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KENYA'S EXPORT DETERMINANTS AND ITS POTENTIAL EXPORT MARKETS

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Abstract

This study examines Kenya's export determinants and its potential export markets using secondary data for the period 2002-2021 covering 40 trading partners. The study addresses two specific objectives: to identify factors that determine Kenya's exports to its trading partners and to identify the export destinations that Kenya still has unutilized/untapped export potential. The first objective was achieved by applying the Poisson Pseudo Maximum Likelihood (PPML) estimator on an augmented gravity model and the results obtained used to estimate the export potential. Results reveal that Kenya's exports are positively impacted by an increase in GDP of both Kenya and its trading partners, sharing a common border, and sharing a common language. Preferential trade arrangements with the European Union and within the COMESA framework were also found to be export-enhancing. The results further show that Kenya has the highest potential with Uganda, the United Kingdom, Tanzania, the Netherlands, and the United States of America. Comparing the country's potential across different regions of the world revealed Africa as the region with the most potential. The policy implications of this study are that: Kenya ought to put more emphasis on eliminating barriers to trade within the region, deepening intra-regional trade integration, developing trade-related infrastructure, developing more diverse industries, and investing in them with an eye toward potential partners' market fundamentals. Focus should also be on revisiting regional and bilateral free trade agreements, as well as launching a concerted campaign to explore underutilized market opportunities in order to improve the trade balance.

Keywords: Export Potential, Kenya, Gravity model, Poisson Pseudo Maximum Likelihood

INTRODUCTION

A country's export structure demonstrates its trade stability, sustainability, and ability to compete in international trade. Developing countries including Kenya have been working hard to encourage economic development and alleviate poverty by establishing trade policies and strategies that increase their export volume (Ngepah & Udeagha, 2018). Trade openness highlights the importance of exports in promoting economic growth and development by providing access to new potential markets around the world. Increased trade openness enables economies of scale in the production of goods and services by facilitating domestic producers' access to larger markets (Pistoresi & Rinaldi, 2012).

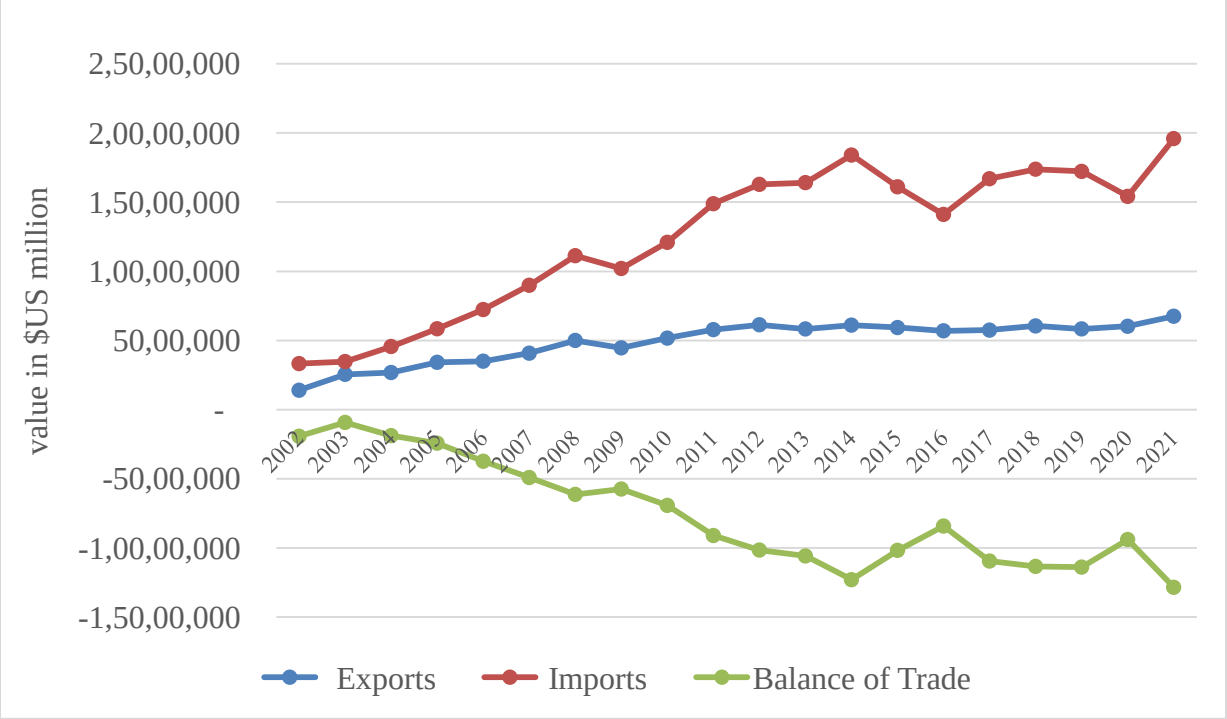
Export promotion encourages specialization in production, which increases a country's trade productivity (Giles & Williams, 2000; Krugman, 1995; Wamalwa & Were, 2021).Domestic producers are incentivized to increase production to benefit from higher profitability as a result of enhanced productivity and competitiveness. As a result, the trading nations benefit directly from the growth in productivity in terms of employment, income, and foreign exchange. Additionally, access to new markets results in the transfer of technology, human resources, and a wide range of consumer products (Boadu et al., 2021; Wamalwa & Were, 2021; Were, 2002).The extent to which a country benefits from exports is determined by how much of its market's potential can be realized (Boadu et al., 2021). Export growth can be achieved by expanding the existing export basket Helpman et al., (2008) or by introducing new export products (Evenett & Venables, 2002; Hummels & Klenow, 2005).

Kenya has pursued an export-led economic growth strategy for the last three decades in recognition of the importance of exports for the country's economic development (Wamalwa & Were, 2021; Were, 2002). The growth of East Asian economies (Thailand, South Korea, Singapore, Malaysia, and Taiwan) between 1960 and 1990 has been used to encourage the adoption of the strategy. The countries' experiences show that exports can play a significant role in supporting rapid growth, creating jobs, reducing poverty, and encouraging the rise of a modern manufacturing sector even though the evidence in its favor is not conclusive across the board. If the level of trade openness of a country is closely monitored, this strategy can result in rapid economic growth (Giles & Williams, 2000).

