Determinants of Uganda's Trade Flows with her East African Community State Partners

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Determinants of Uganda's Trade Flows with her East African Community State Partners

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DEDICATION

This work is dedicated to my late brother **Peter Jooga** who passed on miserably under unknown circumstances in **Durban, South Africa** on the **27th day** of **October 2014**. I also dedicate it to my mother **Sarah Nankayi Semwogerere** who has stood with me and motivated me to pursue my further studies especially after the demise of my father the **Late Mathias Semwogerere** on the **06th** day of **March 2006** while pursuing my Post Graduate Diploma in Legal Practice at the Law Development Centre, Kampala.

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LIST OF ACRYNOMS

COMTRADE	Commodity Trade
CU	Customs Union
EAC	East African Community
GDP	Gross Domestic Income
IMF	International Monetary Fund
MFPED	Ministry of Finance Planning and Economic Development
UN	United Nations

ABSTRACT

There are concerns that some East African Community member states may not realize the full benefits of regional integration. This concern has motivated this study of determinants of Uganda's trade flows with her East African Community (EAC) trading partners' states to examine the determinants of the trade flow component for Uganda in an attempt to establish its likely benefits from the regional integration initiatives. The objectives of this study are: to examine trends of Uganda's import and export trade flows; to examine the impact of market factors on Uganda's import and export trade flows and to assess the impact of trade communication infrastructure on Uganda's import and export trade flows with her EAC state partners. This study adopted the longitudinal research design and involved the five EAC state parties (Burundi, Kenya, Rwanda, Tanzania and Uganda). The study used data generated from United Nations (UN) Commodity Trade (COMTRADE), International Financial Statistics Database and Statistical Abstracts from 1993 to 2013 for specific study variables. Data analysis was done using EViews (software). Data analysis involved multivariate regression based on Augmented Gravity Model variant to establish the determinants of Uganda's import and export trade flows with her EAC state partners. Results show a positive and strong correlation between Gross Domestic Product (GDP), population, distance between countries' capitals and membership to EAC with import and export trade flows. At the multivariate level the coefficient of determination (R^2) is 0.45 implying that 45% of the variations in Uganda's bilateral trade flows (dependent variable) can be explained by market and trade communication factors (independent variables). The study concludes that market factors: GDP of Uganda's trading partner, GDP per capita of Uganda, population of Uganda, the absolute difference between GDP per capita of trading partners, sharing common border,

membership to EAC and transport costs (proxied by distance between partner's capitals) were major determinants of Uganda's bilateral trade flows. The study recommends adoption of policies that support economic growth (GDP); deepen economic integration (EAC) efforts; improve trade communication infrastructure to reduce transport costs to fully reap from her comparatively advantaged position (attributed to David Ricardo's Classical Trade Theory) in production and export of her export products and her factor/ resource endowments (propounded by Heckscher-Ohlin Theory of international trade).

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

According to the European Commission (EC), exports play an important role in an economy. It influences the level of economic growth and employment and the balance of payments. Exports open up domestic industries to foreign markets. The increase in potential market size can lead to increasing returns, economies of scale, and increased capacity utilization. Exposure to world markets may also induce competitive pressures that may spur innovation and facilitate technological advancement and knowledge spillovers into the domestic economy, leading to efficiency gains in production and management practices. Exports also generate the much-needed foreign exchange, which can be used to import of superior capital goods and intermediate inputs that are critical to the domestic production of a country (ec.europa.eu/trade). Thus, expansion of exports between trading state partners could cause positive spillover effects on the rest of the economy which led economists to stress the vital role of exports as the engine of economic growth (Karamuriro & Karukuza, 2015).

There is evidence to show that international trade including regional trade is important in stimulating and developing economies of many countries (Lwin, 2009). As a result, many regional block nations have increasingly adopted regional economic integration initiatives like Free Trade Agreements (FTAs) to boost intra-regional trade (Sullivan & Steven, 2003). Free Trade Agreements are forms of trade pacts between countries which eliminate tariffs, quotas and other barriers on some or all traded goods between state parties. They aim to increase bilateral trade between state parties by relaxing or removing institutional and economic

barriers to trade (Sullivan & Steven, 2003). Many nations have widely implemented trade agreements to enhance trade among them. Examples of notable trade agreements include the North American FTA (NAFTA) between USA, Canada and Mexico and Association of East Asian Nations (ASEAN) in Asia. In Africa the African Free Trade Zone includes Southern African Development Community (SADC), Common Market for Eastern and Southern Africa and Economic Community for West African States (ECOWAS).

Regional integration has recently gained impetus in Africa reflecting a renewed political will and increased resource flows for regional trade initiatives (Murping, 2005). Integration in the East African Community (EAC) was re-established in 1999 with the signing of the EAC Protocol. Over the years, the EAC party states have established economic links through a FTA (2001), a Customs Union (2005), and a Common Market (2010) with Burundi, Kenya, Rwanda, Tanzania and Uganda. Given the progress with intra-regional trade, the objective of the EAC countries is the establishment of the East African Monetary Union that will adopt a single currency projected by 2024 although analysts speculate that in light of political instability in South Sudan and Burundi, it might take longer to launch. The regional intergration process is anticipated to climax ultimately with the formation of a political federation (Krinninger, 2016).

As trade is expected to flourish, it is important to examine factors that determine bi-lateral trade flows (Lwin, 2009) especially between the EAC partner states which has motivated this study. The independent variables in this study are market demand and supply factors (Gross Domestic Product (GDP), Gross Domestic Product Per Capita (GDPPC) and Population and

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trade impedance factors: transport cost (proxied by distance between the capitals of trading partners), border adjacency, common language and land lockedness status of a state partner. The dependent variable in this study is bilateral trade flows (exports and imports). This chapter presents the background to the study, statement of the problem, the purpose of the study, the objectives, research questions, hypotheses, conceptual framework, scope, significance, justification of the study and a working definitions of key terms and concepts.

1.2 Background to the Study

Historically, cooperation in the East African region can be traced back to 1917 when the British colonies of Kenya and Uganda were first joined into a Customs Union (CU). It later became the East African High Commission, the East African Common Services Organization and then EAC in 1967 which collapsed ten years later in 1997 (Kenya Economic Update, June 2012). The EAC in its present form was established in 1999 initially comprising Kenya, Tanzania and Uganda (Treaty on Establishment of the EAC, 1999) but expanded to include Burundi and Rwanda in 2007. The republic of South Sudan was officially admitted as the sixth member of the EAC by a resolution of Heads of states of the community in their 17th Summit in Arusha, Tanzania in 2016 that was ratified by South Sudan's parliament (ZINHUA News May 29, 2016).

The theory of comparative advantage is an international (Classical) trade theory attributed to David Ricardo, it can explain bilateral trade flows between trading partners. A country is said to have comparative advantage in production of one good if its opportunity, autarky or

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marginal cost of producing the good is lower than any other country (Shinyekwa, 2013). Trade between any two countries is referred to as being Pareto-optimal when each country exports the good in which it has a comparative advantage. Thus gains from trade depends only on comparative advantage (Samuelson, 1969). This Classical trade theory put forward by Richardo argues that trade raises a country's potential income (welfare) compared to autarky through specialization according to comparative advantage (Shinyekwa, 2013). This theory has, however, been criticized for failing to account for intra-industry trade, market size and non-price competitiveness (Andrade & Mejean, 2012). Heckscher–Ohlin (H-O) Theory introduced one more input, namely, capital, in addition to labour in the Smithian and Ricardian models. Heckscher and Ohlin argued that comparative advantage arises from differences in national resource or factor endowments. The more abundant a factor is, the lower its cost, giving the country the proclivity to adopt a production process that intensively uses the relatively abundant factor. As a result, capital-abundant countries should export capital-intensive products, and import labor-intensive products from labor-abundant countries but studies show that to the contrary, capital abundant countries like the United States of America export plenty of both (Hill, 2009; Salvatore, 1998). These theories are nonetheless, still invaluable in explaining bilateral trade flows and will thus be adopted to guide this study.

In the context of international trade, bilateral trade flows between trading state partners have been the most common dependent variable used in trade flow models (Simwaka, 2007). The explanatory variables have, however, varied in presentation. Studies have used factors indicating demand and supply (purchasing power) of trading partners and factors representing impediments imposed on trade between partners (Kepatsoglou, Karlaftis, &Tsamboulas,

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2010). Common proxies for demand and supply factors have been the measurements of a country's economic and market size; income level, population and Gross Domestic Product (GDP) per capita which indicates purchasing power of trading partners. In addition to the above, some studies have exploited total imports and exports along with the aforementioned factors where imports and exports have been considered a more direct indicator of a country's demand and supply characteristics (Bergstrand, 1985) adopted in this study.

Impedance factors to trade are those that affect trade positively or negatively. They include transportation costs which is estimated by distance between a pair of country's economic centers (Martinez-Zarizosa & Suarez-Bougueat, 2005) and other proxies like for common language, boarder adjacency and trade pacts (Kepatsoglou, Karlaftis, & Tsamboulas, 2010) that facilitate or create trade resistance. For example, when supply and trade destinations are far apart, trade costs increase as a result of higher transportation costs and vice versa. While, common language facilitates trade communication and consequently bilateral trade.

Contextually, Uganda is one of the countries in the Sub-Saharan Africa that adopted the export-oriented growth strategy in 1980s. Since then, Uganda has initiated several trade policy reforms aimed at promoting the export sector. The reforms include liberalization of foreign exchange rate regime, elimination of export taxes and abolition of taxes on the import of inputs meant for production for the export sector (Musinguzi, 2002). Statutory bodies were also set up to facilitate, coordinate and promote the export sector and attract export-oriented investments. The statutory bodies include Uganda Investment Authority, Uganda Exports Promotions Board, and Uganda National Bureau of Standards (Karamuriro & Karukuza,

2015). Uganda has also actively been involved in regional integration initiatives with the aim of promoting her exports in the regional market. It is a member of the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA), and Intergovernmental Authority on Development (IGAD).

Intra-EAC trade stood at 12% of total trade in 2012, an increase of 2% from 2006. The value of intra-regional trade has increased three-fold from about USD 2 billion in 2006 to USD 6 billion in 2012. Imbalance in regional trade however exists with Kenya, exporting over 5% to EAC partners and it is the only partner state with bilateral trade surplus. Significant heterogeneity also exists in trade between partner states within the region. For example, 39% of Rwanda's imports are sourced from EAC partners while Kenya sourced only 3% of her imports during the same period (MFPED, 2014). This puts to question whether the EAC regional integration initiative will equitably benefit state partners.

The majority of empirical studies on Uganda's external trade tend to focus on the effects of exchange rate on the nation's trade balance (Wokadala, 2011), effects of exchange rate variability on exports (Kihangire, 2005), trade liberalization, export and import growth (Kilimani & Sebaggala, 2012) and export performance and economic growth (Kaberuka, Rwakinanga & Tibesigwa, 2014). None of these studies analyzed the factors that influence the pattern and the volume of bilateral trade flows between Uganda and its trading partners. Hence, this study is focused to fill this gap.

1.3 Statement of the Problem

Uganda's share in total world exports is still very low, amounting to 0.02% in 2012 (World Trade Organization (WTO), 2013). At the regional level, the EAC state parties have established closer economic ties through FTA (2001), Customs Union (2005), Common Market (2010) and the EAC Monetary Union projected to start by 2024 although there are doubts about the practicability of this timeline to facilitate intra-EAC regional trade (Okumu & Nyakori, 2010).

