

**ESTIMATING COMESA's TRADE POTENTIAL IN AFRICA: OPTIMIZING EXPORT
OPPORTUNITIES IN THE AfCFTA**

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Abstract

The Common Market for Eastern and Southern Africa (COMESA) is one of the key Regional Economic Communities (RECs) considered as building blocks of the African Continental Free Trade Area (AfCFTA). While the Lagos Plan of Action and the Action Plan for Boosting Intra African Trade laid the foundations for the formation of the AfCFTA, whose major objective is to create a single market for goods and services within the African continent where capital, labour and investments can move freely to spur economic development, COMESA's share of African trade and intra COMESA trade remains low despite all the efforts made to boost intra-regional trade. This study made use of the Gravity model to determine the drivers of COMESA's trade with the rest of its partner states in Africa and estimate the region's export potential in Africa. The findings of this study will be used to propose areas of harmonization ahead of the finalization of tariff offers by state parties in the AfCFTA and for future reference by policy makers. Exporting country's population, market size as proxied by GDP, tariffs and export diversification were found to be strong drivers of trade between COMESA and the rest of Africa. The region's exports to Africa were found to be 112 per cent below its actual potential. This study recommends a harmonized approach towards achieving structural transformation and development of a framework for implementation of the region's industrialization program.

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Definition of Terms

AfCFTA	African Continental Free Trade Area
AUC	African Union Commission
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
EPA	Economic Partnership Agreement
EU	European Union
FTA	Free Trade Area
GDP	Gross Domestic Product
ITC	International Trade Center
PTA	Preferential Trade Area
REC	Regional Economic Community
TFTA	Tripartite Free Trade Area
UNCTAD	United Nations Conference on Trade and Development

1 INTRODUCTION

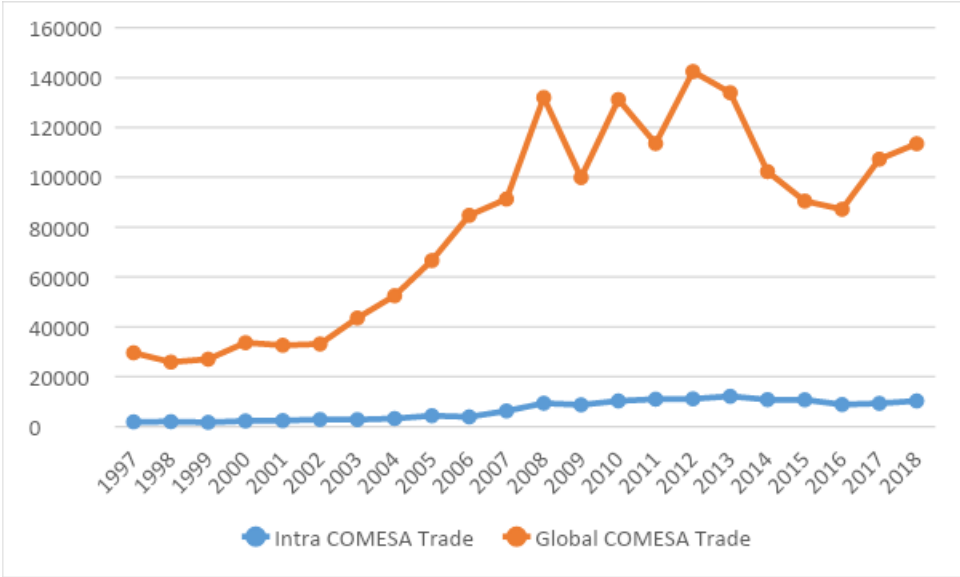
The Common Market for Eastern and Southern Africa¹ (COMESA) is one of the key Regional Economic Communities (RECs) considered as building blocks of the African Continental Free Trade Area (AfCFTA). Boasting a membership of 21 countries and a population of 540 million, COMESA creates a large market for member states to exchange goods and services and enhance regional value chains. Article 3 of the COMESA treaty outlines objectives of the REC as to promote sustainable growth of member states; to create an enabling environment for cross border investment; to promote peace and stability; to strengthen relations between itself and the rest of the world; and more importantly, to play a role in the establishment of an African Economic Community. Article 4 of the same treaty outlines the undertakings that will ensure operationalization of the objectives. Most notable is the liberalization of trade through elimination of Non-Tariff Barriers, customs cooperation, establishment of rules of origin and harmonization of trade documents among other things.

Statistics indicate that approximately 16 member states out of the 21 member states are responsible for about 27 per cent of COMESA's trade while the remainder is carried out by members involved in multiple RECs (UNCTAD, 2018). As indicated in figure 1, intra-COMESA trade is much lower than what it trades with the rest of the world. Upon establishment of the FTA in the year 2000, COMESA's exports to the world amounted to USD 33,498 million, grew gradually to USD 137,125 million in 2008 then experienced some fluctuations going as low as USD 100, up until the year 2012. The fluctuations during this period could be attributed to the Global Financial Crisis which was at its peak in 2007 to 2011. There was a decline in performance from USD 139.8 billion in 2012 to USD 77.8 billion in 2015 followed by an increase to USD 106.1 billion in 2018. The paradox in intra African and by extension intra-COMESA trade is that the lowering of tariffs does not often translate into increased intra-regional trade. Tariff liberalization often gives rise to Non-Tariff Barriers (NTBs), to which much of the stagnation in intra-African trade is attributed to (Keane, Cali, & Kennan, 2010).

¹ COMESA Member states are Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Swaziland, Seychelles, Uganda, Zambia and Zimbabwe

Cognizance of the above challenges inspired the African Economic Community (AEC) as mandated by the Abuja Treaty (1991) to use RECs as a basis for broader integration with the ultimate objective of attaining continental integration. This together with the Lagos Plan of Action and the Action Plan for Boosting Intra African Trade laid the foundations for the formation of the AfCFTA, whose major objective is to create a single market for goods and services within the African continent where capital, labour and investments can move freely to spur economic development. The AfCFTA will thus provide a framework to address the challenges facing intra-African trade and this it intends to achieve by harmonizing trade liberalization and trade facilitation initiatives across RECs and across the continent at large.

