

**IMPACT OF THE EAST AFRICA COMMUNITY (EAC) CUSTOMS
UNION ON KENYA'S EXPORTS VOLUME**

By

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Declaration

This research project is my original work and has not been presented to any university for award. In addition, all sources that I have used or quoted have been indicated and acknowledged by means of complete reference.

Signed-----Date-----

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This research project has been submitted for examination with my approval as the University supervisor.

Signed-----Date-----

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Dedication

To my family, for their immense and unquantified love and support throughout my study duration.

Acknowledgement

I thank God for His mercy and love which enabled me undertake this study and special thanks to my supervisor, Dr. Benedicto Ongeru for his continuous and highly valued professional contribution and guidance. I appreciate the entire academic staff at the University of Nairobi, School of economics for their constructive criticism. Much thanks to my graduate school colleagues for their comments which were quite useful in shaping the paper.

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List of Acronyms and Abbreviations

ACP-African Caribbean and Pacific

AU-African Union

CEMAC-Central African Economic and Monetary Union

CET-Common External Tariff

CFTA-Continental Free Trade Area

CIS-Commonwealth Independent States

COMESA-Common Market for Eastern and Southern Africa

CU-Customs Union

EAC- East Africa Community

ECOWAS-Economic Community of Western African States

EPA-Economic Partnership Agreement

EU-European Union

FTAs-Free Trade Areas

GDP-Gross Domestic Product

GNI-Gross National Income

LPA-Lagos Plan of Action

OAU-Organization for African Unity

PTA-Preferential Trade Agreement

REC- Regional Economic Communities

RTA-Regional Trading Arrangements

SADC-Southern Africa Development Community

SSA-Sub Saharan Africa

UTR-Unilateral Tariff Reduction

WTO- World Trade Organization

Table of Contents

Declaration	ii
Dedication	iii
Acknowledgement	iv
List of Acronyms /Abbreviations	v
Table of Contents	vi
List of Tables	ix
List of Figures	ix
Abstract	x
1.0 Introduction	11
1.1 Background information	11
1.2 EAC Customs Union.....	12
1.2.1 Customs Management Act.....	13
1.2.2 Elimination of Internal Tariffs	13
1.2.3 Common External Tariff.....	13
1.2.4 Sensitive products	14
1.3 Trade in the EAC.....	15
1.4 Kenya’s trading position in the EAC	16
1.5 Problem Statement	18
1.6 Research Questions	19
1.7 Research Objective.....	19
1.8 Significance of the study	20
2.0 Literature review	21
2.1. Theoretical literature review	21
2.2. Empirical literature review.....	24
2.3. Overview of literature	28

3.0	Methodology	30
3.1.	Theoretical framework	30
3.2.	Conceptual Framework	32
3.3.	Empirical gravity model specification	33
3.4.	Variable definition and justification.....	34
3.4.1.	Export volume, Trade	34
3.4.2.	Gross Domestic Product, GDP	34
3.4.3.	Population	35
3.4.4.	Distance.....	35
3.4.5.	Dummy Variable.....	35
3.4.6	Exchange rate.....	35
3.5	Expected signs of the variables	36
3.6	Data types and sources	36
3.7	Data tests	37
3.7.1	Hausman test.....	37
3.7.2	Breusch-Pagan Langragian Multiplier test	37
4.0	Results and Discussion	38
4.1	Descriptive statistics	38
4.1.1	Multicollinearity test results	39
4.1. 2	Hausman specification test	39
4.1.3	Breusch and Pagan Lagrangian multiplier test for random effects	40
4.1.4	Regression results from Fixed effects model	40
5.0	Conclusion	43
5.1	Recommendations	44
5.2	Limitations and area for further research	44

References	46
Appendix 1	49

List of Tables

Table 1: Kenya's Trade Performance (US\$ Millions)	17
Table 2: Summary of hypothesis	36
Table 3: Descriptive statistics	38
Table 4: Correlation Matrix	39
Table 5: Fixed Effect Model	41
Table 6: Hausman Specification Test	49
Table 7: Breusch and Pagan Lagrangian multiplier test for random effects	49
Table 8: Random effects model	50

List of Figures

Figure 1: Growth of Kenya's trade from 2006 to 2014	18
Figure 2: Conceptual framework	33

Abstract

It has been argued that trading arrangements in Africa induce potentially adverse effects on trade patterns among member states. Such regional integration schemes include the East African Community. This paper sought to assess the impact of the EAC customs union on Kenya's exports volume for the period 1999 to 2014. Econometric modeling used the augmented gravity model and the fixed effects model was used for estimation purposes. Utilizing panel data for analysis, specific conclusions and recommendations are made

The study results suggests that the customs union was a key determinant of trade causing an increase in export trade implying that the continued use of the tariff liberalization scheme is likely to be beneficial for exporters. Appreciation of exchange rates and favourable growth in Gross Domestic Product were found to positively affect exports while Population had a negative effect.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This study focuses on the impact of the East Africa Community (EAC) customs union on Kenya's intra-export volumes to the regional countries participating in the union. The research is motivated by the need to evaluate the trade current developments in the region and particularly the performance of Kenya's intra exports volumes to the EAC region since the year 2005.

The East African Community is among one of the regional integration schemes in Africa which is increasingly becoming significant in the global trading system. The Community established a Customs Union (CU) in 2004 following the signing and ratification of the customs union protocol. It subsequently came into force in 2005 and became fully fledged in 2010. A customs union is comprised of a Free Trade Area (FTA)¹ with a Common External Tariff (CET), (Salvatore, 2010). Traditionally a CU is formed when two or more countries eliminate tariffs amongst themselves and impose a common external tariff against any other country, (Salvatore, 2010). This is aimed at improving the welfare of its citizens. Usually, countries participating in the customs union develop and harmonize their external trade policy but in some instances they may use differentiated import quotas.

1.1 Background information

Integration in East Africa began before independence and consolidated after independence. According to (Eyster, 2014), the initial integration efforts by Kenya, Tanzania and Uganda date back to 1917 with the establishment of the first customs union between Kenya and Uganda with Tanzania joining in the year 1927. In 1948, the East Africa High Commission was launched and this was later followed by the common services organization in the year 1961. This cooperation was however dissolved in 1977 due to economic and political reasons. Kenya was demanding more say than Uganda and Tanzania in decision making process. The political and economic ideologies were different since Tanzania was practicing a socialist governance system while

¹ The first step towards integration is the removal of tariffs and non-tariff barriers among member states. As the tariffs are removed gradually within a specific time, an FTA is formed. Under the FTA, partner states eliminate tariffs and quantitative restrictions amongst members in the trade of goods while retaining restrictions with non-participating countries by imposing higher tariffs. Subsequently, when member states eliminate trade restrictions similar to an FTA while also imposing a CET with non-member nations, a customs union is formed.

Uganda was practicing both capitalism and socialist system while on the other hand Kenya was practicing socialism, (Buigut, 2012).

The cooperation was then revived by the three countries in 1993 with the formation of Permanent Tripartite Commission for East African Cooperation in November 1993 which became fully operational in 1996. The Treaty on the formation of East Africa Community was later negotiated and signed in 1999 and came into force in the year 2000 following the conclusion of the ratification process by Kenya, Uganda and Tanzania. Rwanda and Burundi joined in 2007² (EAC, 2007)³.

The main aim the community as articulated in Article 5(1) of the Treaty is to implement policies and programmes meant at expanding collaboration among in various filed which include, but not limited to, political; economic; technology; defence; security; legal and judicial affairs for their mutual benefit, (Omor, 2008). Among the biggest landmark agreed upon by the partner states in the integration process, was the formation of a customs union.

1.2 EAC customs union

The EAC customs union was signed in the year 2004⁴, launched in 2005 and became fully-fledged in 2010. The objective of the customs union is promotion of trade through tariff liberalization and promoting cross-border trade, (EAC,2004). Under the establishment of the customs union, member states were to liberalize trade through elimination of internal tariffs and establishment of a CET, while at the same time introducing rules of origin together with a variety of administrative arrangements including a harmonious system to administer and valuate customs process and procedures.

The customs union protocol as negotiated alluded to the main instruments necessary for its implementation and these include; the EAC Customs Management Act and the EAC Customs

² Currently, EAC comprises of 5 partner countries namely, Kenya, Tanzania, Uganda, Rwanda and Burundi with a population of 133.5 million and GDP of 76.5 billion.