Despite these initiatives, performance of partner states seem to be heterogeneous and imbalanced (Heritage Foundation, 2012). For example, Kenya has been the only partner with trade surplus (Ministry of Finance Planning and Economic Development (MFPED), 2014) while Burundi has had the least average GDP growth per capita (25% from 2000 to 2010 compared to 58% and 47% for Uganda and Rwanda). Intra-EAC trade is still weak and dominated by Kenya while economic dynamics brings with it risks of unequal distribution of benefits (Reith & Boltz, 2011). This has raised concerns that some trading partners may not realize the full benefits of regional integration which has motivated this study of determinants of bilateral trade flows between Uganda and her EAC partner states. Given the central role of exports in the economy, it is important to identify the plausible factors affecting trade flows between Uganda and her trading partners. These factors are expected to be useful in explaining the factors that significantly affect Uganda's bilateral trade flows to inform the design of policies to improve bilateral trade performance and ultimately propel Uganda's overall economic growth.

1.4 Purpose of the Study

The purpose of this study is to examine the determinants of intra-regional trade flows with particular focus on Uganda's trade with her EAC state partners.

1.5 Objectives of the Study

The objectives of this study are:

1. To examine trends of Uganda's trade flows (patterns) with EAC partner states.

2. To examine the impact of market factors on Uganda's trade flows with EAC state partners.

3. To evaluate the impact of trade communication infrastructure on Uganda's trade flows with her EAC state partners.

1.6 Research hypotheses

This study is guided by the following research hypotheses:

Market factors

1. H_1: GDP of countries has no (significant) positive impact on trade with EAC trade partners.

2. H_2: GDP per capita of Uganda's trading partners has no (significant) positive impact on trade with its trading partner states.

3. H_3: The population of countries has no (significant) positive on trade with trading partners.

4. H_4: GDP of other EAC countries has no (significant) positive impact on Uganda's trade flows.

5. *H4:* GDP per capita of other EAC countries has no (significant) positive impact on Uganda's trade flows.

6. *H₅:* The population of other EAC countries has no (significant) positive impact on Uganda's trade flows.

Trade communication factors

7. *H:* Customs Union membership (EAC) has no (significant) positive impact on trade flows with trading partners.

8. *HO:* Distance between Uganda's capital cities to state partner's has no (significant) positive impact on trade flows with other EAC trading partners.

9. *HO:* Land lockedness status of Uganda has no (significant) positive impact on its trade flows with other EAC trading partners.

1.7 Significance of the Study

The findings of this study are significant because they will identify the determinants of bilateral trade flows between EAC state partners. They will assist in understanding trade patterns of Uganda's trade flows with her EAC trading partner state. The findings will enable policy makers to make informed policy decisions regarding Uganda's bilateral trade with her state partners to enhance trade among partner states and provide better understanding of determinants of bilateral trade flows to managers, traders, the business community and financial institutions to make informed investment decisions. The findings will also contribute to extending the body of knowledge on bilateral trade flows in regional economic blocks. Finally, it will contribute to the attainment of the researcher's Master of Arts degree (in International Trade Policy and Law).

This study is justifiable because the EAC is currently deepening economic integration and preparing to adopt a (Single) Currency Union which is envisaged to be the main driver of bilateral trade. The findings of the study will highlight trade within EAC that will be invaluable to inform the process. It is envisaged to provide a more viable solution to the unique problems of the EAC to avert the possible problems that led to the collapse of the defunct EAC of the 1960s and 1970s.

1.8 Justification of the Study

The justification of the gravity model with fixed effects in this study is to eliminate the bias associated with the heterogeneity of the trade flows or with misspecifications of gravity equations. For example, a country may export different volumes of goods to two commercial partners having the same GDP level, located as equal distance from the exporter, however differences in trade flows may arise from factors unique to a country historical, cultural and geographical considerations. Studies endeavoured to consider this heterogeneity of trade flows by introducing some of these factors into gravity equations. However, there are other variables affecting these flows which are absent from gravity equations, either because they are not observable or hardly quantifiable. In this case, the bias issue remains unsolved. The control of these omitted variables is made through the introduction of fixed effects in the pooled Gravity model. The Huber-White heterocedasticity - consistent standard errors, also called robust standard errors are estimated.

1.9 Scope of the Study

1.9.1 Subject Scope

This study is limited to bilateral trade flows between Uganda and her EAC partner states and to exports and imports in United States dollar (value) terms. The independent variables in this study are market (demand and supply) factors: - GDP (economic size), GDP Per capita and population; and communication infrastructure (circle) distance between partners trading capitals, land-lockedness status of the country, common language and customs union membership) postulated to influence trade flows.

1.9.2 Time Scope

The study is entirely based on secondary data for the selected study variables starting from January 1993 to December 2013. Data was aggregated on monthly basis to provide sufficient observations to facilitate econometric analysis on E-views computer software. The choice of this period was to enable the researcher to investigate the influence of EAC policies that came into effect before and during the period on Uganda's export flows.

1.9.3 Geographical Scope

This study was limited to the five EAC state parties Burundi, Kenya, Rwanda, and Tanzania and Uganda. This was because South Sudan, the sixth member state was recently (June 2016) admitted to the community and no policy implications of the community on her could be effectively considered as the period of the study did not cover up to 2016. It was also not within the scope of this study to include non-state parties.

1.10 Conceptual Framework

Conceptual framework showing determinants of Uganda's trade flows with its EAC trading partners is presented in Figure 1.

Trade determinant factors   **Uganda's Trade Flows with EAC Partners**

(Independent Variables)   *(Dependent Variable)*

Market (demand and supply) factors
- o GDP (economic size)
- o GDP Per capita
- o Population

Communication infrastructure (Impediment factors)
- o Distance (Between capital cities)
- o Land lockedness
- o Common language
- o Customs Union (CU) membership
- o Common language
- o Common border
- o Common colonizer

Uganda's Trade Flows
- Imports
- Exports
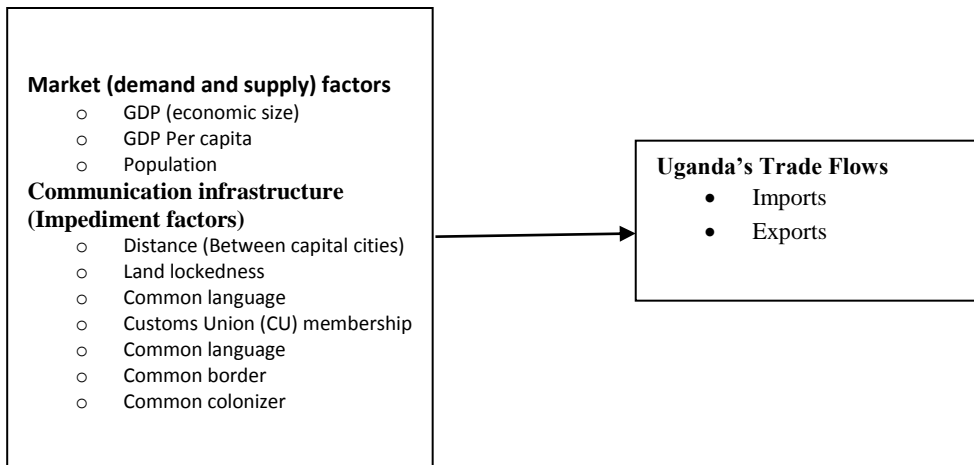
Source: Adopted and modified from Kepatsoglou, Karlaftis & Tsamboulas (2010).

Figure 1: Explanation of the Conceptual Framework

The independent variables are market (demand and supply) factors and communication infrastructure. Market (demand and supply) factors are: GDP per capita (purchasing power), GDP (economic size), Population and EAC customs union (CU) membership while communication infrastructure (was proxied by circle distance between bilateral economic centers for example Kampala and Nairobi, Kampala and Kigali and Kampala and Dar es Salam; Land lockedness (for example adjacency to sea or otherwise); common language for example Kiswahili, French, English as dummy variables) (Kepatsoglou, Karlaftis, &

Tsamboulas, (2010); Bergstrand, (1985)) common boarder (if countries share a common boarder and otherwise) and common coloniser if countries share the same colonial master. These variables produced a combination of values that were unique to a specific pair of countries to facilitate empirical analysis.

1.11 Definition of Key Terms and Concepts

Circle Distance: Bilateral circle distance computed using the logarithm provided by Gray (2004). It is the great circle distance between the trading capitals of party states.

Common market: Stage of economic integration among countries characterized by free movement of factors of production like capital and labour between member states in the presence of common external tariffs.

Customs Union: Stage of economic integration among countries characterized by common external tariffs and duty-free and quota-free movement of goods between partner states.

GDP per capita: GDP per capita of a country is obtained after converting her total GDP to US dollars at current exchange rate and dividing it by its population. Prices vary systematically though non-linearly with the level of income. Per capita GDP is a measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity (http://www.investopedia.com).

Value of Bilateral Trade: Total exports and imports expressed in dollar terms between Uganda and her state partners of the EAC within a specific period of time.

Gross Domestic Product (GDP): GDP is considered to be the sum of all the final services and products produced inside the national economy in the given time. GDP real growth means the increase of wealth and social welfare in the country (McConnell and Brue 2008).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature that is used to build up information to provide a framework for analysis and discussions in the subsequent sections of this study. This chapter presents the theoretical review and a review of the analytical model adopted in this study - the Gravity Model. Additionally, the chapter reviews some of the findings of previous studies on bilateral trade according to study objectives: trends in bilateral trade flows, demand and supply factors and bilateral trade flows and trade impedance factors and bilateral trade flows and a summary of literature review.

2.2 Review of Theoretical Literature

This sub-section reviews the concept and theories of international trade. It discusses the theories of trade and reasons for trade between international trading state partners.

2.2.1 Review of Theories on Why Countries Trade

Modern trade theory is the product of evolution of economic thought particularly the writings of the mercantilists, and later, those of the classical economists – Adam Smith, David Ricardo, and John Stuart Mill. These economists have been instrumental in providing the framework of modern trade theory to explain the pattern of trade (which country trades in what good with which country) and predicting and explaining the composition and direction of international flows of goods and services. The array of trade theories developed sought to

assess the impact of trade flows on domestic welfare and to predict how national policies affect trade flows, the prices of traded commodities, the prices of productive factors and, through them, domestic welfare of consumers. These early views (classical theories) form the foundation of contemporary trade theory and some still influence present-day international trade policies as discussed below.

The ideas of Adam Smith, David Ricardo, and other classical economists emerged in reaction to the mercantilists' view on trade and the role of government. Adam Smith demonstrated that the potential to gain from specialization applies not only to the assignment of tasks within a firm but also to trade between countries. Smith reasoned that trade between countries is based on absolute advantage, which exists when countries differ in their ability to produce commodities arising from differences in technology (Steingress, 2015). According to Smith, a country should export products in which it is more productive than other countries (that is, goods for which it can produce more output per unit of input than others (absolute advantage) and import goods in which it is less productive than other countries (absolute disadvantage) (Dunn & Mutti, 2005). With free trade and government pursuing laissez-faire policies, Smith argued that world output will rise; because of more efficient utilization of productive resources resulting from specialization and division of labour. Both nations will, then, end up consuming more of both commodities after exchanging (through trade) part of its output with the other nation for the commodity of its absolute disadvantage (Carbaugh, 2006; Dunn & Mutti, 2005; Salvatore, 1998).

The theory of absolute advantage developed by Adam Smith in his 1776 publication '*An Inquiry into the Nature and Causes of the Wealth of Nations,*' in which he countered mercantilist ideas. The theory seems to make sense in situations where the geographic, climatic conditions, special skills and techniques, and the economic environment give natural or acquired absolute advantage to some countries in the production of certain goods and services over the others. However, Adam Smith's absolute advantage can explain only a very small part of the world trade today because, it is unable to explain why nations which are more efficient in the production of all the traded goods still trade with partners which have absolute disadvantage in the production of all the traded goods (Carbaugh, 2006; Salvatore, 1998).