Figure 1: Intra-COMESA Trade vs Global COMESA Trade in USD Millions



Source: COMESA-STAT

Implementation of the AfCFTA framework is therefore poised to benefit the region by enhancing intra-COMESA trade and COMESA’s trade with Africa at large. Keane *et al* (2010) postulates that the overlaps in RECs creates complimentarity while at times it poses implementation challenges in achievement of objectives. It is held that market and product diversification becomes a challenge when Rules of Origin, product standardization are not harmonized across RECs such as the ones we have present in Africa. The divergent rules and market requirements are likely to push exporters towards their traditional markets where the rules are friendlier. According to UNCTAD (2018), removal of tariff and non tariff barriers to trade accompanied by enhancement in trade facilitation measures would result into a 22 per cent increase in intra African trade.

In order to identify areas of focus while developing an effective framework for the benefit of intra-COMESA and COMESA-the rest of Africa trade , it is important to establish the drivers of COMESA's trade within the African market and identify measures that need to be undertaken to boost its performance within Africa. This study therefore seeks to establish the drivers of COMESA's trade within Africa with the aim of identifying policy actions that need to be undertaken by the secretariat or member states in order to increase the region's share of African trade.

1.1 COMESA and the AfCFTA

This section explores the characteristics of the COMESA and AfCFTA trading blocs from a demographic, macroeconomic and trade perspective. This background will delve into provisions of both the COMESA and AfCFTA treaties. This will create the necessary background for establishing how they potentially affect trade within and outside the COMESA region.

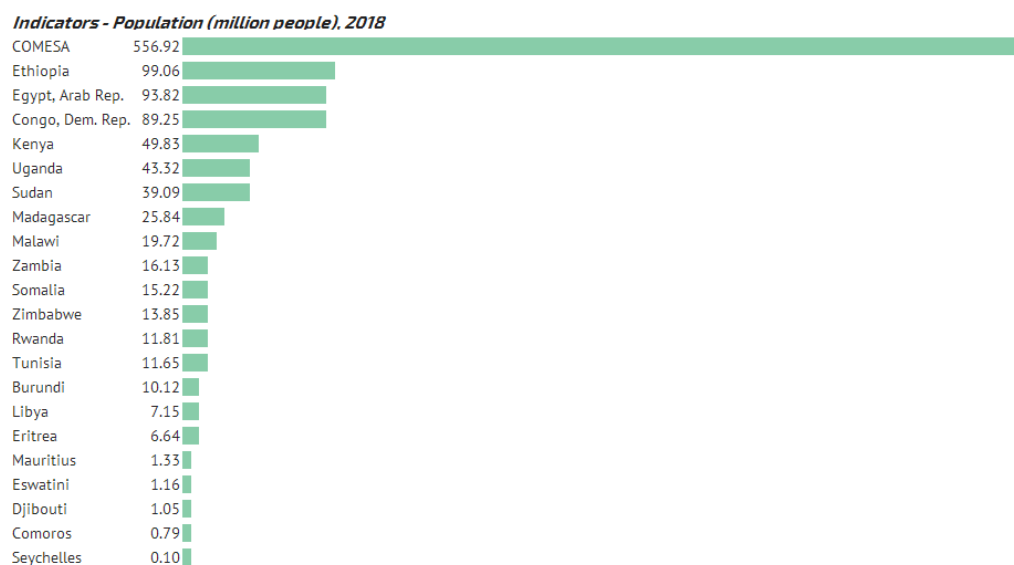
1.1.1 COMESA

According to (COMESA, 2020) the region covers an area of 11,741,828 km² and as at 2018, had a population of 557 million people. The large population presents opportunities for interregional trade in goods and services while the vast area presents opportunities for cooperation in infrastructure projects that promote market linkages. The region had a combined GDP of USD 753,469 million with USD 113,459 million and USD 196,145 million worth of global exports and imports respectively. Intra COMESA exports amounted to USD 10,285 million while Intra COMESA imports were worth USD 10,208 million.

Ethiopia has the largest population among the COMESA countries with a population of 99 million. Egypt comes second with 93.8 million people followed by the Democratic Republic of Congo, Kenya and Uganda with populations of 89 million, 50 million and 43 million people respectively as shown in figure 2. Out of the countries with the top five largest populations in the COMESA region, four happened to have the largest GDP values in millions of US Dollars in the year 2018 as per figure 3. The bottom five economies in terms of population size include Mauritius with a population of 1.3 million people, Eswatini with 1.16 million people, Djibouti, Comoros and Seychelles with 1 million, 0.8 million and 0.1 million respectively. Out of the five economies with the lowest populations in COMESA, Eswatini, Seychelles and Comoros featured among the 5 countries lowest GDPs with values of USD 4.7 million, USD 1.6 million and USD 1.2 million respectively. Market size as defined by population and Gross Domestic Product at constant prices appear to have some degree of association among COMESA countries.

