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Leveraging the African Continental Free Trade Area to Expand Kenya's Trade in Africa

Kenneth Malot

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Abstract

The African Continental Free Trade Area (AfCFTA) has experienced substantial growth, prompting the exploration of the key factors driving this expansion. In response to this dynamic landscape, this study seeks to provide insights to policy makers, specifically focusing on how Kenya can strategically position itself to maximize the benefits within the AfCFTA framework. To achieve this, the study used the bilateral gravity model to examine how Kenya could capitalize on the opportunities presented by the AfCFTA. A Feasible Generalized Least Squares (FGLS) approach was used, using panel data spanning 22 years to model the impact of macroeconomic conditions, trade facilitation, and institutional stability within partner states on Kenya's export performance across 48 economies. The study findings reveal the pivotal factors influencing Kenya's exports, with per capita GDP in the destination country emerging as a significant contributor to export growth. Simultaneously, challenges such as transportation costs between member countries, time taken for customs clearance, and document requirements for one to export have a negative influence on Kenyan exports. Notably, the study finds that institutional stability provides a favourable environment for Kenya's products within the AfCFTA. To expand Kenya's trade in Africa, firstly, there is a need to promote Kenya's industrialization by investing in the advancement of the industrial sectors, enhancing product competitiveness, and tapping into new markets, thus contributing to the realization of the African Union (AU) Vision 2063. Additionally, the study underscores the importance of harmonizing trade procedures and policies to streamline and facilitate cross-border trade. Furthermore, the study recommends fast-tracking the implementation of the Kenya Export Strategy by fostering public-private collaborations, investing in infrastructure, and providing targeted support to export-oriented industries to enhance Kenya's share of exports within the African continent. Lastly, it is imperative to champion the AfCFTA partner states to implement a sound institutional framework to facilitate transparency, economic growth, and security to boost intra-African trade.

Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
ASEAN	Association of Southeast Asian Nations
AU	African Union
AUC	African Union Commission
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
FDIs	Foreign Direct Investments
FGLS	Feasible Generalized Least Squares
FTA	Free Trade Agreement
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GLS	Generalized Least Squares
GMM	General Method of Moments
IMF	International Monetary Fund
ITC	International Trade Centre
KMO	Kaiser-Meyer-Olkin
KNBS	Kenya National Bureau of Statistics
MENA	Middle East and North Africa
NAFTA	North American Free Trade Agreement
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
PMU	Perceived Macroeconomic Uncertainty
PPML	Poisson Pseudo-Maximum Likelihood
REER	Real Effective Exchange Rate
RTAs	Regional Trade Agreements
SGMM	System Generalized Method of Moments
ToT	Terms of Trade
UK	United Kingdom
UNCOMTRADE	United Nations Commodity Trade Statistics Database
UNCTAD	United Nations Conference on Trade and Development

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1.   Introduction

The African Continental Free Trade Area (AfCFTA)[1] passed the required threshold for implementation in April 2019, after Gambia ratified the agreement, bringing the total number of African Union (AU) member states to 22. Following this move, the agreement, which mainly seeks to lower trade tariffs and eliminate other barriers to trade in a bid to foster intra-African trade and the general development of the region came into force on 30th May 2019. According to the African Union, as of May 2022, 54 out of 55 AU member states had signed the treaty, except Eritrea, while 36 had ratified the agreement. Free trading under the AfCFTA kicked off on 1st January 2021 and covers 55 countries with a population of 1.3 billion people, allowing for the most extensive global trade liberalization in goods and services (World Bank, 2020). The creation of a single market for African goods is central to the formation of the AfCFTA, with the expectation of increasing productivity and improving social and economic development. According to the World Bank's (2020) report, the AfCFTA is expected to lift 30 million people out of extreme poverty, increase income by US$ 450 million, increase intra-continental exports by 81 per cent (with manufacturing increasing by 62%), and cushion the economy.

Despite this tremendous initiative taken by African nations, there has been a slow growth of intra-African trade; in December 2021, it stood at 14.4 per cent (UNCTAD, 2022). There is a ubiquity of empirical evidence that shows that the minimization of trade tariffs can yield significant long-term economic gains. It is also worth pointing out that reduction of tariffs alone is necessary but not a sufficient condition for unlocking the economic potential in a regional block. Several factors can hinder the engagement and cooperation in the actual implementation of the AfCFTA. Among these factors are, *inter ali*a, institutional instability, trade facilitation, and the macroeconomic situation in a country. These factors create technical bottlenecks in the export-import exchange and ultimately exaggerated trade costs (Vlijoen, 2019).

While there might be some constraints to intra-African trade, its benefits are enormous. It is envisaged that intra-African trade would lead to the inter-connectedness of the continent, industrialization, and economic growth of local countries. The rationale behind this is that trade creates linkages that are essential to the integration agenda (Oloruntoba and Tsowou, 2019). One thing that sets the AfCFTA apart from conventional free trade areas is the focus on several protocols such as goods, services, property rights, and investment. Trade incentivises and spurs infrastructure development and attracts foreign direct investment, thus expanding intra-African trade. This is key to accelerating economic growth in the continent.

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1   The AfCFTA agreement was signed on 18th March 2018 and, according to Article 23 of the treaty, it came into effect on 30th May 2019, after 22 countries submitted the ratified documents to African Union Commission (AUC). Further, the AfCFTA Treaty, Articles 3 and 4, allude to the fact that there should be a single African market to offer free movement of goods and services, businesses, investments, and factor inputs, among others. For details see https://au.int/sites/default/files/treaties/36437-treaty-consolidated_text_on_cfta_-_en.pdf , last accessed on 17th October 2020.

The magnitude of the AfCFTA potential makes it important to understand the factors that would ensure its success and how a country can position itself to reap maximum benefits and prevail over likely shortcomings. Based on this, this study attempts to investigate how Kenya can leverage the opportunities presented by the AfCFTA especially the vacuum created by drawing back from non-African trading partners. The study pays particular attention to macroeconomic indicators, trade facilitation, and institutional stability factors that could affect Kenya's exports to the AfCFTA. As such, the study aims to achieve three objectives: investigating the effect of macroeconomic conditions among partner states on Kenya's exports within the AfCFTA; examining the effects of trade facilitation on Kenya's exports within the AfCFTA; and investigating how institutional stability affects the environment of Kenya's products within the AfCFTA.

This study aims to improve and supplement existing literature by broadening member countries' understanding of the implications of the AfCFTA to strengthen membership and trade regime coordination. As a result, the contribution of this study is twofold. First, several studies with an emphasis on the AfCFTA have emerged, including Masiya (2019), ObengOdoom (2020), Aniche (2020), and Ndonga et al. (2020). These studies assess the AfCFTA Treaty's relevance to achieving Africa's integration agenda, and the treaty's implications for promoting regional integration while maximizing the benefits to individual countries. While we recognize that they provide valuable information for future policy to strengthen the treaty, they fall short of addressing the country dynamics and other underlying factors that affect a country's export trade. For example, Masiya (2019), Ndonga et al. (2020), and Bayale et al. (2020) address similar objectives to those addressed in this study, but they fail to consider other underlying factors other than tariff reduction that affect trade across countries, considering the dynamic nature in the international trade market.

Second, the current study focuses on Kenya because of its importance in trade and GDP contribution to the Africa continent. Kenya is the sixth-largest economy in Africa and the third-largest in Sub-Saharan Africa (SSA).[2] Furthermore, the country has experienced consistent GDP growth averaging 5.8 per cent from 2010 to 2020, which is significantly higher than the SSA average of 4.1 per cent during the same period (IMF, 2020). However, Kenya's GDP growth rate is lower than the 10 per cent annual GDP growth rate predicted in the Kenya Vision 2030. As a result, it is expected that with the entry of the AfCFTA, Kenya will experience increased intra-trade, which will accelerate economic growth and help to realize the Kenya Vision 2030 objectives. Despite the AfCFTA's ambitions, which have resulted in increased empirical analysis by policy makers, academics, and researchers, the Kenyan perspective has not been examined. Importantly, the emphasis has been on the benefits of the AfCFTA to the continent, with little evaluation at the country level focusing on the driving factors. Furthermore, while most of the available information was valuable, it consisted of reports, lacking rigorous empirical analysis on the several factors that can hinder the engagement and cooperation in the implementation of the AfCFTA. These factors include institutional instability, trade facilitation, and macroeconomic situation.