Dissatisfied with this looseness in the absolute advantage theory, David Ricardo (1772–1823) extended the insight from Smith's free trade theory into the concept of comparative advantage to demonstrate that there exists basis for mutually beneficial trade, even when one country is absolutely more efficient in the production of all goods than the other, provided that their relative costs, that is, the ratios of their real costs in terms of labor inputs, are different for two or more commodities (Aslanov, Gasimov & Isayeva, 2010). Ricardo posited that, a country that is less productive in two goods can still gain from trade by exporting the good in which its relative disadvantage is smaller, because the (its) relative price of this good before trade (autarky price) will be lower than abroad. A country that has an absolute advantage in both goods, gains by specializing in the production of the good in which its relative advantage is greater. It can gain from trade by importing the product in which its relative advantage is smaller, because the foreign opportunity cost of producing it is lower. Thus, Ricardian model

demonstrates that it is the difference in technology between the nations that give comparative advantage to some countries in the production of certain goods over others and motivates international trade (Anderson, 2004; Dunn &Mutti, 2005; Suranovic, 2006).

Although empirical verifications (MacDougall, 1951; Balassa, 1963; and Stern, 1962) confirm Ricardo's postulation that comparative advantage is based on a difference in labor productivity, the Ricardian trade model was criticized for its unrealistic underlying assumptions and its inability to neither explain the reason for the difference in labor productivity across nations nor the effect of international trade on factor earnings (Salvatore, 1998).

To explain the source of international differences in productivity the factor that determines comparative advantage and the pattern of international trade, two Swedish economists, Eli Heckscher (1919) and Berlin Ohlin (1933) extended the Ricardian trade model into what has become known as the Heckscher–Ohlin (H-O) theory by introducing one more input, namely, capital, in addition to labour in the Smithian and Ricardian models. Heckscher and Ohlin argued that comparative advantage arises from differences in national resource/ factor endowments (such as land, labor and capital) (Aslanov, Gasimov & Isayeva, 2010). The more abundant a factor is, the lower its cost, giving the country the proclivity to adopt a production process that intensively uses the relatively abundant factor.

By assuming that different commodities require that factor inputs be used with varying intensities in their production, the H-O model postulates that countries will export goods that

make intensive use of those factors that are locally abundant, and import goods that make intensive use of factors that are locally scarce. In other words, capital-abundant countries like the U.S.A, and other industrial economies should export capital-intensive products, and import labor-intensive products from labor-abundant countries like Ghana and other developing economies (Hill, 2009; Salvatore, 1998).

In view of Leontief (1953)'s paradoxical finding on the pattern of trade in United States and the inconclusive findings from many other empirical studies which tested the predictions of the H-O model in other countries, alternative theories of comparative advantage have been developed to explain the great deal of contemporary trade (between similar countries) that is left unexplained by the H-O theory Bowen, Leamer & Sveikauskas (1987) and Trefler (1993, 1995). Comparative advantage in the new trade theories are based on tastes and preferences, economies of scale, imperfect competition, and differences in technological changes among nations.

In contrast to the usual supply side theories (which tend to explain why production costs are lower in one country than in another, Stefan Linder (1961) presenting his similarity of preferences (overlapping demands) theory, argued that an explanation for the direction of trade in differentiated manufactured products lies on the demand side rather the supply side. Linder hypothesized that countries with similar standards of living (proxied by per capita GDP) will tend to consume similar types of goods (Aslanov, Gasimov & Isayeva, 2010). Since the standards of living are determined in part by factor endowments, Linder argued that

capital abundant countries tend to be richer than labour abundant countries which implies that considerable volume of trade should exist between countries with similar characteristics.

Implicatively, the rich or industrial countries should trade more with other rich countries, and poor (or developing) countries should trade with other poor countries. Whilst this implication of Linder's hypothesis sharply contravenes the predictions of the H-O theory in which countries with dissimilar factor endowments would have the greatest incentives to trade with each other, due to disparity in pre-trade relative (autarky) prices, it provides explanation for the extensive trade observed among the rich countries, which makes up a significant share of world trade. In addition to this, it provides explanation for the existence of intra-industry trade, an important feature of international trade which involves the simultaneous import and export of similar types of products by a country. Studies by Jerry and Marrie Thursby (1987) and Bergstrand (1990) have reported evidence in favour of Linder's theory. Raymond Vernon (1966) proposed the hypothesis that new products pass through a series of stages in the course of their development, and the comparative advantage of the producers in the innovating country will change as products move through the cycle. The theory, often referred to as the "Vernon product cycle," applies best to trade in manufactured, as opposed to primary, products (Dunn & Mutti, 2005).

Paul Krugman developed a New Trade Theory in 1983 in response to the failure of the classical models to explain why regions with similar productivity trade extensively. Krugman's new trade theory suggests that the existence of economies of scale (or increasing returns to scale) in production is sufficient to generate advantageous trade between two

countries, even when they have similar factor endowments with negligible comparative advantage differences (Suranovic, 2006; Carbaugh, 2006). As explained by Carbaugh (2006), the increasing-returns trade theory, asserts that a nation can develop an industry that has economies of scale, produce that good in enormous quantity at low average cost, and then trade those low-cost goods with other nations. By doing the same for other increasing-returns goods, all trading partners can take advantage of economies of scale through specialization and exchange.

This study will adopt the theory of comparative advantage and the H-O theory to explain Uganda's bilateral trade flows with her EAC trading partners. The new trade theory which brings in elements of taste and preference, manufacture and economies of scale would not be particularly applicable in this study at this time as the nature of commodity traded and scale of production may not be appropriate for their application in this study.

2.2.2 The Gravity Model of Bilateral Trade

The gravity model has been the workhorse of empirical studies since its first application to analysis of determinants of bilateral trade flows by its pioneers (Tinbergen, 1962; Pöyhönen, 1963). As a reminiscence of Newtonian theory of gravitation, the basic form of the model of trade assumes that, as planets are mutually attracted in proportion to their sizes and proximity, countries similarly trade in proportion to their respective GDPs and proximity (Bacchetta et al., 2012). The gravity model assumes that bilateral trade between any two countries is directly proportional to their economic sizes (like their "masses" proxied by the respective GDPs) assuming other factors constant and diminishes with distances between them.

Bergstrand (1985, 1989) argues that the gravity model is embedded in a monopolistic competition developed by Krugman (1980). The model has identical countries that trade in differentiated goods because consumers have a preference for variety thus overcoming the undesirable feature of Armington models that differentiate goods by location of production. Deardorff (1995, 1998) further demonstrates consistency of the gravity model with a wide range of trade models including the Heckscher-Ohlin-model, either with frictionless or with impeded trade. Furthermore, Eaton and Kortum (2002) derive a gravity-type equation from a Ricardian type of model, and Helpman et al., (2008). Finally, Chaney (2008) resorts to a theoretical model of international trade in differentiated goods with firm heterogeneity.

2.3 Literature Review on Study Variables

2.3.1 Bilateral trade Patterns and Intra-regional trade

According to Lwin (2009) in order to promote bilateral trade, state parties should accelerate their trade liberalization efforts with countries in close proximity and having large economic sizes and higher consumer purchasing power. Trade liberalization and regulation are needed to build compatibility, harmonize standards, recognize quantification and strengthen the business environment. Some of these standards have been harmonized in the EAC integration process. However studies show that some economic policies have not yet been harmonized (Zenth & Boltz, 2011).

Although the EAC member states economies are integrating, there is evidence to show imbalance between macroeconomic indicators among partner states. For example, Burundi has been found to be the least performer in terms of economic growth with GDP per capita

growth of 25% from 2000 to 2010 while Tanzania and Kenya were at 35%. According to Heritage Foundation (2012) the repressive policy in Burundi made it difficult for the private sector to create employment and sustain economic growth. Besides, from 2008, EAC states have been exporting more goods to partner states than to any other region (World Bank).

Knowledge of net exports or imports commonly referred to as balance of trade are important to an economy. Balance of trade is the difference between the value of goods and services exported out of a country and the value of goods and services imported into the country (www.newyorkfed.org/). The balance of trade is the official term for net exports that makes up the balance of payments. The balance of trade can be a "favorable" surplus (exports exceed imports) or an "unfavorable" deficit imports exceed exports. A balance of trade surplus is most favorable to domestic producers responsible for the exports. However, this is also likely to be unfavorable to domestic consumers of the exports who pay higher prices. Alternatively, a balance of trade deficit is most unfavorable to domestic producers in competition with the imports, but it can also be favorable to domestic consumers of the exports who pay lower prices (www.newyorkfed.org/).

Balance of trade is the difference in value over a period of time between a country's imports and exports of goods and services, usually expressed in the unit of currency of a particular country or economic union. The balance of trade is part of a larger economic unit, the balance of payments (the sum total of all economic transactions between one country and its trading partners around the world), which includes capital movements (money flowing to a country paying high interest rates of return), loan repayment, expenditures by tourists, freight and insurance charges, and other payments.

If the exports of a country exceed its imports, the country is said to have a favourable balance of trade, or a trade surplus. Conversely, if the imports exceed exports, an unfavourable balance of trade, or a trade deficit, exists. According to the economic theory of mercantilism, which prevailed in Europe from the 16th to the 18th century, a favourable balance of trade was a necessary means of financing a country's purchase of foreign goods and maintaining its export trade. This was to be achieved by establishing colonies that would buy the products of the mother country and would export raw materials (particularly precious metals), which were considered an indispensable source of a country's wealth and power.

The assumptions of mercantilism were challenged by the classical economic theory of the late 18th century, when philosophers and economists such as Adam Smith argued that free trade is more beneficial than the protectionist tendencies of mercantilism and that a country need not maintain an even exchange or, for that matter, build a surplus in its balance of trade (or in its balance of payments).

A continuing surplus may, in fact, represent underutilized resources that could otherwise be contributing toward a country's wealth, were they to be directed toward the purchase or production of goods or services. Furthermore, a surplus accumulated by a country (or group of countries) may have the potential of producing sudden and uneven changes in the economies of those countries in which the surplus is eventually spent (www.britannica.com).

2.3.2 Market Factors and Intra-Regional Trade

In estimation of bilateral trade flows between trading partners, the most common dependent variables used is trade flows (bilateral imports and exports) (Simwaka, 2007). Their

explanatory variables have, however, varied depending on the variants adopted in Gravity Model specifications. Studies have used factors indicating (market) demand and supply of trading partners (Kepatsoglou, Karlaftis, & Tsamboulas, 2010). The common proxies for demand and supply factors have been the measurements of countries economic and market sizes: Income, population, area of the country, and Gross Domestic Product (GDP) per capita (indicator of purchasing power of partners) and GDP. The GDP of state partners have been successfully applied as proxies for economic size (Lwin, 2007). However, in this study, the following independent variables have been adopted: GDP, GDP per capita and the population of the trading partners.

All the EAC countries have over the past decade pursued programmes to restructure their economies with the support of the International Monetary Fund (IMF) and the World Bank (WB). Uganda and Rwanda were found to be the most successful in public sector, trade liberalization, and market and price reforms leading to economic expansion. Perhaps as a result, the two countries display increased average GDP growth over 2000 and 2010 and accompanying increases of GDP per capita of 58% for Rwanda and 47% for Uganda (Petit, Rugeminwari & Strobel, 2012).

A number of studies have been conducted to examine determinants of bilateral trade using the Gravity Model. Roy and Rayan (2011) analyzed the determinants of trade flows in Bangladesh using the Gravity Model panel data approach. The study covered a total of 14 countries including Bangladesh and other 13 countries that have bilateral trade agreement with Bangladesh, namely South Asian Association for Regional Co-operation (SAARC). The

data collected for the study spanned from the period of 1991 to 2007. Results of the study showed that Bangladesh's trade flows were significantly determined by the size of Bangladesh's economy (GDP) and that of its partners. However, contradicting results were found in a study applying the gravity model in Fiji where, GDPs of trading bilateral partners were not found to be statistically significant (Eita, 2008). In a study in Australia, results revealed that Australia's bilateral trade is affected negatively by the per capita income differential of trading partners (Rahman, 2009). In investigating the determinants of Namibian exports, Eita (2008) employed an extended version of the gravity model, using a panel data covering 39 countries for the period 1998-2006. Results showed that an increase in Namibian GDP and importer's GDP caused an increase in Namibian exports. This finding is also similar with Hassan (2002) and Simwaka (2007) who found that bilateral trade was positively determined by economic size proxied by GDP.