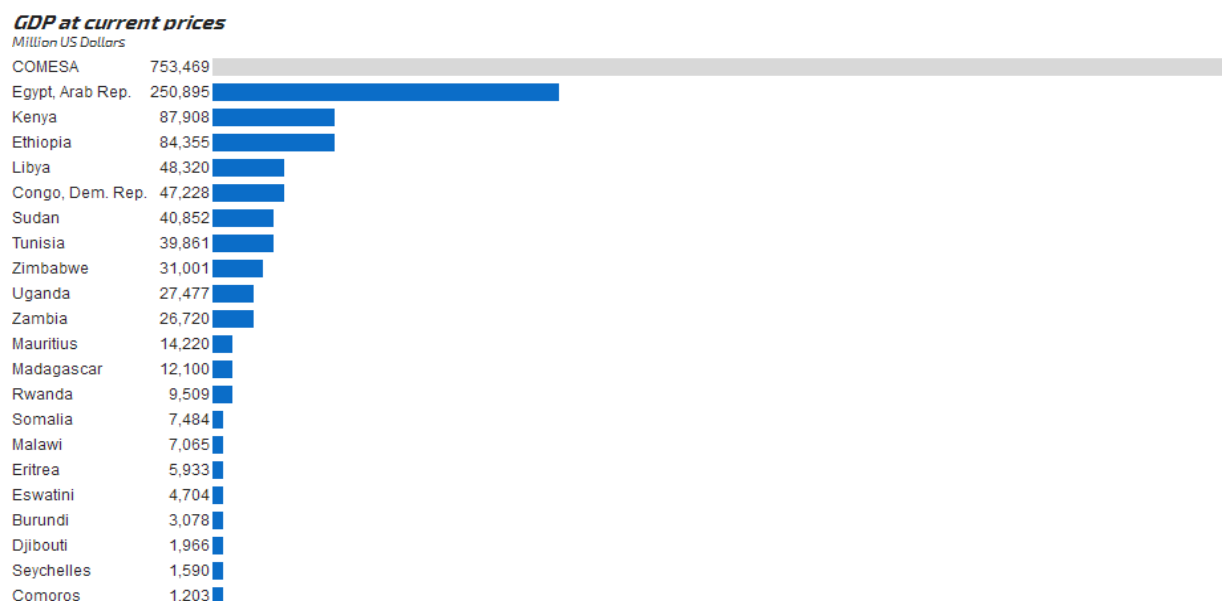
According to (AUC, ADB and UNECA, 2019) the COMESA region obtained a low regional integration score of 0.367. This index ranks regional integration on a scale of 0 to 1, 0 being indicative of the lowest level of integration while 1 indicates a very high level of integration. This index affirms the low levels of intra COMESA trade as depicted in figure 5 and 6 when compared to the region’s trade with the rest of the world. The dimensions considered in generation of this index include free movement of people; trade integration; productive integration; macroeconomic integration and infrastructural integration. The region obtained a score of 0.445 in the trade integration dimension; 0.385 in free movement of people; 0.365 in macroeconomic integration; 0.328 in productive integration; and 0.317 in infrastructural integration. According to this report, infrastructural integration is COMESA’s weakest link and appears to a major barrier to intra-regional trade.

Figure 2: COMESA Countries Population (millions) 2018



Source: <https://comstat.comesa.int/>

Figure 4: COMESA Countries GDP at Current Prices

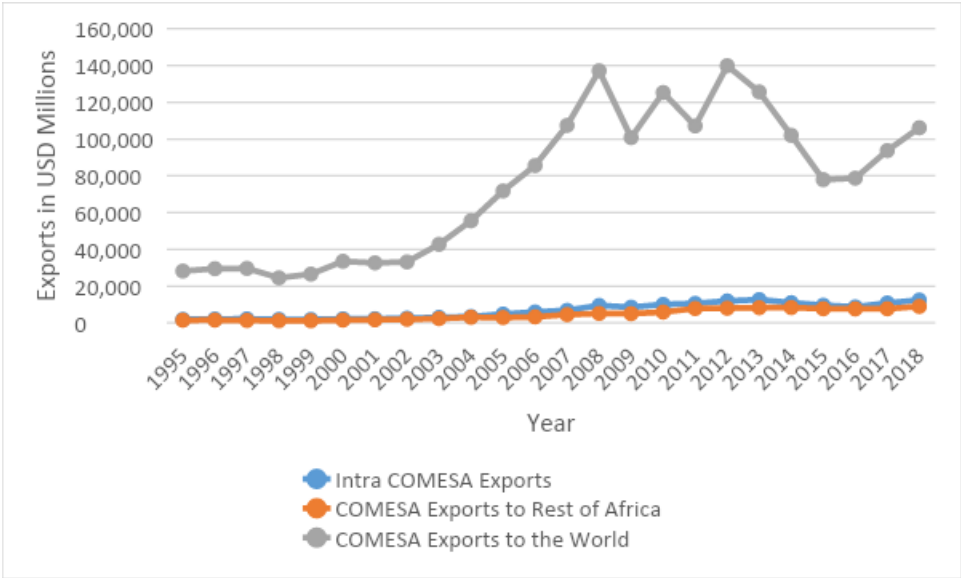


Source: <https://comstat.comesa.int/>

COMESA is considered a high-low tariff trend Regional Trade Agreement (RTA) by virtue of having implemented its commitment to significant tariff liberalization over time. Overall, there has been an increase in intra COMESA imports and exports from the year 1995 to 2018. The increment in intra COMESA trade is however much lower than the increment in COMESA's trade with the rest of the world. Both imports into COMESA from the rest of the world and exports out of COMESA to the world were significantly larger than intra-COMESA imports and exports. Tariff reductions by themselves do not guarantee in inter or intraregional trade (Riedel & Slany, 2014).

