

**RELATIONSHIP BETWEEN SERVICES LIBERALIZATION AND TOTAL TRADE IN
MANUFACTURED GOODS**

CASE STUDY: EAC MEMBER COUNTRIES

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2014-M162-20011



UGANDA MARTYRS' UNIVERSITY

OCTOBER 2018

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**A POST GRADUATE DISSERTATION PRESENTED TO THE SCHOOL OF ARTS AND
SOCIAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF THE DEGREE OF MASTER OF ARTS IN INTERNATIONAL
TRADE, POLICY AND LAW**

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2014-M162-20011

OCTOBER 2018

Dedication

To Eunice Amali Okongo Ofumbi. No better mother walked this earth. Rest in Eternal Peace

Mama.

Acknowledgement

I would like to first and foremost thank the Almighty God for the far he has brought me and for the enduring love and good health that enabled me to finish this research. I would also like to thank my lecturers for their guidance and my classmates for continuously challenging me through out the during of this course.

I am most grateful to my Supervisor, Rev. Balinda Richardson for his continued support and relentless guidance that shaped this research in ensuring that the outcome is of good quality.

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List of Abbreviations

EAC	-	East African Community
COMESA	-	Common Market For Eastern and Southern Africa
EACU	-	East African Custom Union
FDI	-	Foreign Direct Investment
FTA	-	Free Trade Area
GDP	-	Gross Domestic Product
LDC	-	Least Developed Countries
REC	-	Regional Economic Communities
RTA	-	Regional Trade Areas
SADC	-	Southern African Development Community
SAP	-	Structural Adjustment Programmes/ Policies
OECD	-	Organization for Economic Cooperation and Development
WTO	-	World Trade Organization
UNCTAD	-	United Nations Conference for Trade and Development
AfDB	-	African Development Bank
IMF	-	International Monetary Fund
MFN	-	Most Favoured Nation

CET	-	Common External Tariff
NTB	-	Non-Tariff Barrier
EPA	-	Economic Partnership Agreement
AGOA	-	African Growth Opportunity Act
EU	-	European Union
EBA	-	Everything But Arms
WITS	-	World Integrated Trade Systems
COMTRADE	-	United Nations Commodity Trade Statistics Database
ITC-Trademap	-	International Trade Centre

Abstract

This study focuses on examining the relationship between services liberalization and total trade in three manufactured goods for three EAC member countries. The study was motivated by the region's persistently low trade performance particularly in manufactured goods, periodical shortages in essential manufactured goods such as sugar, cement, wheat flour and the accompanied price hikes (EAC, 2010). Even though this has been attributed to the inefficiencies in the manufacturing sector, this study holds that services liberalization may be a plausible solution to this disturbing trend in the region.

It's against this background that the study employed the Least Squares Dummy Variable (LSDV) regression model to analyse country level panel data of three manufactured goods (cement, sugar, wheat flour) and four trade supporting services (transport, telecommunication, financial and insurance) traded by three EAC members (Kenya, Tanzania, Uganda) over a period of ten years.

Overall, the R-squared value of 0.890 in the regression results indicate that services liberalization explains about 89% of the changes in total trade in manufactured goods for the three EAC members. This result agrees with findings from previous studies such as Deardorff (2001), Blyde and Sinyavskaya (2007), Onyango (2009) and Bagumhe (2012) that suggest that services trade and liberalization plays a significant role in commodities trade performance.

The regression results for transport services reveal a t-statistic value of 9.435500, coefficient of 0.271401 and P-value of 0.0000 which is significant at 5% level of significance indicating a positive and highly significant relationship between transport services liberalization and total trade in manufactured goods in the EAC. This means that a one billion US dollar increase in total trade in transport services leads to a 0.271 billion US dollars increase in total trade in sugar, wheat flour and cement in the EAC.

Regression results for financial services also reveal a t-statistic value of 2.431095, coefficient of -0.592327 and P-value of 0.0233 which is significant at 5% level of significance indicating a significant but negative relationship between financial services liberalization and total trade in manufacture goods. This means that a 1 billion US dollar increase in total financial services trade leads to a 0.592 billion US dollars loss in total trade in sugar, wheat flour and cement for the EAC.

Liberalization of services in an economy is not in itself a sufficient factor for increasing efficiency, competitiveness or improving trade performance as other factors might motivate these changes in the EAC economy (Blyde and Sinyavskaya, 2007). The study therefore recommends addressing infrastructural constraints particularly in transport and telecommunication services; addressing knowledge and skills deficiencies in trade supporting services, specifically financial and insurance services; and creating a conducive investment climate and business environment in the region.

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

Regional integration and services liberalization have become some of the most popular topics of the recent years. This could be attributed to the fact that services trade, driven by globalization and advancement in technology, has become a popular vehicle for the promotion of regional and international trade. This is particularly true for developing countries, such as the EAC, where the sector has rapidly gained prominence in the last few years.

This study examines the relationship between services liberalization and trade in manufactured goods for the EAC. The EAC region has persistently registered low trade volumes particularly in manufactured goods, and experienced periodical shortages in essential manufactured goods and the accompanied price hikes (EAC, 2010). This has been attributed to the insufficient and inefficient production of manufactured goods such as cement, sugar and wheat flour.

However, other studies have advanced restrictions and protection in the services sector as a possible reason for this trend in the region. Their argument is that in heavily protected markets such as the EAC, services are often inaccessible, prohibitively expensive and yet of a low quality. This is due the fact that protection is often associated with low competition and less efficient suppliers (Mattoo, 2006). Bagumhe (2012) maintains that manufacturers and exporters of manufactured commodities cannot be competitive without access to efficient banking, insurance, accountancy, telecommunication and transport systems. Therefore, reduction of barriers in services trade may be a critical component in increasing the EAC's competitiveness in production and international trade (Hoekman and Shepherd, 2015).

The core contention of the study is that liberalizing services can boost EAC's trade performance in manufactured goods since services are an important input into their production and distribution (Hoekman and Shepherd, 2015). The rationale is that since trade supporting services such as transport, insurance, communication and finance are an important component of transaction costs, they can significantly influence patterns as well as volume of international trade.

However, there is no empirical evidence explaining the relationship between services liberalization and trade in manufactured goods specifically for EAC members. The study therefore employed the Least Squares Dummy Variable (LSDV) regression model to analyse country level panel data of three manufactured goods (cement, sugar, wheat flour) and four services (transport, telecommunication, financial and insurance) traded by three EAC members (Kenya, Tanzania, Uganda) for a period of ten years, and in so doing fill a critical knowledge gap. In the study, services liberalization is proxied by total trade in services.

The study also complements previous studies, including Hoekman and Shepherd (2015), UNCTAD (2014) and specifically Onyango (2009) that have contributed to the body of work on the services sector and its impact on other sectors in the EAC region, but have not specifically examined the relationship between services liberalization and EAC's trade in manufactured goods.

This dissertation is structured as follows: Chapter one provides a clear picture and background to the study at different levels. It also lays out the objectives, hypotheses, scope and rationale for the study. Chapter two reviews and analyses the existing theoretical and objective literature on the proposed topic of study with the objective of revealing their contributions, similarities,

differences, weaknesses and gaps. It also discusses how the study attempts to fill these gaps. Chapter three describes the nature of the study and the approach that the research uses. It also provides the rationale for selecting the specific designs and approaches employed in the research. Chapter four lays out the study results and interpretations in line with the study objectives and hypotheses. Chapter five provides conclusions and recommendations to the study, as well as areas for further research and the way forward.

1.2 Background to the study

1.2.1 Historical Background

EAC members share a similar socio-economic and political history that has shaped their economies and impacted upon their trade patterns and performance in regional and global markets for goods and services.

The EAC members' economies were developed and oriented as agricultural-exporting to provide raw materials for their colonial masters' industries in Europe (Heyer et al, 1981). Cash crops such as coffee, cotton, tobacco, tea, sugar etc were introduced and grown extensively in most areas deemed suitable for such crops. In addition mining of metals and minerals such as copper, tin, manganese, cobalt etc were mined and exported to Europe where they were processed into finished products (Brett, 1973).

Most EAC members attained political independence from colonial masters in the 1960's. After independence, they embarked on a "dual-economy" model of development. This model is characterized by the existence of two different dominant sectors in an economy (Singer, 1999). One such sector is the agricultural sector mainly based in the rural areas providing food, agricultural exports as well as raw materials for the manufacturing sector. The second sector is

manufacturing which in the case of the EAC, is mainly involved in import-substitution in the urban areas and employs the surplus labor from the rural areas.

For the case of Kenya, rapid economic growth was promoted through public investment, market-friendly policies and incentives for private industrial investment which was dominated by Asians and white settlers. The early development of a thriving private sector in Kenya played an important part in establishing Kenya's economic dominance in the EAC region. Tanzania and Uganda embarked on an economic system similar to Kenya's in some ways but without emphasis on the private sector as all major means of production including industry, agriculture, mining, banking and others were in government hands. Manufacturing and industry in both countries was mainly based on processing of raw agricultural products and mining of metals and precious stones.

In 1967, however, there was a major U-turn in Tanzania's economic philosophy. Pursuant to the Arusha Declaration of 1967, which established the Ujamaa (African Socialism) Policy, all means of production were put under state ownership, control and management (AfDB, 2014).

In the late 1970's and most of the 1980's, Uganda experienced political instability characterized by coups and civil wars that left the economy in shambles. Kenya's relatively more stable political climate since independence and economic philosophy enabled the development of manufacturing and industry that was mainly based on inward-looking policy of import substitution. However, rising oil prices made Kenya's manufacturing sector uncompetitive while lack of export incentives, tight import controls, and foreign exchange controls made the domestic environment for investment even less attractive.

In the mid-1980s, however, Tanzania abandoned the Ujamaa policy and re-embraced a private sector- and market-led economic system: most of the State Owned Enterprises (SOEs) were privatized; reforms have allowed the private sector to play a leading role in productive economic activities; and trade, both local and international, was liberalized, including importation of manufactured goods (AfDB, 2014).