Population size is associated with production capacity providing opportunities for export trade. Population size also implies market consumption potential. The larger the population the larger the propensity to absorb both locally and foreign produced tradable which in turn could lead to increased trade flows. Population and per capita income have been successfully applied as proxies to economic size (Lwin, 2007). To assess Mercosur-EU trade and trade potential following the agreements reached between the two trade blocs. It was established that the exporter population has a negative impact on trade flows while importer population has a large positive effect on exports Zarzozo and Lehmann (2003).

According to Geda (2002) who analyzed the determinants of trade using COMESA as a case study, documented that, with the exception of distance, all the standard gravity model variables had plausible and statistically significant coefficients. It was noted that good macroeconomic policies such as financial deepening and infrastructure development were important determinants of bilateral trade in Africa.

Martinez-Zarzoso (2003) applied the gravity model to assess Mercusor countries and the European Union trade and trade potential following the trade agreements that had been reached. The model was used to test annual bilateral trade flows on a sample of 19 countries, that is, the formal four members of Mercosur plus Chile and the fifteen members of the European Union over a period of eight years (1988 – 1996). The basic model variables satisfied the gravity flow model hypothesis which states that, "Economic sizes of trading partners positively influenced bilateral trade flows while distance between the economic trading centres of any two trading partners negatively affected bilateral trade flows". However, population of importing trade partners was found to positively influence bilateral trade flows, implying that bigger countries import more than their smaller counterparts. Also the population of the exporting country had a large and positive impact on volume of exports. According to the author, it implies that the larger the population, the cheaper the available labour. This boosts production of exportable goods and services. Exporter and importer incomes also indicated a positive influence on bilateral trade flows but the author's major observation was that transport infrastructure greatly fosters trade.

In a study of factors affecting imports and exports in the countries of the South Caucasus, a positive relationship was found between GDP of a trading partner and exports and GDP was the most significant variable ($p=0.00$), regression results indicating a unit increase in GDP leading to 71 unit increase in exports in Azerbaijan (Aslanov, Gasimov, & Isayeva, 2010). In the model, the R-square value is 0.997 using Exports as the dependent variable. R-square tells us how much variance in the dependent variable that is explained by the model (Pallant, 2007). The model explains 99.7% of the variance in the exports which is quite respectable result and considered satisfactory. While applying gravity model, results in Goss Domestic product in COMESA countries and existence of sharing borders with Egypt and COMESA countries are the most important variables that determine Egypt trade with COMESA (Elmorsy, 2015).

Most of the literature reviewed shows that GDP coefficient lies between 0.75 and 1.2, which is consistent with the theoretical foundation (Grossman, 1998; Deardorff, 1998). Many scholars (Frankel, 1997; Chen et al., 2007; Chan-Hyun, 2005) also proved this assertion by carrying out a number of gravity equations and the results showed that coefficient for real GDP ranged between 0.75 and 0.95. However, contrary to the theoretical expectations, Sokchea (2006) obtained statistically significant GDP coefficients even when random effects were catered for in the estimator. When the OLS estimator was used, coefficients ranged between 2.188 and 3.178 across the study periods, which is more than the theoretical value of 1.2. Use of the Simple pooled OLS estimator also gave a wide range of coefficients lying between 2.585 and 5.851. With respect to GDP variable, this study seeks to validate whether

GDP of Uganda and her trade partner's lies within the expectations of the theoretical foundation.

Regional economic integration efforts have had varying results on bilateral trade from previous studies using different gravity model specifications. Empirical studies have indicated significant, insignificant and ambiguous relationships in different circumstances (Makochekanwa, 2012). In a study of determinants of trade flows between Namibia and her trading partners, Simwaka (2007) found that Malawi's bilateral trade was positively related to membership to regional integration agreement. Similarly, Roy and Rayhan (2011) in a cross-sectional study showed that membership of SAARC was significant determinant of Bangladesh's trade flows. Rahman (2009) in a study in Australia concurs that Australia's bilateral trade is affected positively by free trade agreement.

2.3.3 Trade Communication Infrastructure and Bilateral Trade Flows

Many trade communication infrastructure (impedance factors) affect bilateral trade flows. Numerous studies have used proxies for impedance factors to be: distance between trading partner's capitals, border adjacency, and common language, land lockedness status of trading partner and Free Trade / Customs Union membership (Melitz, 2007; Rahman, 2009; Taye, 2009; Eita, 2007).

Sharing a common language can enhance export flows between countries by facilitating communication. Ease of communication facilitates foreign trade through translation as well as through the ability to communicate directly (Melitz, 2007). Linguistic links and other

historical and cultural links are particularly important at reducing the cost of unfamiliarity in international trade, or what Linnemann (1966) called psychic costs, and Garnaut (1994) subjective resistance. Therefore, the estimated coefficient for this variable was expected to have a positive sign.

Sharing a common geographical frontier is expected to promote bilateral trade. The immediate consequence of geographical proximity is reduction in transport costs, short delivery time, less interest payments on export credits and low spoilage (Ekanayake, Mukherjee and Veeramacheneni, 2010). Near the border, consumers find it easy to cross over to shop in the other country and firms can source intermediate inputs in the other country, much more readily than would be possible if the countries did not share a common border. Therefore, the estimated coefficient of the variable Border was expected to have a positive sign.

According to Limao and Venables (1999) a principal resistance factor to trade cording to the Gravity Model is being a land locked country. Land lockedness raises transport costs by about 50 percent for the median landlocked country compared to the median costal economy. However improving the infrastructure of the land locked economy from the median for the land locked economies to the 25th percentile reduces this disadvantage by 12 percentage points and improves infrastructure of the transit economy by the same amount reduces the disadvantage by a further seven percent.

Trade costs remain an important barrier to international trade in today's globalizing economy. Despite the popular discussion on the "death of distance," distance is still an important source of trade costs and continues to have an irrevocable impact on the patterns of international trade. Literature identifies various factors that can explain the importance of geographical proximity for bilateral trade. First, transport costs and costs of timeliness increase with distance. Moreover, psychic distance increases as well. Because of cultural unfamiliarity and information costs, traders have less knowledge of distant markets. Empirical estimates of the distance effect in trade abound. The evidence indicates that distance still matters for trade. However, differences in estimated effects across the literature make generalizations about the distance effect and its development over time more difficult (Gert-Jan M. Linders,). https://ideas.repec.org/p/wiw/wiwrsa/ersa05p679.html).

Empirical studies have postulated distance to negatively affect bilateral trade flows. Studies show the relationship between bilateral trade as a function of cost resistance to trade. Such resistance is posed by factors like trade distances (Lwin, 2009). The findings of Hassan (2001) show that trade is positively determined by transport cost proxied by distance between trading partners. Rahman (2009) found that distance is negatively related to Australia's trade flows with trading partners. Contrary to the above findings, Marquez-Ramos (2007) found that transport cost reductions do not have a significant effect on exports from African countries. In a similar study conducted in Ethiopia by Taye (2009) indicated that distance did not play an important role in determining the volume of Ethiopian exports.

Chen et al. (2007) studied determinants of Xinjiang's bilateral trade flows using an extended gravity flow model, distance among other variables were found to be significantly consistent with the then prevailing trade situation at the time of study. The authors noted that Xinjiang's neighboring trade partners like Russia, the Republic of Kyrgyzstan and Pakistan, which have a direct land corridor, were always Xijiang's main trade partners unlike distant trading partners like Hong Kong among others.

The distance variable has remained one of the most interesting, simply because, different authors give quite differing views about this variable. For instance, Buch et al. (2003), put it that, distance coefficients do not carry much information on changes in distance costs over time because changes in distance costs are largely picked up solely in the constant term of the gravity model. Therefore, the distance coefficient only measures the relative difference between economic centers. Chan-Hyun (2005) clarifies that the distance coefficient does not only reflect elasticity of absolute distance on trade, but also shows the effect of both absolute and relative distances.

Studies postulate bilateral trade as a function of resistance to trade. Such resistance is posed by factors like land lockedness, adjacency and language and various other obstacles to trade with trading partners (Lwin, 2009). Hassan (2001) analyzed trade creation and trade diversion effects of Southern Asian Association for Regional Cooperation using the sum of exports and imports as dependent variable indicating that trade was positively determined by adjacency of state trading partners. Sohn (2005) used the gravity model to identify the underlying trade model of Koreas bilateral trade flows. Empirical results proved that the model was effective in

explaining Korea's bilateral trade which mainly depended on inter-industry and to a lesser extent on intra-industry trade and land lockedness of trading partners. Gani (2008) applied the gravity model to examine the factors influencing trade between Fiji and its Asian partners, using a panel data for the period 1985 to 2002. The results suggested that Fiji's exports are significantly influenced by Fiji's infrastructure.

Economic integration promises to raise trade volume through trade creation by engaging trade agreements. At micro level, interdependence between international trade and investment is magnified through intra firm trade (trade among foreign affiliates), outsourcing of raw material, intermediate goods, output and firm's vertical integration behavior (Chaisrisawatsuk & Chaisrisawatsuk, 2007). In literature, the gravity models have been used to analyze bilateral trade and in all cases, the authors argue that it is not difficult to justify even the simplest forms of gravity equations from standard trade theories. This underlines the fact that gravity models demonstrate a strong relation between bilateral trade flows and their determinants. Matyas et al., (2000) modelling the export activity of eleven Asia-Pacific Economic Cooperation (APEC) countries established that the various members' propensities to import and export are sufficiently high. Laaser and Schrader (2006) in analyzing Baltic trade flows revealed that Estonia, Latvia and Lithuania have rapidly integrated into the international division of labour especially with the EU. Eita (2007) estimated the determinants of Namibian exports and concluded that increases in the importer's GDP and Namibia's GDP led to an increase in the country's exports. It was demonstrated that sharing a common border increases exports. To the contrary, increase in distance and importers' per capita income are associated with decrease in exports. Zarzozo and Lehmann (2003) applied the gravity trade model to assess

Mercosur-EU trade and trade potential following the agreements reached between the two trade blocs. It was established that importer and exporter incomes are positively associated with bilateral trade flows. Whereas, the exporter population has a negative impact on trade flows, importer population has a large positive effect on exports. Other variables like infrastructure, exchange rates are other important determinants of bilateral trade flows.

According to Geda (2002) who analyzed the determinants of trade using COMESA as a case study, documented that, with the exception of distance, all the standard gravity model variables had plausible and statistically significant coefficients. It was noted that good macroeconomic policies such as financial deepening and infrastructure development were important determinants of bilateral trade in Africa. Studies indicate that there are economic, institutional, social, political and infra-structural obstacles hindering regional economic integration in COMESA, promotion of diversification and specialization improvement of physical infrastructure, and investment promotion are some mechanisms in support of regional integration in COMESA (Elmorsy, 2015).

In a study on determinants of Malawi's bilateral flows, membership of Southern Africa Development Community (SADC) was found to be positively and significantly increase Namibia's exports (Eita, 2008). Contrastingly however, in a study on determinants of bilateral trade flows, Gani (2008) failed to account for possible influence of regional integration agreement on Fiji's bilateral trade flows with her trading partner states. Another study by Simwaka (2007) to analyze Malawi's trade flows with its trading partners, Malawi's bilateral trade was positively related to membership of regional integration agreement.