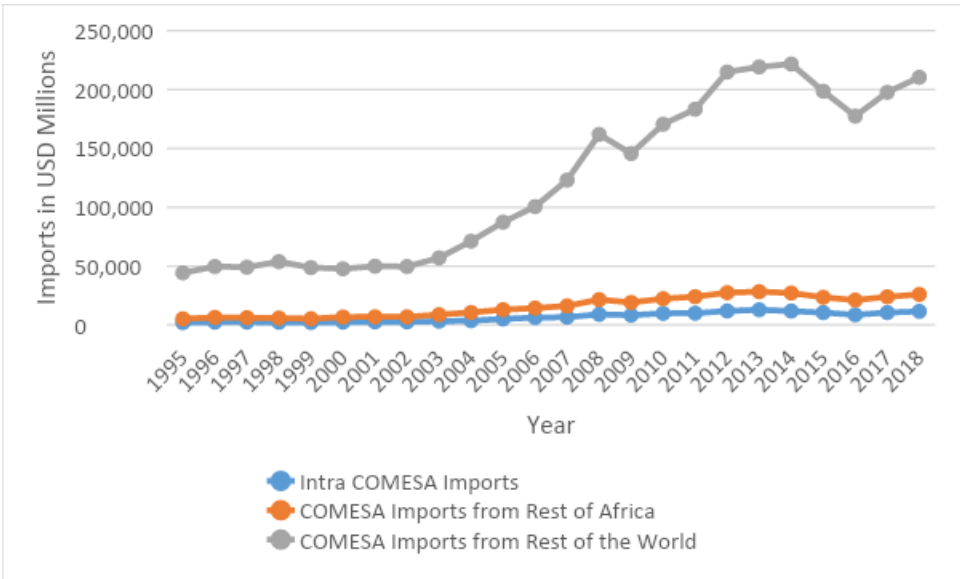
According to (TradeMap, 2020) COMESA's top 5 exports to Africa included Tobacco and tobacco substitutes, ores, slag and ash, essential oils and resinoids, sugars and sugar confectionary. Mineral fuels – products of chapter 27 of the HS4 code were among COMESA's top exports to the world. The current export structure depicts a region that produces more or less similar products in terms of their export sophistication. Similar products are being exported to the rest of the world in larger quantities because they are used as inputs for industrialized countries.

Figure 5: Intra COMESA Exports, COMESA Exports to Rest of Africa and COMESA Exports to the World



Source: UNCTADstat (2020)

Figure 6: Intra COMESA Imports, COMESA Imports from Rest of Africa and COMESA Imports from the World



Source: UNCTADstat (2020)

COMESA member states established a Free Trade Area (FTA) on 31st October 2000 following implementation of a 16 year progressive intra COMESA tariff liberalization program. Presently, 17 of the 21 member states excluding Ethiopia, Eritrea, Eswatini and Somalia are participants in the Free Trade Area on Duty Free-Quota Free basis. While intra-COMESA trade has grown over time, the region's share of exports into Africa has been overshadowed by imports from the rest of the world.

A COMESA Customs Union was launched in 2009 though it is yet to be operationalized by member states. It however adopted the EAC Common External Tariff and applies very flexible Rules of Origin which allow members to apply any of the five criteria² to determine the origin of goods. This was meant to accommodate member states that who are members of the EAC Customs Union and COMESA concurrently. A lot of effort has also gone into the elimination of non-tariff barriers within the COMESA region. Liberalization of import licensing, removal of foreign exchange restrictions and removal of roadblocks are examples of the strides made within the region in elimination of non-tariff barriers. It is reported that by the year 2018, 98 per cent of the non-tariff barriers reported since 2008 had been resolved (COMESA, 2018).

1.1.2 African Continental Free Trade Area

The signing of the AfCFTA by 44 countries on March 21st 2018 set the journey towards achievement of economic and political integration for African states. It lay the grounds for ratification of the agreement and deposition of instruments by 24 countries effectively marking the entry into force of the agreement (UNECA, 2020). Trading under the AfCFTA was set to begin on July 1st 2020 following the entry into force of the agreement. Preferential terms of the AfCFTA were to be accorded to state parties once the schedule of tariff concessions, Rules of Origin and Schedule of Specific commitments in Trade in Services were finalized. Due to challenges caused by the COVID-19 pandemic, the commencement date was been pushed to 1st January 2021.

² COMESA Rules of Origin Criteria include: 1. Goods should be wholly produced; 2. The CIF of any non-originating material should not exceed 60% of the ex-work price of the goods; 3. Goods must attain the value added of at least 35% of the ex-factory cost of the goods; 4. Goods should fulfil the CTH Rule; and 5. Goods must have importance to economic development of member states and should contain not less than 25% of value added.

Until then, parties will trade under the Most Favoured Nation (MFN) rules or as per the provisions of their respective RECs.

Article 3 of the Agreement Establishing the African Continental Free Trade Area outlines the general objectives of the AfCFTA. They include enacting a mutually beneficial trade agreement that will enhance trade between the 55 African states; resolving the challenge of multiple membership to Regional Economic Communities RECs; boosting intra-African trade which has performed below par compared to other regional blocs; and creating a large investment area that can easily attract investment in strategic sectors aligned with the UN Sustainable Goals and AU Agenda 2063. As outlined in Article 5 of the agreement, RECs will act as building blocs of the AfCFTA and as a principle, everything adopted at REC level will be retained.

The principle of *acquis* is one of the cornerstones of the AfCFTA. It implies that the continental agreement will be implemented on the basis of what the existing RECs have already agreed upon. The Tripartite Free Trade Area (TFTA) which brings together 27 countries from COMESA-EAC-SADC is one such agreement. Launched in June 2015 to enhance market integration, infrastructure and industrial development, the TFTA has made significant progress in tariff liberalization and exchange of tariff concessions between member states who do not belong to the same preferential trade agreements. Operationalization of the TFTA has however remained a challenge because the required number of ratifications is yet to be met (UNECA, 2020).

The AfCFTA is meant to morph into a continental Customs Union and towards this end, a number of protocols have been established to support intra African trade. These include protocols on tariff and Non-Tariff Barriers, Rules of origin, trade remedies and movement of natural persons among others. While these protocols provide a framework for implementation of the continental agreement, of major concern is the low level of intra African trade. Intra African Trade was at 11.67 per cent in 1995 and as at 2019 it had grown marginally to 16 per cent owing to the little structural transformation that has taken place in the African economies (UNCTAD, 2020). Intra African Trade is inhibited by member states urge to protect national interests by implementing restrictive trade policies while at the same time seeking to benefit from preferential treatment from other partner states. The low export similarity index in Africa demonstrates the existing opportunities for intra African trade within the AfCFTA (AFREXIM Bank, 2018). The greatest challenge to exploiting these opportunities emanates from the stagnation in structural change

within the African economies, a situation that inhibits the continent's propensity to diversify its manufacturing and by extension export base. The surest way to achieve technical progress is through enhancement of knowledge and capabilities required for producing more sophisticated products for the export market (Bhorat, Rooney, & Steenkamp, 2019).