In the late 80's and 90's, EAC members embark on Structural Adjustment Policies(SAPs) aimed at economic reform and liberalization with the assistance of the World Bank and the International Monetary Fund (IMF). As part of this program, EAC governments embarked on eliminating price controls and import licensing, removing foreign exchange controls, privatizing a range of publicly owned companies, reducing the number of civil servants, and introducing conservative fiscal and monetary policies (Sanjaya,1995).

These SAPs were supposed to allow the economies of the developing countries to become more market oriented which would then force them to concentrate more on trade and production to boost their economies. However, critics have condemned these privatization requirements, arguing that have negatively affected many developing countries (Bernard et al, 1993).

In 1995, EAC members joined the WTO along-side 120 other countries, giving them immediate access to developed markets at the lower MFN tariff rate (WTO, 1995).The WTO is the largest international economic organization in the world that deals with regulation of trade between participating countries by providing a framework for negotiating trade agreements and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements. The WTO also accords special treatment for developing countries such as the EAC which gives the option

of gradually opening their markets to overwhelming competitive pressure from developed countries.

Despite WTO membership, LDCs including the EAC have cited technical standards, as well as other customs or entry requirements of developed countries that continue to frustrate their exports on the international market. These measures usually range from customs procedures, through product authorization or export licensing requirements (Mutume, 2006).

In November 1999, the Treaty for the Establishment of the new East African Community was signed by the heads of state of Uganda, Kenya and Tanzania. It entered into force on 7th July 2000 with plans to form a customs union, common market, monetary union and ultimately a political federation. It was believed that the strengthened regional ties would result in more regional and international trade for members in both nominal and real terms. However this has not been achieved due to prevalent supply-side constraints that affect the quantity and quality of exports to the world market (Hoekman et al., 2002).

This history on EAC members provides a relevant background for the study as it traces the socio-economic and political factors that have played an important role in shaping not only the region's manufacturing sector but also her trade performance in both goods and services over the last century.

1.2.2 Theoretical Background

International trade is explained by a number of standard theories. In particular, the gravity model laid the theoretical foundation for estimation of factors that impact bilateral trade (Tinbergen, 1962; Anderson, 1979; Bergstrand, 1985; Baldwin and Taglioni, 2006). In the context of international trade flows, the gravity model states that the size of trade flows between two

countries is determined by supply conditions at the origin country, the demand conditions at the destination country and stimulating or restraining forces related to the trade flows between the two countries (Serlenga, 2004). Stimulating forces take on the form of trade liberalization while restraining forces take on the form of tariff and non-tariff barriers such as quotas, import and export licenses.

This study concentrates on one particular stimulating force-services liberalization. Services liberalization is usually accompanied by the removal or reduction of restrictions on the free exchange of services between countries.

The gravity model has also been used to establish the link between services trade and trade in goods. In this case, reductions in the cost of traded or trade support services has similar effects as a reduction in tariff protection i.e. it leads to an increase in the quantity of goods traded (Onyango, 2009). The model provides a solid theoretical background to the study as it establishes a clear basis for examining the relationship between manufactures trade and services trade (services liberalization) for EAC members.

1.2.3 Conceptual Background

This study draws largely from Blyde and Sinyavskaya (2007) who explored whether liberalization of trade in services is beneficial for international trade in goods. Using a dataset of 62 countries for the period 1980 to 1999, they found out that trade in transportation and communication services generate the largest impacts on trade in goods. They also investigated the impact of trade in services on the trade of different types of goods and found that trade in services is indeed important in facilitating trade in goods in all the categories.

The study also benefits from Deardorff's (2001) study which used a partial equilibrium trade model to illustrate the connection between trade in services and trade in goods. In this model, reduction in the cost of transportation services has similar effects as a reduction in tariff protection i.e. it leads to an increase in the quantity of goods traded. This follows the assumption that trade is not costless and that traders have to purchase certain trade supporting services such as transport, insurance, communication which add to the overall costs of trade. Changes in the cost of imports and exports may in turn affect the volume of goods traded between countries.

The closest antecedent to this study is Onyango (2009) who used a gravity model and a data set of 180 observations to examine the effects of services liberalization on cross-border trade in agricultural commodities within the EAC customs union. The rationale being that over and above removal of tariffs and other trade barriers, trade supporting services are an important component of transaction costs, hence influence patterns and volume of cross-border trade.

Barriers to services trade take on the form of regulations or other measures that effectively limit access of foreign services suppliers to the domestic market, rather than tariffs. This measure is however difficult to estimate particularly with prevailing data constraints in LDCs such as the EAC. In that regard, liberalization of services trade is proxied by total trade in transport, communication, financial and insurance services. These are the independent variables of the study which are measured in US dollars for each of the years under consideration in the study.

The dependent variable in this study is total trade in three manufactured goods (sugar, wheat flour, cement) for the EAC countries measured in US dollars for the years under consideration in the study. These goods have been specifically chosen because they are manufactured by all three countries and are also classified as sensitive and therefore deserving of protection from foreign

competition in form of high CET rates. In addition, the region has experienced periodical shortages of these essential goods and the accompanied price hikes which have been attributed to unstable, insufficient, and inefficient production.

The error term will also be included as it represents any other influences on total trade in manufactured goods for EAC that are assumed as well behaved or not taken into consideration in the study.

1.2.4 Contextual Background

The EAC's manufactured goods exports are predominantly composed of processed agricultural products such as textiles, sugar, cigarettes, beverages, dairy, vegetable oil etc from Tanzania and Uganda. The bulk of the more sophisticated manufactured exports such as pharmaceuticals, dry cells, cement, petroleum products, iron and steel, glass ware, and plastics are mainly from Kenya, which is the most industrialized EAC member (WTO, 2014). The manufacturing sector in the EAC produces largely for the domestic market with part of the production exported to regional markets such as COMESA (EAC, 2007). The bulk of the EAC's manufactured goods imports consist of petroleum and petroleum products, heavy machinery such as vehicles, mechanical and electrical appliances, aircraft etc which are mainly sourced from Asia, the European Union and the United Arab Emirates (EAC, 2007).

Like many developing countries, EAC partner states aspire to attain equitable and sustainable growth and development through increased value-added production, competitiveness and trade (EAC, 2007). The partners also aspire to transform their manufacturing sector to a modern and efficient status that can generate sufficient output to satisfy both domestic and export markets while increase international trade in both nominal and real terms (EAC, 2016).

To make these aspirations a reality, the EAC embarked on implementing the EAC treaty which ushered in free movement of goods among members through asymmetrical reduction of tariffs and non-tariff barriers to intra-EAC trade (EAC, 2007). To monitor the removal of NTBs, national committees were established through the directive of the Council Ministers inaugurated in all partner states. In addition to this, the members started working on improving physical infrastructure and trade facilitation (Mbithi and Chekwoti, 2014).

The customs union protocol in particular laid out the requirement for harmonization of standards to ensure acceptability of goods and services traded within the region and uniform applications of the community customs laws in the partner states (Mbithi and Chekwoti, 2014). The EAC region also adopted provisions that allow member states to establish manufacturing under bond schemes, export processing zones, and duty drawback schemes (WTO, 2006).

Opportunities to improve the region's global trade performance took on the form of multilateral Economic Partnership Agreements (EPAs) such as the USA's African Growth and Opportunity Act (AGOA) and the EU's "Everything But Arms" (EBA) arrangement. AGOA was enacted by the USA in May 2000 to provide duty-free access to the U.S. market for eligible Sub Sahara African nations including EAC members. Under AGOA, eligible countries are allowed to export products, including value-added manufactured items such as textiles to the USA duty-free. The EBA was born in 2001 with the intention of giving all LDCs full duty-free and quota-free access to the EU for all their exports with the exception of arms and armaments (EAC, 2015).

It was anticipated that the implementation of these measures and provisions would increase the value and volume of global trade for EAC members (EAC 2004b, 2009b). However, the region's trade has remained small especially for manufactured goods. For example, EAC (2016) reports

the percentage of manufactured exports as a percentage of total Exports at a mere 8.2% by 2014. The situation is further exacerbated by supply side constraints such as persistent NTBs, poorly skilled labor, and high production costs due to limited access to quality, efficient, affordable transport, financing, insurance, communication services and electricity (UNCTAD, 2014).

In light of these challenges, studies such as UNCTAD (2014); Onyango (2009); Mbithi and Chekwoti (2014); Hoekman and Shepherd (2015) discussed the role that services and services liberalization can play in improving the region's competitiveness, productivity and performance in global trade. These previous studies have inspired this study to examine the potential of services liberalization in increasing total trade in manufactured goods for the EAC region.

1.3 Problem Statement

Regional integration comes with the promise of larger markets for goods and services; better quality goods and welfare gains for consumers due to increased competition and the accompanied lower prices; as well as increased trade in both real and nominal terms.

In order to realize these benefits, a number of provisions and measures have been put in place by the EAC members and their trade partners. Measures such as harmonization of standards for goods and services trade; reduction of tariff and non-tariff barriers to trade; and improvement of physical infrastructure such as roads and railways have been adopted by EAC members (WTO, 2006). In addition, economic partnerships such as the USA's African Growth and Opportunity Act (AGOA) and the EU's "Everything But Arms" arrangement (EBA) have been implemented.

However, the region's trade performance has persistently remained low, especially so for manufactured goods. EAC (2016) reports the percentage of manufactured goods at a mere 8.2% of

total exports by 2014. In addition, the EAC often experiences periodical shortages in essential manufactured goods such as cement and sugar, and the accompanied price hikes (EAC, 2010).

In an attempt to find a solution to these problems, this study examines the relationship between services liberalization and total trade in manufactured goods for the EAC region. This is important given the influence that the services sector has on the efficiency, competitiveness and performance of the other sectors of the economy (UNCTAD, 2014). Understanding this relationship may be useful and vital in improving the region's competitiveness, productivity and ultimately its performance in international trade.