However, despite all the initiatives Kenya has undertaken to improve trade over the years, an examination of trade statistics reveals that its exports have not grown as rapidly as those of other Asian countries pursuing the same strategy. According to the International Trade Centre (ITC) data, the value of Kenya's total exports and imports in

2021 was estimated at $6,751,366,221 billion US dollars and $19,594,117,729 billion US dollars respectively. This indicates a negative Balance of Trade (BoT) of approximately $12,842,751,508 billion US dollars. Kenya's this BoT has been worsening, with the difference between exports and imports reaching a peak in 2014. This assertion is further supported by the persistent trade deficit recorded over the years as illustrated in the figure 1 below.

Figure 1: Kenya's Balance of Trade 2002 -2021

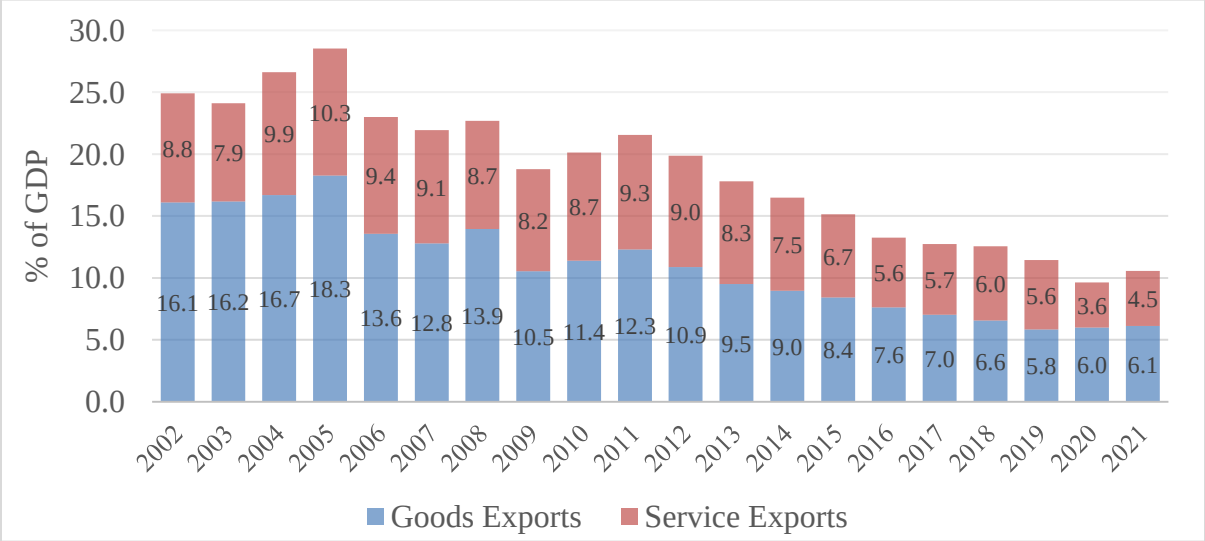


Source: Own calculations based on International Trade Centre (ITC) data

Over the last decade, the export of goods has increased by approximately 16.5% in value from $5.1 billion US dollars in 2010 to $6 billion US dollars in 2020. In spite of the pandemic in 2020, Kenya's exports of goods managed to increase by approximately 3.2% from US$5.8 billion to $6 billion US dollars, which can be credited to the continued demand for Kenyan tea, coffee, horticulture, and apparel products worldwide (KNBS, 2021).

Nevertheless, figure 2 below shows that the role of exports in Kenya's economic growth as measured by the percentage share of exports in Gross Domestic Product (GDP), has been steadily declining in the past decade. The share of merchandise exports decreased from approximately 12.3% in 2011 to 6.1% in 2021 implying that there is much to investigate in terms of promoting the role played by exports in Kenya's economic development.

Figure 2: Kenyan goods and services exports (% of GDP) 2002-2021



Source: Own calculations based on International Trade Centre (ITC) data

Overview of Kenya's' Export Sector

A large portion of Kenya's exports is made up of agricultural products, manufactured goods, and garments and clothing components. The structure consists primarily of agricultural products, with the highest contributions to total commodity exports coming from 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 like horticultural products over the past few decades. Up until the 1980s, when the performance showed a downward tendency and the export of tea overtook coffee as the leading export, coffee had made up the majority of all commodity exports (Were, 2002).On the other hand, tea exports have remained stable over the years. While coffee exports made up $238.4 million US dollars of overall exports in 2021, tea exports accounted for $1.19 billion US dollars (KNBS, 2021).

Kenya's major exports in 2021, according to ITC data 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 $6.02 billion US dollars, the value was estimated at $6.75 billion US dollars in 2021 an increase of about 12%. In addition, according to World Bank data, 34% of Kenya's total exports went to Sub-Saharan Africa, 26% to Europe and Central Asia, 12% to the Middle East and North Africa (MENA) region, 10% to South Asia, and 8% to North America. As of 2021, the top export markets for Kenya's goods by country of destination are Uganda, the Netherlands, Pakistan, and the United Kingdom (UK).

While the manufacturing sector has been struggling, Kenya's economy has been characterized as having a strong agricultural foundation. Manufacturing exports were small and

declining during the 1980s with their percentage share of overall exports falling from 16% in 1976 to approximately 13% in 1991. A weak incentive system in favor of domestic production over production for export, and limited efficient import substitution opportunities were the main causes of the manufacturing sector's dismal performance. Furthermore, given that the EAC acted as the traditional market outlet for Kenya's manufacturing sector, its collapse in 1977 made the situation even worse (Oiro et al., 2019).

Over time, the performance of manufactured exports has steadily improved since the implementation of export-oriented policies. The manufacturing sector's performance was aided by export promotion measures that encouraged manufactured goods exports, increased domestic demand for manufactured goods, and overall trade liberalization policies that eliminated selective restrictions on imports of raw materials. According to data from the World Bank, Kenya's manufactured exports as a share of its merchandise exports were at 30.2% as of 2021.