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2 IMF (2020), World Economic Outlook Database, available at https://www.imf.org/en/Publica-tions/WEO/weo-database/2020/October/select-countries?grp=2603&sg=All-countries/Emerg-ing-market-and-developing-economies/Sub-Saharan-Africa. Last accessed on October 19, 2020.

2.   Overview of Kenya's' Export Sector

A significant portion of Kenya's exports comprise agricultural products, manufactured goods, garments, and clothing components. The structure consists primarily of agricultural products, with the highest contributions to total commodity exports being horticulture, coffee, and tea products. Kenya is now one of the top exporters of horticulture items in the world due to the tremendous growth of non-traditional industries such as horticultural products over the past few decades. Until the 1980s, coffee accounted for the majority of commodity exports, but its performance started declining and tea eventually surpassed it as the leading export (Were, 2002). On the other hand, tea exports have remained stable over the years. While coffee exports accounted for US$ 238.4 million of the overall exports in 2021, tea exports accounted for US$ 1.19 billion (KNBS, 2021).

Kenya's economy has been characterised as having a strong foundation in agriculture, whereas the manufacturing sector has been struggling. Manufacturing exports were small and were on a decline in the 1980s, with their share of overall exports dropping from 16 per cent in 1976 to roughly 13 per cent in 1991. Despite changes over time, the performance of manufactured exports has greatly improved since the establishment of export-oriented policies. According to data from the World Bank, as of 2021, Kenya's manufactured exports as a share of its merchandise exports were at 30.2 per cent.

According to data from the International Trade Centre (ITC), Kenya's major exports in 2021 were tea, cut flowers, coffee, titanium ore, palm oil, tobacco goods, and refined petroleum. In comparison to 2020, when the value of merchandise exports was estimated at US$ 6.02 billion, the value was estimated at US$ 6.75 billion in 2021, an increase of about 12 per cent. In addition, according to World Bank data, 34 per cent of Kenya's total exports went to Sub-Saharan Africa (26%), and Europe and Central Asia (12% to the Middle East and North Africa (MENA) region, 10% to South Asia, and 8.0% to North America). As of 2021, the top export markets for Kenya's goods by country of destination were Uganda, The Netherlands, Pakistan, and the United Kingdom (UK).

Table (2.1) shows the regional share of Kenya's exports between 2002 and 2020. The changes reveal a decline in Kenya's total share of exports to Sub-Saharan Africa, Europe, and Central Asia. Exports to the MENA region, South Asia, and North America, on the other hand, increased significantly.

Table 2.1: Share of Kenya's exports by region

Partner	2002 (%)	2020 (%)	Change (%)
World	100	100	
Sub-Saharan Africa	45.56	34.80	-10.76
Europe and Central Asia	30.32	26.86	-3.46
Middle East and North Africa	5.58	12.44	6.86
South Asia	6.14	10.21	4.07
North America	1.63	7.90	6.27
East Asia and Pacific	2.05	5.18	3.13
Latin America and Caribbean	0.15	0.26	0.11

Source: World Integrated Trade Solution World Bank (2022)

2.1   Kenya's Trade within the African Continent

The COVID-19 pandemic caused major global economic shocks, and Kenya was not spared. The pandemic hit Kenya hard, leading to a record low growth rate of -0.2 per cent in 2020. The economic shock had ripple effects across several sectors, including trade. In 2021, Kenya's exports totalled Ksh 583.6 billion while imports amounted to Ksh 1.721 trillion, resulting in a trade deficit of Ksh 1.1137 trillion. Comparing trade performance with global performance, Kenya's trade recorded a growth of -6.97 per cent, which was below the world average trade growth of -1.13 per cent, these are indications of a dismal performance in trade (UNCOMTRADE, 2022).

In 2021, Kenya's share of exports to the African market was 3.1 per cent while its import share was 2.2 per cent, leading to an average trade share of 2.65 per cent in the African market. With this performance, Kenya was position 11, ranked behind South Africa, the frontier, with 32.2 per cent average market share (UNCOMTRADE, 2022). Kenya's top 10 exports to the African market are presented in Table 1, the table also shows the total of Africa's imports from the world. It is evident that in terms of total imports from the world, Kenya only enjoys a marginal share of global exports in this market.

Figure 2.1 provides insights on Kenya's trade performance within the African continent focusing mainly on the share of Kenya's exports, imports, and total trade for the period 2010 to 2021. Over the review period, Kenya's export share in the African continent averaged 42 per cent of the total exports, while the imports averaged 10 per cent of the total imports. Most of the imports (90%) to Kenya originate from outside the African continent while about 58 per cent of the imports are sourced outside Africa. Within Africa, Kenyan exports account for 35 per cent of the total exports while the rest of the World account for 65 per cent The East Africa Community member states led by Uganda and Tanzania account for 28 per cent of the total exports with the rest of Africa taking a paltry 7.0 per

cent led by Egypt, a member of the (Common Market for Eastern and Southern Africa (COMESA) where Kenya is a member of the regional market. Outside Africa, during the period of analysis, the exports were destined for the United Kingdom, Netherlands, the United States of America, Pakistan, and the United Arab Emirates.

On the import front, China was the leading market at an average of 18.2 per cent followed by India (13.2%), UAE (8.4%), and Japan (5.3%) between 2011 and 2020. Imports from the African market performed dismally with only three countries (Egypt, Uganda, and Tanzania) out of 24 top import origin markets at about 4.7 per cent.

Figure 2.1: Merchandise export and import and total merchandise trade share of Kenya in the global merchandise trade (%)
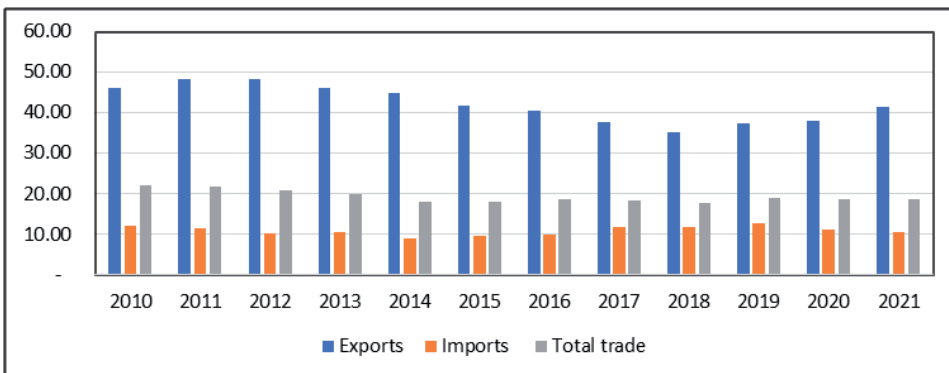
Source: ITC Trade Map (2022)

In terms of major export destinations in Africa, Kenya's major export destinations between 2017 and 2021 were countries within the EAC including Uganda, Tanzania, and Rwanda for five years. Kenya's exports to Uganda maintained an upward trend from US$ 597 million in 2017 to US$ 831 million in 2021. Exports to Tanzania, Egypt, Congo, and Egypt showed a fluctuating trend. South Sudan was also one of the major destinations with a share of 3.59 per cent (US$ 216 million) of exports as of the year 2020. Figure 2.2 illustrates the major export destinations for Kenyan exports between 2017 and 2021.

