Africa. The labour force had mixed effects on economic growth in Africa. The positive effect conforms with expectation of labour as a factor of production, but the negative effect reflects the high unemployment rates combined with low job opportunities in the continent.

5.2 Policy Implications

The study recommended that:

- a) COMESA to enhance trade promotion initiatives and deepen its integration to increase its contribution to regional and continental growth;
- b) COMESA to intensify supply-side measures to improve its productive capacities, to maximize the regional integration economic growth enhancing opportunities;
- COMESA to fast-track negotiations on trade in services and relax regulations on movement of capital and labour to maximize the gains from regional integration; and
- d) Further research to be undertaken to establish whether there is a threshold of intra-regional trade intensity beyond which trade integration becomes growth enhancing.

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Appendix

Table 6AA: Interaction between intra-Africa trade and COMESA

	Pooled	Fixed Effects	XTGLS	System GMM
Intra-Africa Trade (% GDP)	0.0089***	-0.0015*	0.0089***	-0.0001
	(0.002)	(0.001)	(0.002)	(0.000)
COMESA	0.0508	-0.0647	0.0508	0.0393**
	(0.083)	(0.067)	(0.082)	(0.015)
Intra-Africa-Trade × COMESA	0.0007	0.0006	0.0007	0.0004
	(0.003)	(0.001)	(0.003)	(0.000)
Financial Development	0.0157***	0.0068***	0.0157***	0.0000
	(0.001)	(0.001)	(0.001)	(0.000)
Inflation	0.0081*	-0.0003	0.0081*	-0.0005**
	(0.004)	(0.001)	(0.004)	(0.000)
Investment	0.0116***	-0.0009	0.0116***	0.0007**
	(0.004)	(0.001)	(0.004)	(0.000)
Log (Labour)	-0.1559***	0.5048***	-0.1559***	0.0113***
	(0.022)	(0.035)	(0.022)	(0.004)
Landlocked	-0.6049***	-	-0.6049***	-0.0294
	(0.070)		(0.069)	(0.020)
L. Log (PCY)	-	-	-	0.9808***
				(0.008)
_cons	9.7409***	0.2997	9.7409***	-
	(0.364)	(0.515)	(0.361)	
chi2	-	-	529.175	15291111.823
р	0.000	0.000	-	0.000
Ν	510	510	510	510

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

The Implications of the African Continental Free Trade Area on Intra-COMESA Trade

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Abstract

This paper used the structured Gravity model on a panel data of 35 reporting and 48 partners countries over the period 2000-2018 to examine the potential effects of the African Continental Free Trade Area (AfCFTA) on intra-COMESA trade. The study found that implementation of the AfCFTA has the potential to increase intra-COMESA trade by 2.3 times. The study points to the loss of intra-COMESA trade to the rest of Africa by 1.7 times. Notwithstanding trade diversion, the implementation of the AfCFTA has a net overall effect of increasing intra-COMESA trade by 61.6 percent. The study recommended that COMESA to consider aligning its trade policies with the AfCFTA to maximise the AfCFTA benefits; sensitize its producers to maximize on the benefits and opportunities of the AfCFTA implementation; and build their capacity to improve production efficiency to mitigate against the loss of trade to non-COMESA Member States.

Key Words: COMESA, Gravity model, Trade Diversion, Trade Creation, Merchandise Trade

1.0 Introduction

1.1 Background

The effect of regional trade agreements on economic performance of countries is inconclusive (Kimura & Chen, 2016), yet the number of such agreements is growing globally. On 30th May 2019, the African Continental Free Trade Area (AfCFTA) entered into force, bringing the number of regional trade agreements recognised by the African Union to nine. The AfCFTA is envisaged to be the largest free trade area in terms of membership since the birth of the World Trade Organization (WTO) (Kituyi, 2019). The AfCFTA comprise of 55 countries, with a population of over 1.2 billion, and Gross Domestic Product (GDP) of over US\$3.4 trillion.

The members of the AfCFTA belong to eight regional economic communities (RECs) recognised by the African Union. These are the Arab Maghreb Union (UMA), Common Market for Eastern and Southern Africa (COMESA), Community of Sahel-Saharan States (CEN-SAD), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), Intergovernmental Authority on Development (IGAD), and Southern Africa Development Community (SADC).