Research Problem

Over the years, Kenya has adopted liberal trade policies that are aimed at promoting economic growth and development by maximizing potential in industry and agriculture. Despite these efforts, overall export performance failed to take advantage of expansion opportunities resulting in slow-moving export growth over the last decade (Wamalwa & Were, 2021). At 0.03%, Kenya’s share in the world’s trade is not only negligible but also decreasing. The country ails from a long-standing negative balance of trade as it has been unsuccessful at increasing exports over imports. Furthermore, Kenya's merchandise exports are heavily concentrated in agricultural products destined for a few countries.

Primary agricultural exports tend to have lower prices and income elasticity hence yielding low and volatile foreign earnings in comparison to manufactured exports (Were, 2002). The wide presence of primary products implies that Kenyan exports are more sensitive to fluctuations in the international market. The country’s potential for trade revenue is further limited by the narrow competitiveness of its exports in the global market. The situation is further aggravated by the concentration of products and market destinations implying that Kenya is not growing its export market. Only thirteen nations account for more than 70% of all of Kenya’s exports globally, indicating that the destination markets for Kenyan exports have remained limited. Additionally, the product base has also been limited with 56% of total exports falling into just five major product categories (Raga et al., 2021).

In order to cushion itself against external shocks, increase its export volume and expand market access to other destinations, there is a need to determine the factors that influence

Kenya's merchandise export flows to its trading partners and to identify countries with which it has untapped export potential.

LITERATURE REVIEW

Theoretical Literature Review

Various theories have been developed to explain and justify why countries trade with each other. While no comprehensive theory exists to explain the determinants of exports, historical theories originating in the classical school of thought attempted to provide the rationale for international trade. The theory of absolute advantage argues that a nation should specialize in the production and export of goods in which it has an absolute advantage while importing that which is produced at a high cost; the theory of comparative advantage 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; Heckscher-Ohlin (H-O) theory proposes that a country should specialize in producing and exporting goods that make the most use of the abundant and less expensive factors of production and import the goods that require contrary combinations of production factors; the New trade theory argues that the existence of economies of scale in production (increasing returns to scale) is enough to bring about beneficial trade between any two nations; the 'new' new trade theory argues that trade exposure will simultaneously compel the least productive firms to exit while encouraging only the more productive firms to enter the export market, whereas other less productive firms continue to produce solely for the domestic market; the gravity model of international trade suggests that bilateral trade between two countries is directly dependent on the proportion of their economic masses and inversely related to the distance between them. It argues that countries with higher economic masses trade more compared to those with smaller economic masses and explains why trade relations between large economies are stronger compared to those between smaller ones and why countries with closer geographic distances trade more than far-off ones.

Empirical Literature Review

Empirically, the gravity model has been extensively used to investigate trade flow behavior across trading partners. Using panel data Waheed & Abbas (2015), revealed that real exchange rate depreciation and foreign currency reserves of the trading partner have a significant positive effect on the export flows of Bahrain. Canada, the USA, the Philippines, and Indonesia were identified as potential markets for exports from Bahrain. Sato (2020), found that an increase in the GDP of the importer, trading with countries that have sea access and share a common border and the depreciation of the Kenyan shilling led to an increase in tea exports from Kenya. On the other

hand an increase in the GDP per capita and population of the importing country had a negative correlation to tea exports. Using cross-sectional data Irandu (2019), revealed that purchasing power parity, GDP, and Population size directly and significantly influence Kenya's horticulture exports to its trading partners. On the contrary, there was an inverse relationship between distance and horticulture export flows. Additionally, the results showed that the colonial link was a significant factor that influenced horticulture exports to Europe.

Ngugi (2016), found out that the GDP of both countries, institutional quality, and internal transport infrastructure positively influence Kenya's trade flows. Further, the study revealed that Kenya traded more with countries that had similar factor endowments, demand structure, and per capita income. However, results also revealed that being a member of the EAC had a negative and statistically insignificant effect on bilateral trade contrary to gravity model expectations.

Summary of the Literature

In summary, despite their weaknesses, the international trade theories provide rationale for why countries including Kenya decide to engage in international trade. The empirical literature revealed rather mixed results based on the choice of variables. Whereas some studies analyzed macroeconomic factors that affect the performance of exports like real exchange rates, GDP, population, trade openness, and foreign direct investment, other studies considered variables like institutional quality and cultural factors. The studies further revealed that the results were dependent on the methodology adopted, the estimation technique, and the study period considered. In addition, studies in the Kenyan context have majorly focused on the export performance of individual agricultural exports like tea and horticulture. Therefore, this study will contribute to the existing literature in the context of export performance of merchandise exports covering both agricultural and manufactured exports.

METHODOLOGY

The methodology adopted for this study is based on the theoretical foundations of the gravity theory of international trade by using the Poisson Pseudo Maximum Likelihood Estimator on an augmented gravity model. This study used panel data consisting of merchandise export flows from Kenya to 40 partner countries over 20 years covering the period 2002-2021. The countries' choice was informed by the availability of data for different variables and the volume of export flows. The sources of data included: International Trade Centre, World Development Indicators, COMESA website, World Trade Organization (WTO) database, and the European Union Gateway website.

The standard gravity model of international trade takes the form:

$$Trade_{ijt} = \alpha \frac{GDP_{it}^{\beta_1} * GDP_{jt}^{\beta_2}}{D_{ij}^{\beta_3}} \quad (1)$$

Where, $Trade_{ijt}$ is bilateral trade flows from country i to country j at time t, GDP is the economic size of the countries,D_{ij} is the distance between the capital cities of the two countries, α, β_1,β_2 and β_3 are coefficients to be estimated.