1.2 Problem Statement

COMESA is one of the key RECs recognized as the building blocs of the AfCFTA. Since its inception as an FTA in the year 2000, the region has achieved a number of milestones associated with RECs. The region has managed to implement a tariff liberalization program that has eased the movement of goods amongst member states; adopt a flexible rules of origin protocol that has the capability to enhance regional value chains; and resolved 98 per cent of Non-tariff barriers between 2009 and 2018. These achievements notwithstanding, COMESA's intra-regional trade share remains low at 10.5 per cent compared to EAC (20.3 per cent) and SADC (19.7 per cent). Furthermore, its 41.9 per cent share of trade with the rest of Africa in the year 2018 is low compared to EAC (48.6 per cent), ECCAS (79 per cent) and ECOWAS (44.9 per cent) (UNCTADstat, 2020).

It remains a puzzle why despite COMESA's lowered tariffs, flexible Rules of Origin and strong NTB resolution mechanisms, its share of intra-regional trade and trade with the rest of Africa remains relatively low. The entry into force of the AfCFTA provides an opportunity for the region to boost its share of intra trade and trade with the rest of Africa. The low export similarity index presents opportunities for exchange of goods and services within the continent. The AfCFTA provides the impetus for export sophistication and export destination diversification to reduce vulnerability of African economies to price fluctuations in their commodities in the international market.

The purpose of this study then is to determine the drivers of COMESA's trade within the AfCFTA with the aim of using the findings to optimize its share of trade with the rest of Africa and by extension its share of intra trade. It will provide policy makers within the COMESA secretariat with recommendations on policy measures to be taken to address the low levels of intra-regional trade and the policy stance to finalize of the outstanding work on the AfCFTA.

Additionally, it fills a knowledge gap on the measures to be taken by RECs to optimize both intra and interregional trade in Africa.

1.3 Objectives

The overall objective of this study is to estimate COMESA's trade potential within the African continent with the aim of using the findings to boost intra COMESA trade. The specific objectives are to:

1. To estimate COMESA's Trade potential within Africa.
2. Determine the drivers of COMESA's trade in the African Continent.
3. Identify mechanisms for boosting COMESA's exports into Africa.

2 LITERATURE REVIEW

2.1 Theoretical Literature

This study is built on the Regional Integration Theory which postulates that free trade is preferable to any other form of trade. It argues for countries specializing in production and export of goods for which they have comparative advantage and importing commodities for which they have comparative disadvantage. Welfare outcomes of trade agreements are perceived to be ambiguous. As a condition to net welfare gain under free trade within regional blocs, the liberalized trade has to lead to trade creation rather than trade diversion (Ng'eno, *et al*, 2003). Trade creation refers to a situation where there is a net benefit from creation of a trading bloc. Goods that were previously consumed locally from inefficient producers before signing of the trade deal are consumed from efficient producers from trading partners within the regional bloc. Trade Diversion refers to a welfare loss resulting from the signing of a trade agreement where efficient non-members of the trade bloc who previously traded with members before the agreement are replaced by inefficient local producers or members of a trade bloc (Krugman & Obstfeld, 2009).

According to this theory, there are typically 5 stages of regional integration. A preferential trade area; Free Trade Area (FTA); Customs Union; Common Market and an Economic Union. In a Preferential Trade Area (PTA), member states lower tariffs between each other but independently impose tariffs on goods imported from non-member countries. These member states are however free to pursue independent policies except the trade policy touching on how they'll treat goods originating from their partner states within the PTA.

An FTA entails elimination of barriers to intra group trade while allowing members to impose national barriers to trade against non-members. An FTA is applicable to an agreed set of goods or services often covers a limited range of issues. Non-members access the desired markets within FTAs by trans-shipping their goods via other member countries to avoid paying discriminative taxes on non-member countries.

Customs Unions are formed by countries who share geographical boundaries and are characterized by imposition of a Common External Tariff to prevent transshipment of goods originating from non-members; and elimination of tariffs for goods originating within the region. Under this

arrangement, member states form a tariff administrative structure to ensure compliance. A Common Market entails elimination of tariffs on originating goods; unrestricted movement of factors such as labor and capital; and liberalization of trade in services.

The most advanced stage of regional integration is the formation of an Economic Union which involves the formation of supranational institutions to ensure compliance with laid down policies. Under this arrangement, member states agree to pursue joint fiscal and monetary policies; joint infrastructure development plans; and maintain a common currency. The formation of supranational institutions implies surrender of certain aspects of a country's sovereignty in pursuit of regional economic interests.

2.2 Empirical Literature

Trade Effects of Regional Trade Agreements

Muluvi *et al* , (2015) analyzed the implications of the EAC-EU EPAs on the Kenyan economy and Kenya's other Regional Trade Agreements using the partial equilibrium approach and found that while there would be a loss of tariff revenue resulting from the preferential market access given to EU commodities, there would be a net welfare gain due to trade creation and lower consumer prices. This study established that if Kenya was to gain from preferential market access into the EU, the country has to expand its export product basket and embark on an export sophistication program. The reason being that since the EU had gotten into similar agreements with other countries, the country would experience preference erosion considering that EU had gotten into similar agreements with ACP countries who were interested in the same markets as Kenya.

Devadason and Mubarik, (2018) employed the Stochastic version of the gravity model to analyse the performance of exports relative to its maximum potential in the ASEAN-EU partnership. This study was motivated by the resumption of negotiations following a long hiatus caused by the stalling of negotiations between the two regions. The authors identified two sets of countries within the two regional blocs to be used in the panel data analysis running between the year 2000 and 2016. The results revealed a low level of export efficiency indicating a high level of trade resistance between the two regions. It was concluded that the trade resistance was mainly driven by market access challenges which were informed by the two regions' trade policies.