³ EAC Treaty was first acceded in 1991 and later amended with the joining accession of Rwanda and Burundi in the year 2007.

⁴ EAC Customs Union Protocol was enacted on 2004-03-08.

Management regulations. The EAC CU has various features which include customs management, Common External Tariff, Export Promotion Schemes and sensitive products.

1.2.1 Customs Management Act

EAC countries decided that the CU would be administered pursuant to the customs regulations applying at the community level. In addition, they agreed to instill administrative structure that is decentralized for the management of the union. In this respect, responsibilities and functions relating to revenue collection by respective revenue authorities would continue to be implemented as it was before its enactment. Further, the EAC Directorate of customs and trade would handle policy related issues. The Act was subsequently adopted in 2004 by the East African Legislative Assembly, its Legislative part, while the customs union management regulations were adopted in 2006, (Mugisa, Onyango & Mugoya, 2009). The Act and the guidelines have since been amended and reviewed severally to enhance the application of the customs union.

1.2.2 Elimination of internal tariffs

The EAC Treaty recognizes asymmetry principal⁵ as a core principle underpinning the customs union. Article (10) and (11) of the protocol provides for removal of internal tariffs together with equivalent duties. This tariff elimination was to be done in a gradual method through a 5 year implementation period. The principal was recognized due to the different level of development across member countries, (Mugisa, Onyango & Mugoya, 2009).

1.2.3 Common External Tariff

The CU protocol refers the CET as settled on set of duties imposed on imported goods imported to any EAC state from non-members⁶. In June 2003, Kenya, Uganda and Tanzania reached a consensus on the CET for the customs union (Mugisa, Onyango & Mugoya, 2009). The common external tariff as agreed has three tariff bands, zero percent for raw materials and capital goods, ten percent for intermediate goods and twenty five per cent for finished goods (EAC , 2004). During its negotiations, it was recognized that member states were at diverse levels of economic

⁵ As articulated in Article (11) of the protocol.

⁶ Article 12 of the EAC Customs protocol.

growth and development and the current differences, which could have worsened by the application of the customs union.

In this regard, Tanzania and Uganda were to remove tariffs on all imports apart from a specified list of commodities that was agreed upon, which were 906 tariff lines for Tanzania and 426 for Uganda. Under this framework, the temporary measures were intended to permit Tanzania and Uganda adequate period to reorganize their procedures to face enlarged competition from imports originating from Kenya, (Mugisa, Onyango & Mugoya, 2009). The tariffs in this case were to be eliminated on a gradual basis to zero within a five year period. This implied that the EAC CET was to be implemented in a two phased approach with the first phase being a stage where all countries were to adopt a three tariff band structure while Tanzania and Uganda was expected to maintain internal tariff on designated imports from Kenya. The second phase being the stage where, after the transitional period of 5 years, internal tariffs were to be eliminated and imports from Kenya were to access Tanzania and Uganda at zero tariffs, (Mugisa, Onyango & Mugoya, 2009).

1.2.4 Sensitive products

A major issue of negotiation during the CET was reaching an agreement on the classification of 20 percent of tariff lines which were being defined as sensitive items. These items included dry cells, garments milk, cement palm oil, Sugar, materials of plastics, rice and wheat. These items were equivalent to 361 tariff lines and were estimated at 20% of total imports, (Mugisa, Onyango & Mugoya, 2009). This was based on import data submitted by member states. It was therefore agreed that the sensitive goods will be charged at a rate of not more than 25 percent and in instances a mix of specific duty and ad-varolem rates was to apply.

Due to its structure, it was anticipated that the CET will have diverse effects on the trade administration. According to (Meredith, 2005), the implementation of the agreed on tariff structure was meant to raise the tariffs in both Tanzania and Uganda and reduce tariffs in Kenya. Accordingly, about 3066 tariffs were to escalate compared to Tanzania which was to increase by 1224 and Kenya by 1144. In contrast the CET was expected to reduce more tariffs in Kenya by 3216 than in Tanzania, 2364 and Uganda, 1353.

Other elements of the CU protocol were the establishment of an exemptions and remission scheme, removal of Non-tariff barriers.

1.3 Trade in EAC

Intra-regional trade as well as other economic indicators has continued to expand over the years (EAC, 2014)⁷. For the EAC region, GDP growth rate averaged at 5.7 percent in 2014 compared to 4.4 percentage growth rate in 2009 (EAC, 2014). Running for the second year in a row, Tanzania, Rwanda documented the highest growth rates of 7.0 per cent while Burundi recorded the lowest growth rate at 4.6 percent. Uganda and Kenya however recorded improvement in their GDP growth rate of 4.3 and 5.3 percent respectively, (EAC, 2014).

The overall combined GDP, at current prices, for the community was pegged at \$ 79million in 2010 compared to \$ 73,822 million in 2009. The highest contributor to the GDP over the period was the transport and communication sector and the construction sector with both consistently improving their impact to the GDP. The GDP per capita for the community, at current prices, rose marginally from \$ 638.2 in 2009 to \$685 in 2010. Kenya recorded the highest per capita income of \$ 833.4. The rates for Rwanda, Uganda, Tanzania and Burundi were \$540, \$ 525.9 \$522.0 and \$ 173.0 respectively (EAC-Secretariat, 2014). The dominant sector in all partner states has been the agriculture sector while the retail and wholesale trade following closely. Looking closely to the economies, the differences in overall GDP per capita has been narrowing over the years with Tanzanian and Rwanda having stronger economic performance and sluggish growth experienced in Burundi and Kenya, (Mugisa, Onyango & Mugoya, 2009). Overall, since the EAC was revived, the agricultural sector has been the largest contributor to GDP followed by the retail and manufacturing sectors respectively.

With respect to trade and integration, all EAC, member states also belong to other regional or international organizations. Tanzania is a member of Southern Africa Development Community (SADC) while Kenya, Uganda, Rwanda and Burundi are members of Common Market for Eastern and Southern Africa (COMESA). The five members are also signatories to the World Trade Organization (WTO). Trade patterns are very similar with commodity exports being

⁷ As shown in the data from EAC handbook 2014.

dominant which are mostly destined to the European Union (EU). Between the year 2010 and 2014, the total EAC trade increased from \$3,722 million to \$ 5,632 million which is a 51.1 percent increase in trade. The year 2010 is when the Customs Union became fully fledged (EAC, 2014).

However between 2013 and 2014, the volume of trade decreased by 3.0 percent from \$ 5,805 million to \$ 5632. The decline was attributed to the decrease in the value of exports which went down by over 21.7 percent, (EAC 2014). With respect to the individual countries, Kenya, Tanzania and Uganda recorded an increase in shares of total intra-EAC trade while that of Rwanda and Burundi declined, (EAC, 2014). Over the same period, 2010 to 2014, Kenya continued to dominate EAC trade accounting for 32.8 percent of the total intra-EAC trade while Tanzania and Uganda recorded for 26.4 per cent and 23.6 per cent respectively. Even though Kenya has been the dominant player in the region, the value of exports has been declining for the last two years since 2013. The value declined from \$1593million in 2012 to \$1439 million in 2014. Over the same period imports on the other hand increased from \$ 350 million to \$ 416 million, (EAC, 2014).

1.4 Kenya's trading position with EAC

With the coming to end of the cold war in the last decade and the emergence of regionalism, Kenya's Foreign Policy orientation began to center on the East African region,(Wanyama, 2013). The aim has been to advance economic growth within the agenda of universal cooperation and regionalism. Regional integration has thus formed a major component of the Foreign Policy. It is seen as avenue for accelerating economic development as it brings low transaction costs, expanded markets as well as pooling of resources and better utilization of economies of scale.

Currently, Kenya is the major economy in the EAC region and the main dominant player in terms of commodity and services exports. The country has been a vibrant member of the EAC and a signatory to the customs union which it has been implementing since it was launched in 2005. In 2015, the country exported 52% of the African exports to the EAC region with Uganda being the leading destination of Kenya's exports, (KNBS, 2016). These exports consist of manufactures goods, chemicals and small machinery, food and food products among others.