The linear model is specified as follows:

$$Exp_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Pop_{it} + \beta_4 \ln Pop_{jt} + \beta_5 \ln Distance_{ij} + \beta_6 Landlocked_{ij} + \beta_7 Language_{ij} + \beta_8 Border_{ij} + \beta_9 Com_{col_{ij}} + \beta_{10} COMESA_{ij} + \beta_{11} EU_{ij} + \varepsilon_{ijt} \quad (2)$$

Where,

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

GDP_{it} = GDP of country i in year t

GDP_{jt} = GDP of country j in year t

Pop_{it} = population of country i at time t

Pop_{jt} = population of country j at time t

D_{ij} = geographical distance in kilometers between the capital cities of countries i and j

$Landlocked_j$ = dummy variable for sea access for the importing country j

$Language_{ij}$ = dummy variable for sharing a common language between i and j

$Border_{ij}$ = dummy variable for sharing a common border between i and j

$Com_{col_{ij}}$ = dummy variable for having a common colonizer between i and j

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

EU_{ij} = dummy variable for membership to the European Union (EU) by country j

ε_{ijt} represents the error term, β_0 the intercept and β_1 to $\beta_{11}$are coefficients of the variables.

The study estimated the export potential by using the estimated significant coefficients obtained from estimating the gravity model in simulations to predict the volume of trade between Kenya and its trading partners based on the availability of data on GDP, distance, population, and other variables considered. The main assumption is that the predicted or expected values for exports represent potential trade that can be attained. The export potential is then determined by comparing the actual values of exports with the predicted values (Dadakas et al., 2020; Gul & Yasin, 2011).

The absolute difference between the potential and actual values of export trade used to determine whether or not a country has untapped export trade potential. The potential for future

export trade expansion of a country will be shown by a positive value, whereas a negative value will show that the country's exports have already surpassed its trade potential (Batra, 2006; Kumar et al., 2021; Ram & Prasad, 2007).

In this study, equation 3 was considered to estimate the predicted exports:

$$Exp_{ijt} = 15.71 + 0.398 \ln GDP_j + 0.627 \ln GDP_i - 0.544 \ln Dist_{ij} - 0.7010 landlocked + 0.8444 language + 0.3633 border + 0.9362 COMESA + 0.6802 EU \quad (3)$$

ANALYSIS AND RESULTS

Factors that determine Kenya's exports to its trading partners

Conventional empirical estimators for evaluating gravity models are prone to giving biased and inconsistent results due to the presence of zero trade flows in the data and the presence of heteroscedasticity. To overcome these problems, this study employed the use of the PPML estimation technique introduced by (Santos & Tenreyro, 2006) as it gives consistent results by allowing the dependent variable at levels that allow for zero trade flows as well as addressing issues associated with endogeneity of variables and multilateral resistances involved in trade data (Agboola et al., 2018; Dadakas et al., 2020; Kumar et al., 2021; Mulabdic & Yasar, 2021; S. Santos & Tenreyro, 2006). The PPML estimation results are shown in table 1.

Both the importer's GDP and Kenya's GDP have a significant and positive impact on Kenya's export flow. This implies that if all other factors remain constant, an increase in the partner country's (GDPj) by 1% will result in an increase in Kenya's exports by 0.39%. On the other hand, if Kenya's (GDPi) increases by 1%, exports will increase by 0.62%. The results suggest that in the partner countries, a rising level of income results in an increase in demand for Kenyan goods where as an increase in Kenya's income levels implies an increase in its domestic production capacity. This suggests that assuming all other conditions remained constant, countries with better economic potential will import more from Kenya.

An increase in Kenya's population negatively impacts exports while the population of the trading partner positively impacts Kenya's exports. The population of a nation can have a positive or negative impact on its exports. By increasing labor as a factor of production and boosting domestic production, a large population can increase exports. In contrast, an increasing population may result in more local consumption, which reduces the quantity of goods available for export.

The distance coefficient has a negative sign and is statistically significant implying that distance has a negative impact on Kenya's export flows. On average, an increase in distance leads to a decrease in Kenya's export flows by 0.54% ceteris paribus. This demonstrates that

Kenya trades with countries with lower transportation costs more than with countries with higher transportation costs.

The landlocked dummy shows a negative sign but has a statistically significant impact suggesting that ceteris paribus, on average, the lack of seaports reduces bilateral trade between trading partners by 0.5% $(e\text{^}(-0.7) - 1) * 100$. This can be explained by the fact that trade between countries that have seaport access attracts less transactional and transportation costs compared to trading with countries with no sea access (Ram & Prasad, 2007).This implies that Kenya is likely to export less to landlocked countries.

Theory and empirical findings from other studies indicate that sharing a common border and a common language has a positive and significant impact on bilateral trade. This suggests that ceteris paribus, relative to its other trading partners, Kenya is likely to export more to nations with which it shares language connections and a border. The coefficients on the dummy variables representing these effects are positive and significant.

In contrast to the results obtained by (Sato, 2020) and other empirical studies that predict a positive influence of common colonies, the dummy variable describing these impacts has a negative and insignificant coefficient.

The coefficients for both COMESA and EU dummies are positive and statistically significant implying that on average preferential trade arrangements and membership to regional economic communities increase Kenya's export flows by 1.45% and 0.82% respectively.

Table 1: Results of the Poisson Pseudo Maximum Likelihood (PPML) Estimation

Independent Variables	Coefficients	Std. Err.	P-Value
LnGDPj	0.399***	0.095	0.000
LnGDPi	0.627**	0.301	0.038
LnPopj	0.088	0.066	0.184
LnPopi	-1.569	1.301	0.228
LnDist	-0.544***	0.198	0.006
Landlocked	-0.701***	0.115	0.000
Language	0.844***	0.110	0.000
Border	0.363*	0.207	0.080
Com_col	-0.087	0.097	0.368
COMESA	0.936***	0.222	0.000
EU	0.680***	0.126	0.000
_cons	15.710	15.746	0.318
Observations		800	
Number of Parameters		12	
R-squared		.57038916	

Note: *, **, and *** denote significance level at 10%, 5%, and 1%, respectively.

Export destinations that Kenya still has unutilized/untapped export potential.