Figure 2.2: Kenyan top five export destinations in Africa (in US$) – 2017 to 2021
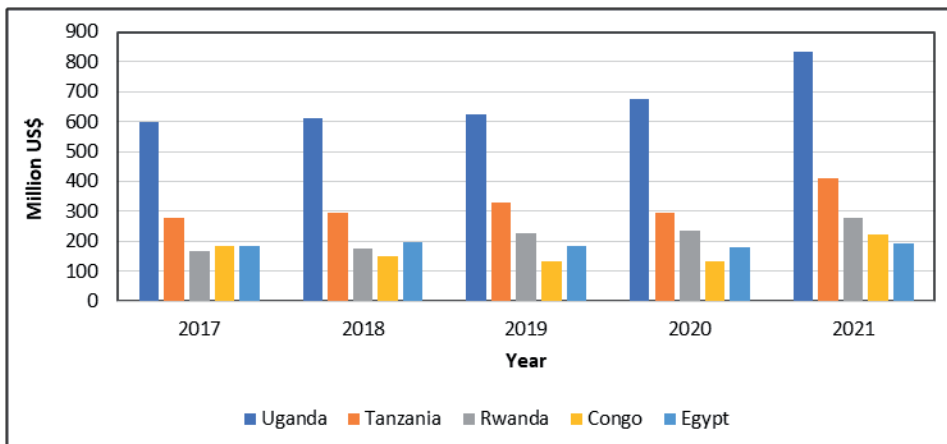
Source: WITS database

Raga et al. (2021) assert that some major Kenyan exporters encounter several challenges in regional trade. These challenges include underdeveloped infrastructural facilities, weak institutional frameworks, high rates of informal cross-border trade, unstable political environments, non-tariff barriers, and complex market systems in other African countries among others. Therefore, to enhance exports, Kenya has been engaging in the EAC customs union and COMESA, and has made efforts towards achieving the AfCFTA strategy, hence the need for this study.

Regarding major import destinations in Africa between 2017 and 2021, Kenya imported within the EAC including Uganda, Tanzania, and the Rest of Africa as shown in Figure 2.3. Imports to Kenya from most countries increased during the first three years but had a declining trend in the last two years. This can be associated with the nature of the products being imported. South Africa was Kenya's top import destination during the period under review with a peak in 2019 of US$ 688 million, although there was a subsequent fall through 2021 to US$ 402 million. There was a decline in the importation of iron and steel since Kenya decreased its spending on infrastructural projects to concentrate on the dwindling revenue as the country worked toward countering the effects of COVID-19 pandemic (KNBS, 2021). Kenyan imports from Tanzania and Uganda rose due to the increased importation of agricultural products including maize, rice, milk, sugar, and animal feeds amidst the COVID-19 pandemic.

Figure 2.3: Kenyan top five import destinations in Africa (in US$) – 2017 to 2021
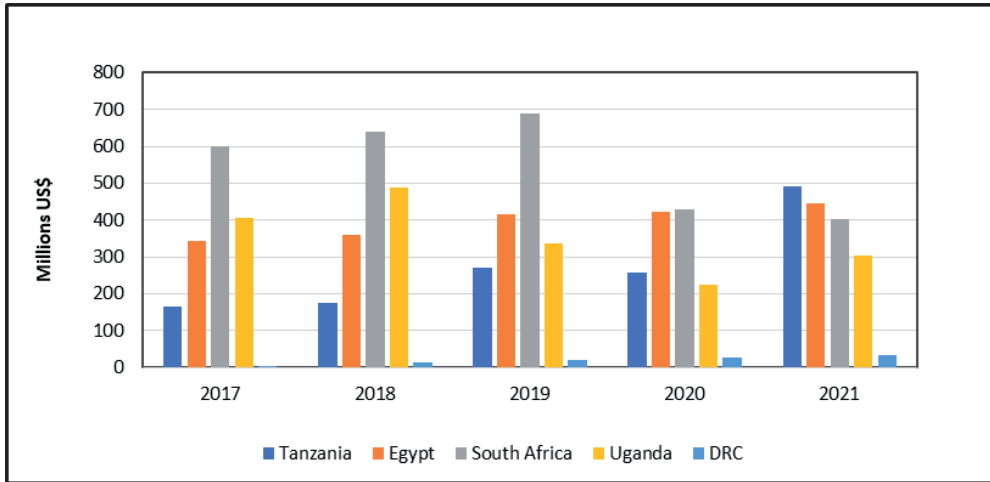
Source: WITS database

Globally, Kenya's top exports in recent years have been tea, cut flowers, refined petroleum, gold, and coffee, valued at US$ 1.2 billion, US$ 596 million, US$ 308 million, US$ 266 million, and US$ 229 million, respectively. Pakistan, Uganda, the US, the Netherlands, and the UK are the major destinations for Kenyan exports. In terms of imports, Kenya primarily imports goods from China, the UAE, India, Saudi Arabia, and Japan. The main products imported by Kenya as of 2020 included palm oil, refined petroleum, packaged medicaments, broadcasting equipment, and cars estimated at US$ 671 million, US$ 2.13 billion, US$ 477 million, US$ 521 million, and US$ 403 million, respectively (OEC, 2020).

Based on the aforementioned, for Kenya to position itself effectively in the African market, it must not only recover from the economic shocks of the pandemic shocks but also overcome the barriers of exporting in the African market, despite the opportunities presented by the AfCFTA. This study, therefore, uses the gravity model to investigate some of the strengths that Kenya can leverage to improve its standing in the African trading space. The study pays particular attention to macroeconomic indicators, trade facilitation, and institutional stability factors that could affect Kenya's exports to the AfCFTA.

3.   Literature Review

3.1   Theoretical Literature

3.1.1   *The theory of absolute advantage*

According to Adam Smith (1776), a country has an absolute advantage in producing a good if it can do so at the lowest possible cost and more efficiently than any other country. As a result, the country should specialise in the production and export of this good while importing that a good that has a high cost of production. The theory recognises that differences in resource endowment, economic environment, climatic conditions, knowledge and skills, and technological differences equip some countries with an acquired or natural absolute advantage in the production of certain goods and services when compared to others. Nevertheless, the theory could not account for why countries with an absolute advantage in the production of all goods continued to trade (Carbaugh, 2006). This unexplained shortcoming led to the advancement of the theory of comparative advantage by David Ricardo.

3.1.2   *The theory of comparative advantage*

Ricardo 1817 argues that there is a rationale for mutually beneficial trade between countries despite one having an absolute advantage in the production of all traded goods. A country that is less efficient in producing two goods will benefit from trade by specialising in the production and exportation of the goods with the lowest disadvantage and importing the goods with the highest disadvantage. On the other hand, when a country has an absolute advantage in producing both goods, it is beneficial for the country to import the good in which its absolute advantage is relatively smaller as the production costs are lower in its trading partner. Ricardo demonstrated that comparative advantage is the foundation for countries to engage in trade.

Ricardo's theory of comparative advantage recognised that technological differences between countries bring about comparative advantage in the production of specific goods compared to others (Anderson, 2004; Suranovic, 2006). The theory nevertheless was criticised for having unrealistic assumptions. Salvatore (1998) argues that the model cannot explain the differences in labour productivity across countries and the influence of trade on factor earnings. Further, Suranovic (2015), highlights that the theory not only assumed that technological differences exist between countries but also assumed fixed labour, full employment, and perfect competition.

The classical theories had many weaknesses that the neo-classical theories attempted to account for. For instance, both the theory of absolute and comparative advantage have failed to highlight the specific goods that would give a country the implied advantage (Carpenter and Dunung, 2012).

3.1.3   The Heckscher-Ohlin (H-O) Theory

Economists Eli Heckscher (1919) and Berlin Ohlin (1933) developed the Heckscher-Ohlin theory by extending Ricardo's theory of comparative advantage. The H-O model introduced capital as a factor input in production as Ricardo's and Smith's models assumed that labour is the only factor input of production. This inclusion extended Ricardo's idea by incorporating the endowment and cost of factors of production. The H-O theory, therefore, explains why countries with relatively more capital than labour specialise in producing capital-intensive goods whereas countries with relatively large labour force concentrate on producing labour-intensive goods.