As shown in the table 1 below, Kenya total trade in the region between the year 2006 and 2014 has experienced varied performance. Between the year 2006 and 2011, Kenya total trade balance in the EAC region increased from USD 666.3 million to 1241.8 Million. However from the year 2012 to 2014, the trade balance declined significantly. In the year 2014, the trade balance was almost the same as the 2008. It is also observed that exports of Kenyan products to the key leading export destination, Uganda, has been on a downward trend with the level of exports declining from USD 855 million to USD 690 Million in 2014. On the other hand and over the same period, exports to Tanzania were on a downward trend. In addition, the imports from the two countries including Rwanda have been on an upward trend.

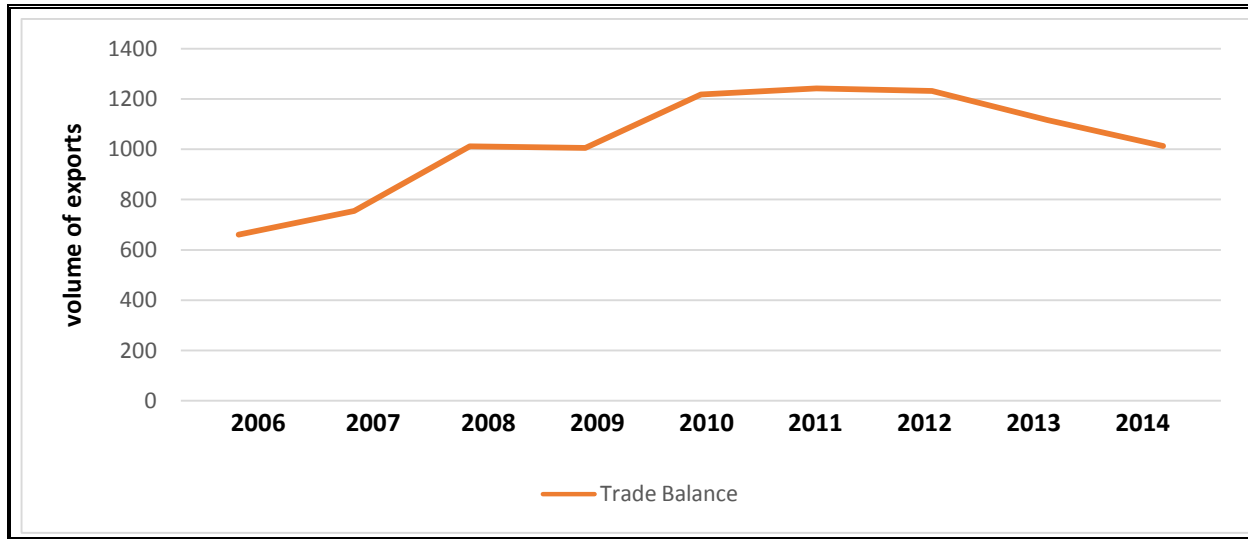
Table 1: Kenya's Trade Performance (US\$ Millions)

Units	Burundi		Tanzania		Uganda		Rwanda	
	Import	Export	Import	Export	Import	Export	Import	Export
	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
1999	0.11	10.29	6.83	162.94	4.37	265.07	0.048	38.82
2000	0.002	5.21	12.1	114.49	6.74	226.23	0.033	23.24
2001		7.4	6.74	108.36	7.09	159.18	0.029	16.41
2002	0.008	16.36	9.99	106.96	8.78	301.66	0.065	39.94
2003	0.032	40.81	18.20	199.56	10.33	401.10	0.128	79.83
2004	0.056	39.3	25.56	213.63	12.16	470.44	0.273	81.82
2005	0.26	49.14	40.98	264.44	18.47	566.23	1.52	96.38
2006	4.7	30.29	62.77	253.75	13.95	386.96	2.92	66.13
2007	2.26	36.01	99.19	331.72	88.82	498.85	1.32	86.19
2008	1.12	50.54	105.45	424.86	75.41	614.71	0.36	130.39
2009	1.19	59.48	101.13	389.301	57.3	598.31	3.10	123.38
2010	1.82	68.84	132.98	420.205	116.33	657.28	5.42	132.89
2011	5.30	66.50	176.51	470.10	116.40	855.41	4.82	152.71
2012	0.60	62.80	170.42	544.00	181.30	797.91	9.71	191.11
2013	0.61	60.45	135.46	424.185	186.77	658.74	11.67	142.02
2014		89.10	208.50	485.11	199.3	690.11	8.1	164.01

Source: comstat database

From figure 1 below, it can be observed that Kenya's total trade with the EAC partner states rose steadily from the year 2006 which was the period after the customs union was introduced. In the year 2010, growth of trade was positive but minimal. The trade volumes however started to decline from the year 2011 and decreased at gradual rate from the year 2012 to 2014.

Figure 1: Growth of Kenya's trade from 2006 to 2014



1.5 Problem statement

There are benefits that can be derived from regional integration schemes in Africa which include high economic growth, human capital development, macro- economic stability and promotion of regional common development projects especially infrastructure and increased bargaining power in international forum. African regional integration is critical since it enhances the continent's economic growth and development (Negasi, 2009).

Despite the integration efforts, Africa's performance in light of existing integration agenda record has not been remarkable. This is despite the fact that a big number of trading arrangements has done little to grow trade and this has raised questions about their appropriateness, (Hartzenberg, 2011). In addition, (Qobo, 2007) acknowledges that African integration efforts have failed to bear fruits and some of them have experienced varied results in attainment of integration objectives. African leaders have made little success in their integration efforts and attempt to make the schemes successful have borne no fruits.

The current EAC integration agenda which began in 1993 has also been facing hindrances and hence the concerns regarding lack of tangible benefits accruing to member countries. This is happening despite the backdrop of ambitions aimed at the fast-tracking of the implementation of Treaty provisions which includes the customs union, the Common market and the monetary

union. Some partners are seen not committed to the integration objectives due to different political and economic ideologies. This more the case when the first cooperation efforts between EAC nations was dissolved in 1977.

There have been studies focusing on the impact of the EAC integration as well as other trading arrangements which Kenya subscribes. The studies have not brought out the impact of customs union on Kenya's intra-regional exports particularly with respect to effects of tariff relaxation.

In addition and prior to the launch of the customs union, Kenya's export to the three partner states were on an upward trend , (Buigut, 2012) and there were fears that tariff liberalization will adversely affect the Kenyan economy through the reduction of exports leading to collapse of industries. However, Kenya continued to export her goods to the region where Tanzania, Rwanda and Tanzania saw a significant rise in exports with the region becoming one of the biggest trading partners for Kenya in Africa, (KNBS, 2016). Given the fact that Kenya's exports to the region were rising prior to the implementation of the customs union and trade performance started to experience variations and decreased significantly after it became fully fledged in 2010, it is important to examine how the tariff liberalization regime has influenced export trade performance.

1.6 Research questions

In addressing the problem, the study sought to answer the following questions;

- i. What is the impact of EAC customs union on Kenya's export trade?
- ii. Has the EAC customs union resulted to trade distortions under existing trading arrangements?
- iii. What are the broad lessons that can be drawn from the study that can be of relevance to the government and other stakeholders?

1.7 Research objective

The key objective of this study was to examine the impact of the East Africa Community (EAC) customs union on Kenya's exports with particular reference to the relaxation of tariffs. The specific objectives were;

- i. To evaluate the effect of East Africa Community customs union on Kenya's export volumes.
- ii. To draw lessons on the implementation of the customs union by the EAC member states.

1.8 Significance of the study

The relevance of the study is timely considering the fact that trade liberalization has been a key aspect of the EAC integration agenda, more so, given the fact that the customs union was launched in 2005 and came into full force in 2010 something that has seen Kenya's exports having varied performance. This study therefore will benefit policy makers and researchers since it will bring out key aspects that relate to how exports have been performing since the start of the EAC trade liberalization regime. The study will also help in shaping policy actions that can be implemented to realize tangible benefits for the country.

It also seeks to contribute to the existing literature on the EAC integration agenda as well as the significance of the customs union in facilitating trade expansion. In addition, it seeks to shed light on areas that require further research particularly on the regional trading arrangements.

CHAPTER TWO LITERATURE REVIEW

2.0 Introduction

This chapter provides an overview of literature that guides the analysis of regional integration and performance of trade across countries. It presents a theoretical literature review on the theories of economic integration from a trade perspective and an empirical review that focuses on past studies undertaken to evaluate trade performance particularly using the gravity model. An overview of the literature is also presented.