The AfCFTA is expected to increase intra-Africa trade from 10.2 percent in 2010 to approximately 52 percent in 2022 through a 90 percent reduction in tariffs on merchandise trade (Mishra, 2018). African countries trade more with the rest of the world than amongst themselves. In 2018, intra-Africa exports stood at 15.86 percent (Afreximbank, 2018). This is low compared to North America (30.16 percent), Asia (59.98 percent) and Europe (68.71 percent).

Trade performance in the COMESA region is low in comparison with other RECs in Africa. For example, intra-COMESA exports averaged 5.7 percent in 1995-2018 which compares unfavourably with SADC (19 percent), ECOWAS (11 percent) and EAC (9 percent). COMESA has a higher membership of 21 countries, population of 557 million and US\$750 billion in gross domestic product in 2018 (COMSTAT, 2019). Despite the low intra-COMESA trade performance, the region trades more with the rest of Africa. Between 1995 and 2018, COMESA exports and imports with the rest of Africa averaged 40.8 percent and 59.47 percent respectively. Given the importance of the rest of Africa to COMESA's trade, an empirical examination of the implications of AfCFTA implementation on intra-COMESA trade is crucial.

Intra-COMESA exports increased from US\$1.5 to US\$10.2 billion from 2000 to 2018 while as imports increased from US\$1.4 billion in 2000 to US\$10.1 billion in 2018 as shown in Table 1. A similar trend was observed in the African continent where intra-Africa exports and imports increased from US\$13.4 to US\$77.3 billion and US\$17.4 to US\$73.6 billion respectively over the period 2000-2018.

	Population (Millions)		Intra-Exports US\$ billion		Intra-Imports US\$ billion		GDP (US\$ billion)	
	2000	2018	2000	2018	2000	2018	2000	2018
COMESA	441	557	1.5	9.1	1.4	10.2	293	750
Africa	971	1531	13.435	77.3	17.4	73.6	740	2770

Table 1: Selected economic and trade performance indicators in COMESA and Africa,(2000 - 2018)

Source: COMSTAT (2019) and UNCTAD (2019)

The AfCFTA has seven protocols: trade in goods; trade in services; intellectual property rights; competition policy; dispute settlement mechanism; investment; and e-commerce (Tralac, 2018). The overarching objectives of the trade in goods protocol are progressive elimination of tariffs and non-tariff barriers, enhancing the efficiency of customs, trade facilitation and transit, cooperation on technical barriers to trade and sanitary and phytosanitary measures, development and promotion of regional and continental value chains, socio-economic development, diversification and industrialization across Africa (Tralac, 2018).

The trade in goods protocol was negotiated in phase one and member states agreed to liberalize 90 percent of all trade. However, the period for liberalizing the 90 percent of trade depends on the classification of the countries and the nature of the products (UNECA, 2020). Developing countries are expected to fully liberalize over the period of five years, least developed countries over 10 years while a group of six²⁹ is expected to fully liberalize over a 15 year period (UNECA, 2020). The AfCFTA Member states agreed that developing, least developed and a group of six countries in 10 years for developing countries and thirteen years for least developed and a group of six countries in the case of sensitive products. No cuts were agreed on excluded products (UNECA, 2020).

The emergence of free trade agreements such as the AfCFTA is not a random phenomenon but rather, part of the 21st century regionalism evolution (Kimura & Chen, 2016). Such agreements are deeper than the standard regional agreements that focus on trade liberalization and narrowly on merchandise trade. These agreements are connected to the 21st century trade that is composed of trade in goods, services and freer cross-border movement of persons.

1.2 Statement of the Problem

The impact of the AfCFTA on Africa countries and RECs may vary due to differences in their stages of development, the legal framework and the political systems among others. The AfCFTA implementation will affect both regional and global trade for both member and non-member states. Given the expansive and overlapping membership of COMESA, there is need to examine the AfCFTA implications to intra-COMESA trade.

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1.3 Objectives of the Study

The main objective of the study is to establish the implications of the AfCFTA implementation on intra-COMESA trade. Specifically, the study sought to determine the extent of trade creation, trade diversion and the net effect of the AfCFTA on COMESA trade.



2.0 Review of Literature

2.1 Theoretical Literature

Theoretical literature on the effects of regional effects pre-dates to the 1950s. Viner (1950) opined that the formation of a Customs Union has the potential to generate trade-diversion and trade-creation effects. Viner argued that a regional trade agreement would be beneficial if it balances trade creation and trade diversion effects. Trade creation occurs if regional trade increases through the shifting of production from less efficient, high-cost producers to more efficient, low-cost producers. On the other hand, trade diversion occurs when regional trade agreement leads to a shift in production from low-cost producers outside the bloc to high-cost producers within the bloc.