For all the 40 sampled countries, all countries recorded a positive value (see table A2) implying that the export potential predicted by the gravity model is far greater than the actual bilateral export observed. As per the volume of exports, Uganda, the UK, Tanzania, the Netherlands, and the USA are the top five partner countries with the highest export potential for Kenya between 2002 to 2021

Comparing the potential of Kenya's exports across different regions of the world Africa emerged as the region with the most potential. Besides Uganda and Tanzania where export potential tops the list, there is vast unutilized potential within other African countries like Rwanda, Burundi, South Africa, Malawi, and the Democratic Republic of Congo. This suggests that, although Kenya has been trading with these countries for a long time, export levels are nowhere near their actual potential.

In the European region, the UK and Switzerland reveal the highest potential of about $68,225.60 US million dollars and $5,864.25 US million dollars respectively. For the EU member countries, the export potential was greatest in the Netherlands and Germany with values of about $57,489.60 US million dollars and $15,470.20 US million dollars respectively. Compared with the rest of the EU members relatively higher potential was revealed in Russia, France, Belgium, Italy, and Spain. In Asia, it was realized that Kenya has greater export potential to Pakistan, India, China, and Japan.

In North America, both the US and Canada had untapped potential for expanding exports with the former having about $51,413.60 US million dollars and the latter having $2,812.22 US million dollars. The results further show that Kenya's exports towards the MENA region were on the rise as non-traditional export markets like UAE and Qatar revealed considerable export potential.

SUMMARY

The gravity model was used to investigate the export potential and the factors that influence bilateral export flows between Kenya and its trading partners. The gravity model was used to identify the drivers of Kenya's bilateral merchandise export flows and to further explore potential markets for Kenyan exports. This was accomplished using the PPML estimation technique in a two-step process that involved using significant estimates to predict export values in the first step and export potential in the second.

The study revealed that the domestic supply capacity (GDPi) and the partner countries' demand potential (GDPj) have a significant positive impact on Kenya's export flow whereas bilateral distance shows a significant negative impact. A finding that is consistent with the

expectations of the gravity model arguments. In addition, the study found that the importer's population (Popj) which is assumed to represent the market size in this study has a positive but insignificant impact whereas Kenya's population(Popi) has a negative and equally insignificant impact which is an unexpected finding.

Conversely, the distance between the capitals of countries and having colonial links had a negative influence on Kenya's bilateral export flows in goods with the former being significant and the latter insignificant. The dummy variables of common language and common border show a significant positive impact on export flows whereas the landlocked dummy has a significant negative impact. Membership by the trade partners to COMESA and the EU was found to have significant positive effects on Kenya's exports.

In addition, the study revealed that most of Kenya's underutilized export potential is highest in the African region (Uganda, Tanzania, Congo, Rwanda, and Burundi) followed by the European region (Netherlands, UK, Germany, France, and Russia) and the Asian region (Pakistan, India, China, and Japan).

CONCLUSION

This study has identified that an increase in the GDP of both Kenya and its trading partners, and sharing a common border and language are the main drivers of export flows in Kenya. The estimated export potential shows that Kenya and its respective trading partners are trading much less than what the gravity model predicts, implying that Kenya needs to put measures in place to take advantage of the unutilized export potential. The study established that; Kenya trades more with countries with minimal transactional and transportation costs, (measured in kilometers between capital cities), nations whose incomes are alike (as measured by GDP) and consume goods of the same kind, and the highest export potential being within the African region. Hence, Kenya should focus on diversifying its export market with the rest of the African countries.

POLICY RECOMMENDATIONS

Based on these key findings, the following recommendations for trade policy formulation are advanced to increase Kenya's export volume to the rest of the world in order to maximize trade benefits and accelerate the country's economic growth.

Kenya ought to maintain its engagement, particularly with high-income trade partners given that increased GDPs for importing partners positively impact Kenya's export trade. If the country stays dedicated to trading agreements like those envisioned in the AfCFTA and secures the preferential market access terms offered by the EU and the USA through the EPA and

AGOA respectively, this can be accomplished with ease. It should be noted that the EAC-EU EPA is still under negotiation and that AGOA expires in 2025.

The finding that distance has a negative relationship with export flows necessitates the improvement of trade-related infrastructure. One of the major issues is the inadequacy of the region's transport and infrastructure network. These include airports, railways, seaports, and road highways. There is a need to expand, improve and modernize trade-related infrastructure in Kenya, as it facilitates cheaper and faster movement of people, raw materials, and finished products. The current administration is moving in the right direction by emphasizing infrastructure development.

The study revealing that all countries considered for this study have untapped potential implies that there is a lot of room for Kenya's export market to grow. It is critical to address supply-side constraints to increase the productivity of goods in which the state has a high comparative advantage. It is imperative to improve production technologies in order to improve export quality and increase product competitiveness in global markets through quality control and cost efficiency. Production capacity can also be increased by fostering a favorable environment for the private sector. The manufacturing sector can be boosted by providing technical and financial assistance to micro, small, and medium-sized enterprises with a focus on value addition and enhancing their role in encouraging export trade.

Given that agricultural products account for a large portion of Kenya's exports, policies aimed at increasing growth rates are necessary. By evaluating products with growing demand from Kenya's main trading partners (who import these products globally but not substantially from Kenya), new Kenyan products with promising export potential can be identified. For instance, there's been an increasing demand for Kenyan Avocados in China (Raga et al., 2021).

To enhance and facilitate intra-regional trade flows with the rest of Africa (countries along the northern and western corridors), attention should also be paid to reducing or eliminating tariff and non-tariff barriers that limit regional trade from attaining its full potential. The revelation that export potential exists in non-traditional markets such as the UAE and Qatar implies that more effort should be put into negotiating more trade agreements with Middle Eastern countries. Focus should also be on the implementation of the Kenyan export strategy (NEDPS) as it outlines how the country can diversify its export base.

SCOPE FOR FURTHER RESEARCH

This study recognized Africa as the region holding the greatest potential for Kenyan exports when compared to various regions worldwide. Nevertheless, the study did not assess specific products showcasing export potential. Further investigations can be conducted to

identify products with significant potential within the African continent, taking into account Kenya's participation in the Africa Continental Free Trade Area (AfCFTA).