2.1. Theoretical literature review

The rationale of economic integration and regional trade arrangements emanates from the application of classical contemporary international trade theories. This is to say that integration lures its motivation from the usual trade theories. These theories explain why trade takes place and how it can be beneficial to parties involved in the exchange of goods.

Studies conversing on integration advances and elucidating consequences of favored trading agreements are based on the pioneer work of Jacob Viner (1950)⁸ and his attempts came to be the groundwork of the model of economic integration, (Hosny, 2013). Viner argued that regional integration leads to either trade creation or trade diversion, (Salvatore, 2010). To support this argument, a static trade theory of comparative advantage was assumed in a situation in which the input factors of production, technical knowledge, tastes and forms of economic organization are all related as constant or as autonomous variables. Viner attempted to show that the exclusion of obstacles to trade leads to diverse trade outcomes.

In this regard, trade exchanges amongst nations earlier and subsequently after amalgamation of countries were compared together with that of the rest of the world. The advantages and disadvantages of economic integration were also distinguished which disclosed that the realization of a customs union can intensify welfare of member nations subject to the circumstances under which this happens, (Hosny, 2013). Trade creation was used to explain the possible growth of imports putting focus on the preferential trade arrangement resulting to

⁸ John Viner's, "The Customs Union Issue". This was the first time this integration was studied in purely economic point of view.

expansion of economic wellbeing as high cost local output is replaced by lower cost output produced overseas. Trade deviation on the other hand was seen when there is a surge in cost of imports leading to a decrease in the economic wellbeing of importing country. On balance, it was revealed that for the preferential trading arrangement to be beneficial then trade creation effects must outweigh trade diversion effects, (Hosny, 2013).

A further attempt to advance the theory was done by Bela Balassa in the 1960s, (Hosny, 2013). Balassa⁹ in his theory revealed that as economic amalgamation expands, the obstacles to trade between markets contract. He predicted that common markets cause demand for further integration, not only in economic terms but also from the political sense, (Salvatore, 2010). Some of these trading arrangements progress into political unifications over time. In this case, Balassa identified that integration takes various forms with the first being a Free Trade Area (FTA) shadowed by a customs union, common market then economic integration. The views of the Balassa and Viner today still form the basis of integration where the main ingredients of regional economic integration include the removal of tariffs or non-tariff obstructions among countries and engaging in common outward trade strategy which initiates common external trade limitations against non-participating members. According to them, economic integration is pursued for a variety of reasons where the main motivation for all regional integration schemes has been the prospect of enhanced economic growth and development.

According to (Hosny, 2013) the integration theory was also improved by (Lipsey, 1987) who argued that Viner work concentrated on the production effects where he linked the customs union to the Ricardian trade context. The consumption aspect of trade increase, which was an alternative theory, was developed by Johnson (1965) came to be known as the inter-commodity substitution effect as an alternate method. Based on this background, the work of Cooper & Massell (1965)¹⁰ and Johnson (1965) became pertinent to the analysis that a customs union affiliation depends on its economic prospects and gains, (Krauss, 1972). In other words, Johnson correlated the work of Viner adding that the promotion and formation of a customs union is driven by a state's desire to encourage and flow of public goods. He further distinguished

⁹ Balassa's wrote a book on the theory of economic unification in the year 1960.

¹⁰ Copper and Massell in their journal on the customs union theory.

between public and private consumption arguing that existing competition between states' political parties can result to governments implementing policies that maximize the consumption of both private and public goods. In this case, the trading and economic unions are means of capturing economies of scale. To him the structure of the customs union serves as a platform for a state to strive to other collective goals such as improving their terms of trade.

Baldwin, 1997 in his work further extrapolated Viner and Balassa trade theory and used it to explain the formation of economically integrated institutions through the allocation effects and the accumulation effect. Allocation effect occurs in a competitive economy when the demand for a good directs productive resources to the production of that good and because tariffs are known to interfere with this process. Getting rid of such barriers in trade will lead to effectiveness of resource allocation. On the other hand, the accumulation effect postulates that while there is an expansion of markets through economic integration, there is more attraction to these markets and an opportunity for industries to specialize. This further results to a reduction in the production costs, increase in productivity, increase in investments and higher efficient.

While Viner limited his research to customs union formed by small trading states, Meade (1955)¹¹ elaborated through his analysis by including situations arising from the influence of world relative prices caused by means of establishing a customs union whereby one or more of the amalgamation affiliates are said to be big trading states and whose trade strategies are capable of causing spillover effects on the economic structures of external states through the deviation of trade flows and their casual effects on worlds prices, (DeRosa & Gilbert 2005). Meade further argued that when pre-arranged tariffs for member states of the customs union are high, growth in trade diversion can increase. On the other instance, the existing possibility for trade diversion in these regional organizations may experience a significant reduction because of implementing a common tariff against third parties will offer less scope for the displacement of imports from external sources with regional production. In addition, the continuous emphasis on markets, goods and factors of production by the customs union theory disregards the importance of the political environment as the institutions in the integration process.

¹¹ In his book, 'Trade and Welfare effects'.

Cooper & Massell (1965)¹² reproached Viner's work concluding that a strategy of independent tariff reductions was greater to a customs union creation. Using a small country to expound their argument, they saw that a non-discriminatory trade liberalization regime overshadows the welfare influence of a preferential trade agreement. In this case, tariff fall was an exclusive source of trade creation while trade diversion was echoed in the lessening welfare effect therefore the strategy failing in its intended purpose, (Aldea, 2013). This was however not applicable if the country size was large. The non-favored tariff arrangement was seen as lower standard, compared to a CU. This was when one was analyzing the inert resource distribution effects and ruling out possible economies of scale. The work has severally been used to validate reasons as to why the United Kingdom, Spain and Poland joined the European Union by showing higher welfare gains within a CU compared to a unilateral tariff reduction policy.

One of the initial theories developed prior to work done by Viner used to enlighten trade between states was developed by Heckscher–Ohlin (H-O) in his model on factor proportions, (Hosny, 2013). The theory explains that a nation which has a comparative advantage in the production of merchandise or products that require relatively plentiful resources and are comparatively cheap, this nation will tend to export those products. In this case, the factor price equalization theorem from the H-O model stipulates that nations with dissimilar factor endowments and are at diverse levels of expansion are probable to trade with each other the most and prices of factors of production will tend to congregate after trade or amalgamation occurs. The theory was further improved by Linder (1961) who urged that countries cannot enjoy a relative benefit in any good without it being produced or demanded in the domestic market first. In this case, trade was highly probable to occur amid countries of comparable demand configuration. The inference concluded that nations with comparable per capita income would develop similar industries and they would relish more trade potential with one another in similar but distinguished products and thus assimilate more.

2.2. Empirical literature review

Empirical works on customs union is linked with the pioneer work of Jacob Viner (1950) as well as Meade & Johnson (1965), (Hrvoje & Mislav, 2013). Their focus was on the formation of a

¹² Published the journal on the new look at the customs union.

customs union, Free Trade Area and relaxation of traffis coupled with the introduction of a common external trafiff. (Françoise & Bernadette, 2006), in their work reveals that much empirical work has been done to test the diverse sections of the numerous theories, and most of the studies, although not all, deal with the probable influence of trade liberalization and support free trade between nations. Most of these studies are consequently on ex-ante studies.

In his work on the Trans-Pacific Partnership (TPP), (Hannan, 2016) analysed work based on the ex-ante effect of trade arrangements for the years 1983–1995 covering 104 countries using the Synthetic Control methods (SCM) ¹³. Using this approach, it was discovered that trade arrangements can create considerable advantages by growing exports by 80 percent over a period of ten years. The export improvements were seen to be advanced when evolving and emerging markets have trade arrangements with developed markets. In this regard, nations in the north atlantic free trade area were seen to have substantially gained in terms of expanded trade.

(Turkson, 2007), in his work on trade agreements within Sub-Saharan Africa (SSA) evaluated the two-pronged trade effect of the African Caribbean Pacific (ACP)¹⁴ and the European Union Preferential Trade Agreement (PTA). The study aimed to discover if the EU trade arrangements within SSA had augmented trade flows. Using the gravity model approach, the scholar used trade runs of 73 states over the period 1960 to 2006. The findings revealed that regional trading frameworks within the Economic Community of West African States (ECOWAS) as well the Southern Africa Development Community (SADC) had a progressive and substantial influence on trade linking SSA countries. Thus the comparative impact of these trading arrangements was found to be stronger than that of the ACP-EU which is a non-reciprocal trading arrangement. The outcomes further showed that developing countries particularly within SSA should focus on growing and assimilating regional markets in order to expressively improve their trade performance.