1.4 Research Objectives

1.4.1 General Objective

The core objective of the study is to examine the relationship between services liberalization and total trade in manufactured goods for EAC members. This is important given the influence that the services sector has on the efficiency, competitiveness and performance of the other sectors of the economy.

Understanding the relationship between services liberalization and total manufactures trade can be useful in improving the region's international trade performance.

The study is likely to add impetus for the much needed reforms in the areas that have exhibited limited progress in the region's services sector. The study aims to encourage EAC partner states to implement, in a timely manner, the commitments that have been made in the EAC schedule for services liberalization.

1.4.2 Specific Objectives

1. To examine the relationship between financial services liberalization and total trade in manufactured goods for EAC members;
2. To examine the relationship between telecommunication services liberalization and total trade in manufactured goods for EAC members;
3. To examine the relationship between transport services liberalization and total trade in manufactured goods for EAC members; and
4. To examine the relationship between insurance services liberalization and total trade in manufactured goods for EAC members;

The paper should therefore guide policy makers on key interventions necessary for improving the region's international trade performance.

1.5 Research Questions

The study aims to answer the following questions;

1. What effect does financial services liberalization have on total trade in manufactured goods for EAC members?
2. What effect does telecommunication services liberalization have on total trade in manufactured goods for EAC members?
3. What effect does transport services liberalization have on total trade in manufactured goods for EAC members?

4. What effect does insurance services liberalization have on total trade in manufactured goods for EAC members?

The answers to these questions should provide a better understanding of the effects that services liberalization have on total trade in manufactured goods for EAC countries. They could also act as a basis for formulating and implementing policies that will ensure a more efficient EAC manufacturing sector; and better trade performance for the region.

1.6 Research Hypotheses

1. Financial Services liberalization has no significant effect on total trade in manufactured goods for EAC members.

2. Telecommunication Services liberalization has no significant effect on total trade in manufactured goods for EAC members.

3. Transport Services liberalization has no significant effect on total trade in manufactured goods for EAC members.

4. Insurance Services liberalization has no significant effect on total trade in manufactured goods for EAC members.

1.7 Justification of the study

A study on the effect of services liberalization on EAC trade in manufactured goods is important to EAC members due to the fact that it has the potential to improve the region's trade performance by enhancing competitiveness and efficiency of other sectors of the region's economy (UNCTAD, 2014). This argument is supported by a 2015 study by Hoekman and Shepherd that established that reforming services sector through liberalization can boost trade in

the goods sectors since services are an important input into the production, distribution and trade of goods.

The study is vital at this particular time because the period that was scheduled for the initial services reforms and liberalization from 2010 to 2015 has already elapsed. Any decisions by the partner states regarding new time lines and policies for the reformation and liberalisation of the sector would greatly benefit from the findings of this study.

1.8 Significance of the study

For many years, research has been a key tool towards making informed decisions and formulating relevant policies. The findings of this research are expected to;

1. Enable policy makers in the various EAC members' ministries in charge of Trade and East African Cooperation as well as the EAC Secretariat understand the impacts that services liberalization has on the region's trade in manufactured goods. These findings could aid in informed policy making.
2. Come up with recommendations for improving the region's poor trade performance and the accompanied low level of development.
3. Benefit trade economists, researchers, and trade policy students by filling the knowledge gap on the possible effects of services liberalization on trade in manufactured goods for the EAC region.

1.9 Scope of the study

1.9.1 Content Scope

The study limits itself to studying the effects of liberalization of transport, telecommunication, insurance and financial services on the total trade in manufactured goods for EAC members.

1.9.2 Time Scope

The study covers a time period of 10 years from 2005 to 2014. These years have been decided upon based on the availability of reliable and complete data on all variables of interest to the study for the three EAC members.

1.9.3 Geographical Scope

The study limits itself to the EAC region which covers the territories of Uganda, Kenya, Tanzania, Rwanda, Burundi and South Sudan.

However, Rwanda, Burundi and South Sudan are excluded from the study for two major reasons. The first is the fact that South Sudan only recently joined the EAC in March 2016 which makes comparisons over a ten year period impossible. Secondly, reliable and complete data on the study variables is currently unavailable for the three countries.

1.9.4 Theory Scope

The study draws from the gravity theory in analysing the link between services trade and trade in manufactured goods. In this theory, reductions in the cost of traded or trade support services such as transport, telecommunication as a result of services liberalization has similar effects as a reduction in tariff protection i.e. it leads to an increase in the quantity of goods traded Tinbergen (1962), Anderson (1979), Bergstrand (1990), Deardorff (1998), and Feenstra, et al (1998).

This study draws from the gravity model to analyse the link between services trade and trade in manufactured goods in the EAC. The model provides a theoretical basis and background for examining the relationship between services liberalization and total trade in manufactured goods for EAC members.

Keeping in line with the study objectives, the study specifically examines the relationship between the independent and dependent variables applicable to the study as shown in the models below.

The Pooled OLS model based on the Gravity model that is used in the study is shown below;

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where: *i* Represents a Country

t Represents Time (year)

TM Represents Total Trade in Manufactured goods

FS Represents Trade in Financial Services

TCI Represents Trade in Telecommunications, computer, and information services

TP Represents Trade in Transport

INS Represents Trade in Insurance and pension services

ε_{it} is the Error Term

However, the problem with the pooled model is that it does not take into account the possibility that total trade in manufactured goods is very likely to be influenced by certain unobserved individual (country) effects which if correlated with explanatory variables result in biased estimates (Gujarati, 2004).

Therefore, a Fixed Effects (FE) model which assumes that the individual (country) effect is correlated with any one of the regressors (Greene, 2008) can be used as an alternative to rectify the Pooled Model problems.

The FE Model that used in the study is shown below;

$$TM_{it} = \gamma_1 + \gamma_2 D_{2t} + \gamma_3 D_{3t} + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where, d_{1t} is dummy for Kenya which is captured by γ_1 in the equation above

d_{2t} is dummy for Tanzania

d_{3t} is dummy for Uganda

$\gamma_1 = \alpha_1$ is the intercept for Kenya

$\gamma_2 = \alpha_2 - \alpha_1$ and $\gamma_3 = \alpha_3 - \alpha_1$ represent differential intercepts of Tanzania and Uganda respectively from Kenya

Another model used in the study is the RE model below which is based on the assumption that individual (country) effect is uncorrelated with any of the regressors (Hsiao, 2003).

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + (\varepsilon_{it} + \mu_i)$$

Where, μ_i is an individual specific random heterogeneity or a component of the composite error term.

i Represents Country

t Represents Time (year)

FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services.

ε_{it} is the Error Term

1.10 Definition of Key Terms

(i) Services:

Article (i) part 1 of the World Trade Organization's (WTO) General Agreement on Trade in Services (GATS) defines services to include "any service in any sector except services supplied in the exercise of governmental authority" (WTO, 2010). For the purposes of this study, the GATS definition of services is used.

Article (i) part 1 of the General Agreement on Trade in Services (GATS) defines "service supplied in the exercise of governmental authority" to mean any service which is supplied neither on a commercial basis, nor in competition with one or more service suppliers (WTO, 2010).

(ii) Trade in Services:

Article (i) part 1 of the General Agreement on Trade in Services (GATS) defines trade in services as "the supply of a service:

(a) from the territory of one Member into the territory of any other Member;

(b) in the territory of one Member to the service consumer of any other Member;

(c) by a service supplier of one Member, through commercial presence in the territory of any other Member;

(d) by a service supplier of one Member, through presence of natural persons of a Member in the territory of any other Member.”

(iii) Trade Liberalization(including both services and goods liberalization):

This is the removal of or reduction in the trade practices that thwart free flow of goods and services from one nation to another. It includes dismantling of tariff (such as duties, surcharges, and export subsidies) as well as nontariff barriers (such as licensing regulations, quotas, and arbitrary standards) (WTO, 2010).

Trade liberalization involves removing barriers to trade between different countries and encouraging free trade. Trade liberalization involves:

- Reducing tariffs
- Reducing/eliminating quotas
- Reducing non-tariff barriers.

1.11 Conceptual Framework

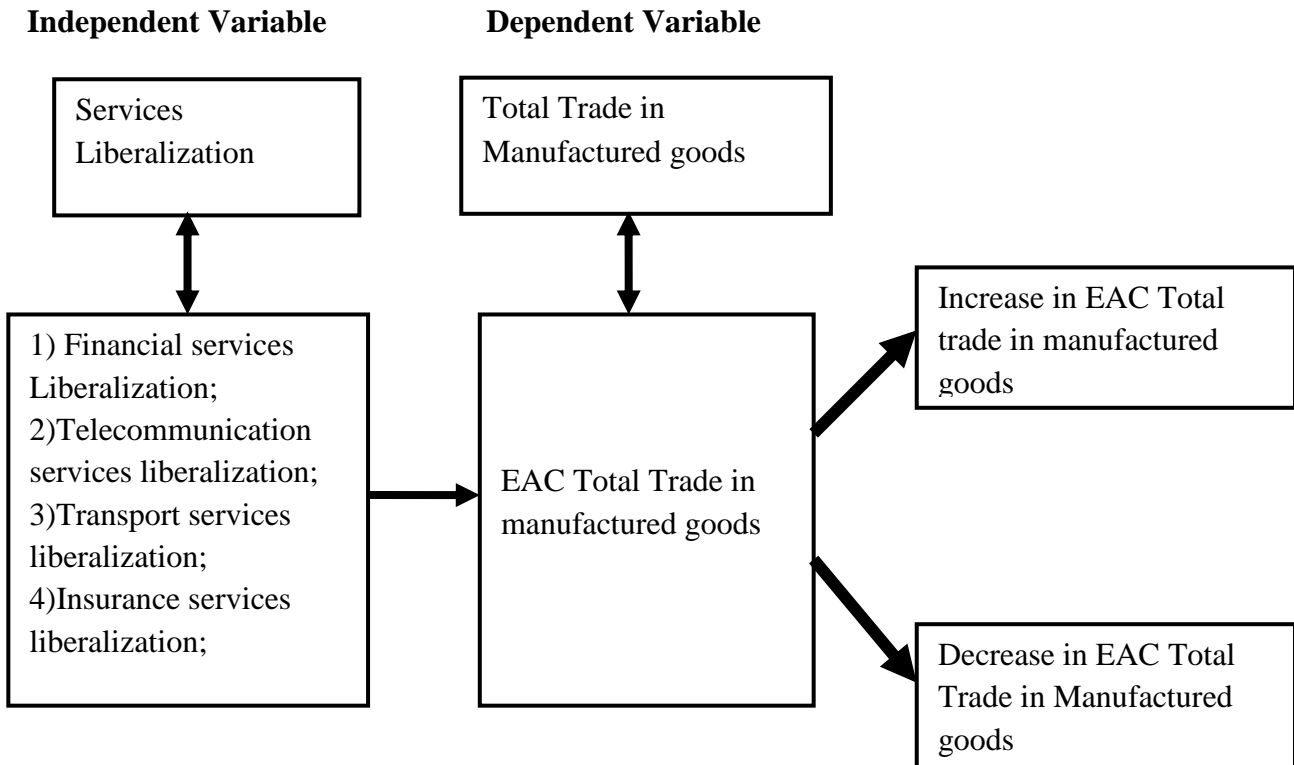


Figure 1: Conceptual Framework

Source: Adapted from Blyde and Sinyavskaya (2007)