REFERENCES

Abbas, S., & Waheed, A. (2019). Pakistan's Global Trade Potential: A Gravity Model Approach. *Global Business Review*, *20*(6), 1361–1371. https://doi.org/10.1177/0972150919848936.

Agboola, H., Shah Zainal Abidin, I., & Bakar, N. (2018). *An Empirical Analysis of Determinants of Malaysia's Export to OIC Countries in Africa*. www.ijbmer.com.

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *American Economic Review*, *69*(1).

Anderson, J. E., & Van Wincoop, E. (2003). Gravity with Gravitas: A Solution to the Border Puzzle. *The American Economic Review*, *93*(1).

Baldwin, R., & Taglioni, D. (2006). *Gravity for Dummies and Dummies for Gravity Equations*. https://doi.org/10.3386/w12516.

Baltagi, B. H., & Pesaran, M. H. (2007). Heterogeneity and cross section dependence in panel data models: Theory and applications introduction. *Journal of Applied Econometrics*, *22*(2), 229–232. https://doi.org/10.1002/jae.955

Baltagi, B. H. (2009). *Econometric analysis of panel data. 1*. John Wiley & Sons Inc.

Batra, A. (2006). India's global trade potential: The gravity model approach. *Global Economic Review*, *35*(3), 327–361. https://doi.org/10.1080/12265080600888090.

Bergstrand, J. H. (1985). The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence. *The Review of Economics and Statistics*, *67*(3), 474. https://doi.org/10.2307/1925976.

Bergstrand, J. H. (1989). The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade. *The Review of Economics and Statistics*, *71*(1), 143. https://doi.org/10.2307/1928061.

Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson Model, The Linder Hypothesis and the Determinants of Bilateral Intra-Industry Trade. *The Economic Journal*, *100*(403), 1216. https://doi.org/10.2307/2233969.

Boadu, M. T., Obeng, C. K., Dasmani, I., & Brafu-Insaidoo, W. G. (2021). Assessing Ghana's bilateral exports potential and gap. *African Development Review*, *33*(4), 634–647. https://doi.org/10.1111/1467-8268.12610.

Carbaugh, R. (2009). International Economics. *All Faculty Scholarship for the College of Business*. https://digitalcommons.cwu.edu/cobfac/115.

Carpenter, M., & Dunung, S. (2012). *Challenges and Opportunities in International Business (v.1.0).* Mountain View, California: Creative Commons by 3.0 licence. Retrievedfromhttps://2012books.lardbucket.org/books/challenges-and-opportunities-in-international-business/s06-01-what-is-international-trade-th.html.

Dadakas, D., Ghazvini Kor, S., & Fargher, S. (2020). Examining the trade potential of the UAE using a gravity model and a Poisson pseudo maximum likelihood estimator. *Journal of International Trade and Economic Development*, *29*(5), 619–646. https://doi.org/10.1080/09638199.2019.1710551.

Deardorff, A. V. (1998). *Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?* https://doi.org/10.1142/9789814340373_0024.

de Benedictis, L., & Vicarelli, C. (2005). Trade Potentials in Gravity Panel Data Models Trade Potentials in Gravity Panel Data Models *. In *Topics in Economic Analysis & Policy* (Vol. 5, Issue 1).

Egger, P. (2000). A note on the proper econometric specification of the gravity equation. *Economics Letters*, *66*(1). https://doi.org/10.1016/S0165-1765(99)00183-4.

Eita, J. H. (2016). Estimating export potential for a small open economy using a gravity model approach: evidence from Namibia. *The Journal of Developing Areas*, *50*(4), 273–288. https://doi.org/10.1353/jda.2016.0165.

European Commission. (2022). *Economic Partnership Agreement between the EU and the Eastern African Community (EAC)**. https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/9706d821-676e-4564-bd39-e8414fc6f26e/details.

Evenett, S. J., & Venables, A. J. (2002). *Export Growth by Developing Economies: Market Entry and Bilateral Trade*. https://www.researchgate.net/publication/36386198.

Giles, J. A., & Williams, C. L. (2000). Export-led growth: A survey of the empirical literature and some non-causality results. part 1. *Journal of International Trade and Economic Development*, *9*(3), 261–337. https://doi.org/10.1080/09638190050086177.

Greene, W. H. (2003). *Econometric analysis*. Prentice Hall.

Gujarati, D. N., & Porter, D. C. (2010). *Basic econometrics*. Mcgraw-Hill.

Gul, N., & Yasin, H. M. (2011). *The Trade Potential of Pakistan: An Application of the Gravity Model*.

Hausman', J. A. (1978). Specification Tests in Econometrics. *Source: Econometrica*, *46*(6), 1251–1271.

Heckscher, E. (1919). The Effect of Foreign Trade on the Distribution of Income. *Ekonomisk Tidskrift*, *21*.

Helpman, E.& Krugman, P. R. (1985). *Market structure and foreign trade: increasing returns, imperfect competition, and the international economy*. Wheatsheaf Books.

Helpman, E. (1987). Imperfect competition and international trade: Evidence from fourteen industrial countries. *Journal of the Japanese and International Economies*, *1*(1), 62–81. https://doi.org/10.1016/0889-1583(87)90027-x.

Helpman, E., Melitz, M., & Rubinstein, Y. (2008). Estimating trade flows: Trading partners and trading volumes. *Quarterly Journal of Economics*, *123*(2). https://doi.org/10.1162/qjec.2008.123.2.441.

Hummels, D., & Klenow, P. J. (2005). The variety and quality of a nation's exports. In *American Economic Review* (Vol. 95, Issue 3, pp. 704–723). https://doi.org/10.1257/0002828054201396.

International Trade Centre calculations based on UN COMTRADE statistics since January, 2021.

International Trade Centre calculations based on Kenya national bureau of statistics statistics since January, 2011 and until January, 2021.

Irandu, E. M. (2019). Factors influencing growth of horticultural exports in Kenya: a gravity model analysis. *Geo Journal*, *84*(4), 877–887. https://doi.org/10.1007/s10708-018-9888-x.