In general, trade creation means that a regional trade agreement generates trade that would not have existed before. As a result, supply occurs from a more efficient producer and increases a country's national welfare by reducing the price of a product and increasing its supply. Trade diversion would reduce national welfare by increasing price of products (Duncan, 2015). It therefore worsens the international allocation of resources and shifts the structure of production away from comparative advantage basis. If economic resources are fully employed before and after the formation of the regional trade arrangement, output increases the welfare of all countries concerned because it leads to more specialization based on comparative advantage. However, Mattoo et al. (2017) argues that the Vinerian model was developed for Preferential Trade Agreements (PTAs) and may not be used to examine the effects of regional trade agreements in deeper trade agreements such as those formed under the General Agreement on Tariffs and Trade Article XXIV. In addition, the Vinerian model is criticised on its failure to incorporate the consumption effects of the regional trade agreement.

Other than the Viner's trade creation and diversion effects, regional trade agreements have three effects, namely the allocation, accumulation and location effects. The allocation effects arise in circumstances where regional trade agreements assume perfect competition. Thus, the formation of the Free Trade Area (FTA), coupled with a reduction in all forms of barriers leads to a better allocation of resources. Allocation effects are the static effects and relatively short-term effects which are not associated with changes in costs of production and technological processes. They include the ways in which elimination of trade barriers inside a regional bloc leads to better allocation of resources (Marinov, 2014).

The accumulation (dynamic) effects arise from the assumption of imperfect competition. They stem from an enlarged market size, investment levels, competitiveness, economies of scale and other regional integration policies (Kawecka-Wyrzykowska, 2011). Enlarged markets allows producers to take advantage of economies of scale that would not have occurred in smaller markets. Larger markets created through regional integration allow for deeper specialization of production besides enhancing competition. Subsequently there will be a reduction in the costs of production and better quality of products in the market. Regarding regional integration, dynamic effects are considered more important than static effects despite being difficult to measure (Kawecka-Wyrzykowska, 2011).

Location effects are associated with regional integration which intensify or reduce inequalities between countries or create new inequalities. If there are new inequalities arising, then regional integration is said to have agglomeration effects (Kawecka-Wyrzykowska, 2011).

2.2 Empirical Literature

Numerous studies have been conducted to examine the potential and actual effects of regional trade agreements in Africa. Geda and Seid (2015) estimated a Gravity model using Pseudo Poisson Maxumum Likelihood (PPML) technique to establish the potential effects of advancing regional economic integration on intra-Africa trade. The study found that formation of Regional Trade Arrangements (RTAs) increased intra-Africa trade. However, weak infrastructure and poor trade facilitation policies could undermine the potential growth in intra-African trade.

Robinson and Thierfelder (2002) reviewed the empirical literature that has used multi-country Computable General Equilibrium (CGE) models to analyze potential and actual RTAs. These studies indicated that RTA's improve welfare and that trade creation is greater than trade diversion.

Hallaert, (2007) used a CGE model to evaluate the impact of the Southern African Development Community (SADC) FTA on Madagascar's economy. The results indicated that the benefits of the SADC FTA on Madagascar were minimal. However, there were gains in the textiles and clothing sectors if SADC liberalization was complemented with the elimination of rigidities in the labour and capital markets.

Yeats (1999) analysed the determinants of trade flow and intra-regional trade potential in Sub-Saharan Africa. The study found distance to be an important factor behind the concentration of bilateral trade between countries in Africa. There exists high level of sub-regional concentration of intra-Africa trade, with countries in Eastern Africa trading less with West African countries. Besides the sub-regional concentration of intra-regional trade, most African countries import manufactured goods and export agricultural raw materials and fuels.

Cassim (2001) examined factors that determine the scope and success of SADC using the gravity model. The study found that the transaction costs of trading partners; growth paths of member economies as well as changes in gross domestic product per capita income are key factors behind the success of SADC rather than the trade policies. The study also found that economic and geographical size of trading partners have an impact on trade flows.

Chauvin et al., (2016) using the CGE model examined the likely effects of the AfCFTA in six African countries. The study found that the effect of implementing the AfCFTA will depend on the modalities of trade liberalisation. It found asymmetric effects on trade patterns among African countries and across sectors.