The theory argues that the differences in national resources or factor endowment bring about comparative advantage. Therefore, if a factor of production is more abundant in a country, it will cost less. The theory further proposes that a country should specialise in producing and exporting goods that make the most use of the abundant and less expensive factor of production and import the goods that require contrary combinations of production factors. Based on the H-O theory, developed and industrialised countries that are capital-abundant such as the USA, are expected to export capital-intensive goods and import labour-intensive goods. It is also expected for labour-abundant economies to import more capital-intensive goods.

However, in 1953 Leontief using an input-output matrix of capital and labour vectors and export and import values, tested the Heckscher-Ohlin theory using the USA trade flows to the rest of the world. The study revealed that the results were not in alignment with the H-O theory. The estimates showed the USA was exporting labour-intensive goods in exchange for capital-intensive goods, resulting in the Leontief paradox. Other studies found similar results to the Leontief paradox, which led to the development of alternative theories that attempt to explain aspects of trade that the H-O theory could not account for; for instance, reasons why countries that have similar factor endowments keep trading (Ngugi, 2016).

Nonetheless, other studies revealed that the Leontief paradox could potentially be accommodated. For instance, by relaxing some of the H-O assumptions that countries have the same relative demand, and the fact that other inputs such as technological differences are involved in production as opposed to just capital and labour. Nishioka (2006), used the Heckscher-Ohlin model to analyse the international factor trade of industrialised nations. He expanded the model by including a previously unstudied variable known as knowledge capital (measured by cumulative research and development stock) and discovered that it is crucial in determining comparative advantage among developed nations because they differ in their abundance of knowledge and specialise in high-tech products. In a study to evaluate the Heckscher-Ohlin model in theory and practice, Leamar (1995), discovered that countries with abundant labour who choose isolation policies have low wages because they forgo the potential to export labour services at a profit through the exchange of commodities. The elimination of trade barriers results in the equality of product prices and wages.

3.2   Empirical Literature

3.2.1   *Trade facilitation measures and export trade*

Several empirical studies have been conducted to assess the effect of trade facilitation on export trade. Lai et al. (2019) investigated transport infrastructure on international trade in the Association of Southeast Asian Nations (ASEAN). The study hypothesized that transport logistic affects intra-ASEAN trade and that the relationship between these two variables is mutually reinforced. Using random effect regression analysis on macroeconomic data and a causality test, the study measured transport logistics performance through indicators of air and maritime transport. The results revealed a positive coefficient in the direction of regression from transport logistics to intra-ASEAN trade and from intra-ASEAN trade to transport logistics. The study concluded that international transport logistic inadequacy is a form of non-tariff barrier that restrains international trade. The authors observed that transport logistics complement the reduced inter-ASEAN tariff and foster more trade. Additionally, they noted that as trade activities between bilateral trading partners increase, there are more improvements in trade-facilitating activities, suggesting a spill-over effect from trade. The main limitation of this study stemmed from the proxy used to measure transport logistics focusing on air and maritime indicators. The current study uses the transport logistics performance index provided by the World Bank, which is an interactive tool that encompasses the rail, air, and port transport indicators (Arvis et al. 2018).

Hillberry and Zang (2015) conducted a study on customs procedures' effect on trade flow in the Organization for Economic Cooperation and Development (OECD) and African countries. They used data on trade facilitation policy in the estimation of policy and customs performance and the subsequent impact on trade flow. In this case, customs procedure was an outcome variable in one model and an explanatory variable in another. The data for customs procedure was sourced from the World Bank's ease of doing business report specifically trade across borders. The study adopted a discrete time transition model in analysis. It established that the trade facilitation policy enabled countries to fast-track their customs efficiency. Similarly, customs efficiency had a positive effect on trade flow. This study, however, suffered from cases of missing data owing to the many numbers of countries involved that it had to resort to multiple imputations to avert this problem and make use of the available data. One pitfall of this approach is that it is likely to result in computational problems leading to biased results (Greene, 2012).

Furthermore, Yadav (2014) examined how trade facilitation measures affect the parts, components, and final goods using data from 77 countries between 2004 and 2007. From the findings, trade facilitation measures are stronger in promoting the importation of parts and components than in the promotion of final goods. However, border efficiency has the largest effect on import and export flows for the

parts and component sectors. Regional trade agreements (RTAs) are composed of various trade facilitation features. These features range from sharing information regarding customs in member countries, creating online and paperless clearance mechanisms, border efficiency, physical infrastructure, business environment, and information and technology, among others (Yadav, 2014; Neufeld, 2014). In this regard, Park and Park (2016) employed a modified gravity equation to analyse what trade facilitation within RTAs does to trade within and outside the trading bloc. The study covered 170 countries between 2000 and 2010 and employed a Poisson Pseudo-Maximum Likelihood (PPML) technique in the estimation. The study revealed that trade facilitation features from the existing RTAs lead to more trade as they are non-discriminatory. However, the RTA impact was more evident in the APEC region. The study also indicated that RTAs containing trade provisions discriminate against the trade of final goods but are non-discriminatory in intermediate goods trade. Hamanaka et al. (2010) concur with these findings and argue that trade facilitation features create more trade for non-RTA members when they are non-discriminatory against them.

3.2.2   *Macroeconomic factors and export trade*

Kim and Lee (2014) examined the factors that determine sectoral imports in the East Asia region focusing on data spanning from 1998 to 2012. The study employed the Panel Autoregressive Distributed Lag Modelling analysis method. The findings revealed that factors such as the real exchange rate favoured importation. Similarly, import prices reduced import demand in all the 17 sectors under analysis. Abbas and Waheed (2018) analysed how the traditional gravity model variables impacted trade in Bahrain between 2000 and 2016. The study established that Bahrain's imports responded positively to the GDP of exporters, common border, and membership to Gulf Cooperation Council. However, it was negatively related to import prices. Sinha (2016) investigated the effect of openness, human capacity index, and natural resources on imports in India on data that span between 1990 and 2013. The study established that India's imports were receptive to natural resources and openness.

Additional research by Zainal Abidin and Haseeb (2018) looked at the role played by macroeconomic variables in the trade relations involving Malaysia and the Gulf Cooperation Council (GCC) countries. These factors included the geographic distance between the capital of Malaysia and members of GCC, real exchange rate, inflation, GDP per capita, Islamic financial metrics such as Zakah collection as a proportion of GDP, and the number of Islamic banks. Panel data for a period between 1990 and 2017 was used and gravity model provided evidence in support of the hypothesis. All variables were found to be statistically significant, according to both fixed-effect and random-effect analyses. Nevertheless, the entire bilateral trade between Malaysia and the GCC countries declined with an increase in factors such as inflation, real exchange rate, and distance. Contrarily, throughout the research, factors such as GDP per capita, the number of Islamic banks, and Zakah collection affected the trade relations between Malaysia and the GCC nations positively.

In another study, Liao et al. (2020) used cross-country data and a gravity model to investigate the effect of perceived macroeconomic uncertainty (PMU) on exports. The findings indicated that PMU had a negative influence on exports from both importing and exporting countries, although the impact from importing countries was bigger. Further evidence demonstrated that exporters diverted their shipments to countries with lower PMU levels because of the trade diversion impact brought about by PMU in importing countries. It was also noted that the PMU index remained relatively stable since the Global Financial Crisis. With the traders' attention diverted to other variables including Sino-US economic disagreements and trade policy uncertainty, the negative impacts of PMU on trade seemed to have diminished. Aba (2021) conducted a study that investigated the impact of the ongoing China-US trade war on macroeconomic variables and institutional development in ASEAN member countries (Vietnam, Indonesia, and Cambodia). The findings affirmed that the rise in trade tariffs on imported products into both the United States and China was a direct outcome of the ongoing trade war between the two nations. The export demand is likely to affect the economies of Southeast Asian nations that trade with the two countries, particularly in 25-35 per cent of exports that are not oil and gas. Moreover, as a result of the trade war, the GDP of ASEAN nations is likely to fall, leading to a wider current account imbalance. On the other hand, every member of the Association of Southeast Asian Nations (ASEAN) would benefit from the influx of foreign investment caused by the trade war, which has prompted several multinational corporations to relocate their production facilities from China.