2.3.4 Summary of Literature Review

Numerous gravity models with slightly different forms and characteristics have been developed and tested. Differences between the equations used are a result of their independent development of trade concepts. All however have the level of some social activity between population points is directly proportional to some measure of the mass of each point, and inversely proportional to measure of the distance between the two points. However, there are conflicting findings on determinants of bilateral trade between economic community member states which has motivated this study to determine the relation especially with Uganda's bilateral trade with its EAC trading partner states.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter lays down the methodology that guided the study. It presents the research design, area and population of study, data collection methods and instruments, procedure of data collection, data analysis, measurement variables and ethical considerations.

3.2 Research Design

The study adopted the longitudinal research design. A longitudinal research design is a research strategy that involves repeated observations of the same variables over long periods of time in regular predetermined intervals (Yin, 1984; Amin, 2005). This research design enabled investigation into the subject of study, in particular, determinants of Uganda's trade flows with her EAC trading partner states over a period of 21 years (1993 to 2013) in this study using monthly data.

3.3 Data Sources

3.3.1 Documentary Review Method

Documentary review method refer to the analysis of documents that contain information about the phenomenon intended for the study (Bailey 1994). Payne and Payne (2004) describe the documentary method as a technique used to categorize, investigate, interpret and identify the limitations of physical sources like human behaviour. Data collection therefore involved review of documents to gather secondary data that is used in this study. Documents that were reviewed include background to national budget, statistical abstracts, trade journals and related articles from internet sources like World Bank Commodity Trade (COMTRADE) and

International Monetary Fund (IMF) Financial Statistics Databases. Secondary data mainly included macro-economic time-series data from 1993 to 2013. Trade value expressed in US dollar terms by trading partner countries, Nominal GDP at current market prices, Real GDP at constant prices of 1990, Uganda's consumer price index, Population of Uganda and her trading partners were taken from the IFS (IMF, 1998; 2007) and from the United Nations Statistics Division Common Database. United Nations' GDP estimates were used because the figures were given in a uniform and an internationally recognized United States of America (US) dollar currency unlike the IMF figures that were reported in the respective national currencies. Variables like distance data are the air distances between the capital cities (Economic centers) of selected trade partners with reference from Kampala, Uganda. These data were taken from Map Crow (www.mapcrow.info/distance) and World Atlas (www.worldatlas.com). In the fixed effect model, as time is invariant, the model had to be estimated using the ChW method. This similarly applied to other time invariant variables in the fixed effect method like border adjacency, language, membership to EAC.

3.4 Data Collection Instruments

3.4.1 Documentary Review Check List

The documentary review check list is one of the methods the researcher used to collect secondary data. The check list constituted the list of items of information that will were obtained from documents, records and other materials (see appendix I). In order to secure measurable data, the items that will be included in the list were limited to those that were uniformly secured from a large number of case histories and related records. The list included statistical trade Journals and background to the national budgets.

developed based on research data requirements before data collection commenced. Documentary evidence was sought from journals and other published materials and internet sources.

3.5 Procedure for Data Collection

The researcher obtained a letter of introduction from Uganda Martyr's University. The researcher then arranged to meet the heads of institutions or sections like the Librarian, Ministry of Finance Planning and Economic Development from where data were collected to explain the purpose of the study and request to be permitted to collect data. Documentary review guide were developed based on research data requirements before data collection commenced. Documentary evidence was sought from journals and other published materials and internet sources. Data used in this study are from different sources for example distances between partner state capitals were obtained from Mayer T, Zignago S (2005). This data base contains among other things geodesic distances of towns and cities and other variables often used in gravity model equations to identify specific linkages between various countries like continuity and sharing common official language. Other sources include Map crow and World Atlas (www,worldatlas.com).

3.6 Data analysis

3.6.1 Quantitative data analysis

Data were cleaned, sorted, edited and arranged in systematic comparable format for completeness, uniformity and comprehensiveness. It was coded before entry into EViews computer software. Data analysis was based on general regression formula (Gujarati, 2004).

$$Y = \beta_0 + \sum \beta_i X_i + \mu_{i\mu}$$

Where Y = dependent variable

β_0 = constant (intercept)

β_i = the slope coefficient

X_i = vector of the predictor variables for which the corresponding value of the criterion variable is desired.

μ_i = error term

The determinants of the intra-regional trade flows were determined using the gravity model (Bergstrand, 1985). The basic gravity model adopted in the study is given as:

$$E_{ij} = A(\frac{GDP_i \, GDP_j}{D_{ij}})e_{ij}$$

Where,

E_{ij} = Exports from country i to country j

GDP_j = Gross domestic product of country j

GDP_i = Gross domestic product of country i

D_{ij} = Distance between capitals of country i and country j

e_{ij} = The error term

A = a constant

By taking the natural logarithm, the model was converted to a log-linear model and the Augmented Gravity Model was used for analysis of the determinants of Uganda's trade flows with her EAC trading state partners. This model was estimated on the basis of single country variables. This specification distinguishes structural factors in the exporting country to those in the importing country. This made it possible to test and compare the relative importance of variables (GDP, GDP per capita and population) in the countries of origin and destination countries. The researcher augmented the regression equation with a number of extra controls (dummy variables representing common language, land lockedness, country adjacency, and membership to EAC) as presented in the equation below.

$$In\ (T) = \beta_0 + \beta_1(GDP)_{it} + \beta_2(GDP)_{jt} + \beta_3\ \beta(GDPPC)_{it} + \beta_4(GDPPC)_{jt} + \beta_5(GDIFF)_{ijt} +$$
$$\beta_6(POP)_{it} + \beta_7(POP)_{jt} + \beta_8(CU)_{ijt} + \beta_9(LANDL)_{ijt} + \beta_{10}(ADJ)_{ijt} + \beta_{11}(D)_{ijt} + \beta_{12}(LANG)_{ijt} + \mu_i$$

Where:

T_{ijt} Real value of total exports from country i to country j at time t.

GDP_{it} Gross domestic product of country i at time t

GDP_{jt} Gross domestic product of country j at time t

$GDPPC_{it}$ Gross domestic product per capita of country i at time t

$GDPPC_{jt}$ Gross domestic product per capita of country j at time t

$GDIFF)_{ijt}$	Gross domestic product difference of country j and i at time t
POP_{it}	Population of country i at time t
$POP)_{jt}$	Population of country j at time t
$LANG_{ij}$	Dummy variable, 1 if the country i and country j share a common language, 0 otherwise
CU_{ij}	Membership of East African Community Customs Union
$LandL_{ij}$	Land locked countries in the country pair (0 if both are landlocked, 1 if one is

landlocked, 2 if both are landlocked and 0, otherwise)

ADJ_{it}	Dummy variable that takes the value 1 if countries i and j share a common border and 0, otherwise
D_{ij}	Straight-line distance between the capitals of country i and country j
u_{ijt}	Error term
$\beta_1 - \beta_{10}$	Parameters to be estimated

In the analysis of data, bearing in mind that the time invariant instrumental variables would be wiped out using the fixed effect method, a suitable method for their analysis, Generalized Method of Moments (GMM) was used. This enabled generation of results on factors that although they did not vary with time but had impacts on trade flows to be analyzed. Such variables include distance and membership to EAC.

3.6.2 Description of Study Variables

Exports (T): The dependent variable used in the analysis was exports in USA dollars from country of origin to its trading partners.

Gross Domestic Product (GDP): GDP of the trading countries represents both the productive and consumption capacity that determines largely the trade flow among them. The GDPs are used to proxy for the economic sizes of the countries and it is expected that an importing country's GDP plays a significant role in determining the trade flow originating from exporting countries. This is because the importing country's GDP, like the income of the consumer, determines the demand for the goods originating from the exporting countries. An exporting country's real GDP also helps in ascertaining the productive capacity of the exporting country, that is, the amount of the goods that could be supplied. In the gravity model, it is expected that an exporting country's GDP influences the trade flow of goods and services originating from the exporting country. Thus, as real GDP of any two or more trading countries increases, trade flows also increase. Therefore, the coefficients of GDPs are expected to be positive.

Gross Domestic Product per Capita (GDPPC): Gross Domestic Product per Capita is a proxy measure of the purchasing power which is expected to be positive for an importing country in this study.

Gross Domestic Product Difference (DIFF): The absolute difference in per capita income (GDPDIFF$_{ijt}$) has been added to the model to capture technology differences between

countries in explaining trade patterns. Two hypotheses exist on the effect of this variable on trade. The first is the Linder hypothesis which posits that countries with similar levels of per capita income will have similar tastes, they will produce similar but differentiated products and trade more among themselves. The second is the Heckscher–Ohlin hypothesis which suggests that GDP per capita differences are highly correlated with differences in factor endowments and hence smaller differences could reduce trade, especially comparative advantage driven in industry trade. Therefore, the effect of this variable may either be positive or negative. A negative sign would support the Linder hypothesis, while a positive sign supports the Heckscher-Ohlin hypothesis.

Population (Pop): The impact of Uganda's population and that of her trading partners were the other factors considered. Population is used as measure of country's economic size, and since larger countries have more diversified production and tend to be more self-sufficient, it is normally expected to be negatively related to trade.

Extra controls were introduced in the regression model, they are time invariant and represented by distance between state capitals and dummies representing for example common language (LANG). These instrumental variables are useful in explaining time invariant factors and are analyzed using the Generalized Method of Moments (GMM).

Common Language (LANG): The Dummy variable was to capture the influence of common language. Common language would ease communication in trade between partners and accordingly facilitate trade. Sharing a common language can enhance export flows between

countries by facilitating communication. Ease of communication facilitates foreign trade through translation as well as through the ability to communicate directly (Melitz, 2007). Linguistic links and other historical and cultural links are particularly important at reducing the cost of unfamiliarity in international trade, or what Linnemann (1966) called psychic costs, and Garnaut (1994) subjective resistance. Therefore, the estimated coefficient for this variable was expected to have a positive sign. It is therefore expected to bear a positive sign.

Customs Union membership (CU): The Dummy variable was added to capture the influence of membership to and EAC CU on bilateral trade flows between Uganda and her trading partners. As a free trade area (FTA) the East African Community (EAC) agreement took effect on 30th November 1999. Addition of these dummy variables in the econometric estimations would generate information about the effects of signing up such agreements on trade within the region. The estimated coefficient of the dummy variable indicates the degree to which membership to the East African Community influences total trade flows between the trading partner states. Regional integration is expected to promote intra-regional exports. Therefore, the estimated coefficient of the CU variable is expected to have a positive sign. A positive value would imply that the formation of EAC increases export flows between the trading partner states.

Landlocked country (LandL): Land lockedness of a country tends to impede exports especially when heavy cargo is concerned. Water and rail transport would be more appropriate. Despite the existence of Lake Victoria in the region however, it use is still minimal.

Border adjacency (Adj): Sharing a common geographical frontier is expected to promote bilateral trade. The immediate consequence of geographical proximity is reduction in transport costs, short delivery time, less interest payments on export credits and low spoilage (Ekanayake, Mukherjee and Veeramacheneni, 2010). Near the border, consumers find it easy to cross over to shop in the other country and firms can source intermediate inputs in the other country, much more readily than would be possible if the countries did not share a common border. Therefore, the estimated coefficient of the variable adjacency ADJ is expected to have a positive sign.

Distance (D): Distance (D) is another important variable, which is used to capture the proxy for the trade cost between countries. Distance is a trading resistance factor that represents trade barriers such as transportation costs, delivery time, cultural unfamiliarity and market access barriers. Among other factors, higher transportation costs reduce the volume of trade and increase information costs. Countries with short distance between each other are expected to trade more than those who are wide apart because of reduced transaction costs. Distance can also be used as a proxy for the risks associated with the quality of some of the goods and the cost of the personal contact between managers and customers. Despite the cardinal "great circle" formula which approximates the earth's shape as a sphere and calculates the minimum distance along the surface, distance were obtained using the geographical distance. Following Giorgio (2004) and Keith (2003), this was intended to avoid the short comings associated with the "great circle" formula.