In the study, the core explanatory variables used to explain total trade in manufactured goods across the three EAC countries are the total financial, telecommunication, transport and insurance services trade by those countries.

If the trade in a service for a country increases (due to liberalization and its effects on costs of services), the total trade in manufactured goods is expected to increase for this country in the same period. And if trade in services for a country decreases, the total trade in manufactured goods is expected to decrease during the same period.

However, it should be noted that liberalization of the services in an economy is not in itself the sufficient factor for increasing international trade in manufactured goods since many more factors other than services liberalization might motivate EAC members to increase trade in manufactured goods (Bagumhe, 2012). This fact is taken into consideration in the study and is catered for by inclusion of the error term.

Conclusion:

Chapter one has provided a comprehensive background to the study at different levels. It has also clearly laid out the objectives, hypotheses, research questions, scope and rationale for the study.

The next chapter analyses existing literature on the topic of study with the objective of revealing their contributions, similarities, differences, weaknesses and gaps. The chapter also discusses how the study attempts to fill these gaps.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter analyses existing literature on the topic of study with the objective of revealing their contributions, similarities, differences, weaknesses and gaps. It also discusses how the study fills certain specific gaps in some previous studies. This study examines the relationship between financial, telecommunication, transport, insurance services liberalization and total trade in manufactured goods for EAC members so as to provide empirical evidence that can be used to improve the region's global trade performance.

2.2 Review of Literature

2.2.1 Review of Theoretical Literature

International trade is explained by a number of standard theories. Adam Smith's theory of absolute advantage explains international trade based on the country's cost of producing a product. This implies that countries therefore should concentrate on producing and exporting goods in which they incur less costs to produce and import goods that they incur higher costs to produce (Hoekman and Kostecki, 2001).

David Ricardo's theory of comparative advantage on the other hand explains international trade based on the country's opportunity cost of producing a good in terms of other goods. This means that countries therefore shift resources to production of goods where they efficiently produce and import goods where they are less efficient. However, the existence of tariff and non-tariff barriers distorts the final consumer price (Krugman and Obstfeld, 2009).

The Heckscher-Ohlin (H-O) model, explains international trade based on the country's factor endowments, that is, the relative quantities of capital and labor available for production. It assumes that countries have access to the same technology. In this way, countries with relatively large quantities of labor will shift production to labor-intensive production and export these goods and import capital-intensive goods (Krugman and Obstfeld, 2009). The theory explains why developing countries such as the EAC produce and export mainly agricultural goods while importing manufactured goods from more technologically advanced countries (Shinyekwa and Othieno, 2013).

The gravity model in particular laid the theoretical foundation for estimation of the factors that impact trade between two countries (Tinbergen, 1962; Anderson, 1979; Bergstrand, 1985; Baldwin and Taglioni, 2006). In this model, the size of trade between a pair of countries is majorly determined by their economic size and the distance between them. In the context of international trade flows, the model explains that the size of trade flows between countries is determined by supply conditions at the origin country, the demand conditions at the destination country and stimulating or restraining forces related to the trade flows between the two countries (Serlenga, 2004). Restraining forces in this case take on the form of tariff and non-tariff barriers to trade while stimulating forces may take on the form of trade liberalization.

The gravity model has also been used to establish the link between services trade and trade in goods. In this case, reductions in the cost of traded or trade support services such as transport and telecommunication, has similar effects as a reduction in tariff protection i.e. it leads to an increase in the quantity of goods traded between countries (Tinbergen, 1962).

This study draws from the gravity model to analyse the link between services trade and trade in manufactured goods in the EAC. The model provides a theoretical basis and background for examining the relationship between services liberalization and total trade in manufactured goods for EAC members.

The Pooled OLS model used in the study is shown below;

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where: *i* Represents a Country

t Represents Time (year)

TM Represents Total Trade in Manufactured goods

FS Represents Trade in Financial Services

TCI Represents Trade in Telecommunications, computer, and information services

TP Represents Trade in Transport

INS Represents Trade in Insurance and pension services

ε_{it} is the Error Term

However, the problem with the pooled model is that it does not take into account the possibility that total trade in manufactured goods is very likely to be influenced by certain unobserved individual (country) effects which if correlated with explanatory variables result in biased estimates (Gujarati, 2004).

Therefore, a Fixed Effects (FE) model which assumes that the individual (country) effect is correlated with any one of the regressors (Greene, 2008) is used to rectify the Pooled Model problems.

The FE Model that is used in the study is shown below;

$$TM_{it} = \gamma_1 + \gamma_2 D_{2t} + \gamma_3 D_{3t} + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where, d_{1t} is dummy for Kenya which is captured by γ_1 in the equation above

d_{2t} is dummy for Tanzania

d_{3t} is dummy for Uganda

$\gamma_1 = \alpha_1$ is the intercept for Kenya

$\gamma_2 = \alpha_2 - \alpha_1$ and $\gamma_3 = \alpha_3 - \alpha_1$ represent differential intercepts of Tanzania and Uganda respectively from Kenya

Another model that is used in the study is the RE model below which is based on the assumption that individual (country) effect is uncorrelated with any of the regressors (Hsiao,2003).

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + (\varepsilon_{it} + \mu_i)$$

Where, u_i is an individual specific random heterogeneity or a component of the composite error term.

i Represents Country

t Represents Time (year)

FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services.

ε_{it} is the Error Term

2.2.2 Theoretical Framework

The Gravity Model states that there is a link between trade in services and trade in goods.

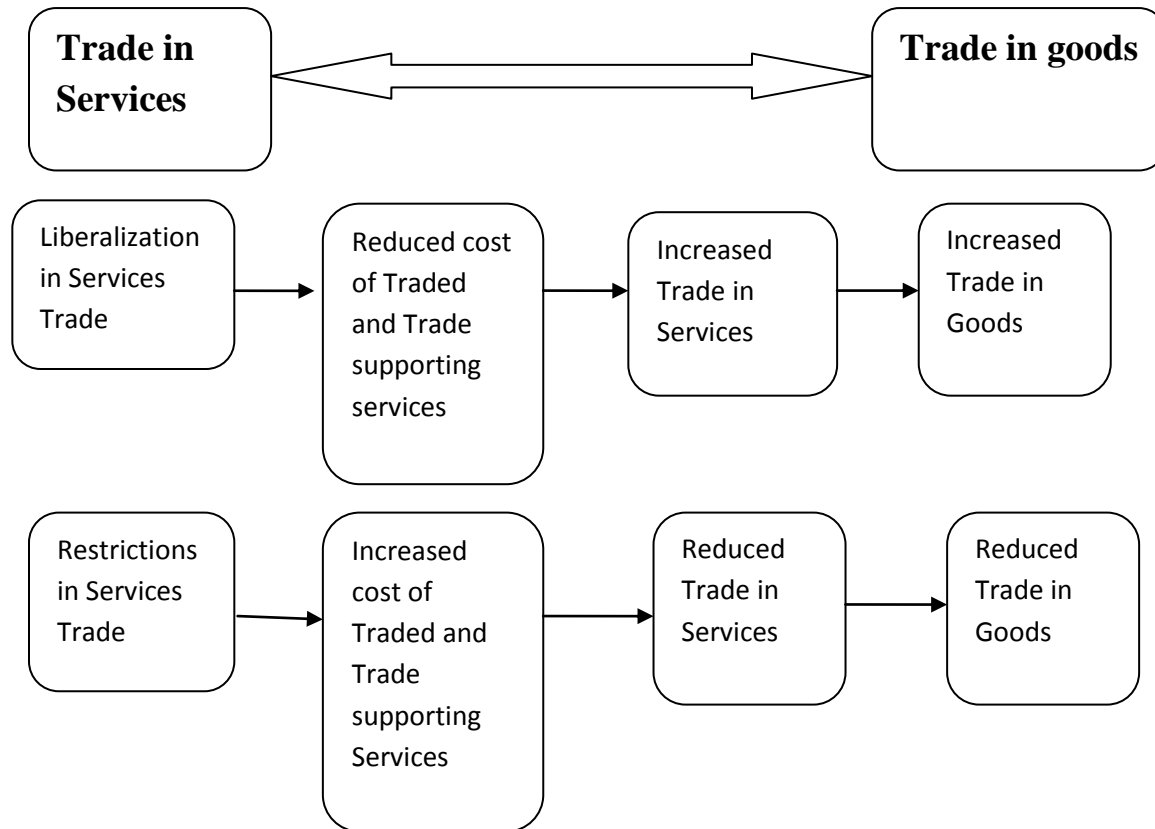


Figure 2: *Theoretical Framework*

Source: *Adapted from Blyde and Sinyavskaya (2007)*

Reductions in the cost of traded or trade support services such as transport and telecommunication, has similar effects as a reduction in tariff protection due to services liberalization i.e. it leads to an increase in the quantity of goods traded between countries.