3.2.3 *Institutional stability and export trade*

Various studies have been conducted on institutional stability. Nguyen et al. (2018) used System Generalized Method of Moments (SGMM) estimators to assess the effects of institutional quality on economic development for 29 developing markets between 2002 and 2015. A high level of institutional quality was shown to have a considerable, beneficial effect on economic growth. Foreign Direct Investments (FDIs) and countries being open to trade enhance economic development, although low institutional quality dampens their effects. On the other hand, the competitive pressures brought about by trade openness in the regions where FDIs operate may be mitigated by improving institutional quality to maximize the spill-over impact.

Heo et al., (2020) investigated the effect of institutional quality on foreign trade focussing on three NAFTA members. The study employed bilateral trade flow data from 2006 to 2017 of the three NAFTA members and their 105 trade partners. The general method of moments (GMM) estimation technique was used to solve endogeneity and sample bias problems. According to the findings of the study, the economic development levels of the trading partners determine the extent to which institutional quality affects the trade flows of NAFTA countries. In this regard, NAFTA trade with middle-income trading partners showcased that institutional quality enhances high trade elasticity while it is lowest for low-income countries. The results also indicated that the size of institutions depicts a stronger effect on

export and import flows in the long run than in the short run with a much more prominent effect in the middle-income group. Consequently, NAFTA members are more prone to engaging in trade with economies that have a common language with them and those with large market sizes, but trade is limited in landlocked countries and those with a higher geographical distance. However, the study failed to look at how institutional adaptation impacts foreign trade, which is a key factor in bilateral trade in comparison with institutional quality.

In Africa, Zongo and Oyelami (2021) extend studies on the impact of governance quality (a proxy for institutional quality) on international trade. The study majorly focussed on bilateral trade data of primary and manufactured commodities in the period ranging from 1996 to 2019. With the gravity model approach, the six governance quality indicators positively and significantly affected the exports of both primary and manufactured products, with the manufacturing sector having a larger effect. The study however does not consider the effect on services, which is a dynamic sector in Africa and has significant effects on trade and the growth of economies as suggested by Bah, Ondoa, and Kpognon (2021). Hyun (2018) employed data from 172 countries and 17 industries over ten years and the gravity model approach to examine the impact of institutional quality and trade costs on the export and import flows of intermediate goods. From the results, higher institutional quality led to an increased share of trade in both intermediate goods and final goods, although the effect was more pronounced in intermediate goods.

4. Methodology and Data

4.1 Theoretical Framework

The gravity model is centred on Newton's law of gravity, which states that the gravity force between two objects is dependent on the masses of the objects and the distance between them as shown in Equation 1:

$$F_{ij} = G\frac{M_i M_j}{D_{ij}^2}$$
1

Where F_{ij} is the force of attraction, G is the gravity constant M_i, and Mj represent the masses of object i and j, respectively and D_{ij} represents the distance between them.

In international trade, Tinbergen (1962) specified the standard gravity equation as indicated in Equation 2, describing the trade relations between countries at various geographic distances. He argued that the flow of trade between two countries is directly proportional to the product of the economic sizes of the two countries and inversely related to the distance between them.

$$Trade_{ij} = \alpha\frac{Y_i^{\beta_1} * Y_j^{\beta_2}}{D_{ij}^{\beta_3}}$$
2

In this case, $Trade_{ij}$ represents bilateral trade flows from country i to country j, and Y_j represents the size of the economy of countries i and j, respectively. D_{ij} represents the distance between the two trading countries. α represents the constant of proportionality whereas β_1 to β_3 represent the coefficients of the variables being estimated.

4.2 Model Specification

The gravity model equation has shown the implication of trade cost in influencing the price of commodities from the home country to the destination country. The destination country is assumed to exhibit a constant elasticity of substitution utility function. In the model, trade cost is represented by the parameters in multiplicative form as shown in Equation 2. The equation can be linearised through logarithmic transformation and then into an empirical equation by including the residual term. The resultant equation becomes:

$$ln\, X_{ij,t} = \ln E_{jt} - lnY_t + (1-\sigma)\ln t_{ij,t} - (1-\sigma)\ln P_{j,t} - (1-\sigma)\ln \prod_{it} + ln\varepsilon_{ij,t}$$
3

Where $lnX_{ij,t}$ is the natural logarithm of the value of exports from country i to country j in time t. The natural logarithm of the exporting country's GDP (lnY_t), the natural logarithm of the distance between the two countries $(lnt_{ij,t})$, the natural

logarithm of the destination country's population *(ln $P_{j,t}$)*, and an error term *(ln $\varepsilon_{ij,t}$)*. Subsequent modifications of the model have shown that various factors affect trade costs. Among these factors include tariffs, distance, the country being landlocked, and other non-tariff barriers. With regard to this study, economic indicators, trade facilitation, and institutional stability are conceptualized to reduce trade costs. Going by assertions by Anderson and Van Wincoop (2004), Persson (2007), and Soloado et al. (2006) among other notable scholars, we expand the basic gravity model to include macroeconomic indicators, trade facilitation, and institutional stability variables. Extending the gravity model to include these factors leads to a more general model. It involves taking logs and including a vector of variables Z(.) to accommodate the destination and origin variables.

$$ln\ X_{ij,t} = a_0 + a_1 lnGDP_i + a_2 lnGDP_j - \delta_j dis_{ij} + \gamma z(.) + ln\varepsilon_{ij,t} \qquad \text{4}$$

Where *$lnX_{ij,t}$* is the natural logarithm of the value of exports from country *i* to country $_j$ in time $_t$. *$lnGDP_i$* is the GDP of the exporting country, *$lnGDP_j$* is the GDP of importing country *j*, *dis_{ij}* is the distance between trade partners country *i* and county *j* and *ln $\varepsilon_{ij,t}$* is the error term. Equation 4 can be estimated using Ordinary Least Squares (OLS), however, it is worth noting that through linearisation, the error term is also transformed into a logarithm. The mean of *ln $\varepsilon_{ij,t}$* relies on higher moments of the non-linearised error term $\varepsilon_{ij,t}$, and this also includes its variance. The implication of this is that, if the error term lacks a constant variance, then its expected value will be dependent on one or more independent variables. This defies the idea that the error term denotes a random error and might render results obtained by OLS unbiased and inconsistent (Westerlund and Wilhelmsson, 2009). It, therefore, begs the need to find a suitable way to incorporate that information into the regression model. In addition, this type of heteroskedasticity cannot be alleviated by fitting a robust covariance matrix estimator because this will affect the stand errors and coefficients (Mullahy, 1998). To this end, therefore, there is a need to estimate a unique model in the presence of multiplicative heteroskedasticity.

This study builds on the standard gravity model in equation 4 augmented to include other variables that affect bilateral export flows between Kenya and its trading partners within the African continent (Anderson and van Wincoop, 2003) The model includes macroeconomic variables such as GDP, population, terms of trade and openness, trade facilitation variables, and governance indicators. In the standard gravity model, distance is used as a measure for the trade cost, and for this study, we use the bilateral trade cost between trading countries. A dummy variable for membership to COMESA was included to test the effect of regional agreements on bilateral exports. COMESA is an FTA with more membership compared to EAC with only Tanzania being a non-member and hence considered to be a good representative.