Njinkeu and Fosso (2006) analysed intra-regional trade in selected regional groupings, focusing on measures and modalities of promoting trade and development. The study established that behind the border reforms and infrastructure related services support are important for the promotion of regional trade in Africa.

Geda and Yimer (2019) estimated trade creation and diversion effects of the AfCFTA using



a gravity model. The study found net trade creating effects. The AfCFTA would lead to a 19 percent increase in intra-African trade.

Jayasinghe & Sarker (2007) using an extended gravity model for a panel of six selected agrifood products estimated the trade creation effects of the North America Free Trade Area (NAFTA) over the period 1985 – 2000. The study found that the share of intra-NAFTA trade grew and displaced trade with the rest of the world.

Carrere (2006) using a gravity model on a panel of 130 countries over the period 1962-1996, established that regional trade agreements led to an increase in trade between its members as opposed to trade to the rest of the world.

Carrere (2004) estimated a gravity model on a panel of Sub-Saharan Africa (SSA) countries over the period 1962-1996 and found that regional trade agreements generated trade among SSA countries.



3.0 Methodology

3.1 Methodological Framework

Plummer et al. (2010) documented various approaches that could be used to examine the effects of regional trade agreements. The methods are categorized into the ex-ante and expost methodologies. The ex-ante approaches are used to determine the potential effects of a regional trade agreement before it is implemented whilst the ex-post approaches are used to examine the actual effects of the regional trade agreement after it has entered into force. Ex-ante approaches basically work with simulations. The approaches used under ex-ante methodologies include trade indicators, partial models such as the SMART model and the computable general equilibrium (CGE) models.

Trade indicators are the simplest measures used in simulating the effects of RTAs. Among the several trade indicators used in determining the potential effects of the formation of an RTA are the trade complementarity index, the revealed comparative advantage, and the export specialization index. The revealed comparative advantage provides fundamental information on the potential trade prospects with new members. The formation of RTA is unlikely to stimulate trade between countries with similar revealed comparative advantage.

The export specialization index is similar in nature to the revealed comparative advantage. It provides product information on revealed specialization in the export sector of a country. If the value of the export specialization index is less than one, this indicates a comparative disadvantage and comparative advantage when greater than one. The trade complementarity index captures the extent to which members are natural trading partners.

Partial equilibrium models analyse the effects of a Free Trade Area on a single market. CGE models are used to examine the economy wide effects of RTAs, however, the use of the models is constrained by complex data requirements. In most cases, potential effects of trade policies are examined using ex-ante methodologies. Such methodologies include the CGE and Software for Market Analysis and Restrictions on Trade (SMART) models. However, the use of these models is undermined by their specification complexities and weak data availability, particularly in the African context (Greenaway & Milner, 2002).

3.1.1 Estimation Model: The Gravity Model

The study adopted a gravity model developed by Anderson and van Wincoop, (2003) which is specified as follows;

$$X_{ijt} = \frac{Y_{it} * Y_{jt}}{Y_{t}} * \left(\frac{t_{ijt}}{\pi_{it} * P_{jt}}\right)^{1-\sigma}$$
(1)

Equation 1 can also be written as follows;

$$X_{ijt} = \frac{Y_{it} * Y_{jt}}{Y_t} * \left(\frac{\pi_{it} * P_{jt}}{t_{ijt}}\right)^{\sigma - 1}$$
(2)



 X_{ij} is the total monetary value of the trade flow with *i* r representing the recipient while denotes the partner country. Y represents GDP for the different countries. $\pi_{it} * P_{jt}$ represents multilateral resistance and refers to the effects of market access. This takes a lower value if the country is remote from the world. t_{ijt} are the bilateral trade costs describing the costs of importing from country *i* by country $j \cdot \sigma$ is defined as the elasticity of substitution. Trade costs are a function of distance and other dummy variables which can indicate whether a country is landlocked or whether the countries in question share a common border. Trade costs are assumed to be an increasing function of distance and the landlocked status of a country. Embedded in trade costs are information costs and the information variables in the perspective of a gravity model are whether the trading countries have a common language or some other cultural aspects.