On the other hand, an increase in the cost of traded or trade supporting services due to restrictions in services trade leads to a decrease in the quantity of goods traded between countries.

2.2.3 Review of Objective Literature

This section provides some background information on services trade and services liberalization on a global and regional scale for the EAC:

Services Liberalization in the Global context:

The WTO's General Agreement on Trade in Services (GATS) entered into force in 1995. It remains the only set of multilateral rules covering international trade in services. The Agreement reflects the gradual transfer of responsibility for many services from government-owned suppliers to the private sector and the increased potential for trade in services brought about by advances in information and communication technology (WTO, 2010).

The GATS acknowledges that in many instances suppliers and consumers have to be in physical proximity for services to be traded. It identifies four different ways, or "modes", of supplying services (WTO, 2010). The GATS defines 155 service sectors based on categories developed by the GATT Secretariat, and specifies four modes of trade in services:

- 1) Cross-border supply (supply of services from the territory of one Member into the territory of another Member);
- 2) Consumption abroad (supply of services in the territory of one Member to a service consumer of another Member);

3) Commercial presence (supply of services by a service supplier of one Member through commercial presence in the territory of another Member); and

4) Presence of natural persons (supply of services by a service supplier of one Member through the presence of natural persons of that Member in the territory of another Member.)

For purposes of structuring their commitments, WTO Members have generally used a classification system comprised of 12 core service sectors (WTO, 2010):

- I. Business services (including professional services and computer services)
- II. Communication services
- III. Construction and related engineering services
- IV. Distribution services
- V. Educational services
- VI. Environmental services
- VII. Financial services (including insurance and banking)
- VIII. Health-related and social services
- IX. Tourism and travel-related services
- X. Recreational, cultural and sporting services
- XI. Transport services
- XII. Other services not included elsewhere

These sectors are further subdivided into a total of some 160 sub-sectors (WTO, 2010). Under this classification system, any service sector, or segments thereof, may be included in a Member's schedule of commitments with specific market access and national treatment

obligations. Each WTO Member has submitted such a schedule as required by the Agreement (Article XX:1).

The market access provisions of GATS, laid down in Article XVI, cover six types of restrictions that must not be maintained in the absence of limitations (WTO, 2010). The restrictions relate to

- (a) the number of service suppliers
- (b) the value of service transactions or assets
- (c) the number of operations or quantity of output
- (d) the number of natural persons supplying a service
- (e) the type of legal entity or joint venture
- (f) the participation of foreign capital

Services covered by the GATS are not automatically opened to competition. WTO members guarantee access to their markets only in those sectors and modes of supply specified in their “schedules of commitments”, subject to any “limitations” they wish to maintain. These schedules provide legally binding commitments (WTO, 2010).

The only obligation that applies across all services covered by the GATS is the most-favored-nation (MFN) principle, meaning suppliers of services from all countries are treated in the same way.

Out of a total of approximately 160 service sectors, WTO members have, on average, listed about 50 in their schedules of commitments, pledging some degree of market opening

Developed countries have commitments in nearly four times as many sectors (some 110) as least-developed countries (LDCs).

But economies that have joined the WTO since 1995 have committed to a significantly higher number of sectors than the “original” members at similar levels of development.

Unlike in the General Agreement on Tariffs and Trade (GATT), where tariffs are the only permissible restrictions, the limitations attached to WTO members’ GATS commitments cover a broad range of measures, including numerical quotas, limits on foreign ownership, and discriminatory subsidies (WTO, 2010).

The sector most commonly included commitments is tourism, followed by infrastructure services (financial services, business services, and telecommunications). The sectors least frequently included in commitments are education and health services, reflecting the high levels of direct government provision in these services (WTO, 2010).

Trade Liberalization in the East African Community context:

Each EAC Partner State has its own set of commitments with respect to trade in services, which are contained within Annex V to the Protocol. The schedules contain the sub-sectors, modes of supply and deadlines for liberalization for all the sectors that Partner States have agreed to liberalize (EAC, 2010).

The Common Market is a work in progress and hence the EAC Partner States have committed to progressive liberalization of trade in services. This means that not all sectors are to liberalize at the launch of the Common Market in 2010, but that certain sectors have been liberalized at certain times up to 2015.

The initial round of service liberalization has focused on some core service sectors. Each Partner State has agreed to liberalize sub-sectors within seven initial sectors (EAC, 2016):

1. Business services
2. Communication services
3. Distribution services
4. Educational services
5. Financial services
6. Tourism and travel-related services
7. Transport services

The table below shows the level of services liberalization for EAC members across various service sectors as at 2014 indicated by the number of commitments made by each member per sub sector at the regional level.

Table 1: Level of services liberalization for EAC members across various service sectors as at 2014

Service Sector	Tanzania	Kenya	Uganda	Rwanda	Burundi
Communication	17	17	21	21	6
Transportation	9	9	20	20	17
Business	7	15	33	32	31
Distribution	2	3	4	4	3
Education	4	4	5	5	4
Financial	16	12	11	15	9
Tourism and travel related	4	3	4	4	4
Total number of commitments by sub sector	59	63	98	101	74
% of commitment made by each country out of 160 subsectors under GATS	37%	39%	61%	63%	46%

Source: EAC, 2014

Review of Objective Literature:

Like many developing countries, the EAC members aspire to transform their manufacturing sector to modern and efficient status that can generate sufficient output to satisfy both domestic and export markets while increasing international trade in nominal and real terms. However, EAC manufactures output has continued to be low due to an inefficient and technologically challenged manufacturing sector (EAC, 2010). The situation is exacerbated by supply-side constraints such as persistent Non-Tariff Barriers (NTBs), poorly skilled labour, and high

production costs due to limited access to quality, efficient, affordable services such as financing, insurance, transport, communication, and electricity (WTO, 2006).

EAC trade in manufactured goods is majorly in a few locally processed products such as cigarettes, sugar, soaps, cement, woven fabric, pharmaceuticals, batteries and dry cells. This trade is dominated by Kenya as a major producer and exporter of manufactured goods in the region (EAC, 2009). This is attributed to the fact that she's more technologically advanced compared to her neighbours, has better skilled labour suitable for manufacture and industry, has better infrastructure, has better quality services, is relatively more stable politically than other members, has close proximity to the sea which reduces costs of transporting industrial inputs (WTO, 2012). All these factors translate to lower costs of production, efficiency and more competitive prices within the region for her manufactures compared to the other EAC members.

EAC trade in manufactured goods is still very low making up a very small percentage of total trade for the region (EAC, 2014). While this could be majorly attributed to the generally low and inefficient production in the region, the role played by inefficient and costly services cannot be overlooked because services play a critical role in the production, marketing and export of manufactured products. In particular, business services such as transport and logistics ease the flow of manufactured goods from producers to final consumers; while financial services facilitate transactions within and across borders (Onyango, 2009).

Services in the EAC are often inaccessible, prohibitively expensive and yet of a low quality because the sector is still highly restricted which is often associated with low competition and less efficient suppliers (Mattoo, 2006). Exporters of manufactured commodities cannot be

competitive without access to more liberalized and efficient banking, insurance, accountancy, telecommunication and transport systems(Bagumhe, 2012).

The table below indicates the level of services liberalisation at the global level shown by the number of sectors and sub-sectors committed by EAC members at the World Trade Organization.

Table 2: EAC services liberalisation at the global level

Country	Sectors committed out of 12	Subsectors committed out of 160	Commitment negotiated out of 1280	Partial commitment made	Full commitment without restriction	Percentage of liberalization commitment made
Tanzania	1	1	8	2	4	0.47%
Kenya	5	59	472	195	203	31.09%
Uganda	2	11	88	42	46	6.88%
Rwanda	4	10	80	4	76	6.25%
Burundi	5	28	224	62	162	17.50%
EAC Average	3.4	21.8	174.4	61	98.2	12.40%

Source: WTO, 2010.

In line with this argument is an OECD (2008) study that used a sample of sixty countries in a period of ten years between 1990 and 1999 and noted that those countries with fully liberalized financial services grew, on average at about one percent point faster than the others. Equally important is that improvement of transportation efficiency through liberalization made trade possible as it improved a country's comparative advantage and competitiveness.

The study also established that countries that embark on comprehensive reform of telecommunication performed systematically better than the others that confined themselves to partial changes. In addition, full liberalization of financial and telecommunication services tended to increase performance of economic growth by 1.5 percent more than those that did not (OECD, 2008).

With the aid of a partial equilibrium trade model, Deardorff (2001) illustrated the connection between trade in services and trade in goods. In this model, reduction in the cost of transportation services had similar effects as a reduction in tariff protection i.e. it leads to an increase in the quantity of goods traded. This follows the assumption that trade is not costless and that traders purchase certain trade services such as transport, financial, communication services which add to domestic cost of imported goods.

Another study by Hoekman and Shepherd (2015) reveals a linkage between services and manufacturing productivity, which in turn feeds in to merchandise trade performance. The study findings show that a 10% increase in services productivity is associated with an increase in manufacturing exports of 0.24% in Burundi, 0.30% in Kenya, 0.25% in Rwanda, 0.50% in Tanzania, and 0.41% in Uganda. These findings seem to support the theory that EAC countries can boost manufacturing trade performance by improving productivity in services.

The findings also showed that EAC countries could benefit in terms of increased merchandise exports if they improved service sector policies to the same level as Ghana which is the leading Sub-Saharan African country. Concretely, country impacts are as follows: Burundi 4.4%, Kenya 18.6%, Rwanda 13.0%, Tanzania 19.8%, and Uganda 23.1%. These estimated effects are economically meaningful in all cases. They serve to stress the potential economic gains from

reform to services policies, and emphasize the downstream linkage to goods exports (Hoekman and Shepherd, 2015).