The augmented log-linear specification of the gravity equation considered for assessing Kenya's export flows is presented in Equation 5 as follows:

$$ln X_{ij,t} = a_0 + \alpha_1 lnpcgdp\_o_{it} + \alpha_2 Lnpcgdp\_d_{jt} + \alpha_3 Lnreer_{ij,t} + \alpha_4 lntranscost_{ij,t} + \alpha_5 lnhours_{jt} + \alpha_6 Lndocs_{jt} + \alpha_7 COMESA_{it} + \alpha_8 lnToT_{jt} + \alpha_9 lnOpen_{it} + \alpha_{10} Govern\_Ind_{jt} + \varepsilon_{ij,t}$$

<div align="right">5</div>

Where:

X_{ijt} = value of exports from Kenya country i to its African trading partners, country j in year t

$pcgdp\_o_{it}$ = Per capita GDP of origin country i in year t

$pcgdp\_d_{jt}$ = Per Capita GDP of the destination country j in year t

$hours_{jt}$ = time taken to clear goods at the border for the importing country j

$docs_{ij}$ = Number of custom documents required at the port of entry by the importing country j

ToT_{jt} = terms of trade of country j at time t

$open_{jt}$ = Trade openness of country j at time t

$COMESA_{ij}$ = dummy variable for membership to COMESA

$Transcost_{ijt.}$ = Transportation cost from country i to country j at time t

$Govern\_ind_{it}$ = Governance indicators recorded for country j

ε_{ijt} represents the error term, the intercept and to are coefficients of the variables.

4.3 Study Period and Data

The study used panel data spanning from 2000 to 2021. The choice of this period was informed by the availability of the data of most of the indicators. The study focused on Kenya as the primary area of study, but other African nations were included in the model as it utilized bilateral data between Kenya and its African trading partners. Several key variables that denote economic transformation were considered, including, macroeconomic performance indicators, trade facilitation indicators, and institutional stability. The latter is deemed important owing to the widespread cases of institutional instability in many African nations. Table 4.1 displays a list of variables used and the source of data.

4.4 Estimation Technique

Panel data combines both cross-sectional data and time series observations allowing for unobservable individual effects between trading partners to be monitored. Moreover, it helps to avoid the risk of choosing an unrepresentative period as it captures pertinent relationships over time (Karagoz and Saray, 2010). However, panel data is prone to having problems of endogeneity and heterogeneity. The choice of the estimation technique was determined by how the unobserved individual heterogeneity in each cross-sectional unit is treated (Abbas and Waheed, 2019; Kumar et al., 2021).

Table 4.1: List of variables and source

Variable code	Description	Unit	Source
Exports	Kenya's exports to African counterparts	US$ 1000	UN COMTRADE
Pcgdp_o	GDP per capita of origin country (Kenya)	US$ 1000	World Development Indicator
Pcgdp_d	GDP per capita of destination country (WDI)	US$ 1000	World Development Indicator
COMESA	Country pair is in at least one customs union (COMESA)	One (1) if applicable or zero (0) if otherwise	COMESA
Openness	Trade openness is the degree to which a nation participates in the world commerce system. Computed as a ratio of exports and imports to GDP	$(X + M)/GDP$	UN COMTRADE
TOT	Terms of Trade. It is quantified as a ratio between import and export prices. In economics, the notion of terms of trade is crucial because it clarifies the amount to which a country can finance its imports using the proceeds from its exports.	Ratio between import and export prices	UN COMTRADE
Custom docs	Custom documents are required and the point of entry	Number of physical documents	World Development Indicator
Custom Hrs	Time taken for customs clearance at the point of entry	Number of physical documents	World Development Indicator
REER	Real Effective Exchange Rate		World Development Indicator
Transcost	Cost of transporting a 40 feet container from country i to country j	US$ 1	ESCAP World Bank
Control of corruption	Perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Values range between -2.5 to 2.5	Values standardised to range from 0-1 where one (1) is good	World Development Indicator

Government effectiveness	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	Values standardised to range from 0-1 where one (1) is good	World Development Indicator
Political stability and absence of violence/ terrorism	Perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.	Values standardised to range from 0-1 where one (1) is good	World Development Indicator
Regulatory quality	The ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.		World Development Indicator
Rule of law: Estimate	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, and the likelihood of crime and violence.	Values standardised to range from 0-1 where one (1) is good	World Development Indicator
Voice and accountability	The extent to which a country's citizens can participate in selecting their government, and enjoy freedom of expression, freedom of association, and free media.	Values standardised to range from 0-1 where one (1) is good	World Development Indicator

Source: Author's compilation

Traditionally, the pooled OLS estimation, the fixed effect model, and the random effect estimation techniques have been used in estimating the gravity model using either panel data or cross-sectional data (Gujarati and Porter, 2003). The pooled OLS method assumes that all the countries in the panel data are the same disregarding country-specific individual effects hence does not allow for heterogeneity in countries. The fixed effects model considers individual effects allowing for country heterogeneity by allowing the intercept to vary with dummy variables. The model is then estimated within the effect using OLS with a set of dummy variables. According to Egger (2000), the fixed effects model is suitable when estimating trade flows between a pre-decided category of trade partners. However, one of the model's shortcomings is that it cannot directly estimate time-invariant variables.

According to Baltagi (2005), the random effect model is suitable when the cross-sectional individuals are randomly drawn from a large population with a constant

mean. A variation from the constant mean results in individual heterogeneity, which the random effect model captures using a composite error term (Greene,2002). Further, it does not assume a correlation between the regressors and the individual effects as the case with the fixed effects. Additionally, it allows for the inclusion of variables that do not change over time. The Hausman specification test is then applied to determine the most efficient estimation technique between the fixed effect and the random effect. Nevertheless, according to Greene (2002), the random effect model might result in biased estimates if the error component is correlated with unobserved heterogeneity. Due to these limitations, this study adopted the GLS model, which gives more efficient results than OLS, random, and fixed effects models.

4.4.1   *Feasible generalised least squares*

In this study, generalized least squares (GLS) estimation for models using linear panel data was considered. The proposed feasible GLS (FGLS) estimator outperforms the conventional least squares (OLS) estimate in the presence of heteroskedasticity, serial correlations, and cross-sectional correlations by consistently estimating the large error covariance matrix (Bai and Liao, 2017). This approach uses the banding method to account for the serial correlations and the thresholding method to adjust for cross-sectional correlations. The generalised least squares estimator (GLS) directly accounts for heteroskedasticity, as well as cross-sectional and serial correlations, in estimation. GLS is well known to be more efficient than OLS, random, and fixed effects models.

4.5   **Summary Statistics**

In examining the comprehensive dataset presented in Table 4.2, encompassing a total of 1056 observations over 22 years across 48 diverse economies, distinctive patterns and dynamics in Kenya's bilateral trade relations come to the fore. Notably, the presence of outliers in bilateral export values with Kenya's trading partners signifies considerable variation in export figures across different nations. For instance, Kenya's exports to Lesotho markedly contrast with those to Uganda. The mean value of Kenya's exports to the selected 48 African economies over the period between 2000 and 2021 stood at US\$ 34.938 million, providing a central tendency amidst the diverse export differentials as denoted by the larger standard deviation of US\$ 104.275. The Real Effective Exchange Rate (REER) had an average value of 105.06, reflecting the weighted average of each of Kenya's trading partner currency relative to its trading partners, with a moderate level of variability (standard deviation of 20.944). Kenya's per capita GDP at constant national 2017 prices for the period under study was US\$ 1969 while the average GDP for the trading partners was US\$ 4950.

On average, it takes approximately 136 hours for destination countries to clear imports from customs, suggesting variations in customs clearance times across the trading partners. In the same breath, these countries, on average, need to

clear around nine (9) customs documents for the importation process, reflecting a standard procedure with limited variation (standard deviation of 1.814). Terms of Trade averaged 104.878. On the other hand, openness had a mean of -0.003 suggesting a slight negative trend, possibly indicating challenges or restrictions in the openness of trade. Finally, institutional stability indicators for partner states mainly leaned on the negative side averaging between -0.555 s and -.638.