In a study aimed at identifying specific regional trade opportunities, (Ferreira & Steenkamp, 2020) applied the Decision Support Model (DSM) to identify regional trade opportunities for the Tripartite Free Trade Area (TFTA) countries. The study while acknowledging that the existence of Regional Economic Communities had brought little success in promoting intra-regional trade, endeavored to proffer solutions to the obstacles inhibiting the growth in intra-regional trade. Some of these obstacles were identified as NTBs, Rules of Origin, behind the border costs, transport costs among others. The study established that trade opportunities do exist within the region for processed products but there is some fundamental work that needs to be undertaken in harmonization of trade regimes across RECs.

Simwaka, (2011) Estimated the trade potential in the Southern African Development Community (SADC) FTA by considering a scenario where trade barriers are eliminated. A gravity model was used to estimate the region's trade potential in the absence of trade barriers. The variables considered in this assessment included Gross Domestic Product (GDP) to capture the size of the economy; GDP per capita to act as a proxy for the level of economic development; population; transaction costs; distance between trading partners; sharing of a common border; and sharing of a common language. Results confirmed that the FTA had potential to increase trade within the region.

In an examination of intra Africa Trade potential and prospects for regional integration, it was found that the region had massive potential for intra Africa trade. The challenge to intra-regional trade was found to be the lack of complementarity of exports and imports and the lack of global competitiveness of African exporters. Of extreme importance was trade facilitation, transport infrastructure and regional export development policies. Like Borat, *et al*, (2019) export product diversification, export sophistication and export market diversification was important for the enhancement of intra-Africa trade (Geda & Said, 2015).

Mansfield and Pevehouse, (2013) documented the expansion of preferential trading arrangements around the world to establish the driving factors behind their expansion. The study ran an empirical model accounting for market size, the degree of openness of the trading bloc, time lag since expansion among others. It was established that the degree of openness, size distribution of the PTA members and the rate of addition of new members was central to its expansion. A PTA was also likely to attract membership from states that are economically and politically similar to them.

3 METHODOLOGY

This study employed both qualitative and quantitative approaches to investigate the research problem. Secondary data was used to facilitate the analysis of COMESA’s trade potential within the African continent via the AfCFTA. Data was collected from the following secondary sources; ITC Trade Map, COMstat, CEPII and World Development Indicators. These were corroborated using qualitative analysis methods to support the data where necessary. The theoretical foundations for the analytical framework is also presented in this section.

3.1 Theoretical Model

The gravity model has been widely used to analyze bilateral international trade flows. In its basic form, the gravity model of trade follows Newton’s law of universal gravitation where bilateral trade between two countries X_{ij} is directly proportional to their economic sizes $Y_i Y_j$ proxied by their respective GDPs and inversely proportional to their economic distance D_{ij} proxied by their physical distance (Koh, 2013).

$$X_{ij} = f (Y_i Y_j / D_{ij}) \dots \dots \dots (1)$$

The underlying assumption in this model is that the constant term is similar for all the trading partners, and they all approach the diagonal line upon estimation. Essentially, individual units or partner states are heterogeneous based on historical, cultural, geographical, political or other considerations that may affect trade and may be correlated with the main variables. Equation (1) can be expressed as

$$EXP_{ij} = f (GDP_i, GDP_j, POP_{ex}, POP_{im}, DIVERSIFICATION_i, DISTANCE, COLONIZER, LANGUAGE, TARIFF) \dots (2)$$

Where EXP_{ij} = Exports from Country i to Country j

GDP_i = GDP refers to the real annual Gross Domestic Product of the country. GDP_i is the real annual GDP of the exporting country while GDP_j is the real annual GDP of the importing Country.

$TARIFFS_j$ = refers to the tariffs imposed on goods imported from Country i by Country j .

POP = Refers to Population, *POP_{ex}* being population of the exporting country while *POP_{im}* refers to population of the importing country.

DIVERSIFICATION = Represents the export diversification index ranging from 0 to 1, the closer a country is to 0 indicates how the country has invested in a wide range of export products while the closer it is to one indicates low export diversification.

DISTANCE = represents the geographical distance between two trading partners. It is proxied by distance between the trading nations commercial capitals measured in kilometers.

COLONIZER = Represents a dummy variable which takes the value of 1 if trading partners share a common colonizer and 0 otherwise.

LANGUAGE = Represents a dummy variable which takes the value of 1 if trading partners share a common language and 0 otherwise.

The Gravity model specified in equation (2) takes the form specified in equation (3)

$$EXP_{ijt} = \beta_0 GDP_{it}^{\beta_1} GDP_{jt}^{\beta_2} POP_{it}^{\beta_3} POP_{jt}^{\beta_4} DIV_{it}^{\beta_5} DIST_{ij}^{\beta_6} COL_{ij}^{\beta_7} LANG_{ij}^{\beta_8} TARIFF_{ij}^{\beta_9} \varepsilon_{ijt} \dots (3)$$

Transforming equation (3) into a log-linearized form it yields equation (4)

$$\log EXP_{ijt} = \beta_0 + \beta_1 \log GDP_{it} + \beta_2 \log GDP_{jt} + \beta_3 \log POP_{it} + \beta_4 \log POP_{jt} + \beta_5 \log DIV_{it} + \beta_6 \log DIST_{ij} + \beta_7 \log COL_{ij} + \beta_8 \log LANG_{ij} + \beta_9 \log TARIFF_{ij} + \varepsilon_{ijt} \dots (4)$$

Where *i* represents exporting country, *j* represents importing country; *EXP_{ijt}* represents the value of exports from country *i* to country *j* in time *t* expressed in millions of US Dollars; *GDP_{it}* represents the GDP of exporter *i* in time *t*; *GDP_{jt}* represents the GDP of importer *i* in time *t*; *POP_{it}* represents population of exporter country *i* in time *t*; *POP_{jt}* represents population of importer country *j* in time *t*; *DIV_{it}* represents export diversity of exporting country *i* in time *t*; *DIST_{ij}* represents geographical distance between two trading partners capitals; *COL_{ij}* represents a dummy variable indicating whether two trading partners shared the same colonizer and takes the value of 1 if trading partners share a common colonizer and 0 otherwise; *LANG_{ij}* represents a dummy variable which takes the value of 1 if trading partners share a common language and 0 otherwise;