In his work (Dalimov, 2009) using Viner’s model analysed the trade distortion effects arising from international economic integration. The model assumed three countries which were

¹³ Was engineered by Abadie & Gardeazabal (2003) and later advanced by Abadie, Diamond & Hainmueller in the year 2010.

¹⁴ The ACP-EU relations is governed by the Cotonou agreement which date back to 1975.

competing to supply goods to one another and employed the Navier Stokes¹⁵ to explain the flow of goods in a region as well as trade formation and digression properties. Inter-regional price differences was used in the showing factors stimulating the flow of goods. In his analysis, he concluded that there was a link between intergration and sub-regional trade dynamics of procces and ouputs with the price triggering flow of goods . He thus complemented Viners trade creation and diversion effects.

Aldea, (2013) while making reference to work by Meade and Johnson (1965) revealed that Viner devised a practical list of the conditions that tend to favour the trade creation in a customs union pegging her work on large economies. In this case, where trade accounts for a relatively small unit change of the Gross National Income, opportunities for trade diversion are minimal. In their study, (Michalopolous & Tarr, 1997) also analyzed the economic implications of a customs union in Commonwealth Independent States (CIS) particularly on four member countries namely, Belarus, Kazakhstan, Kyrgyz Republic and Russian. They agreed in principle on the rationale behind the establishment of a customs union and they concluded by saying that the likely effects of the union as well as any Free Trade Area was probable to be undesirable. This was because countries would be inclined to operating under the previous regime of the former Soviet Union. In this regard, countries with liberalized trade arrangements and with low tariff restrictions compared to the CET operating under the CIS would not be favourable.

Several studies have employed the use of the gravity model to assess performance of economic unions. Nevertheless the results vary but the universal inference is analogous to the fact that they concluded that regional amalgamation schemes especially in Africa have been performing below expectations. The model stems from the element that it has been valuable in explaining trade flows including beneficial effects of any form of integration.

Specifically, the gravity model was used by (DeRosa & Gilbert , 2005) to show trade expansion can be projected under Free Trade Areas (FTAs) and multilateral agreements.It examined eight FTAs and multilateral agreements during the 1990s and used the gravity model plus the

¹⁵ Developed by in 1950 by Claude-louis Naiver and George Stokes. The equation is applied to the dynamic flow of fluids and postulated the flow of goods from a region of high pressure to a region of low pressure.

computable general equilibrium model. The trading arrangements analyzed included Mercosur¹⁶, NAFTA¹⁷, and Uruguay round. Both models were found acceptable in some cases, but influences in the wake of trade liberalization periods brought mixed reactions illustrating a strong conclusion in favor of one approach over the other. Between gravity model and computable general equilibrium model predictions, it was revealed that the former tends to over-predict intra regional trade while latter tends to under-predict. However, of the two models, the gravity model was found to be more favourable in predicting the possible impact of a trading arrangement.

Work by (Karlaftis & Tsamboulas, 2010), reviewed recent empirical studies that have used the gravity model in analysing international trade flows. The scholars concluded that the model has been ideal and popular. They revealed that over 75 papers in the last decade have used the model and most of them focused on FTA agreements and followed the fixed or random effects models. Work by (Buigut, 2012) on the evaluation of trade influence of the East African Community using the gravity model showed the customs union had caused inconsistent influences on intra-exports and imports participating nations.

In their work, (Ntembe &Tawah, 2010) also used the gravity model to examine trade flows in Central African Economic and Monetary Union (CEMAC). In the model employed, countries were taken as living bodies that attract each other in cognizant economic productivity, income and the extent to which they hamper trade development. The study revealed that in international trade there are various factors which include transport, cultural differences, trade policies and trade barriers that bring variations to intra-regional trade and well as interregional trade. In their work, (Karambakuwa, Makochekekanwa & Kairiza 2015) assed the factors that affect trade flows between the EU and Southern African Countries for the period 2001 to 2012. The augmented gravity model was used and in particular the impact of the Economic Partnership Agreement (EPA) was analysed. Estimation done using fixed effects and the work showed that population and GDP has an influence on trade flows while the EPA was reducing trade flows since it was acting a barrier impeding full trade potential.

¹⁶ Mercosur is a regional trading arrangement which is comprised of Argentina, Brazil, Paraguay, Uruguay and Venezuela. The associate nations include Chile, Suriname, Bolivia, Columbia, Peru, and Ecuador.

¹⁷ Trading arrangement between Canada, Mexico, and USA and entered into force in the year 1994.

Other models used empirically included the Tobit and partial equilibrium model. In their work, (Geda & Kibret, 2002) using the Tobit model revealed that bilateral trade between nations is determined by macroeconomic policies. However even though proxies for political stability had the expected signs, regional integration in the COMESA trading bloc failed to positively affect regional trade. (Geda & Kibret, 2002), revealed that trade among COMESA members was not meaningfully dissimilar from its trade with non-member nations. This is the case whether imports or exports are used to quantify bilateral trade. It was concluded that regional amalgamation initiatives should be assessed in the framework and parameters of their intended objectives as well as political and economic conditions they operate under.

To analyze the Kenya trade performance under the EAC integration agenda¹⁸, McIntyre (2005) using a partial equilibrium model showed that the move from Most Favoured Nation (MFN) tariff rates to the three band CET framework under the EAC customs union was probable to have positive influence on trade between Kenya and other EAC countries increasing trade significantly. The trade formation effect on welfare was seen as positive and consumers were expected to enjoy cheaper imports instead of more expensive local goods. Thus the full implementation of customs union was expected to have positive effects on Kenya because it will lead to inflow of cheaper and a wide variety of imports. In the simulation, the removal of internal tariffs was accompanied by lowering of MFN tariffs with the adoption of the EAC CET.

2.3. Overview of literature

Trade theories are relevant to the regional integration process in the African and global level. They provide a framework and foundation on which the strategies to conduct international trade are designed and implemented. Importantly they are critical to the creation of African trade regions and promotion as well as sustenance of inter-African trade.

Literature and studies on trade integration and customs union are based on the work of Jacob Viner (1950) and his attempts became the underpinning of the theory of integration. The work was further improved by Bela Balassa in the 1960s, who explained that economic communities

¹⁸ In 2005 the year when the customs union was coming in to force

naturally evolve over time and thus identified various forms of integration with the initial stage being the formation of an FTA followed by a Customs Union.

The gravity model has remained useful in evaluating the performance of bilateral trade which has yielded various results but with a general conclusion that international trade can be explained by various factors. The model was derived by Tinberg (1962) and Poyhonen (1963). It has been used to assess bilateral real trade flows using explanatory variables through time which include, Distance, GDP and Population. The model reveals that formation of an FTA or tariff liberalization tends to boost bilateral trade between members. (Buigut, 2012), on the evaluation of trade impacts of the East African Community used this model to simulate trade performance of each of the individual EAC countries where he revealed that a customs union has in one way or another affected trade. Assessment of Kenya under the EAC, (McIntyre, 2005) evaluated the possible impact of changes in tariffs and other tariff restrictions on trade flows as well as impact on revenue and effects on welfare at a given point in time which was expected to be positive. In addition to the gravity model, other models have been used to evaluate the effects of integration. In analysis, (Geda & Kibret, 2002) in their work on assessing regional integration in Africa, case study for COMESA used a Tobit model. The variables used are similar to that of the gravity model and it revealed that bilateral trade between nations is determined by macroeconomic policies. Indeed both the theoretical and empirical literature do support the basis for the study's principal objective and the methodology applied for deductive conclusions.

CHAPTER THREE RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the methodology used in the study. It specifies the model used to determine the impact of East Africa Community customs union on Kenya's export trade volumes. It also provides sources of data and method of analysis used as well as description of the variables used, how data is obtained and managed for controlling errors during analysis.

3.1. Theoretical framework

According to (Dalimov, 2009), the gravity model can be used to analyze the export supply and impact demand based on a regional integration approach. The model is appropriate for assessing trade currents between nations and has been used in global relations to appraise the influence of economic unions and at the same time it has been used to test the effectiveness of trade arrangements or contacts.