Karagoz, K., & Saray, M. O. (2010). Turkey with Asia-Pacific Countries : Evidence from Panel Gravity Model. *International Economic Studies*, *36*(January), 19–26.

Kitetu, G. M., & Ko, J.-H. (2015). A Comparative Study on the Export Determinants of Kenya and Korea: A Gravity Approach. *The Journal of International Trade & Commerce*, *11*(6), 137–152. https://doi.org/10.16980/jitc.11.6.201512.137.

KNBS. (2021). *Leading Economic Indicators.Nairobi*: Kenya National Bureau of Statistics (KNBS).

Krugman, P. (1995). Increasing returns, imperfect competition and the positive theory of international trade. *Handbook of International Economics*, *3*(C), 1243–1277. https://doi.org/10.1016/S1573-4404(05)80004-8.

Kumar, P., Sahu, N. C., & Ansari, M. A. (2021). Export Potential of Climate Smart Goods in India: Evidence from the Poisson Pseudo Maximum Likelihood Estimator. *International Trade Journal*, *35*(3), 288–308. https://doi.org/10.1080/08853908.2021.1890652.

Leamer, E. E. (1995). The Heckscher-Ohlin model in theory and practice: In Princeton Studies in International Finance. In *Journal of International Economics* (Vol. 41, Issues 1–2).

Leboo, M. (2015). *Determinants of Kenya's Export Performance under AGOA trade Preference Regime*.

Leontief, W. (1953). Domestic Production and Foreign Trade: The American Capital Position Re-Examined. *Proceedings of the American Philosophical Society*, *97*(4).

Mahona, B. K., & Mjema, G. D. (2014). Determinants of Tanzania and Kenya Trade in the East African Community: A Gravity Model Approach. In *Journal of Economics and Sustainable Development www.iiste.org ISSN* (Vol. 5, Issue 4). www.iiste.org.

Makochekanwa, A., Jordaan, A. C., & Kemegue, F. M. (2010). *Assessing Botswana's Textiles Export Trade Potential Using the Gravity Model*. http://ictsd.org/i/news/bridgesweekly/48336/.

Medin, H. (2014). *New trade theory: implications for industrial policy*.*Oslo*: Norwegian Institute of International Affairs(NUPI). www.nupi.no.

Melitz, M. J. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*, *71*(6), 1695–1725. https://doi.org/10.1111/1468-0262.00467.

Miankhel, A. K., Thangavelu, S., & Kalirajan, K. (2009). On modelling and measuring potential trade.*Indira Gandhi Institute of Development Research Proceeding/Project Reports Series*.http://www.igidr.ac.in/pdf/publication/PP-062-32.pdf.

Mohammedamin Mussa, B., Ramakrishna, G., & Ababa, A. (2018). Impact of Trade Costs on Export Performance of Ethiopia – A PPML Panel Gravity Equation Approach. *Journal of International Economics*, *9*(1), 32–47.

Mulabdic, A., & Yasar, P. (2021). *Gravity Model-Based Export Potential An Application to Turkey*. http://www.worldbank.org/prwp.

Mutai, G. K. (2019). *Determinants of Coffee Export Performance in Kenya*. https://doi.org/10.13140/RG.2.2.28098.81604.

Mwangi, E. N. (2021). Determinants of Agricultural Imports in Sub-Saharan Africa: A Gravity Model. In *African Journal of Economic Review: Vol. IX*.

Ngepah, N., & Udeagha, M. C. (2018). African regional trade agreements and intra-African trade. *Journal of Economic Integration*, *33*(1). https://doi.org/10.11130/jei.2018.33.1.1176.

Ngugi, J. W. (2016). *Determinants of Kenya's Bilateral Trade Flows*. International Journal of Economics, Commerce and Management, 2016, 159–198. http://ijecm.co.uk/.

Nishioka, S. (2006). An Explanation of OECD Factor Trade with Knowledge Capital and the HOV Model. *University of Colorado, Center for Economic Analysis Working Paper*, *No. 05-06*.

Ochieng', J., Musili, B., Mutuku, M., Munga, B., Laibuni, N., Mbaka, C., Moyi, E., Mwongera, N., Njogu, H., Chemnyongoi, H., Wafula, M., & Malot, K. (2021). *Kenya Economic Report 2021: Kenya in COVID-19 Era: Fast-Tracking Recovery and Delivery of the "Big Four" Agenda*.

Ohlin, B., & Shannon, H. A. (1936). Interregional and International Trade. *The Economic History Review*, *7*(1). https://doi.org/10.2307/2590762.

Oiro, M. O., Wanjala, B., Ngugi, R., Naudé, D. L., & Lukalo, D. (2019). *An Export-led Growth for Kenya: Where is the niche?*

Orindi, M. N. (2010). *Determinants of Kenyan Exports: A Gravity Model Approach*.

Pistoresi, B., & Rinaldi, A. (2012). Exports, imports and growth. New evidence on Italy: 1863-2004. *Explorations in Economic History*, *49*(2), 241–254. https://doi.org/10.1016/j.eeh.2011.11.003.

Raga, S., Mendez-Parra, M., & Willem Te Velde, D. (2021). *Promoting Kenyan exports, A country-and product-specific analysis ODI-FSD Kenya emerging analysis series*. www.odi.org/publications/promoting-kenyan-exports.

Rahman, M. M. (2009). *Australia's Global Trade Potential: Evidence from the Gravity Model Analysis*.

Ram, Y., & Prasad, B. (2007). *Assessing Fiji's Global Trade Potential using the Gravity Model Approach*.

Republic of Kenya. (1965). *Sessional Paper No. 10 of 1965 on African Socialism and its Application to Planning in Kenya*. http://repository.kippra.or.ke/handle/123456789/2345.

Republic of Kenya. (1986). *Sessional Paper No. 01 of 1986 on Economic Management for Renewed Growth*. http://repository.kippra.or.ke/handle/123456789/2679.

Ricardo, D., & Keynes, J. N., & Gonner, E. C. K. (1891). Principles of Political Economy and Taxation. *The Economic Journal*, *1*(4), 769. https://doi.org/10.2307/2956087.