Table 4.2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Exports	1056	36.22	104.28	0.00	845.20
REER	1056	105.06	20.94	55.83	340.77
Pcgdp_o	1056	1,969.59	4,368.15	6.90	34,858.50
Pcgdp_d	1056	4,950.36	5,760.35	456.51	41,236.22
Hrs	1056	135.96	59.60	3.10	588.00
Documents	1056	8.75	1.81	5.00	21.00
ToT	1056	104.88	11.14	73.66	136.21
Openness	1056	-0.00	0.01	-0.08	0.00
Transcost	1056	289.80	89.70	83.12	625.74
Corruption	1056	-0.58	0.62	-1.87	1.23
Govt_effectiveness	1056	-0.67	0.65	-2.45	1.06
Political	1056	-0.56	0.92	-3.32	1.28
Regulatory	1056	-0.64	0.65	-2.65	1.13
Law	1056	-0.63	0.68	-2.61	1.08

4.6   Composite Scores

Institutional stability indicators included the estimates for control of corruption; government effectiveness; political stability and absence of violence/terrorism; regulatory quality; rule of law; and voice and accountability. The scoring coefficients and Kaiser-Meyer-Olkin measure of sampling adequacy are presented in Tables 4.3 and 4.4, respectively.

Table 4.3: Scoring coefficients

Variable	Comp1	Comp2	Comp3
Control of corruption	0.41	-0.25	0.28
Government effectiveness	0.42	-0.43	-0.19
Political stability and absence of violence/terrorism	0.39	0.34	0.76

Regulatory quality	0.43	-0.15	-0.35
Rule of law: Estimate	0.44	-0.14	-0.05
Voice and accountability	0.36	0.77	-0.43

From Table 4.3 the first column displays the coefficients of the linear combination that defines principal component number one (1), the second column shows coefficients for principal component number two (2) and the third one is number three (3). The first components have positive weights for all variables meaning that there are minimal variations among the variables. This becomes suitable for analysis.

Table 4.4: Kaiser-Meyer-Olkin (KMO) coefficients

Variable	KMO
Control of corruption	0.9121
Government effectiveness	0.8729
Political stability and absence of violence/terrorism	0.9401
Regulatory quality	0.9029
Rule of law	0.8759
Voice and accountability	0.9391
Overall	0.9027

From Table 4.4, all the variables have >0.7 coefficients meaning that they are highly correlated. In addition, the overall KMO coefficient is 0.9027 denoting that institutional stability indicators are well-suited for principal component analysis (PCA).

5.   Results and Discussions

A total of 48 African countries were analysed, a decision that was based on the availability of data, except for Eritrea, which is not a signatory to the AfCFTA. Data from the period between 2000 and 2021 was analysed, yielding a total of 1056 data points. The raw descriptive statistics of the variables served as the starting point for the analysis. This was followed by several transformations mainly rescaling through log transformation of large values and creating composite scores for institutional indicators using principal component analysis (PCA). The findings are detailed in the following subsections.

5.1   Regression Results

The initial step of regression analysis was to run the baseline model in Table 5.1, incorporating both fixed and random effects, comparing two distinct specifications denoted as Model 1 and Model 2. These models explore the determinants of Kenya's exports to various African counterparts, with the dependent variable being the logarithm of these exports. The inclusion of random and fixed effects allows for a preliminary understanding of the factors influencing Kenya's export dynamics to its African counterparts.

Table 5.1: Baseline Model: Fixed and Random Effect

	Model 1	Model 2
	Random Effects	Fixed Effects
ln_reer	0.319	-0.164
	(0.99)	(-0.54)
lnpcgdp_o	0.162	-1.722***
	(1.48)	(-9.41)
lnpcgdp_d	-0.535**	2.203***
	(-3.00)	(7.57)
lnTOT	0.138	0.591
	(0.21)	(0.94)
openess	26.68	-2.822
	(1.90)	(-0.19)
lnhours	-0.399***	-0.241***
	(-5.33)	(-3.41)

lndocs	-0.0748	-0.0850
	(-0.27)	(-0.33)
landlocked_d	-0.647	0
	(-1.32)	(.)
lntranscost	-0.479	0.0429
	(-1.88)	(0.17)
governance	0.0597	0.0999
	(0.50)	(0.78)
comesa	4.100***	0
	(8.14)	(.)
_cons	19.43***	6.701
	(5.16)	(1.81)
N	998	998

*t statistics in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001;*

The dependent variable is the log of Kenya's exports to its various African counterparts

Model 1, employs the random effects approach, revealing interesting insights into the impact of various independent variables. The coefficient of the lnpcgdp_o (natural logarithm of partner country GDP at the origin) is positive and significant at the 0.001 level, standing at 0.162. However, lnpcgdp_d (natural logarithm of partner country GDP at the destination) exhibits a negative and statistically significant coefficient of -0.535 at the 0.01 level, implying that as the destination country's GDP increases, Kenya's exports decrease.

Model 2 introduces fixed effects, altering the dynamics of the analysis. Notably, lnpcgdp_o coefficients maintain a similar trend but with different magnitudes. The negative and highly significant coefficient for lnpcgdp_o (-1.722) in Model 2 indicates a substantial impact on Kenya's exports, suggesting that a higher GDP at the origin significantly reduces exports. Conversely, lnpcgdp_d in Model 2 exhibits a positive and highly significant coefficient of 2.203, suggesting a substantial positive impact on exports as the GDP of the destination country increases. This finding contradicts the results obtained in Model 1.

Several other variables also play a critical role. The negative coefficients for lnhours and lndocs, both significant at the 0.001 level, indicate that longer customs clearance times and a greater number of customs documents required negatively

affect exports. Furthermore, the presence of COMESA is found to significantly boost Kenya's exports in both models, with a higher t-statistic in Model 1.

It is worth noting that there are pertinent issues with panel regression models' error terms, which include autocorrelation, heteroskedasticity, and cross-sectional dependence (Greene, 2018). This could be a possible culprit for the remarkable disparities in the results obtained as evidenced by the presence of heteroscedasticity and cross-sectional dependence in Appendix 1.

5.2   Main Results

Following the weaknesses presented in the baseline model, that is, the random and fixed effects models, FGLS regression is employed in the study as suggested by Abadie et al. (2017). Beginning with macroeconomic variables, the results for the lnpcgdp_o (natural logarithm of partner country GDP at the origin) and lnpcgdp_d (natural logarithm of partner country GDP at the destination) coefficients are both highly significant at the 0.001 level. The positive coefficients (0.566 for lnpcgdp_o and 0.754 for lnpcgdp_d), are indicative that as Kenya's GDP grows, it reflects an increase in productive capacity making it able to export more. On the other hand, when the partner's GDP grows, the purchasing power of firms and households also grow allowing them to import more. Similar results were obtained by studies conducted by   Binh, Duong, and Cuong (2011) who found the coefficient of GDP for both the exporting and importing countries to be positive and statistically significant in Thailand.

The variables relating to trade facilitation — those that generally affect trade cost and time — had negative coefficients. These were indicated by the coefficients of lntranscost (transportation costs), lnhours (logarithm of hours for customs clearance), and lndocs (logarithm of the number of required customs documents). The coefficient for lnhours was -0.395 with a t-statistic of -5.94, both highly significant at the 0.001 level. This negative coefficient suggests that for each unit increase in the logarithm of customs clearance times, Kenya's exports decrease by approximately 0.395 units. Longer clearance time may result in delays and increased transaction costs, discouraging timely exports. On the other hand, the coefficient for lndocs was -0.346 with a t-statistic of -2.18, significant at the 0.05 level. This negative coefficient implies that for each unit increase in the logarithm of the number of required customs documents, Kenya's exports decrease by approximately 0.346 units. A higher number of required documents can pose administrative burdens, potentially slowing down the export process. Finally, the coefficient for lntranscost was -1.180, and the t-statistic was -8.36 indicating a 1.0 per cent level significance. This suggests that as transportation costs rise, the ability or willingness of firms or exporters to engage in international trade diminishes, leading to a notable reduction in Kenya's export levels. Trade costs are always passed on to the end user and according to arguments posited in the theory of demand and supply, demand is inversely related to the prices of commodities. The results are similar to those of Khaturia and Kumar (2020).