With the aid of a gravity equation, Hoekman and Shepherd (2015) also found that services policies are a significant determinant of bilateral merchandise trade for EAC countries. At a sectoral level, findings show that services such as retail distribution and transport are particularly important given that these services directly affect the ability of goods producers, middle men and exporters to get products to local and international markets.

In regards to services liberalization and its impact on trade performance, a World Bank (2008) study shows that poor infrastructure and weak institutions tend to contribute to high costs that inhibit trade. The study also established that small manufacturing industries such as those in the EAC are especially dependent on the efficient and equitable provision of services that enable them to participate in the international supply chains on affordable terms.

Similarly, Blyde and Sinyavskaya (2007) used a dataset of 62 countries for the period 1980 to 1999, to explore whether liberalization of trade in services is beneficial for in international trade in goods. Findings showed that trade in transportation and communication services generate the largest impacts on trade in goods. They also investigated the impact of trade in services on the trade of different types of goods and found that trade in services is important in facilitating trade in goods in all the various different categories.

Guerrieri and Meliciani (2005) also found a clear link between production in manufacturing and the services sector. They find that countries with a high share of activities in knowledge-intensive manufacturing industries experience a higher demand for financial, communication and

business services and argue that such countries are therefore more likely to produce and export these services.

The closest antecedent to this study is Onyango (2009) which examines the relationship between services liberalization and cross-border trade in agricultural commodities for EAC members. Using a dataset of 5 EAC countries for the period 2004 to 2008, the study found out that trade in transportation and communication services generate the largest impacts on trade in goods. Overall, the empirical results indicate that trade in services significantly influence cross-border agricultural trade in the EAC region. Specifically, an increase in trade in business, insurance and communications services increases cross-border agricultural trade.

The study recommends removal of restrictions on services trade to complement the gains from liberalization of agricultural trade in the EAC region. This requires establishment of a regional framework agreement on services that would guide orderly removal of existing regulatory restrictions in the services sector taking into consideration the need to consolidate the envisaged gains of the EAC Common Market (Onyango, 2009).

All these findings reinforce the importance of backbone services sectors in the development context, and spell out the potential for services trade reforms - such as liberalization-to boost commodities trade in addition to increasing economic efficiency. They clearly demonstrate that services liberalization has the potential to increase efficiency, productivity and competitiveness in local production, while facilitating international commodities trade even for developing countries such as those of the EAC.

However, Bagumhe (2012) cautions that liberalization of the services in an economy is not in itself the sufficient factor for increasing efficiency and competitiveness in production or

commodities trade as other factors might motivate these changes. As Hoekman and Shepherd (2015) observed, the development of supply side capacity, competitiveness and efficiency in the commodities sector requires attention to a wider range of policy areas, including the investment climate and business environment.

Bagumhe's (2012) views are consistent with a research by Cosimo et al, (2015) that reveal that liberalization of services is more beneficial for economies with better economic governance. The reason for this is that foreign firms and service suppliers wishing to establish a commercial presence or move to another country are also likely to consider the business environment in which they must operate.

At the same time, it is important to be aware of the political economy dynamics that lie behind more liberal services policies. It should be clearly understood that opening up essential services to foreign or domestic competition could have an adverse effect in terms of price and availability on the poor if not done properly (Mbithi and Chekwoti, 2014).

It is therefore important for EAC members to be aware of the potential gains and losses associated with services liberalization so that appropriate adjustment policies can be designed and put in place. This is particularly important for the region as they do not yet have strong and effective social safety net policies in place to cater for potential negative consequences of services liberalization.

This research contributes to the literature by examining the relationship between services liberalization and total trade in manufactured goods for EAC countries. This is an addition to the literature, as the bulk of the existing work on linkages between services and manufactured goods

focuses on developed or transition economies in other continents. I am not aware of any previous published work on this subject focusing specifically on the EAC.

While Onyango (2009) already explored the relationship between services liberalization and cross-border agricultural trade for EAC members, this paper adds to the trade literature on the region by extending this line of study to include manufactured goods trade.

This extension is a logical and timely one, with important development and policy implications in light of the EAC's goal of transforming its manufacturing sector to modern and efficient status that can generate sufficient output to satisfy both domestic and export markets. The extension is imperative given the shortages of essential manufactured goods such as sugar and cement that are quite frequently experienced in the region.

2.2.3 Conclusion:

The core objective of the study is to examine the relationship between services liberalization and trade in manufactured goods in the EAC. This is particularly important given the influence that the services sector has on the efficiency, competitiveness and performance of other sectors in the economy, particularly the manufacturing sector.

The objective literature that has been reviewed agreed on the critical role that services play on efficiency, productivity and competitiveness in the production, distribution and trade of goods. The literature also agrees that services liberalization has the potential to increase efficiency, productivity and competitiveness in local production, while facilitating international commodities trade even for low developing countries such as those of the EAC.

However, some of the literature cautions that liberalization of the services in an economy is not in itself the sufficient factor for increasing efficiency and competitiveness in production or commodities trade as other factors might motivate these changes.

Based on the studies reviewed in this chapter, it would then follow that the chances of there being a correlation between liberalization in transport, insurance, financial, telecommunication services and total trade in manufactured goods for EAC members is high.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction;

This chapter discusses the research design, the study population, sample/ sampling method, study area, instruments, data types and sources as well as the methodological approach. The chapter also discusses the empirical model and specification tests used to determine the best model to meet the study objectives.

3.2 Research Design

The study takes on a quantitative non-experimental co-relational approach, based on a Least Squares Dummy Variable (LSDV) Regression model, to analyze a balanced panel data set of three manufactured goods and four services for three EAC members over a period of 10 years. In so doing, it measures the correlation between services liberalization and total trade in manufactured goods for the EAC.

This approach has been specifically chosen as it is well suited to meeting the study objectives and has also been successfully used in previous similar studies. Panel data is used as it can better identify and measure effects that simply cannot be detected in pure cross-section or pure time series data. By analyzing micro data collected from very many units, panel data variables are more accurately measured, and eliminate biases resulting from aggregation over units (Freeman, 1984).

3.3 Area of the Study

The study focuses on the EAC region located in East Africa covering the territories of Uganda, Kenya, Tanzania, Rwanda, Burundi and South Sudan.

However, Rwanda, Burundi and South Sudan are excluded from the study for two major reasons. The first is the fact that South Sudan only recently joined the EAC in March 2016 which makes comparisons over ten years impossible. Secondly, reliable and complete data on the study variables is unavailable for Rwanda, Burundi and South Sudan in the databases used in the study.

With the exception of Kenya which is a developing country, all the other EAC members are classified as LDCs by the World Bank. These countries are characterised by low technological development, a small industrial sector based on processing agricultural products and large trade deficits. EAC members are also net importers of manufactured goods and rely heavily on manufactured imports mainly from Asia and the European Union.

3.4 Population of the Study

The population of the study is composed of secondary data down loaded from online databases. This data comprises of the study variables namely; total trade in manufactured goods, total trade in transport services, financial services, telecommunication services and insurance services.

The dependent variable of the study is total trade in manufactured goods for EAC members measured in US Dollars; while the independent variables are total trade in financial, transport, telecommunication and insurance services for the three EAC members measured in US Dollars.

Data on total trade in Financial, Telecommunications, Transport, and Insurance services is extracted from ITC-Trademap database in US Dollars.

Data on total trade in manufactured goods is extracted from the WITS-COMTRADE database in US Dollars.

3.5 Sample Size and Sampling Techniques

Non-probabilistic sampling, specifically purposive sampling is used in the study. Purposive sampling has been chosen because it focuses on particular characteristics of the population that are of interest to the study. This best enables the study to answer research questions, test the hypotheses and meet the study objectives.

A sample of three manufactured goods (sugar, wheat flour and cement) are chosen because they are all produced by the three EAC members in the study; are classified as sensitive therefore enjoying extra protection of high CET rates; and have complete and reliable data available for the period under review for all three countries.

This sample size is chosen over a period of ten consecutive years from 2004 to 2015 for all the variables. A sample of ten years has been decided upon based on the availability of reliable and complete data on all variables of interest to the study for the EAC members. In addition ten years is a long enough period to analyse and come up with reliable, useful results.

A sample of three countries (Uganda, Kenya and Tanzania) is chosen as they are the only EAC members with complete and reliable data for all the study variables. The study sample data will be a balanced panel dataset of 30 observations.

A sample of four services (transport, financial, telecommunication and insurance services) were chosen from the other services sectors because they are trade supporting services and therefore most likely to have a direct and substantial impact on international trade.

3.6 Data Collection Methods and Instruments

The study relies on secondary data downloaded from international databases.

A computer is used to filter, extract and download this data, while computer software (Excel 2007 and E-Views 7) is used to clean, code, test and analyse the data in accordance with the study objectives.

3.7 Quality Control Methods

To ensure validity and reliability, data is retrieved from reputable international databases such as WITS-COMTRADE and ITC-Trademap.

To ensure methodological reliability and validity, a simple econometrics model specifically suited to panel data analysis is used. In addition, all the requisite specification and diagnostic tests are run to ensure that the best and most reliable model for the study is chosen to meet the study objectives.

3.8 Data Analysis Techniques

To meet the study objectives and answer the research questions, panel data estimation techniques are employed in determining and choosing the most suitable model for the study from the selection of pooled OLS Model, Fixed effects model (FEM) and Random effects models (REM). Panel data is used in the study as it can better identify and measure effects that simply cannot be detected in pure cross-section or pure time series data. By analyzing data collected from very many units, panel data variables can be more accurately measured, and eliminate biases resulting from aggregation over units (Freeman, 1984).

The retrieved secondary data is entered into a Microsoft Office Excel 2007 worksheet then coded and cleaned. This ensures that the data is properly aligned to suit the order of variables as they appear in the model used in the study.

The data is exported to E-views version 7 and analyzed to provide the necessary descriptive statistics that reveal various aspects of the relationships between the study variables in the different EAC members over the ten year study period.