Salvatore, D. (1998). *International Economics, Study Guide*. Wiley.

Salvatore, D. (2013). *International Economics*, *Study Guide*. Wiley.

Santos Silva, J. M. C., & Tenreyro, S. (2006). The Log of Gravity. *Review of Economics and Statistics*, *88*(4), 641–658. https://doi.org/10.1162/rest.88.4.641.

Santos Silva, J. M. C., & Tenreyro, S. (2011). Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator. *Economics Letters*, *112* (2), 220–222. https://doi.org/10.1016/j.econlet.2011.05.008.

Sato, M. N. (2020). Determinants of Kenyan Tea Exports: The Gravity Model Approach. *Journal of Economics and Sustainable Development*. https://doi.org/10.7176/jesd/10-14-15.

Smith, A. (1776). *An Inquiry Into the Nature and Causes of the Wealth of Nations*.

Södersten, B., Burenstam-Linder, S., & Sodersten, B. (1961). An Essay on Trade and Transformation. *Ekonomisk Tidskrift*, *63*(4), 284. https://doi.org/10.2307/3438742.

State Department of Trade-Kenya. (2018). *Integrated National Export Development and Promotion Strategy*. https://www.trade.go.ke/sites/default/files/NEDPS_Integrated_Strategy_1.pdf.

Suranovic, S. (2010). *International Trade: Theory and Policy.* Flat World Knowledge.

Tinbergen, J. (1962). Shaping the world economy. *The International Executive*, *5*(1), 27–30. https://doi.org/10.1002/tie.5060050113.

Waheed, A., & Abbas, S. (2015). Potential Export Markets for Bahrain: A Panel Data Analysis. *International Journal of Trade, Economics and Finance*, *6*(3), 165–169. https://doi.org/10.7763/ijtef.2015.v6.463.

Wamalwa, P. S., & Were, M. (2021). Is it Export- or Import-Led Growth? The Case of Kenya. *Journal of African Trade*, *8*(1), 33. https://doi.org/10.2991/jat.k.210818.001.

Were, Maureen. (2002). Analysis of Kenya's export performance: an empirical evaluation. *Kenya Institute for Public Policy Research and Analysis.*

World Bank. (2022). World Development Indicators. Retrieved October 20, 2022, from World Bank Group Data Catalog: https://datacatalog.worldbank.org/dataset/world-development-indicator.

WorldBank. (2022). World Integrated Trade Solution (WITS). Retrieved October 18, 2022, from https://wits.worldbank.org/.

Yego, Harrison. (2015). An Analysis of Kenyan Livestock Exports: A Gravity Model Approach. *Research journali's journal of Economics*, Volume 3.

APPENDICES

Appendix Ⅰ: Bilateral Trade Partners

Table A1: Kenya's Export Destinations considered for the Study

No.	Partner	No	Partner
1	Australia	21	Malaysia
2	Bahrain	22	Netherlands
3	Belgium	23	Nigeria
4	Burundi	24	Norway
5	Canada	25	Pakistan
6	China	26	Poland
7	Congo, Dem. Rep.	27	Qatar
8	Denmark	28	Rwanda
9	Egypt, Arab Rep.	29	Russian Federation
10	Ethiopia	30	South Africa
11	France	31	Spain
12	Germany	32	Sweden
13	Ghana	33	Switzerland
14	India	34	Tanzania
15	Ireland	35	Turkiye
16	Italy	36	Uganda
17	Israel	37	United Arab Emirates
18	Japan	38	United Kingdom
19	Korea, Rep.	39	United States
20	Malawi	40	Zambia

APPENDIX II: Export Potential

Table A2: List of countries with which Kenya has export potential

Country	Predicted Exports	Actual Exports	Potential Eports
Uganda	723,554.00	612,818.00	110,736.00
UK	477,308.10	409,082.50	68,225.60
Tanzania	402,761.30	343,435.40	59,325.90
Netherlands	418,926.30	361,436.70	57,489.60
USA	371,156.10	319,742.50	51,413.60
Pakistan	347,069.10	299,024.60	48,044.50
United Arab Emirates	237,498.90	206,114.00	31,384.90
Egypt,	200,313.80	172,446.40	27,867.40
Congo,	180,281.10	154,088.50	26,192.60
Rwanda	173,124.40	147,136.50	25,987.90
Germany	112,696.30	97,226.10	15,470.20
India	90,926.34	78,335.00	12,591.34
France	76,467.03	65,971.05	10,495.98
China	74,071.40	64,278.05	9,793.35
Burundi	66,576.59	56,999.05	9,577.54
Ethiopia	67,297.65	57,754.70	9,542.95
Russian	63,249.80	54,890.35	8,359.45
Belgium	58,934.51	50,847.80	8,086.71
Italy	47,372.69	40,870.25	6,502.44
Malawi	41,005.93	35,049.20	5,956.73
Switzerland	42,687.35	36,823.10	5,864.25
South Africa	40,544.84	34,931.10	5,613.74
Japan	38,011.42	32,987.35	5,024.07
Spain	31,983.61	27,593.85	4,389.76
Nigeria	30,212.63	26,029.70	4,182.93
Sweden	28,194.91	24,326.20	3,868.71
Canada	20,311.57	17,499.35	2,812.22
Australia	19,585.84	16,874.30	2,711.54
Norway	19,792.76	17,177.65	2,615.11
Poland	17,880.03	15,429.65	2,450.38
Israel	16,033.83	13,814.35	2,219.48
Ireland	14,871.84	12,738.70	2,133.14
Qatar	14,816.73	12,858.85	1,957.88
Korea,	14,459.06	12,548.25	1,910.81
Turkiye	13,700.90	11,890.20	1,810.70
Malaysia	9,874.29	8,569.85	1,304.44
Ghana	6,986.38	6,019.60	966.78
Denmark	6,341.12	5,471.05	870.07
Zambia	5,752.80	4,917.10	835.70
Bahrain	4,272.11	3,707.90	564.21