Thus, the study estimated the following specified model:

$$\ln M_{ijt} = \alpha_0 + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{jt} + \alpha_3 \ln Pop_{it} + \alpha_4 \ln Pop_{jt} + \beta \sum t_{ij} + \mu_{it}$$
(3)

Where M_{ijt} is the value of imports of country i from country j in period t. The expanded econometric log-linear form of equation (4) becomes:

$$\ln M_{ijt} = \alpha_0 + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{jt} + \alpha_3 \ln Pop_{it} + \alpha_4 \ln Pop_{jt} + \beta_1 \ln Dist_{ij} + \beta_2 border_{ij} + \beta_3 lang_{ij} + \beta_4 comesa_{intra} + \beta_5 comesa_{imp} + \beta_6 comesa_{exp} + \mu_{it}$$
(4)

 GDP_{it} and GDP_{jt} represents the gross domestic product for the reporting and partner countries respectively. *Dist* is the distance between the major cities of the trading countries and *border* is the dummy variable with value 1 if countries share a border and 0, if otherwise. *lang* is a dummy with value equals to 1 if countries share the same official language and 0, if otherwise. *comesa*_{intra} takes the value of 1 if both reporter and partner are COMESA members. *comesa*_{imp} is a dummy variable with a value of 1 if the importing country is a member of COMESA whilst the exporting country belongs to the rest of Africa and 0 if otherwise and *comesa*_{exp} is a dummy taking the value of 1 if the exporting country is a COMESA member while the importing country belongs to the rest of Africa and 0 if otherwise.

3.1.2 Data Type and Sources

The study used annual data covering 2000 – 2018 to determine the potential effects of the AfCFTA on intra-COMESA trade. Exports and imports data was obtained from the UN Comtrade database. Traditional gravity model variables data was drawn from the CEPII database. Population and gross domestic data (GDP) were sourced from the World Bank's World Development Indicators. The list of countries used in the study³⁰ is presented in Table A1 of the Appendix. The definition of variables and their expected signs is presented in Table 2.

Countries used in this study were selected based on consistent data availability over the period 2000-2018

Variable Name	Definition	Source	Expected Sign
M_{iii}	Total bilateral imports of country i from country	COMTRADE	
ijt	j in period t . This variable is measured in current US\$ (thousands).		
$\ln GDP_{it}; \ln GDP_{jt}$	This is the natural logarithmic value of the total gross domestic product of the importing and exporting countries in time t respectively. This variable is measured in current US\$ (millions)	World Bank	positive
$\ln Pop_{it}; \ln Pop_{jt}$	This is the natural logarithms of the total popula- tion of the importing and exporting countries in time t respectively. This variable is measured in millions	World Develop- ment Indicators	positive
ln Dist _{ij}	Distance between the main cities of the importing and exporting countries. This variable is measured in kilometres.	CEPII	negative
border	This is a dummy variable which measures if countries share a common border. The variable takes the value 1 if countries share a border and 0 otherwise	CEPII	positive
lang	Is a dummy with value equals to 1 if countries share the same official language and 0	CEPII	positive
<i>comesa</i> _{intra}	Takes the value of 1 if both reporter and partner are COMESA members		positive
comesa _{imp}	This is a dummy variable with a value of 1 if the importing country is a member of COMESA whilst the exporting country belongs to the rest of Africa and 0 otherwise		positive or negative
<i>comesa</i> _{exp}	Is a dummy taking the value of 1 if the exporting country is a COMESA member while the import- ing country belongs to the rest of Africa and 0 otherwise		positive or negative

Table 2: Variable definition, expected signs and data sources

If $\beta_4 > 0$ and is corresponded by a lower propensity to import from the rest of Africa ($\beta_5 < 0$), then trade diversion occurs (Carrere, 2006). In that case, negotiating a trade agreement has undesirable effects. If the increase in intra-COMESA trade is offset by a decrease in COMESA imports from the rest of Africa, then the regional trade agreement will have trade diversion effect. If the increase in intra-COMESA exports is more than the decrease of its imports from the rest of Africa, there is both trade creation and diversion effect. According to Geda & Yimer (2019), the net effect is the difference between the coefficients corresponding to the two variables. If $\beta_4 > 0$ and $\beta_5 < 0$, then the formation of the AfCFTA will have trade creation effect. Lastly, comparing the coefficients β_4 and β_6 culminates into making inferences about the welfare of non-COMESA Member States. If $\beta_4 > 0$ and $\beta_6 < 0$, this entails export diversion implying a decrease in the welfare of non-COMESA countries.