Generally, the coefficient of distance is expected to negatively influence the flow of trade between countries. The distance variable measures the physical distance between the economic centres of the trading partners. In measuring distance, sometimes authors locate countries at their geographical center, capital city or most populous city (Melitz, 2007). This study used distances measured from capital cities. Distance is a proxy for transportation costs. The greater the distance, the higher the transportation costs. Transportation costs raise the price of a good in the importing country, thus reducing its demand. Therefore, distance was expected to have a negative effect on exports.

3.7 Measurement variables

The dependent variable was Uganda's trade flows measured as the total volume of exports and imports expressed in United States dollars. The independent variables were: Gross Domestic Product of the exporter country, Gross Domestic Product Per Capita of the exporter country, Gross Domestic Product Difference between country of origin and recipient country. The researcher used dummies to represent landlockeness status of country, common boarder, common language and member of EAC Customs Union.

3.8 Ethical Considerations

The researcher ensured that ethical considerations were complied with in the entire research process. Consent, confidentiality and honesty were emphasized. To ensure integrity, inappropriate relationships and any possible influence were avoided.

3.9 Limitations to the Study

Like with many other studies, researchers are usually confronted with numerous challenges. This study relied basically on (published) secondary data to attempt to use reliable information. This however, puts to question the degree of reliability of data used in the study. The study also used aggregate data. There are also likely dangers of aggregation errors. This also puts to question the generalizability of the study findings. To overcome the challenges, comparison of data from multiple sources was made for example circle distances from Map Crow and World Atlas. Nonetheless, the data was invaluable for the study.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter covers presentation, analysis and discussion of findings of the results of this study. The results are arranged according to the study objectives: trends of bilateral trade flows, market factors and trade communication infrastructure (independent variables) and Uganda's trade flows with her EAC trading partner states (dependent variable).

4.2 Descriptive Statistics

Descriptive statistics of this study variables present the mean and median as measures of central tendency and the maxima, minima values, and standard deviation as measures of variability of different variables are estimated as shown in Table 1.

Table 1: Descriptive Statistics of Study Variables

	LT	LPOPj	LGDPi	LGDPPCi	LPOPi	LDIFF	LGDPj	LGDPPCj
Mean	3.710351	4.672988	9.156581	6.006299	17.10698	6.133299	10.55658	7.43924
Median	3.713572	4.477337	8.962392	5.83773	17.10534	5.968708	10.32479	7.237778
Max	4.564348	6.885509	10.17778	6.542472	17.41008	6.813994	11.70404	8.089482
Min	3.091043	4.189655	8.210124	5.420535	16.78235	5.622211	9.778831	6.971669
Std. Dev	0.539053	0.733936	0.590227	0.357728	0.202671	0.373028	0.57341	0.381199
Skewness	0.354158	2.5342	0.252837	0.249381	-0.001933	0.577673	0.528017	0.506574

Source: Researcher's computations from data obtained from IMF International Financial Statistics Database

The difference between the mean and the median of the variables are narrow for all variables indicating they are fairly normally distributed. The standard deviations which indicate the variability about the mean values of the variables are relatively small with a minimum ranging between (+ 0.02) and (–0.02) for population (i) (+0.07) and (-0.07) for population (j) GDP_i

(0.59) and GDP_j (0.57); $GDPPC_i$ (0.35) and $GDPPC_j$ (0.35) and GDPDIFF (0.57) indicating that the dataset is fairly normally distributed.

4.3 Trends of Bilateral Trade Flows between Uganda and EAC Trading Partner States

The first objective of this study was to establish trends in bilateral trade (pattern) flows between Uganda and her EAC trading partners. Total bilateral trade flows between Uganda and her EAC trading partners is the annual sum in value terms (US $) of bilateral trade between Uganda and each trading partner: Uganda and Burundi, Uganda and Kenya, Uganda and Rwanda and Uganda and Tanzania. Bilateral trade flows are the total annual value of bilateral trade between Uganda and each trading partner. Uganda's total bilateral trade with her EAC trading partner states from 1993 to 2013 is presented in Figure 2.

Figure 2: Bilateral Trade Flows between Uganda and EAC Partners (US $) 1993 – 2013
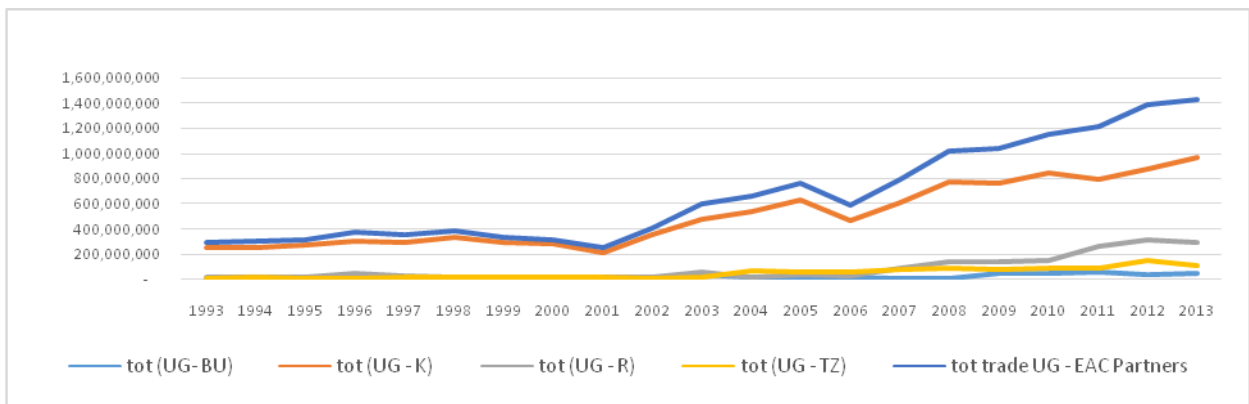
Source: Data generated from UN COMTRADE and IMF International Financial Statistics databases

Figure 2, generally depicts increasing trends in the total value of bilateral trade flows between Uganda and her EAC trading partners. However, noticeable depressions in total trade flows

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are depicted in 2001 and 2006. This could mainly be attributed to the decline in bilateral trade between the two major trading partners - Uganda and Kenya have enjoyed enormous bilateral trade between them during the period. As a result, fluctuations in trade between Uganda and Kenya consequently and noticeably affected the value of total EAC bilateral trade flows during the period. Results in Figure 2, also indicate that the total annual trade value between Uganda and each of her EAC trading partners (Burundi, Kenya, Rwanda and Tanzania) has generally grown exponentially although with increasing trade disparities in bilateral trade between each country pair. For example, trade between Uganda and Kenya has grown faster than trade between Uganda and Burundi resulting into a wider gap in trends in total trade flows between the country pairs.

In terms of annual trade values of bilateral trade flows between Uganda and each of her trading partners, Uganda's trade with Kenya predominated bilateral trade flows within the community, followed by trade between Uganda and Rwanda and Uganda and Tanzania while bilateral trade flows between Uganda and Burundi registered least growth during the period. This could be attributed to the relatively smaller economic size of Burundi. Generally, trade between Uganda and Burundi and Uganda and Tanzania are relatively low which resonates the question whether EAC partner states benefit adequately from regional integration efforts.

Trade balance which is the difference between a country's total exports and her total imports indicates that Uganda for the most part had unfavorable balance of trade with Kenya and Tanzania. This means that Uganda imported more than she exported to her partner destinations. Results, however, indicate that Uganda has enjoyed favorable trade balance

(exported more than imported) with Burundi and Rwanda from1993 to 2013. This implies that Uganda has earned net foreign exchange surplus in trade with her trading partner states (Burundi and Rwanda) during the period, Figure 3.

Figure 3: Uganda's Balance of Trade with EAC Bilateral Trading Partners
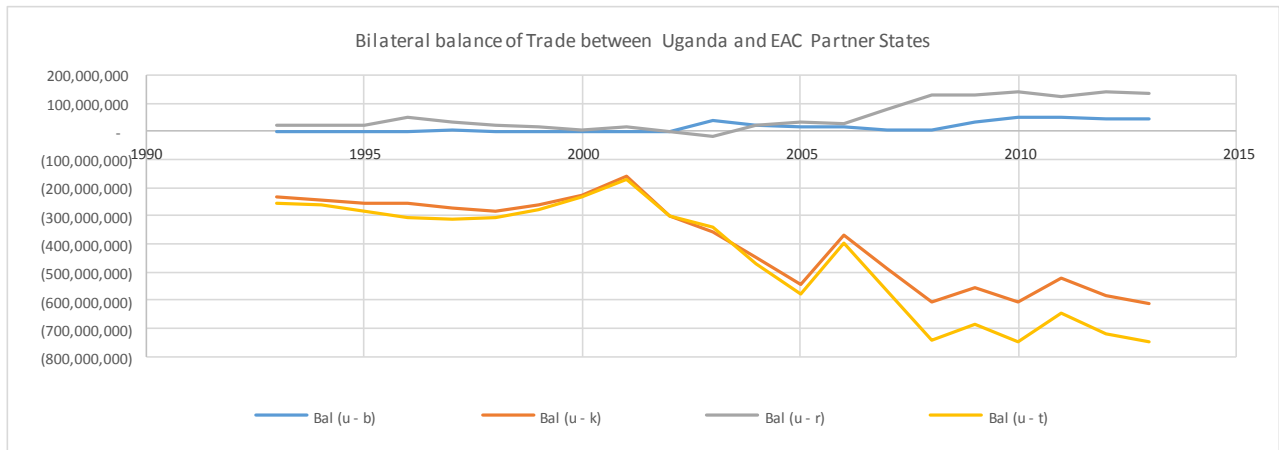
Source: Researcher's computation from UN COMTRADE and IMF International Financial database

4.4 Market Factors and Uganda's Bilateral Trade with EAC Partner States

Market factors in the study included GDP, GDP per capita, population and customs union (CU) membership of importer and exporter country pairs that affect bilateral trade between them.

4.4.1 Correlation between Market Factors and Uganda's Trade with EAC Partner States

Correlation between two variables indicate the extent (strength of association between the variables) and the direction, whether two variables increase in value together (positive association) or as one variable increases in value the other decreases in value (negative

association). The extent of correlation, between market factors and Uganda's bilateral trade flows is depicted in Table 2.

Table 2: Correlation between Market Factors and Uganda's Trade Flows

Market factors	InPOPj	InPOPi	InGDPi	InGDPPCi	InGDPj	InGDPPCj	InDIFF
Correlation with Log Trade (LT)	-0.113177	0.911472	0.871081	0.869311	0.883419	0.871598	0.761064

Source: Author's E-Views computations from IMF International Financial Statistics database and World Bank (World Development Report).

Results of correlation analysis in Table 1, shows that the correlation between Population of Uganda's trading partners (POPj) is negatively related to bilateral trade flows. This means that as the population of Uganda's partners increase, bilateral trade decreases and as the population of Uganda decreases trade flows between Uganda and partners increase. The correlation is however very weak (r = ⁻0.11). The correlation between Population of Uganda (POPi) is positively related to Uganda's trade flows and that of her partner. This means that as the population of Uganda increases, bilateral trade also increases. The correlation is very strong (r = 0.91). This finding suggests that the increase in Uganda's population spurs her production capacity for exports which at the same time stimulates market creation (demand) for imports.

The correlation between the Gross Domestic Product of Uganda (GDPi) is positively related to trade with her partner. The relationship is strong (r = 0.87). This means as GDP of Uganda increases, her total trade flows with trading partners increases. The correlation between the Gross Domestic Product Per Capita of Uganda (GDPPCi) is positively related to trade flows

with her partner. This means that as GDPPCi of Uganda increases, her total trade flows with trading partners increases. The correlation is strong (r = 0.86). The results of this finding suggest that the economic size and purchasing power of Uganda are very instrumental in spurring Uganda's bilateral trade with her partners.