TARIFF represents the average tariff rates imposed by the importing country. The *Pseudo Poisson Maximum Likelihood* method was used to estimate the gravity model as specified in equation (5)

$$E(\varphi_{ijt}) = \exp[\log\beta_0 + \beta_1\log GDP_{it} + \beta_2\log GDP_{jt} + \beta_3\log POP_{it} + \beta_4\log POP_{jt} + \beta_5\log DIV_{jt} + \beta_6\log DIST_{ij} + \beta_7\log COL_{ij} + \beta_8\log LANG_{ij} + \beta_9\log TARIFF_{ij} + \varepsilon_{ijt}] \dots\dots(5)$$

It is taken that $E(\varphi_{ijt}) = 1$ and φ_{ijt} is a vector of explanatory variables. If every variable is assumed to be associated with the error term $\varepsilon_{ijt} = EXP_{ijt} - E(\varphi_{ijt})$ we end up with equation (6)

$$EXP_{ijt} = \exp[\log\beta_0 + \beta_1\log GDP_{it} + \beta_2\log GDP_{jt} + \beta_3\log POP_{it} + \beta_4\log POP_{jt} + \beta_5\log DIV_{jt} + \beta_6\log DIST_{ij} + \beta_7\log COL_{ij} + \beta_8\log LANG_{ij} + \beta_9\log TARIFF_{ij}] + \varepsilon_{ijt} \dots\dots(6)$$

The *PPML* method is found to be most suitable for estimating the gravity model because of its robustness and capability to deal with zero trade values (Ouma, 2016). In this study, COMESA's trade potential within the AfCFTA was estimated by looking at bilateral trade flows between COMESA and non-COMESA countries. Five COMESA countries and a further five non-COMESA countries were used to estimate COMESA's trade potential within the African continent. In this case, the top five exporters within COMESA were selected. Trade between the following bilateral partners were used to estimate trade potential in this study. Kenya and Nigeria; Ethiopia and South Africa; Egypt and Morocco; Zambia and Namibia; and finally Democratic Republic of Congo and Senegal. The top 5 economies in COMESA were chosen to represent the region's exports into Africa, while the trading partners were chosen by economic size and regional economic bloc considerations. Nigeria and Senegal represent ECOWAS; South Africa and Namibia represent SADC; and finally Morocco represents the Arab Maghreb Union (AMU). Devadason and Mubarik, (2018) employed a similar approach in assessing trade potential between ASEAN and EU, where bilateral trade flows between selected trading partners were used in estimating trade potential between the two regional blocs.

3.2 Data Sources

Data on exports from COMESA countries to the rest of Africa was retrieved from ITC Trade Map, data on country GDP, population and average Tariff rates were obtained from the World Bank World Development Indicators. Data on export diversification indices were obtained from

UNCTAD Statistics; data on geographical distance was obtained from the world distance calculator.

4 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Data used in analyzing bilateral trade potential between COMESA and non-COMESA countries is presented in table 1. Exports had 89 observations and was measured in millions of US Dollars. It had a mean value of 69,324.27, a standard deviation of 131,997.3, a minimum of 2 and a maximum of 502,478. Exporter GDP represented by *Ingdpex* had 90 observations, a mean of 24.38, a standard deviation of 0.933, a minimum value of 23.1 and a maximum of 26.4. Importer GDP represented by *Ingdpim* had 90 observations, a mean of 24.997, a standard deviation of 1.49, a minimum of 22.7 and a maximum of 26.87. Tariffs represented by *Intariff* had 81 observations, a mean of 2.28, a standard deviation 0.46, a minimum of 1.459 and a maximum of 3.37. Exporting country's population represented by *Inpopex* had 90 observations, a mean of 17.69, a standard deviation of 0.704, a minimum of 16.19 and a maximum of 18.5. The population of importing countries had 90 observations, a mean of 16.96, a standard deviation of 1.46, a minimum of 14.42, a maximum of 19.1. Geographical distance between the capitals of trading partners represented by *Indist* had 90 observations, a mean of 8.1, standard deviation of 0.43, a minimum of 7.29 and a maximum 8.48. Diverse which represents the export diversity of exporting countries had 90 observations, a mean of 0.74, a standard deviation of 0.1, a minimum of 0.51 and a maximum of 0.87.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Exports	89	69324.27	131997.3	2	502478
<i>Ingdpex</i>	90	24.38452	0.933835	23.06578	26.37978
<i>Ingdpim</i>	90	24.99702	1.490256	22.70905	26.87467
<i>Intariff</i>	81	2.276869	0.459957	1.458615	3.370051
<i>Inpopex</i>	90	17.68569	0.704038	16.18502	18.50892

Inpopim	90	16.96222	1.462492	14.41636	19.09299
Indist	90	8.10489	0.426502	7.294819	8.475525
Diverse	90	0.740447	0.101029	0.511914	0.870673

Author’s calculations

You need to show the other diagnostic tests(Unit root, Hausman test)

Diagnostic Tests

The panel unit root test was not carried out in this study because the time element $T < 30$ and number of panels $N < 10$ (Baltagi, 2005).

4.2 Results and Discussion

Estimation results of the PPML estimation of the gravity model are presented in table 2. GDPs of importing and exporting countries represented by $lngdpex$ and $lngdpim$ respectively, were found to be positive and significant in explaining trade between two countries. According to the estimated model, a one percent increase in Exporting country’s GDP is likely to result into an increase in exports by USD 0.04 million while a one per cent increase in importing country’s GDP was likely to increase exports by USD 0.06 million. This finding is in line with Koh, (2013) who found that trading partners GDP were expected to positively influence bilateral trade between two trading partners.