3.2 Estimation Technique

The gravity model is estimated using a number of techniques including ordinary least squares, fixed effects, random effects and Poisson Pseudo Maximum Likelihood (PPML) estimators. In this study, equation 4 is estimated using the Poisson Pseudo Maximum Likelihood Estimator with Multi-way Fixed Effects (PPMLHDFE) estimator. The choice of the technique was motivated by the robustness of the results obtained in the presence of heteroscedasticity. The model resolved the problem of zero trade flows and yielded super-consistent results when fixed effects were incorporated. The coefficients of the regression results were treated as elasticities for a log linearized model and semi-elasticities for a model estimated at levels.

4.0 Presentation and Discussion of Results

4.1 Descriptive Statistics

The descriptive statistics of the variables are presented in Table 3. It shows that bilateral imports between selected African countries averaged US\$ 26,400 for the period 2000-2018 and has the largest standard deviation.

Table 3: Summary Statistics

Variable	Obs	Mean	Std.Dev.	Min	Мах
imports	31238	26400.6	194000	0	5130000
Ingdp_importer	31238	9.379	1.51	6.303	12.939
Ingdp_partner	31238	9.035	1.683	4.28	13.251
Inpop_importer	31238	16.24	1.531	11.304	19.093
Inpop_partner	31238	15.83	1.634	11.304	19.093
Indist	31238	8.071	.637	5.089	9.187
border	31238	.072	.258	0	1
lang	31238	.469	.499	0	1
comesaintra	31238	.218	.413	0	1
comesaimp	31238	.325	.468	0	1
comesaexp	31238	.193	.395	0	1

4.2 Diagnostic Tests

To ensure that the model was parsimonious, several diagnostic tests were undertaken. The variables were tested for the existence of multicollinearity and the results showed there was no near perfect correlation among the variables as shown in Table A2 in the Appendix.

Joint significance of the variables was tested using the Wald test and found that all the variables were different from zero as shown in Table 4 in the Appendix. This indicates that all the variables were jointly important in determining bilateral imports between the sampled countries.

4.3 Estimation Results

The potential effects of the AfCFTA estimation results are presented in Table 4. The results show that the coefficients of GDP for the importer and partner countries were positive and significant at the one percent level. A one percent increase in importer and partner GDP led to 0.35 and 0.52 percentage increases respectively in imports. Trade costs, proxied by distance, were found to be negative and significant . A one percent increase in trade costs leads to 1.62 percent decrease in imports.

Countries with a common language have the probability of increasing their trade by 0.46 percent compared to those without a common language. The magnitude of the effect of having a common language on trade does not change much after controlling for multilateral resistance, for the probability increases by 0.45 percent.

	PPMLHDFE (1)	PPMLHDFE_FE (2)
In importer gdp	0.348*	
	(3.91)	
In partner gdp	0.523*	
	(2.87)	
In importer population	-0.192	
	(-0.24)	
In partner population	0.548	
	(0.56)	
In distance	-1.617*	-1.641*
	(-9.24)	(-9.57)
Border	0.463	0.463
	(1.49)	(1.54)
Lang	0.456*	0.453*
	(2.60)	(2.60)
COMESA _{intra}	2.326*	2.416*
	(4.96)	(5.18)
COMESA	-1.710*	-1.701*
	(-2.64)	(-2.58)
COMESA _{Exp}	2.500*	2.571*
	(3.02)	(3.08)
Constant	7.973	24.27*
	(0.34)	(17.52)
Observations	31238	28943
Pseudo R ²	0.853	0.883
Wald $c^{2}(), [prob]$	746.42 [0.0000]	743.05 [0.0000]

Table 4: Effects of the African Continental Free Trade Area on intra-CO	OMESA trade
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t statistics in parentheses

⁺ p < 0.05, ^{*} p < 0.01

Notes: the dependent variable for the regression is imports

On AfCFTA effects on intra-COMESA trade, the results showed a positive and significant coefficient of 2.326, indicating trade creation. These results conform with the findings of Geda and Yimer (2019). In the case where only the reporter is a COMESA member, trade diversion was found to prevail, with a corresponding coefficient of -1.71. The net trade effect of the AfCFTA implementation in COMESA was found to be 0.616. This indicates that the AfCFTA has the potential to increase intra-COMESA trade by 61.6 percent. After controlling for the effects of multilateral resistance, the AfCFTA has a net trade creating effect of 0.715, implying that the AfCFTA has the potential of increasing intra-COMESA trade by 71.5 percent.