The model has extensively been used for approximating the influence of policy related issues including regional trading frameworks and has been used in explaining welfare effects of integration schemes, (Ntembe & Tawah, 2010). It based on the common equivalence with the law of physical gravity developed by Isaac Newton. The gravity model suggests that trade is comparative to a product of degrees of the nations' economic masses and inverse proportional to the distance between the countries. The model was brought forward by Tinberg (1962) and Poyhonen (1963) to expound on trade flows amongst countries, (Buigut, 2012). Based on this model, (Melo & Tsikata, 2014) revealed that there is a strong negative relation between GDP, physical distance and trade. In addition, it was revealed that a nation's GDP per capita income is closely related to the country's real market potential and also it lends itself to the inclusion of trade effects of any reduction in trade costs.

The gravity approach uses various assumptions. One key assumption is that the share of trade occurring within a nation would not have been altered in absence of the arrangement in this case the customs union. Consequently, the changes of trade movements arising from the trade importance of the member countries compared to non-members cannot be detected. Thus the

impact of the trading arrangement on trade flows will be explained through use of variables. These include, GDP, population, exchange rate, price level and geographical distance.

According to, (Negasi, 2009), the model can be expressed as;

$$F_{ij} = G \frac{M_i M_j}{D_{ij}} \dots \dots \dots (1)$$

Where F_{ij} represents the trade flow, while M gives the economic capacity of each nation which is the GDP. D on the other hand represents the physical distance between nations and while G is a constant. The gravity approach predicts that the flow of exports amongst two or more nations can be described by the size of economy, population as well as the geographical distances. The movement of merchandize is positively connected to the population and negatively connected to geographical distance between countries.

In his work, (Negasi, 2009), analyzed impact of trade using the model and deduced that flows of export between two countries or more can be described by use of the Gross Domestic Product or the Gross National Product which gives their economic sizes, level of population and physical distances between the nations. The model postulates that trade has a positive relationship with movement of persons and has a negative relation with distance. Equation (1) above can be written as;

$$\text{Trade}_{ij} = A \frac{(\text{GDP}_i, \text{GDP}_j)^{b_1}}{\text{Distance}_{ij}^{b_2}} \dots \dots \dots (2)$$

The notations are defined as follows; Trade_{ij} represents trade flows between countries i and j , GDP_i and GDP_j are the respective national incomes, Distance_{ij} gives the measure of physical distance between two nations while A is a constant of proportionality.

The multiplicative nature of the equation implies that the natural logarithms can be used to derive a linear association between economic size and trade levels as well as the geographical distances. Taking logarithms of equation (2) above, we get the following model which can be estimated;

$$\text{Log (trade}_{ij}) = A + b_1 \log (\text{GDP}_i \text{ GDP}_j) + b_2 \log (\text{distance}) + e_{ij} \dots\dots\dots (3)$$

The coefficients to be estimated are represented by the notation, A, b₁ and b₂. e_{ij} represents an error term which captures other shocks and casual events affecting trade amongst the two nations.

Equation (3) which is the central gravity model hypothesizes that trade is proportional to GDP and negatively related to barriers to trade. The equation relates to the natural logarithm of the value of trade between two nations to the logarithm of their respective GDP, a composite term calculating barriers and incentives to trade between them. The parameters in the equation, in logarithmic form, give the elasticities. In this case, the estimated parameter for the GDP in the equation gives the elasticity of trade to GDP demonstrating the deviation in trade following a unit increase in GDP.

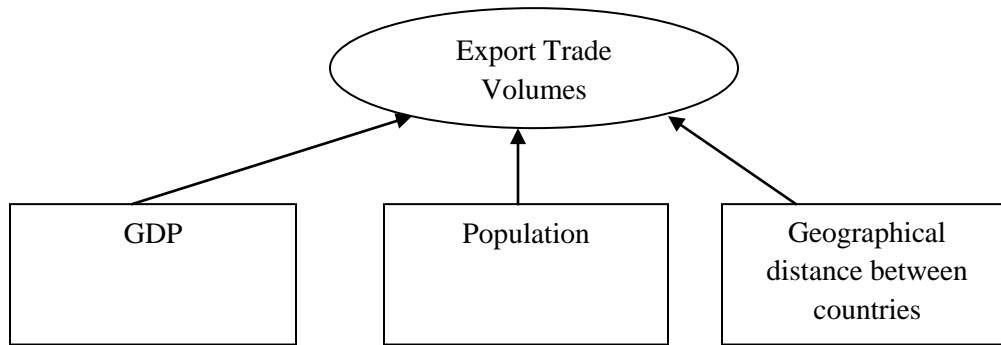
In addition, the model depicted under equation (3) enables the researcher use other key variables apart from GDP such as population, exchange rate, price level and geographical location which are powerful predictors of the direction and volume of trade, (Ntembe & Tawah, 2010). This extended model which includes other trade determining variables is known as augmented gravity model. The extension of this model came about due to the criticism that the standard gravity model only uses income and distance to model transport costs, (Karambakuwa, Makochekanwa & Kairiza, 2015). However the effect of this additional variables depend on the actual casual effect being investigated. Hence these variables accounts for a significant amount of the variance which is not prevalent in the basic gravity equation as alluded to in equation (3), (Augustin Ntembe, Regina Tawah, 2010).

3.2. Conceptual framework

From the figure below, it can be seen that the level of exports can be viewed as being affected by GDP, population and distance. The level of exports will be determined using the augmented gravity model. In this case, the income effect for the importing nation in the gravity model is normally measured by including the total GDP. Population affects the local domestic consumption as well as productive capacity and hence it determines the demand for the products

which in turn affect the supply. In the other hand, distance affects transportation costs which also affects the prices of the products and in turn affects the demand and the supply in the domestic market.

Figure 2: Conceptual framework



Source: Owners computation

3.3. Empirical gravity model specification

This study adopts and extends the model used by (Ntembe &Tawah, 2010), the augmented gravity model of international trade. The model can be written as;

$$X_{ijt} = f (Y_{it}, Y_{jt}, P_{it}, P_{jt}, D_{ij}, ER_{ijt}, y_{rij}) \dots \dots \dots (4)$$

For estimation purposes, the model as presented in equation (4) will be used in its logarithmic form hence the equivalent econometric equation is;

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln Y_{it} + \beta_2 \ln Y_{jt} + \beta_3 \ln P_{it} + \beta_4 \ln P_{jt} + \beta_5 \ln D_{ij} + \beta_6 \ln ER_{ijt} + \beta_7 y_{rij} + \xi_{ijt} \dots \dots \dots (5)$$

Where;

- i. X_{ijt} represents the export volumes between nation i to nation j during year t, while $\ln X_{ijt}$ represent the total export trade between nation i to nation j expressed in logarithmic form;

- ii. Y_{it} represents GDP per capita of nation i that change over time, while $\ln Y_{it}$ represents GDP per capita of nation i expressed in logarithmic form;
- iii. Y_{jt} represents GDP per capita of nation j that change over time, while $\ln Y_j$ represents GDP per capita of nation j expressed in logarithmic form;
- iv. P_{it} represents population of nation i over time, while $\ln P_{it}$ gives population of nation i in logarithmic form;
- v. P_{jt} represent population of nation j over time while $\ln P_{jt}$ represents population of nation j in logarithmic form;
- vi. D_{ij} represents the geographical distance between nation i and j which is constant and does not change over time, while $\ln D_{ij}$ expresses distance between nation i and j in logarithmic form ;
- vii. ER_{ijt} gives the exchange rate amongst nation i and j over time and is expressed as $\ln ER_{ijt}$ in logarithmic form.
- viii. Y_{ij} represents dummy variable, which will have two values, one for customs union and 0 of otherwise.

3.4. Variable definition and justification

3.4.1. Export volumes

This is the total value of exports by Kenya to the EAC member countries in the custom union. In this case, exports it is the dependent variable. (Karambakuwa , Makochekanwa & Kairiza 2015), specifies that gravity models uses bilateral trade as the deperdent variable. This study aims to determine how total exports are affected by explanatoy variables.