Tariffs imposed by importing countries, represented by $Intariff$ were found to have a positive coefficient but not highly significant in relation to exports by their trading partners. A one per cent change in tariffs would therefore increase exports by USD 0.001 million dollars. This would be explained by the fact that in Africa, previous studies by found that lowering of tariffs would not necessarily be accompanied by an increase in exports. More often than not, elimination of tariffs in Africa gives rise to an increase in Non-Tariff Barriers NTBs which discourage export growth.

Exporting country’s population was found to have a negative relationship with exports. With a coefficient of -21.2, a one percent increase in population would result into a decline in exports worth USD 0.21 million. According to the sampled countries, an increase in population would have a negative influence on exports. The lack of export diversity has had a negative influence on exports in COMESA countries. The variable DIVERSE which represents export diversity with an index ranging from 0 to 1, where the closer a country’s index is to 0 the closer its export diversity is to the world’s average. The closer a country’s index is to 1, the further it is from the world’s average. The coefficient of -7.6, implies that the region export diversity is further away from the world average. This finding affirmed Borat *et al*, (2019) and Riedel and Slany,

(2014) who established that the lack of export diversity inhibits a country's overall export performance. Since according to (Woolfrey & Verhaeghe, 2017) most of the COMESA countries have a low export diversification index, it means that there lacks a variety of goods that can satisfy the needs of various African Markets. Additionally, there is a low level of export and import complementarity within the continent.

The other variables namely importing country's population, sharing of a common colonizer and sharing of a common language were found not to be significant in explaining the sampled COMESA country's exports into Africa.

Where are the results for the COMESA Trade potential? And how are the results addressing your study topic?

Table 2: Estimation Results of Gravity model

EXPORTS	Estimation method PPML		
	Coef.	Std. Err.	P>z
lngdpex	4.282082***	1.163543	0.000
lngdpim	6.062132***	1.837363	0.001
Intariff	0.17867*	0.108276	0.099
lnpopex	-21.2469***	7.729254	0.006
lnpopim	10.56695	10.11039	0.296
DIVERSE	-7.5767***	2.74549	0.006
Indist	-202.522	245.0441	0.409
COLONY	-49.2176	77.4332	0.525
LANGUAGE	58.1247	65.20013	0.373
_cons	1614.821	1959.132	0.41

Source: Author's calculations

Linktest

A model specification test was carried out to determine whether there were any omitted variables and as per the results in table 2, the null hypothesis of the existence of omitted variables was not accepted because none of the additional hat and hatsq which is a square term of the additional variables was found significant in the model specification test.

Table 3: Linktest

EXPORTS	Coef. Std. Err.	Std error	P>z
_hat	1.14341	0.925033	0.216
_hatsq	-0.006336	0.040305	0.875
_cons	-0.797542	5.251321	0.879

Source: Author's calculations

Estimating COMESA's Trade Potential

The results obtained from Table 2 were used to solve for trade potential expressed as a percentage. The variables found significant in explaining exports to African countries outside COMESA were used to solve for export potential. Coefficients for Exporter and Importer GDP, Tariffs, Exporter Population and the Export Diversification index were used to estimate exports potential from COMESA to other African countries. The average value of exports was obtained by adding export values for all COMESA countries and calculating the mean. The same was done for the significant variables in the equation and results used to solve for the export potential.

The estimated values for each variable were then summed to get the value of -112% which is the trade potential. The negative sign is an indication that the average value of actual exports are below the export potential by 112%. The nominal value of export potential is thus USD 146,967,452 while actual average trade is USD 69,324,270. There is an unfulfilled demand for exports worth USD 77,643,182 by other African countries outside the COMESA region. The ratio between actual and potential trade gives a technical efficiency rate of 47.1%.

Table 4: Estimating COMESA Trade Potential

Variable	Average Actual Exports	Exports Potential (in %)
Exporter GDP (in USD billions)	64.4	104.5
Importer GDP (in USD billions)	165.9	158
Tariffs	10.88	0.41

Exporter Population (in millions)	58.1	(375.4)
Export Diversification	0.74	0.74
		-112.2

5 CONCLUSION AND POLICY RECOMMENDATIONS

This study set out to establish the drivers of COMESA's trade with the rest of Africa with the aim of using the information to provide solutions to boosting the region's share of exports within the continent. A gravity model was used to estimate the drivers of COMESA's trade with non-COMESA countries. Five COMESA countries and a further five non-COMESA countries were used to estimate COMESA's trade potential within the African continent. In this case, the top five exporters within COMESA were selected. Trade between the following bilateral partners were used to estimate trade potential in this study. Kenya and Nigeria; Ethiopia and South Africa; Egypt and Morocco; Zambia and Namibia; and finally Democratic Republic of Congo and Senegal.

It was established that the exporting country's population, market size of the trading partners as proxied by GDP, tariffs and export diversity were important in explaining COMESA countries' exports to the rest of Africa. Further, the COMESA region's exports were 112 per cent below its average exports to African countries outside COMESA. Based on the analysis, COMESA's exports to other African countries were worth USD 146.9 million while average exports were worth USD 69.3 million. The region's efficiency in exports was found to be low at 47.1 per cent.

Based on the findings, this study recommends that:

COMESA Member States embark on implementation of the region's industrialization strategy, which is aimed at improving trade complementarity among member states. This is to be achieved through structural transformation, particularly enhancing value addition such that member states trade in value added products and move away from exporting raw materials and minerals to developed countries. The export similarities between member states is a major contributor to the low intra COMESA and COMESA – rest of Africa trade. The COMESA secretariat should therefore ensure there is a strong monitoring and evaluation framework for implementation of this regional industrialization strategy. A holistic approach needs to be taken to address this, right from the curriculum in institutions of learning to on job training and the overall economic development policy.

There is need for harmonization of policies across member states, especially the macro-economic and legal and regulatory environment to ensure that economic growth catalyzes trade within the region.

Finally, tariff liberalization needs to be accompanied by elimination of restrictive or discriminative non-tariff measures for the liberalization effort to have an impact. Tariff liberalization in this study was found not highly significant with a very small coefficient, further reiterating the point that there are other more important factors influencing tariff liberalization besides lowering of tariffs.

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