Regarding institutional stability, the study obtained a significant coefficient at 5.0 per cent for the dimensionally reduced score obtained from PCA (β=0.154). This is indicative that a one-point change in institutional stability for Kenya's trading partner will result in a 0.154 per cent change in Kenya's exports to that country. These findings are similar to that of Zongo and Oyelami (2021) who found the six governance indicators coefficient to be positive and significant in a sample of 48 countries. A higher institutional stability score indicates a more stable and predictable environment for economic activities, which, in turn, correlates with increased exports from Kenya to the trading partner.

Finally, the coefficient for moderating variables for countries belonging to COMESA was 3.636 and statistically significant at 1.0 per cent, meaning that by a country being in COMESA, which is a customs union, Kenya's trade to that country increases by 1.05 per cent. Similar results were found by Oiro (2020) focusing on COMESA and non-COMESA countries. The coefficient for lnTOT (the natural logarithm of Terms of Trade) was highly significant at the 0.001 level, with a value of 1.473 and a t-statistic of 3.97. This indicates that favourable terms of trade have a substantial positive impact on Kenya's exports, suggesting that as the terms of trade improve, the country experiences a notable increase in export levels. Secondly, the coefficient for openness was also highly significant at the 0.05 level, standing at 9.557 with a t-statistic of 2.17. This implies that increased openness, possibly reflecting a more liberalised trade environment, is associated with a significant and positive effect on Kenya's exports to its African counterparts.

Table 5.2: Main results: Cross-sectional time-series FGLS regression

	(Model 3)
	FGLS
ln_reer	0.359
	(1.93)
lnpcgdp_o	0.566***
	(20.60)
lnpcgdp_d	0.754***
	(13.57)
lnTOT	1.473***
	(3.97)
openness	9.557*
	(2.17)
lnhours	-0.395***

	(-5.94)
lndocs	-0.346*
	(-2.18)
landlocked_d	-0.431***
	(-4.33)
lntranscost	-1.180***
	(-8.36)
governance	0.154**
	(2.95)
comesa	3.636***
	(38.97)
_cons	30.51***
	(13.29)
N	998

*t statistics in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001*

The dependent variable is the log of Kenya's exports to its various African counterparts.

6.   Conclusion and Recommendations

6.1   Conclusions

The study focused on the gravity of bilateral trade between Kenya and its African trading partners to establish Kenya's trade potential within the AfCFTA and identify barriers likely to hinder full realisation of this potential. In that regard, a sample of 48 African countries (except for Eritrea, which is not a signatory to the AfCFTA) was included in the study, using data spanning from 2000 to 2021. The exclusion of six countries (Libya, Somalia, Southern Sudan, and Western Sahara) was mainly informed by gaps in data, The study employed traditional panel data models, including random effects and fixed effects models. However, it was established that both heteroskedasticity and cross-sectional dependence were present in the data. As a result, a more suitable approach, in this case, feasible generalised least squares was adopted to avert the mentioned econometric violations.

From the FGLS analysis, several conclusions can be drawn. First, the partner country's GDP at both the origin and destination significantly influences Kenya's exports. A higher GDP at the origin positively impacts exports, while a higher GDP at the destination has a substantial positive effect. This implies that economic size and demand in both the origin and destination countries play pivotal roles in driving Kenya's exports. GDP characterises the market size and purchasing power of trading partners. Meaning that the firms and households can demand imports. Similarly, for the exporter, GDP may lead to increased export growth by boosting technology adoption and increasing the volume of imports used as inputs for the export-oriented industry.

Secondly, the study established that Kenya's exports have a higher reception in countries that are members if similar trading blocks, in this case, COMESA which is a customs union. This is a reflection that Kenya has a competitive edge in exporting to countries within COMESA. Furthermore, the study found that logistical factors, including customs clearance time, the number of required customs documents, and the transport cost of a 40 ft. container exhibit negative and statistically significant coefficients. This indicates that longer clearance time and a higher number of required documents significantly hinder Kenya's exports; final consumers will shoulder the burden of trade cost of import tariffs in the form of increased prices on imported goods (or items that use imported materials), eventually affecting their purchasing power.

Finally, the study concludes that institutional stability provides a favourable environment for Kenya's products within AfCFTA. Effective governance at all levels is essential for security, political stability, and economic prosperity. Additionally, it plays a significant role in stability and security. Good governance strengthens economic benefits and hastens economic development in a worldwide society.

6.2   Policy Recommendations

i.   Harmonisation of trade procedures and policies: To address the challenges of transport costs, prolonged clearance time, and excessive documentation, it is important to prioritise the harmonisation of trade procedures and policies by the AfCFTA member states. This is to be done through streamlining and simplifying cross-border trade processes to enhance efficiency, reduce bureaucratic obstacles, and create a more conducive environment for exporters. By fostering greater coherence in trade-related regulations, Kenya can unlock its export potential and capitalise on opportunities within the AfCFTA region.

ii.   Harmonisation of domestic tax policies to facilitate trade: Empirical results show a negative relationship between ad-valorem taxes on manufactured and agricultural commodities with exports to the destination countries. To ensure reduced cost of exports, countries need to harmonise tax policies and laws on domestic taxes to foster small business development and regional economic growth thus enhancing the welfare of the consumers due to reduced prices.

iii. Export expansion: Empirical analysis shows greater trade impact for countries within the same regional economic bloc such as COMESA. Building on the expanded market with the AfCFTA framework, Kenya should target to increase her share of exports within the African continent considering a wider market access for the goods and services. The country should focus on fast-tracking the implementation of the integrated national export development and promotion strategy to ensure more products are exported to the AfCFTA partner states.

iv.   Promote institutional stability: Institutional stability provides a favourable environment for the export of Kenya's products within the AfCFTA. Specifically, regulatory equality and voice and accountability stood out. Kenya should champion the AfCFTA partner states to implement a sound institutional framework to facilitate transparency, growth, and security to boost intra-African trade. Additionally, Kenya should advance its role in resolving conflicts, combating extreme armed groups, championing policies to reduce corruption, and ensuring the rule of law is enforced.

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Appendices

Appendix 1: Post-estimation diagnostic tests

Test	Statistic	Pr
Modified Wald test for groupwise heteroskedasticity	chi2 (48) = 42487.73	0.0000
Wooldridge test for autocorrelation in panel data	F (1, 47) = 2.131	0.1510
Breusch-Pagan LM test of independence	chi2(1128) = 2292.176	0.0000

Appendix 2: Countries included in the study

1	Angola	25	Morocco
2	Burundi	26	Mali
3	Benin	27	Mozambique
4	Burkina Faso	28	Mauritania
5	Botswana	29	Mauritius
6	Central African Republic	30	Malawi
7	Côte d'Ivoire	31	Namibia
8	Cameroon	32	Niger
9	Democratic Republic of the Congo	33	Nigeria
10	Congo	34	Rwanda
11	Comoros	35	Sudan
12	Cabo Verde	36	Senegal
13	Djibouti	37	Sierra Leone
14	Algeria	38	Sao Tome and Principe
15	Egypt	39	Eswatini
16	Ethiopia	40	Seychelles
17	Gabon	41	Chad
18	Ghana	42	Togo
19	Guinea	43	Tunisia
20	Gambia	44	United Republic of Tanzania: Mainland
21	Guinea-Bissau	45	Uganda
22	Equatorial Guinea	46	South Africa
23	Liberia	47	Zambia
24	Lesotho	48	Zimbabwe