3.4.2. Gross Domestic Product, GDP

The model uses total GDP as representation for production capacity in the member state (export nation) which is suitable for studies utilizing aggregated trade data. Further, the income effect is normally measured by including the total GDP. Given the four EAC member states under analysis have different economic sizes, standard of living cost and per capita income, a variable with a better illustration basis for income effect is used which is GDP per capita. This is consistent with other studies such as those done by (Ntembe & Tawah, 2010); (Negasi, 2009); (Mugisa, Onyango &Mugoya, 2009). GDP will be used as an independent variable.

3.4.3. Population

The population of the export country is used since it postulates the country's ability to consume locally. Demographic changes in an economy are also seen to affect the comparative advantage of the economy through the concept of either capita or labour abundance. Low population leads capital abundance and a high population leads to labour abundance. Thus, the significance of the parameter can also be viewed on the fact that the smaller the population the more the country will export and if the population is large the less the country will export.

The parameter is also used to complement the GDP per capita since the latter controls for the income effect of one individual in the importer country but does not consider the economic size. By including the population, the total purchasing capacity of the importing country is captured. For trade data, export and import volumes in one year can be affected by the size of the population therefore having a direct impact on trade in the subsequent year. Population in this case will be used as an independent variable.

3.4.4. Distance

Distance is used as a proxy for transport cost and usually affects the final price of a commodity exported. It is measured in kilometers and the coefficient is expected to be negative since it is a resistant factor which reduces exports between countries. This it is expected to have a negative effect on bilateral trade. Distance will be used as an independent variable.

3.4.5. Dummy variable

A dummy variable is also introduced yr_{ij} , which takes the value of 0 for each observation to capture the when the customs union was not in force and 1 when the customs union was in force. The interpretation of this variable however depended on the relative efficiency of commodities produced.

3.4.6 Exchange rate

Real exchange rate will be used as a proxy for relative prices. The magnitude of the coefficient of exchange rate is expected to be small. Rapid short run depreciations will in most instances result in actual exports overshooting the potential level. Over the long run, however, the exchange rate effect becomes less severe.

3.5 Expected signs of the variables

The hypotheses for the gravity model variables are summarized as shown in table 2 below;

Table 2: Summary of hypothesis

Name of variable	Expected sign	Explanation
$\ln Y_{jt}$ (GDP per capital)	+ve	GDP of country j used because of economies of scale effect and absorption effect
$\ln P_{ijt}$	-ve/+ve	Affects the absorption capacity
$\ln D_{ij}$	-ve	Seen as restriction or friction to trade
$\ln ER_{ij}$	+ve/-ve	Affects the value of exports
Y_{rij}	-ve/+ve	dummy variable that captures influence of the EAC customs union arrangement on trade flows

Source: Authors computation

3.6 Data types and sources

The study uses panel data for the period 1999 to 2014 which was acquired from diverse sources. This was used to estimate the effects using the augmented gravity model in log linear form. The period was chosen since it captures the time before and after the customs union. Panel data was found to be beneficial since it helps untangle time variant and country specific effects so as to capture the interactions between relevant variables. It also gives the ability to monitor the possible unobservable trading partner effects thereby removing the problem of bias OLS estimates in the event that there is correlation, (Karambakuwa, Makochekanwa & Kairiza, 2015).

Trade flow data was obtained from various statistical sources which include, Commodity Trade Statistics (COMTRADE), COMSTAT database, United Nations Conference on Trade and Development (UNCTAD) data, World Integrated Trade Solutions (WITS) and World Trade Organization (WTO) database. Data relating to population, GDP and GDP per capita was obtained from the EAC facts and figures handbook while data on the exchange rates between the periods was obtained from the central banks data centers. The data for distance was extracted from the distance calculator website.

3.7 Data tests

Various diagnostic tests were performed to check the reliability of the model and the series used this include;

3.7.1 Hausman test

The Hausman test was used to examine if fixed or random effect model will be used. The test was based on the hypothesis of no correlation, where both OLS in Least Squared Dummy Variable (LSDV) model and the generalized least squares (GLS) are consistent, but OLS is not efficient. The null hypothesis tests whether the coefficients estimated by the efficient random effects are the same with the ones estimated by the consistent fixed effects model. Rejecting the null hypothesis indicates that the fixed effect model is appropriate while the random effect model is not the appropriate estimation technique, (Greene, 2003).

3.7.2 Breusch-Pagan Lagrangian Multiplier test

The test is for random effect model based on OLS residuals (Greene, 2003) the null hypothesis is that the random effect model is not appropriate, while the alternative hypothesis is that the random effect model is the appropriate model.

CHAPTER FOUR RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter discusses both the descriptive and empirical results of the analysis that was carried out. The empirical analysis was done using panel data through the application of the augmented gravity model. Analysis was done on the EAC countries, to verify the impact of customs union of exports.

4.1 Descriptive statistics

Panel data structure was used to estimate the augmented gravity model given by equation 5 in chapter 3. Data was collected to establish the determinants of trade between the EAC member countries. The EAC countries were Burundi, Rwanda, Tanzania and Uganda. The variables were expressed in logarithmic form and the estimated parameters were expected to give the elasticities demonstrating the deviation in trade following a unit increase of a variable.

The progressive implementation of the customs union was captured using a dummy variable breaking the period before the customs union was implemented and after implementation. The results as indicated in table 3 below indicate that all the variables under study were scattered around the mean since their standard deviations were small.

Table 3: Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
LnGDP	64	2.501207	0.277685	1.91698	3.002598
Lnexports	64	2.129301	0.5373809	0.7168377	2.932174
LnDistance	64	2.836228	0.0865229	2.702896	2.935412
Lnpopulation	64	1.233946	0.3102134	0.8129134	1.708421
Lnrate	64	3.025465	0.2310712	2.525045	3.415028
yr	64	0.625	0.48795	0	1

Source: Stata results

The dependent variable is the log of exports while the logs of GDP, distance, population and exchange rate were the independent variable and yr was the dummy variable taking the value of 0 for the period

1999 to 2004 which was the period before implementation of the customs union and taking the value of 1 for the period 2005 to 2014 which was the period of implementation.

4.1.1 Multicollinearity test results

The correlation matrix shows the strength or degree of linear association of a variable with itself or between variables, (Gujarati, 2003). Collinearity between variables is shown in the table 4 below. From the test results, the main diagonal entries from the upper left to the lower right corner give the correlation of one variable with itself, which is and should always be one. The other variables are pair-wise correlation among variables. Severe multicollinearity problem is present if the correlation figures are high and there is no collinearity problem if the figures are low. From the matrix, the conclusion is that the model does not have multicollinearity challenges.

Table 4: Correlation matrix

	LnGDP	Lnexports	LnDistance	Lnpopulation	Lntrate	country	
Year	1						
LnGDP	0.6449	1					
Lnexports	0.464	0.8136	1				
LnDistance	0	-0.5224	-0.7878	1			
Lnpopulation	0.21	0.6801	0.8364	-0.7128	1		
Lntrate	0.4139	0.3764	0.7122	-0.6477	0.6725	1	
country	0	0.6116	0.8328	-0.9744	0.8204	0.5959	1
yr	0.8402	0.5306	0.4208	0	0.1785	0.3237	0

Source: Stata results

From the analysis it can also be concluded that there is a there is a positive correlation between volumes of exports and gross domestic product, exchange rate. This supports the notion that the size of the economy determines the country's trade pattern. On the other hand, there is a negative correlation between the level of exports to the distance between countries as well as population levels.

4.1. 2 Hausman specification test

On specification tests results, the results of Hausman test was carried out to identify if the fixed model was appropriate compared to the random effect. The results were as follows;

$$\text{Chi2}(4) = (b-B)' [V_b - V_B]^{-1} (b-B) = 37.77$$

$$\text{Prob} > \text{chi2} = 0.0000$$

[V_b-V_B is not positive definite]

The above results that the test statistic $X^2_{\text{calculated}} = 37.7$ and that the p-value is 0.0000

From the results, the null hypothesis that the difference in random and fixed coefficients not systematic at all levels of significance. Thus the fixed effects model is an efficient estimator of the data and should in this case be adopted. Table 3 in appendix 1 shows the results.

4.1.3 Breusch and Pagan Lagrange multiplier test for random effects

The results obtained were further tested by running the Breusch-Pagan Lagrange Multiplier (LM) test for random effects. The null hypothesis of no random effect versus the alternative hypothesis was tested. The results showed a chi-square which is not significant at 1%, thus failure to reject the null hypothesis and confirmation done with Hausman test that fixed effect model is the most appropriate model. The results are shown in table 6 under appendix 1.