The correlation between the Gross Domestic Product of Uganda's partners (GDPj) is positively related to bilateral trade flows. This means that as GDP of Uganda's trading partners increases, her total trade flows with trading partners increases. The correlation is strong (r = 0.88). The correlation between the Gross Domestic Product Per Capita of Uganda's partners (GDPPCj) is positively related to trade flows with her partner. This means that as GDPPC of Uganda trading partners increases, her total trade flows with trading partners increases. The correlation is strong (r = 0.87). The implications of this finding is that both economic size and purchasing power are important in driving total trade between Uganda and her partners in terms of boosting export capacity to Uganda and market creation for Uganda's exports.

The correlation in the difference between Uganda's absolute Gross Domestic Product Per Capita and that of partners (DIFF) is positively related to bilateral trade flows. This means that as DIFF of Uganda and trading partners' increases, her bilateral trade flows with trading partners increases. The correlation is strong (r = 0.76). The implication of this finding represented by absolute GDP per capita difference indicates a difference in technology between the country pairs stimulating bilateral trade.

4.4.2 Regression Results

Regression was run between market factors and Uganda's total trade flows in which the dependent variable was specified as Uganda's total trade flows while market factors were the independent variables. Prior to regressions, tests for normality (normal distribution) and autocorrelation were done to ensure that they did not affect results. To control heteroskedasticity, regression was run on EViews software using Robust Least Squares Method (RLSM) to establish the determinants of Uganda's trade flows with her EAC trading partners. Regression results are presented in Table 3.

Table 3: Regression Results between Market Factors and Bilateral Trade Flows

Dependent Variable: LT
Method: Robust Least Squares
Date: 08/29/15   Time: 23:07
Sample: 1993 2013
Included observations: 21
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median
    centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
lnGDPj	1.428966	0.204800	6.977366	0.0000
lnPOPj	0.002699	0.034525	0.078170	0.9377
lnGDPi	-0.232496	0.151752	-1.532078	0.1255
lnGDPPCi	0.450548	0.255927	1.760459	0.0783
lnPOPi	3.803669	0.806124	4.718465	0.0000
lnDIFF	0.238955	0.055489	4.306358	0.0000
lnGDPPCj	-1.145430	0.384428	-2.979569	0.0029

Robust Statistics			
R-squared	0.672817	Adjusted R-squared	0.454695
Rw-squared	0.996868	Adjust Rw-squared	0.996868
Akaike info criterion	50.50590	Schwarz criterion	69.94478
Deviance	0.072757	Scale	0.041354
Rn-squared statistic	92082.11	Prob (Rn-squared stat.)	0.000000

Non-robust Statistics			
Mean dependent var	3.710351	S.D. dependent var	0.539053
S.E. of regression	0.342440	Sum squared resid	1.407184

Regression results (Table 3) show a high adjusted coefficient of determination - R-squared (R^2) of 0.454. This means that up to 45.4% of the variations in the dependent variable can be explained by the independent variables specified in the model, that is, 45.4% of the variations in Uganda's trade flows with her EAC partner states can be explained by market and trade infrastructure factors postulated in this study. Regression results show statistical significance ($p = 0.00$). This implies that the model specified for this study is reliable.

Regression results presented in Table 3 show that GDPj of a partner country to be statistically significant ($p = 0.00$) and bears a positive sign. This means that as the GDP of Uganda's trading partners' increases, trade flows between Uganda and trading partners also increases. The beta coefficient of partners GDP is $\beta = 1.42$. This means that 1% increase in partners GDP increases Uganda's trade flows by 1.42% (about one and a half times). This finding suggests that partners GDP have a strong impact on Uganda's trade flows: trade creation effect in terms of boosting local capacity for export supply and domestic market expansion or demand creation. In terms of export supply, increase in GDP increases production capacity in partner states, boosting Uganda's bilateral trade flows.

The variable, population of Uganda's trading partner (POPj) was found to be positive indicating that the population size of trading partners increased bilateral trade flows. It was, however, not statistically significant. The variable Gross domestic product of Uganda (GDPi) was found to be negative implying that as GDP per capita of Uganda increases bilateral trade flows decreased. The variable was, however, found not to be statistically significant in this study.

Gross Domestic Product per capita is an indication of purchasing power within a country's geographical boundaries. Uganda's GDP per capita (GDPPCi) in this study was found to be positive and to exhibit a statistically significant relationship (p = 0.07) at 10% level. This implies that as the GDP per capita of Uganda increases, her trade flows also increased. The variable had a beta coefficient of $\beta = 0.45$. This implies that an increase of 1% of Uganda's GDP per capita, Uganda's bilateral trade flows increased by 0.45%. The implication is that as Uganda's GDP per capita increases, demand for Uganda's imports also increases and this would mean an increase in aggregate demand while on the other hand it would also increase the export capacity for Uganda's export supply.

The variable, population of Uganda (POPi) was found to be positive indicating the population size of trading partners increased her total trade flows. Results also show that population variable was statistically significant (p = 0.00) and bears a positive sign. This means that as population of Uganda increases, trade flows between Uganda and trading partners also increases. The beta coefficient of Uganda's population is $\beta = 3.80$. This means that 1% increase in Uganda's population increases Uganda's total trade flows by 3.80% (about four times). This finding suggests that population has demand creating effect and increases export supply capacity.

With respect to absolute GDP per capita difference (DIFF) between Uganda and partner states, results show a positive and statistically significant relationship (p = 0.00; p < 0.05, α = 0.05). This implies that as the difference in GDP per capita of Uganda's and her partners increased her trade flows also increased. The variable had a beta coefficient β, of 0.23. This

implies that an increase of 1% of absolute difference in Uganda's GDP per capita and that of trading partners, Uganda's bilateral trade flows increased by 0.23%. The implication is that as partners' net GDP per capita increased, demand for Uganda's exports increased as this would mean an increase in aggregate demand, while on the other hand, it would also increase the export capacity of export supply to Uganda. The difference in GDP per capita on spurring trade flows could also be explained in terms of inter-country differences like technological differences.

The GDP per capita of Uganda's trading partners (GDPPCj) was found to be negative and to bear a statistically significant relationship ($p < 0.05$). This implies that as the GDP per capita of Uganda partners increases bilateral trade flows decreases. The variable has a beta coefficient of $\beta = 1.14$. This implies that an increase of 1% of Uganda's partner GDP per capita, Uganda's total trade flows decreased by 1.14%. The implication is that as Uganda's partners GDP per capita increases, demand for Uganda's imports decreases and this would mean a decrease in aggregate demand while on the other hand it would also decrease the export capacity for Uganda's export supply.

In conclusion, this study was able to effectively test the hypotheses of this study: The GDP of countries have positive and significant effect on bilateral trade. The GDP of Uganda's partners were found to be positive and statistically significant while that of Uganda was found to be negative and statistically insignificant in influencing bilateral trade flows; The GDP per capita of Uganda was found to be positive and statistically significant while that of Uganda's partners was found to be negative and statistically significant in influencing bilateral trade

flows. The absolute GDP per capita difference was found to be positive and significant; Population of Uganda was found to bear a positive effect and is statistically significant while that of partners were negative and statistically significant in influencing bilateral trade flows.

4.5 Trade Communication Infrastructure and Trade Flows

Trade communication infrastructure evaluated in this study included land lockedness, common language, adjacency of Uganda to a state partner (sharing a common boarder), circle distance, common language, common colonozer and EAC membership are time invariant variables, the instrumental variable Generalized Method of Moments regression method was thus adopted, Table 4.

Table 4: Results of Trade Communication Infrastructure on Trade Flows

	Beta	Random effects	P value
Common language			
No†			
Yes	0.27	0.239	0.260
Common Colonizer			
No†			
Yes	-0.23	0.155	0.133
Land locked status			
No†			
Yes	-2.62	0.146	**0.000**
Common Border			
No†			
Yes	0.17	0.165	0.302
C U Membership			
No†			
Yes	0.46	0.229	**0.045**
Distance			
No			
Yes	-0.133	0.181	**0.000**
F (10,473)	51.84		
p-value	**0.000**		
R-squared	0.523		
Adjusted R-squared	0.513		

Dependent Variable: Export Trade flows; † = Reference category

Results presented in Table 4 shows that the variable land lockedness was negative and
significant (p = 0.00; α < 0.01). This finding suggests that land lockedness was a constraint to
Uganda's trade flows with her partners. This could be perceived in terms of transportation
costs and bureaucratic delays at multiple customs border posts. Export supply opportunities
for coastline states like Kenya and Tanzania to re-export to Uganda and likewise to re-export
exports from Uganda implies additional final prices for Uganda and probable lower

commodity supply prices from Uganda constraining Uganda's direct import and export opportunities.

The variable membership to EAC especially customs union was examined. It was found to be statistically significant ($p = 0.04$; $\alpha < 0.05$) and positively related to Uganda's total trade flows. This means that membership to EAC increased Uganda's total trading with her partner. This finding suggests that regional integration approaches and institutional policies like establishment of the Customs Union had significant positive implications like abolition of tariffs, improvement in key infrastructure and unification of some policies that attracted bilateral trade.

The variable circle distance (MD) was found to be negative and significant ($p = 0.00$; $p < 0.05$, $\alpha = 0.05$) meeting *a priori* expectations. The implication is that the further apart in space the between trading partners, Uganda's total trade flows wither trading partner decreased. This finding suggests that the decreased trade flows could be attributed to the overall increase in transportation and total trade costs altogether. This indicates that the further apart the supply and destination markets, the higher the transaction costs driven by transportation costs constraining trade.

In conclusion, this study was able to test the hypotheses that were set to guide this study. Land lockedness status of a country has been found to be negative and significant effect on bilateral trade flows. There is therefore sufficient evidence to reject the null hypothesis that land lockedness status has no effect on bilateral trade flows in favour of the alternative hypothesis.

The variable membership to CU especially, customs union was found to be statistically significant and bears a positive. There is therefore sufficient evidence to reject the null hypothesis that CU membership has no effect on bilateral trade flows in favour of the alternative hypothesis.

The variable distance between capitals of state partners has a negative and significant effect on bilateral trade flows. There is evidence to reject the null hypothesis that distance has no effect on bilateral trade in favour of the alternative hypothesis.

4.6 Discussion on Findings

4.6.1 Trends in Uganda's Trade Flows with EAC Partners

Bilateral trade flows between Uganda and Kenya was found to have dominated Uganda's bilateral trade within the region. The trend shows exponential bilateral trade growth over the years with increasing gaps between Uganda's bilateral trade with other state partners. This trend is mainly attributed to Uganda-Kenya trade. Bilateral trade between Uganda and Burundi on the other hand has registered the least bilateral trade value and slowest growth. Burundi was found to be the least performer with GDP per capita growth of 25% in 2000 to 2010 compared to Rwanda, Tanzania and Kenya while repressive policy in Burundi made it difficult for the private sector to create employment and sustain economic growth (Heritage Foundation, 2012). Bilateral trade between Burundi and Uganda could be boosted if policy frameworks that focus on Burundi's economic growth are formulated and implemented.

Bilateral trade between Uganda and her other partners were lower because apart from Tanzania all the others are landlocked. This for instance would constrain ability for sea born re-exports unlike what Kenya tends to enjoy.

4.6.2 Market Factors and Uganda's Trade Flows

Market factors show differing effects on Uganda's bilateral trade flows with her EAC trading partners. The GDP of Uganda's trading partners was found to positively influence bilateral trade flows in this study. Gross domestic product is an indicator of economic size. The bigger the GDP the higher the aggregate demand potential and the higher the export capacity which can lead to enhanced bilateral trade flows. The findings of this study is consistent with Eita (2008) who in a study of determinants of Namibia's bilateral trade flows show that increase in Namibian GDP and partner's GDP caused an increase in Namibian exports. These findings, however, contrasts with Gani (2008) findings that GDPs of trading bilateral partners with Fiji were not found to be statistically significant on bilateral trade flows and Conversely Sidamor, (2013) who finds that African Countries GDP were significant with a negative sign that reflects the negative effect on the volume of exports from China to Africa. Gross domestic product is however significant in determining bilateral trade. The bigger the GDP the higher the aggregate demand potential and the higher the export capacity which can lead to enhanced bilateral trade flows. Matyas et al., (2000) modelling the export activity of countries established that the various members' propensities to import and export are sufficiently high.