The formation of the AfCFTA has the potential of increasing extra-COMESA exports to the rest of Africa by 4.8 times. This conforms to the findings of Carrere (2006). The study also found trade diversion effect of imports, implying the AfCFTA has the potential of diverting imports from COMESA to the rest of Africa. Overall, the formation of the AfCFTA has the potential of boosting intra-COMESA trade. These results are robust even using the PPML estimator with fixed effects.



5.0 Conclusions and Policy Implications

5.1 Conclusions

This study assessed the potential effects of the AfCFTA on intra-COMESA trade using the Gravity model and a sample of 35 reporting and 48 partner countries for the period 2000-2018. The study found the presence of potential trade creation and trade diversion effects of the AfCFTA on intra-COMESA trade. Country GDP, trade cost (proxied by distance), language, common border, regional trade agreements are important determining factors for intra-COMESA trade.

Increasing GDP for both the exporting and importing countries increase trade between them. An increase in trade costs (distance) between trading countries was found to reduce bilateral trade flows. Countries sharing a common border, and using a common language trade more compared to those that neither share a common border nor have a common language. COMESA Implementation of the AfCFTA will lead to its exports trade creation and imports trade diversion. The net effect is trade creation, implying that the AfCFTA has the potential of boosting intra-COMESA trade.

5.2 Policy Implications

The study recommended that:

- a) COMESA to consider aligning its trade policies with the AfCFTA to maximise the AfCFTA benefits;
- b) COMESA to sensitize the producers to maximize on the benefits and opportunities of the AfCFTA implementation;
- c) COMESA to build capacity of its producers to improve production efficiency to mitigate against the loss of trade to non-COMESA Member States; and
- d) COMESA to advocate for common official language to facilitate trade among other non-COMESA countries and appreciate the role of cultural ties among its members in promoting intra-COMESA trade.

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Appendix

Table A1: List of Countries in the Sample

Reporting	Countries	Partner Countries			
Angola	Lesotho	Angola	Lesotho		
Botswana	Nigeria	Botswana	Nigeria		
Burkina Faso	Senegal	Burkina Faso	Senegal		
Burundi	Seychelles	Burundi	Seychelles		
Djibouti	South Africa	Cape Verde	South Africa		
Eritrea	Eswatini	Comoros	Eswatini		
Democratic Republic of Congo	Tanzania	Democratic Republic of Congo	Tanzania		
Cote d'Ivoire	Uganda	Cote d'Ivoire	Uganda		
Egypt	Zambia	Egypt	Zambia		
Ethiopia	Zimbabwe	Ethiopia	Zimbabwe		
Gambia	Rwanda	Gambia	Congo Republic		
Ghana	Libya	Ghana	Chad		
Cameroon	Malawi	Cameroon	Algeria		
Kenya	Somalia	Kenya	Central Africa Republic		
Madagascar	Tunisia	Madagascar	Djibouti		
Mauritius	Algeria	Mauritius	Equatorial Guinea		
Morocco		Morocco	Eritrea		
Mozambique		Mozambique	Gabon		
Namibia		Namibia	Guinea-Bissau		
		Liberia	Libya		
		Malawi	Mali		
		Mauritania	Niger		
		Rwanda	Sao Tome and Principe		
		Sierra Leone	Somalia		
		Тодо			

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(11)											1.000
(10)										1.000	-0.339
(6)									1.000	-0.359	-0.258
(8)								1.000	0.131	-0.037	0.046
(2)							1.000	0.112	0.059	-0.077	-0.023
(9)						1.000	-0.562	-0.126	-0.215	0.232	0.101
(5)					1.000	-0.059	0.112	0.027	-0.001	-0.001	0.001
(4)				1.000	-0.012	-0.117	0.075	-0.123	-0.082	-0.101	060.0
(3)			1.000	0.006	0.757	0.013	0.075	0.017	-0.040	0.037	-0.032
(2)		1.000	0.062	0.648	0.011	0.023	0.044	-0.095	-0.129	-0.159	0.137
(1)	1.000	0.079	0.213	0.029	0.134	-0.158	0.236	0.065	-0.020	-0.024	-0.036
Variables	(1) imports	(2) loggdp_importer	(3) loggdp_partner	(4) logpop_importer	(5) logpop_partner	(6) logdist	(7) contig	(8) lang	(9) comesaintra	(10) comesaimp	(11) comesaexp



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