4.1.4 Regression results from fixed effects model

The result for the fixed effects model is shown in table 5 below and from the analysis, the variables were giving the expected signs. The most statistically significant variables in explaining the volumes of exports in EAC were the customs union and exchange rate. Even though GDP per capita was statistically insignificant, an increase in GDP per capita by 1 percent had a positive influence on exports level leading to a 2 percent increase in the exports level. This concurs with the gravity model that increase in the GDP is likely to affect trade by countries trading more. As the size of the economy reduces, countries are less likely to trade more.

Exchange rates were statistically significant where a 1 percent appreciation of the currency was leading to 1.7 percent increment in the levels of exports, implying exporters increased their levels of exports as the dollar value appreciated against the local currencies of the EAC partner states. Thus, concurs with the analogy of the gravity model that exchange rate alignments affect export trade flows in a considerable manner.

The constant coefficient which is -3.11, implies the periods when the customs union came to effect could not spur any large growth of exports to EAC partner states. On the other hand,

population had a negative effects where an increase in population was leading to a decrease in exports by 6.3 percent. However the variable was statistically insignificant.

Table 5: Fixed effect model

Lnexports	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LnGDP	.206325	.2310384	0.89	0.376	-.2565005	.6691506
LnDistance	0	(omitted)				
Lnpopulation	-.6337049	.9977159	-0.64	0.528	-2.63237	1.36496
Lntrate	1.778572	.3176655	5.60	0.000	1.142212	2.414933
yr	.2003993	.0625954	3.20	0.002	.0750056	.325793
_cons	-3.11106	.6343417	-4.90	0.000	-4.381799	-1.840321
sigma_u	.48674371					
sigma_e	.13117655					
rho	.93228855	(fraction of variance due to u_i)				
F test that all u_i=0: F(3, 56) = 24.98				Prob > F = 0.0000		

Source: Stata results

From the results, it can be seen that the dummy variable for customs union, yr, was significant in terms of export trade effect. In this case, the year customs union came to force was a significant factor since it affected exports in a positive manner and in this case leading to an increase of exports by 2% .

The variable distance was dropped from the analysis because of showing a high degree of collinearity. However under the random effects model, as given in table 8 appendix 1, distance was portlaying as a significant factor since it is associated with transport and distributioin costs thus having a negative effect. As distance increases, it is expected that transaction costs will increase and vice versa.

Overall, the empirical question whether the EAC customs union has had a positive impact and resulted to trade creation or trade diversion can thus be answered. The study has illustrated that Kenya has taken advantage of the trade liberalization status of goods entering the four EAC partner states with the customs union enhancing the country's regional trade. In addition, factors

such as appreciation of exchange rate and GDP have positively affecting exports to the region. The findings concur with findings by (Karambakuwa , Makochekanwa & Kairiza, 2015).

CHAPTER FIVE CONCLUSION AND RECOMMENDATIONS

5.0 Conclusion

This paper has attempted to investigate the impact of the EAC customs union of Kenya's trade with the other member states in relation to exports. The study has used the augmented gravity model for analysis. Results of the analysis give a broad overview of the impact of the customs union in terms of exports performance.

The results of the empirical analysis paint a familiar picture of previous work done. It reveals that the customs union or trade liberalization regimes are key drivers of export trade within any trading arrangement. They facilitate trade creation and effectively lock in trade with regional partners. In addition, trading arrangements that provide for broad based trade liberalization across sectors of the economy that contribute to exports of goods are likely to be successful.

Effectiveness of a customs union is dependent on various factors such as economic size, population size and exchange rate volatility. The level of exports is positively related to the GDP and in other words, the size of the economy, its wealth and its stage of development has a great impact on goods exported to another country. The variable GDP per capita which is a better proxy for economic size, affects exports because of economies of scale and absorption effect and therefore the need to enhance its upward growth trend.

As enlightened by the study, exchange rate stability is critical for the attainment of the customs union or trading objectives. An appreciation of the currency brings about positive effects which is consistent with the arguments of the standard gravity model. Currency depreciation or volatility on the other hand brings out negative effects since it creates uncertainty in the export markets. This implies that nations should keep an eye on their exchange rates relative not only to that of their trading partners but also in relation to that of their competitors. Population which reflects demographic change in the economy affects the level of trade within an economic union. This is because it affects the country's import demand and her comparative advantage in terms of productive capacity. Exports are negatively related to distance since the latter affects the final price of the commodity through transport costs which acts as an inhibitor to trade. Overall, the

study suggests that for the customs union to work, macroeconomic stability, is significant for any country's trade ability. In Kenya's case, macro-economic stability over the years has been key in enhancing growth of trade flows in the EAC trading arrangement.

Making reference to the research problem, the success of a regional initiative is evaluated based on the context of its objective it sets to achieve. Effectively it can be concluded that Kenya has benefited from the EAC integration scheme particularly with respect to the implementation of the customs union. The union has resulted to trade creation as opposed to trade diversion which nullifies perceptions that emerged before the enactment of the customs union that local industries would be exposed to unfair competition leading to their collapse.

5.1 Recommendations

The prima face of the study shows that economic stability is critical for any nation to benefit from any regional integration scheme. It is therefore important for the Government and concerned agencies to pay attention to maintaining a sound marco-economic framework. Boosting GDP and maintaining a stable exchange rate will in this case enhance Kenya's regional trade. In addition, there is need for Kenya to advocate for the full implementation of the EAC customs union as envisioned in the protocol. This will greatly impact intra-regional trade which is seemingly becoming an important market for Kenyan goods as compared to the traditional markets located in Europe and Asian regions.

Kenya policy makers may also advocate for the faster harmonization of trading arrangements in greater Eastern African and Southern region through the SADC-EAC-COMESA tripartite agenda which seeks deepening of regional integration through tariff relaxation. This emanates from the fact that the three continental bodies are separately implementing customs unions. This will enhance Kenya's export trade in the African region by sealing loop holes that can be created from the differential tariff liberalization frameworks under the three customs unions.

5.3 Limitations and area for further research

This study has only focused on the broad performance of the Kenya's exports under the customs union, but has not dealt with implementation issues at the micro level which may deeply explain

the performance. In addition, exports have been covered in general particularly on merchandise. Further research can be done to investigate impact of the union on specific commodities.

While there is a proliferation of customs unions in other integration bodies like COMESA, it would be ideal to investigate the effects of the COMESA customs union even though Kenya is currently participating only in the EAC customs union. This is due to the fact that the two unions have different tariffs and there are is a perception that the COMESA Common External Tariff is a better avenue for Kenya to expand her exports. Further, other regional trading frameworks which include the Economic Partnership Agreements (EPA) which EAC countries negotiated could be investigated in terms of how they are affecting regional export trade.

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Appendix 1

Table 6: Hausman specification test

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
LnGDP	.206325	.6698142	-.4634891	.1762885
Lnpopulation	-.6337049	.3790877	-1.012793	.9887812
Lnbrate	1.778572	.3836687	1.394903	.2731363
yr	.2003993	.1593556	.0410437	.

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 37.77
 Prob>chi2 = 0.0000
 (V_b-V_B is not positive definite)

Source: Stata computation

Table 7: Breusch and Pagan Lagrangian multiplier test for random effects

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Breusch and Pagan Lagrangian multiplier test for random effects

Lnexports[countrynum,t] = Xb + u[countrynum] + e[countrynum,t]

Estimated results:

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	Var	sd = sqrt(Var)
Lnexports	.2887783	.5373809
e	.0199996	.1414199
u	0	0

Test: Var(u) = 0

chibar2(01) = 0.00
 Prob > chibar2 = 1.0000

Source: Stata computation

Table 8: Random effects model

Lnexports	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
LnGDP	.922539	.1074441	8.59	0.000	.7119524	1.133126
LnDistance	-1.635151	.3767303	-4.34	0.000	-2.373529	-.8967728
Lnpopulation	.2557427	.1270376	2.01	0.044	.0067535	.504732
Lntrate	.6115872	.13485	4.54	0.000	.347286	.8758883
_cons	2.293592	1.353321	1.69	0.090	-.358868	4.946053
sigma_u	0					
sigma_e	.14141987					
rho	0	(fraction of variance due to u_i)				

Source: Stata computation