The economy of Uganda was shown to display increased average GDP growth over 2000 and 2010 and accompanying increases of GDP per capita of 58% for Rwanda and 47% for Uganda. Besides Uganda and Rwanda were found to be the most successful in market and

price reforms leading to their economic expansion (Petit, Rugeminwari & Strobel, 2012). Economic expansion in terms of the size of the GDP could explain the higher trade flows between Uganda and Kenya and Uganda and Rwanda. This finding is consistent with Hassan (2002) and Simwaka (2007) who found that bilateral trade was positively determined by economic size proxied by GDP.

The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity (www.investopedia.com). The GDP per capita of Uganda was found to positively influence bilateral trade flows in this study. Gross Domestic Product per capita indicates purchasing power of the people in a country which could translate into aggregate demand and production (supply). The finding of this study, however, contradicts that of Rahman (2009) who found a negative relationship between GDP per capita income and bilateral trade flows with Namibia's trading partners. This study however found a negative relationship between Uganda's partners' GDP per capita with Uganda consistent with Rahman (2009) findings. The finding is also consistent with Sidamor (2013) study which found that the fixed effect model results show a significant a positive effect of African countries GDP and GDP per capita on China's trade flows (Sidamor, 2013).

Population size is theoretically associated with production capacity providing opportunities for export trade. Population size also implies market consumption potential. The larger the population the larger the propensity to absorb both locally and foreign produced tradables which in turn could lead to increased trade flows. In this study the population of Uganda was

found to positively relate to bilateral trade flows. This is consistent with the findings of Lwin (2007) who shows that population and per capita income have been successfully applied as proxies to economic size (Lwin, 2007). Similarly, Nuroğlu, (2014) finds that the impact of population on bilateral trade flows is positive for the exporter country, while it is negative for the importer country.

The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity (http://www.investopedia.com). The relative change in growth between partners are specifically measured by GDP per capita difference. The absolute differences in per capita GDP of Uganda and her partners is positively related to Uganda's bilateral trade flows in this study. This finding contradicts the findings of Rahman (2009) who found a negative relationship between GDP per capita income differential and bilateral trade flows with Namibia's trading partners.

4.6.3 Trade Communication Infrastructure Factors and Uganda's Trade Flows

Results indicate that all the trade infrastructure factors postulated to affect bilateral trade flows were not found to be statistically significant except land lockedness, regional integration (EAC) and distance. Gani (2008) applied the gravity model to examine the factors influencing trade between Fiji and her Asian partners, using a panel data and results suggested that Fiji's exports are significantly influenced by Fiji's trade infrastructure.

Many trade communication infrastructure (impedance factors) affect bilateral trade flows. Studies postulate bilateral trade as a function of resistance to trade. Such resistance is posed by factors like land lockedness, adjacency and language and various other obstacles to trade with trading partners (Lwin, 2009). Hassan (2001) analyzed trade creation and trade diversion effects of Southern Asian Association for Regional Cooperation and found that trade was positively determined by regional cooperation agreements.

Distance between the capitals of Uganda and her trading partners which is a proxy for transportation costs is as expected, negatively related to trade flows in this study. The distance variable was found to be significant and negative. This result is able to explain distance as a proxy of transportation costs. Transportation costs increase with increase in distance between supplier and buyer (trading points). This finding is consistent with studies that show the relationship between bilateral trade as a function as cost resistance to trade. Such resistance is posed by factors like trade distances (Lwin, 2009). The findings of Hassan (2001) who found that trade was positively determined by transport cost proxied by distance between trading partners is consistent with the findings of this study; Rahman (2009) found that distance is negatively related to Australia's trade flows with trading partners. Contrary to the above findings Marquez-Ramos (2007) found that transport cost reductions do not have a significant effect on exports from African countries. In a similar study conducted in Ethiopia by Taye (2009) indicated that distance did not play important role in determining Ethiopian volume of exports.

Economic integration efforts in this study showed positive and significant relationship between memberships to the EAC. Membership to the community introduced widening of the common market particularly reducing the cost of trade by abolishing tariffs among member states. This finding is consistent with a study by Simwaka (2007) who find that Malawi's bilateral trade is positively related to membership to regional integration agreement and Roy and Rayhan (2011) who in a cross-sectional study showed that membership of SAARC was significant determinant of Bangladesh's trade flows. Rahman (2009) in a study in Australia concurs that Australia's bilateral trade is affected positively by free trade agreement. Membership of SADC is also found to positively and significantly promote Namibia's exports (Eita, 2008).

Sharing a common language can enhance export flows between countries by facilitating communication. Ease of communication facilitates foreign trade through translation as well as through the ability to communicate directly (Melitz, 2007). Linguistic links and other historical and cultural links are particularly important at reducing the cost of unfamiliarity in international trade, or what Linnemann (1966) called psychic costs, and Garnaut (1994) subjective resistance. Therefore, the estimated coefficient for this variable was expected to have a positive sign.

Sharing a common geographical frontier is expected to promote bilateral trade. The immediate consequence of geographical proximity is reduction in transport costs, short delivery time, less interest payments on export credits and low spoilage (Ekanayake, Mukherjee and Veeramacheneni, 2010). Near the border, consumers find it easy to cross over

to shop in the other country and firms can source intermediate inputs in the other country, much more readily than would be possible if the countries did not share a common border. Therefore, the estimated coefficient of the variable Border was expected to have a positive sign. This study however found the variable not to be significant.

According to Limao and Venables (1999) a principal resistance factor to trade cording to the Gravity Model is being a land locked country. Land lockedness raises transport costs by about 50 percent for the median landlocked country compared to the median costal economy. However improving the infrastructure of the land locked economy from the median for the land locked economies to the 25th percentile reduces this disadvantage by 12 percentage points and improves infrastructure of the transit economy by the same amount reduces the disadvantage by a further seven percent.

The findings of this study however contradicts Gani (2008) findings who failed to account for possible influence of regional integration agreement on Fiji's bilateral trade flows with her partners.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Study Findings

5.1.1 Trends in Uganda's Trade Flows with EAC Partner States

Results of the study show an increasing trend in exports in value terms between Uganda and her trading partner in total value between 1993 and 2013. Kenya and Uganda were found to be the major trading partners spurring bilateral trade in the sub-region with exponential relative growth among the county pair causing increasing gaps between Uganda-Kenya bilateral trade and trade between Uganda and other country pairs. Although Uganda and other country pairs registered increased bilateral trade growths, the bilateral trade values remain much lower than that of Uganda and Kenya.

5.1.2 Market Factors and Uganda's Trade Flows with EAC Trading Partners

The study shows varying results between the elements of market factors and EAC bilateral trade flows. Regression results show statistically significant at 95% ($p < 0.01$) confidence level, relationships between GDP of Uganda's partners and Uganda's bilateral trade flows with a β of 1.42. This indicates that an increase of 1% in partner's GDP could lead to an increase of 1.42% of Uganda's bilateral trade flows. The variable GDP per capita of Uganda has a beta value of $\beta = 0.45$ and it is statistically significant at 10% ($p < 0.10$). This means that an increase of 1% of the population of Uganda can cause an increase of 0.45% of her bilateral trade flows. The variable population of Uganda is positive and statistically significant ($p < 0.01$) with a ($\beta = 3.80$). This means an increase in 1% of the population of Uganda can cause an increase of 3.80% of her bilateral trade flows. The variable absolute difference in

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Uganda's GDP per capita and partner was positive and statistically significant (p< = 0.01) with a beta value, β = 0.23 which means that a 1% increase in absolute difference between Uganda's GDP per capita and partner's increased trade flows by 0.23%. The GDP per capita of importer is positive and statistically significant (p < 0.01) with a beta value, of -1.14 and negative. This means a 1% increase in Uganda's partners GDP per capita decreased bilateral trade flows by 0.45% which, however, did not meet *a priori* expectations.

5.1.3 Communication Infrastructure and Uganda's Trade Flows with her EAC Partners

Results indicate that all the trade infrastructure factors postulated to affect bilateral trade flows were not found to be statistically significant except land lockedness, membership to EAC and distance which are significant. The variable distance is negative and has a beta value (β = - 0.13) and is statistically significant (p < 0.01). This means that as distance increase, trade flows decline and an increase of 1% in distance reduced bilateral trade flows by 0.13%. Land lockedness, EA CU membership and distance have each a (p < 0.01). Landlocked status of Uganda has made Uganda to rely on coastal states for imports perhaps re-exports to Uganda that hindered her trade flows while Uganda relied on her endowments to export while state parties benefited from abolition of tariffs (EA Customs Union) while longer trade distances discouraged trade because of higher transportation costs.

5.2 Conclusions

5.2.1 Trends in Uganda's Trade Flows with EAC Partners

Uganda's bilateral trade with Kenya is established and depicts exponential increase. Bilateral trade is anticipated to increase as potential growth in Uganda's GDP is anticipated over the coming years. Although Uganda's trade with other EAC partners show slower growth, GDP

growth and particularly GDP per capita growth over the coming years is anticipated to spur bilateral trade with them.

5.2.2 Market Factors and Uganda's Bilateral Trade Flows with EAC Partners

Market factors have been shown to play a major role in determining Uganda's bilateral trade flows notably partners GDP and GDP per capita of Uganda and GDP per capita differential. As economies of the EAC member countries as expected continues to grow, bilateral trade flows between Uganda and EAC partners are expected to be boosted. EAC integration has proven to be an engine of promoting bilateral trade flows in EAC. Trade is expected to further flourish as a result of deepening EAC integration efforts.

5.2.3 Communication Infrastructure and Uganda's Trade Flows

Communication infrastructure factors: common border, common language do not significantly support Uganda's trade flows except land lockedness, regional integration and distance which were found to be statistically significant. The implication of Uganda's land lockedness is that sea line countries: Kenya and Tanzania could obtain extra export opportunities from their overseas imports to Uganda denying Uganda trade opportunities. Regional integration boosts trade while longer destination markets impedes trade due to increased transport costs. This study find land lockedness significant in explaining bilateral trade flows.

5.3 Recommendations

Economic policies that support economic growth and increase GDP per capita growth should be deliberately pursued to increase production capacity to spur Uganda's trade flows with her trading partners. Economic integration has proven invaluable in determining bilateral trade

flows. The integration efforts should be deepened to ensure that trade flourishes. The EAC member states should adopt strategies that focus on efficiency in production and take advantage of their factor endowments to reap from economies of scale and specialization in production to increase productivity to ensure that EAC state partners benefit from both comparative and competitive advantage in EAC bilateral trade. One of the strategies to reduce trade (transport) costs proxied in this study by circle distances between partners trading cities should be improvement in communication infrastructure like road, rail and air transport.

5.4 Areas for Further Research

The coefficient of determination in this study was 45.4% while trade infrastructure for most variables were not found to be statistically significant. Further research could explore the inclusion of other variables in the model to try to improve coefficient of determination and statistical significance of trade infrastructure factors. The joint impact of EAC and COMESA free trade area on Uganda's export trade flows could also be explored.

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APPENDIX I: DOCUMENTARY REVIEW CHECK LIST

Documents that were reviewed include the following:

1. Background to the national budgets (Uganda, Kenya, Tanzania, Burundi, and Rwanda)

2. Statistical abstracts

3. Trade journals

4. World Bank (COMTRADE) databases

5. Protocol establishing the EAC

6. Export and import statistics on trade within EAC

7. Trade statistics from internet sources