The exported data in E-views also undergoes necessary empirical panel data analyses and tests to ensure that the study objectives are met. E-Views software is specifically chosen over other software because it's specifically suited to economic analysis and is much easier to use than other software (e.g Stata) that tend to have cumbersome requirements for commands.

First, the observations are pooled over the ten year period under review and the pooled model below estimated using the OLS method in E-views.

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where: *i* Represents a Country

t Represents Time (year)

TM Represents Total Trade in Manufactured goods

FS Represents Trade in Financial Services

TCI Represents Trade in Telecommunications, computer, and information services

TP Represents Trade in Transport

INS Represents Trade in Insurance and pension services

ε_{it} is the Error Term

However, the problem with the pooled model is that it does not take into account the possibility that total trade in manufactured goods is very likely to be influenced by certain unobserved

individual (country) effects which if correlated with explanatory variables result in biased estimates (Gujarati, 2004).

In other words by pooling different countries together at different times, there is a possibility of concealing the heterogeneity that may exist among the three countries (Greene, 2008). To cater for this, the FE and RE models are estimated and appropriate tests conducted to compare between the three models after which the best model is chosen from the three.

The FE model as shown below, assumes that the individual (country) effect is correlated with any one of the regressors (Greene, 2008).

$$TM_{it} = \gamma_1 + \gamma_2 D_{2t} + \gamma_3 D_{3t} + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where, d_{1t} is dummy for Kenya which is captured by γ_1 in the equation above

d_{2t} is dummy for Tanzania

d_{3t} is dummy for Uganda

$\gamma_1 = \alpha_1$ is the intercept for Kenya

$\gamma_2 = \alpha_2 - \alpha_1$ and $\gamma_3 = \alpha_3 - \alpha_1$ represent differential intercepts of Tanzania and Uganda respectively from Kenya

The FE model above is run and the F-test used to choose between the FE and the pooled OLS models (Hsiao, 2003). The F-test uses the F-statistic to test the null hypothesis that all coefficients are redundant (equal to zero) against the alternative that they are not all redundant will be carried out. If the F-statistic is found to be statistically significant, the FEM is better and chosen over the Pooled model. However, if the F-statistic is statistically insignificant, then the Pooled model is chosen (Greene, 2008).

The estimation results of the RE model below are based on the assumption that individual (country) effect is uncorrelated with any of the regressors (Hsiao, 2003).

$$TM_{it} = \alpha + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + (\varepsilon_{it} + \mu_i)$$

Where, μ_i is an individual specific random heterogeneity or a component of the composite error term.

i Represents Country

t Represents Time (year)

FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services.

ε_{it} is the Error Term

The RE model above is run and the Wald test used to choose between the pooled and the RE models. The Wald test has a chi-squared distribution and uses the chi-square statistic to test the null hypothesis that unobservable individual effects are correlated with the independent variables, against the alternative hypothesis that they are not correlated (Hsiao,2003).

If the chi-square statistic is statistically significant, the RE model is chosen over the Pooled OLS model. However, if the chi-squared statistic is statistically insignificant, then the pooled model is chosen over the RE model (Greene, 2008).

In order to choose between the FE and the RE models, the Hausman test is run and the H-statistic used to compare their efficiency, with the null hypothesis being that the individual (country) effects are uncorrelated with any regressors in the model versus the alternative hypothesis that they are correlated (Gujarati, 2004).

The test determines whether the unique errors (ϵ_{it}) are correlated with the regressors. If the chi-squared critical value is significant, then the null hypothesis is consistent and the FE model is considered a better estimator. Otherwise then the RE model is chosen (Hsiao,2003).

The estimation results from the most suitable model amongst the three models is then be copied to a Microsoft Word 2007 document and interpreted in accordance with the study objectives and research questions.

3.9 Ethical Considerations

Since data from databases are readily availed for easy access by the general public, ethical concerns such as confidentiality are not an issue for the study.

3.10 Limitations of the Study / Anticipated Constraints

The major limitation to the study is availability of reliable and complete data for all the EAC members. Excluding Rwanda, Burundi and South Sudan from the study provides a less comprehensive and less detailed picture of the EAC region.

Including all the EAC members, especially Rwanda and Burundi greatly enriched the study and provide a more detailed and inclusive picture of the entire EAC region.

Also, despite sticking to reputable data sources, the available statistics rarely include informal trade data which is quite substantial for many Sub-Saharan African countries such as the EAC. Since many goods and services are traded informally, we can conjecture that the true level of contribution of goods and services trade may be larger than what these databases indicate.

CHAPTER FOUR
RESULTS PRESENTATION AND DISCUSSION

4.1 Introduction:

This chapter lays out the study results, their interpretation and discussion in line with the study objectives and hypotheses. They are divided into descriptive and regression results.

The descriptive results include the computation of averages of the study variables for each of the EAC countries and are presented in the tables below.

Table 3: Descriptive statistics for all three countries (2005-2014)

	TM	FS	TP	TCI	INS
Mean	2743584.00	62923.27	1572736.00	229609.30	106559.10
Median	2075976.00	25727.50	1378210.00	99482.50	90325.00
Maximum	5197954.00	327339.00	3709810.00	672789.00	315523.00
Minimum	1227385.00	2821.00	361742.00	54355.00	54759.00
Std. Dev.	1351250.00	94986.91	885736.00	208149.00	54544.88
Skewness	0.621527	1.939515	0.906700	0.875338	2.376956
Kurtosis	1.746244	5.175313	3.089896	2.131794	8.835956
Jarque-Bera	3.896357	24.72358	4.120622	4.773309	70.82257
Probability	0.142533	0.000004	0.127414	0.091937	0.000000
Sum	82307522	1887698	47182077	6888278	3196772
Sum Sq. Dev.	5.30E+13	2.62E+11	2.28E+13	1.26E+12	8.63E+10
Observations	30	30	30	30	30

Table 3 above shows that most of the variables in the model satisfy the normality test. The low Jarque-Bera probability values in some cases could be attributed to structural changes in the data.

Table 4: Averages for Services traded by category and country (2005-2014)

Unit : 1000 USD			
Category / Country	Kenya	Tanzania	Uganda
Transport Services	2,469,379.40	1,254,157.40	994,670.90
Telecommunications, computer, and information services	502,055.60	70,704.30	116,067.90
Financial services	145,930.20	13,758.50	29,081.10
Insurance and pension services	143,661.40	88,140.30	87,875.50

Source: Figures from ITC-TradeMap Database

In terms of services trade, Kenya recorded highest averages of trade in all categories of services, while Tanzania recorded the second highest average for transport and insurance services. Uganda had the second highest average for telecommunication and financial services during the period. These statistics point to Kenya's dominance in services sector in the region. This is in agreement with the Africa Competitiveness Report (2014) that indicates that Kenya is more competitive in services than any other country in the East African community.

Kenya's dominance in transport services trade can be attributed to the country's relatively more advanced transport system compared to other EAC members. Compared to the region, Kenya's transport system, including roads, railways, the Mombasa port, and the airports, is more advanced than those of other countries in the EAC. The fact that Kenya is one of the only two EAC countries that is not landlocked (the other being Tanzania) gives the country a competitive advantage in terms of transportation of exports and imports (EAC, 2014).

Kenya's dominance in financial services trade is to be expected as it has by far the most developed financial and banking system compared to its regional neighbors. Indeed, Kenya Commercial Bank is one of Africa's leading investment institutions and a significant financier to

Tanzania, Rwanda and Uganda. Kenya's banks such as Equity Bank and Fina Bank are also expanding their physical presence in neighboring countries, and international banks rely on Nairobi as a base from which they provide services to the East African region. The Nairobi Securities Exchange is easily the largest exchange in the region, ensuring that as the rest of the East African Community members develop their financial systems, Kenya will continue to hold a key position among them (EAC, 2014).

In the same vein, Kenyan insurance companies dominate the region with companies such as APA Insurance, Insurance Company of East Africa, Jubilee Insurance, Phoenix of East Africa, Real Insurance and UAP Insurance setting up branches within the region. The estimated number of Kenyan insurance company branches within the region is about 30 (EAC, 2016).

Table 5: Averages for Manufactured Goods traded by category and country (2005-2014)

Unit : 1000 USD			
Category / Country	Kenya	Tanzania	Uganda
Wheat Flour	14,987.03	38,922.46	9,120.52
Sugar	137,480.66	102,413.50	101,716.98
Cement	144,079.59	74,130.06	151,966.78
Total Manufactured Goods	296,547.28	215,466.02	262,804.29

Source: Figures from WITS-COMTRADE Database

The statistics also show Kenya with the highest average in total manufactured goods trade (Wheat flour, sugar and cement), followed by Uganda and then Tanzania with the lowest average. These descriptive statistics are in line with publications such as the EAC'S Facts and Figures (EAC, 2016) and EAC Trade Reports (EAC 2005; 2007; 2010; 2015) that clearly demonstrate Kenya's dominance in region's manufacturing sector.

Kenya's dominance in manufactured goods trade amongst EAC members could be attributed to the fact that Kenya's economy is much more dynamic than those of other member countries. Kenya's economic dominance in the region is based on a strong private sector that has evolved under relatively market-friendly policies for most of the post-independence era (EAC, 2014).

Kenya's record of relative political stability and its lack of dramatic ideological shifts over the same period have done much to cement its position. By contrast, the other members of the EAC specifically Uganda, Rwanda, Burundi and South Sudan, have had rather turbulent political histories. In the case of Tanzania, a radical ideological orientation to socialism under the policy of "Ujamaa" was the cornerstone of founding President Julius Nyerere's government. Such factors undermined the growth of the private sector in the other EAC countries (EAC, 2013).

4.2 Regression Results

4.2.1 Pooled OLS Model

The observations were pooled over the ten year period under review and the pooled model estimated using the OLS method. Regression results in Table 6 suggest that financial, telecommunication, transport and insurance services explain about 63% of the variations in total trade in sugar, wheat flour and sugar for EAC members. This represented by the R-squared value of 0.628382.

The F-statistic of 10.56833 is significant in the pooled model at a probability of 0.000037 which suggests that the model may indeed be satisfactory. However, the problem with the pooled model is that it does not take into account the possibility that total trade in manufactured goods is very likely to be influenced by certain unobserved individual (country) effects which if correlated with explanatory variables result in biased estimates (Greene, 2008). In other words by pooling

different countries together at different times, there is a possibility of concealing the heterogeneity that may exist among the three countries. The heterogeneity of each country is subsumed in the disturbance term ϵ_{it} and consequently, it is possible that the error term may be correlated with some of the regressors in the pooled model, leading to biased as well as inconsistent estimated coefficients (Greene, 2008).

To cater for this, the FE and RE models were also estimated and appropriate tests were conducted to compare and choose between the three models.

Table 6: Pooled Model Specification Results

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:38

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57702.99	48617.32	1.186881	0.2464
FS	-0.435048	0.349925	-1.243261	0.2253
TCI	-0.291842	0.117147	-2.491240	0.0197
TP	0.197127	0.042782	4.607663	0.0001
INS	-0.141469	0.553440	-0.255617	0.8003
*R-squared	0.628382	Mean dependent var	258272.5	
Adjusted R-squared	0.568923	S.D. dependent var	117739.0	
S.E. of regression	77303.30	Akaike info criterion	25.49987	
Sum squared resid	1.49E+11	Schwarz criterion	25.73341	
Log likelihood	-377.4981	Hannan-Quinn criter.	25.57458	
*F-statistic	10.56833	Durbin-Watson stat	0.474554	
*Prob(F-statistic)	0.000037			

Notes: FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services

The F- test has a normal distribution and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters.

4.2.2 Fixed Effects Model

The estimation results of the fixed effects model are presented in this section on the assumption that the country effect is correlated with any one of the regressors. The fixed effects model estimation results are presented in Table 7 below.

Table 7: Fixed Effects Model Specification Results

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:40

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-37637.34	31899.79	-1.179862	0.2501
FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677

Effects Specification

Cross-section fixed (dummy variables)

*R-squared	0.890453	Mean dependent var	258272.5
Adjusted R-squared	0.861875	S.D. dependent var	117739.0
S.E. of regression	43757.90	Akaike info criterion	24.41170
Sum squared resid	4.40E+10	Schwarz criterion	24.73864
Log likelihood	-359.1754	Hannan-Quinn criter.	24.51629
*F-statistic	31.15915	Durbin-Watson stat	1.927010
*Prob(F-statistic)	0.000000		

Notes: FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services

4.2.3 Choosing between the Pooled and Fixed Effects Models (F-test):

In order to establish a more suitable model between the pooled and the fixed effects models, a redundant fixed effects test that tests the null hypothesis that all coefficients are redundant (equal to zero) against the alternative that they are not all redundant was carried out. The redundant fixed effects test has an F- distribution and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters.

From the table results, the F-statistic for the FE model is 31.15915 which is statistically significant, implying that the FE model is better than the pooled model.

4.2.4 Random Effects Model

The estimation results of the Random effects model are based on the assumption that country effect is uncorrelated with any of the regressors (Greene, 2008). The Random effects model estimation results are presented in Table 8 below:

Table 8: Random Effects Model Specification Results

Dependent Variable: TM

Method: Panel EGLS (Period random effects)

Date: 10/17/17 Time: 14:44

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	66460.55	30459.16	2.181956	0.0387
FS	-0.420560	0.213223	-1.972395	0.0597
TCI	-0.266332	0.072309	-3.683251	0.0011
TP	0.186348	0.026501	7.031746	0.0000
INS	-0.128081	0.335490	-0.381774	0.7059

Effects Specification		S.D.	Rho
Period random		11994.43	0.0631
Idiosyncratic random		46222.01	0.9369

Weighted Statistics			
*R-squared	0.591049	Mean dependent var	235571.8
Adjusted R-squared	0.525617	S.D. dependent var	109128.7
S.E. of regression	75162.84	Sum squared resid	1.41E+11
*F-statistic	9.033020	Durbin-Watson stat	0.467611
*Prob(F-statistic)	0.000117		

Unweighted Statistics			
*R-squared	0.626765	Mean dependent var	258272.5
Sum squared resid	1.50E+11	Durbin-Watson stat	0.472178

*Notes: FS Represents Financial Services**TCI Represents Telecommunications, computer, and information services**TP Represents Transport**INS Represents Insurance and pension services*

4.2.5 Choosing between the Pooled and Random Effects models (Wald Test)

In order to choose between the pooled OLS model and the RE model, a Wald test was conducted as shown in Table 9 below:

Table 9: Wald Test Results

Wald Test:

Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	10.05870	(4, 25)	0.0001
*Chi-square	40.23480	4	0.0000

Null Hypothesis: C(1)=0, C(2)=0, C(3)=0, C(4)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(1)	57702.99	48617.32
C(2)	-0.435048	0.349925
C(3)	-0.291842	0.117147
C(4)	0.197127	0.042782

Note: The Wald test has a chi-squared distribution and tests the null hypothesis that unobservable individual effects are correlated with the independent variables, against the alternative hypothesis that they are not correlated. Restrictions are linear in coefficients.

The Wald test is used to choose between the pooled and the random effects model. From Table 9 above, the Wald test which is distributed as a chi-square is statistically significant since the chi-square statistic is 40.23480. This implies that the Random effects model is better than the pooled OLS model. We went ahead and conducted a Hausman specification test to choose between the Random and Fixed effects models.

4.2.6 Choosing between Fixed Effects and Random Effects Models (Hausman Test)

In order to choose between the fixed effects and random effects models, the Hausman specification test was carried out. It tests the null hypothesis that unobservable individual effects are not correlated with the independent variables, against the alternative hypothesis that they are correlated, was conducted and the results are shown in Table 10.

Table 10: Hausman Specification Test Results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	*Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	45.107208	4	0.0000

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FS	0.016539	-0.420560	0.015092	0.0004
TCI	0.235146	-0.266332	0.006137	0.0000
TP	-0.014350	0.186348	0.000939	0.0000
INS	-0.364703	-0.128081	0.022265	0.1128

Notes: FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services

The Hausman test has a chi-squared distribution and tests the null hypothesis that unobservable individual effects are not correlated with the independent variables, against the alternative hypothesis that they are correlated.

Using the Hausman specification test result from Table 10, the chi-squared statistic of 45.107208 is statistically significant which means that we reject the null hypothesis of no correlation between countries' unobservable individual effects and independent variables. This implies that for this study, a Fixed effects model is better than the Random effects model.

4.2.7 Least Squares Dummy Variable (LSDV) model

The estimation results of the Least Squares Dummy variable (fixed effects) model are presented on the assumption that differences across the three countries are captured by differences in their constant terms holding slope coefficients constant. The estimated fixed effects model (LSDV), allows for a common intercept for the base category (Kenya) and varying intercepts for Uganda and Tanzania. It should be noted that the base category is chosen arbitrarily as changing the base category does not change the meaning attached to the estimation results for this model. However, for this study, Kenya was chosen as the base category because it is the most industrially developed of the three countries. The LSDV model is represented in the equation below;

$$TM_{it} = \gamma_1 + \gamma_2 D_{2t} + \gamma_3 D_{3t} + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

Where

D_{1t} is dummy for the 1st country Kenya, which is captured by γ_1 in the equation above

D_{2t} is dummy for the 2nd country Tanzania

D_{3t} is dummy for the 3rd country Uganda

$\gamma_1 = \alpha_1$ is the intercept for Kenya

$\gamma_2 = \alpha_2 - \alpha_1$ and $\gamma_3 = \alpha_3 - \alpha_1$ representing differential intercepts of Tanzania and Uganda respectively from Kenya.

In order to establish if qualitative differences exist among the three traditional countries of Kenya, Uganda and Tanzania, a Least Squares Dummy variable regression with differential

country intercepts from the base category (LSDV) was estimated. The results are shown in Table 11 below:

Table 11: Least Squares Dummy Variable (LSDV) Model Specification Results

Dependent Variable: TM
 Method: Panel Least Squares
 Date: 10/17/17 Time: 14:46
 Sample: 2005 2014
 Periods included: 10
 Cross-sections included: 3
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677
R-squared	0.890453	Mean dependent var	258272.5	
Adjusted R-squared	0.861875	S.D. dependent var	117739.0	
S.E. of regression	43757.90	Akaike info criterion	24.41170	
Sum squared resid	4.40E+10	Schwarz criterion	24.73864	
Log likelihood	-359.1754	Hannan-Quinn criter.	24.51629	
F-statistic	31.15915	Durbin-Watson stat	1.927010	
Prob(F-statistic)	0.000000			

Notes: D1 is Dummy for Kenya (Base Category)

D2 is Dummy for Tanzania

D3 is Dummy for Uganda

FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services

The *F*- test has a normal distribution and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters.

4.3 Results Interpretation and Discussion

This section presents regression results for the Least Squares Dummy Variable model below used in the study;

$$TM_{it} = \gamma_1 + \gamma_2 D_{2t} + \gamma_3 D_{3t} + \beta_1 FS_{it} + \beta_2 TP_{it} + \beta_3 TCI_{it} + \beta_4 INS_{it} + \varepsilon_{it}$$

The Dummy variables D2 and D3:

Dependent Variable: TM
 Method: Panel Least Squares
 Date: 10/17/17 Time: 14:46
 Sample: 2005 2014
 Periods included: 10
 Cross-sections included: 3
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
*D2	93580.53	70802.41	1.321714	0.1993
*D3	224321.9	59831.80	3.749209	0.0010

The dummy variable estimate for Uganda, D3, in Table 11 above is significant at 5% level of significance with a probability of 0.0010. This result indicates that the total trade in manufactured goods for Uganda is less than Kenya's by 224321.9 billion US dollars for the ten year period under review. This implies that the differences in the total trade in sugar, wheat flour, and cement between the two countries are statistically significant for the period from 2005 to 2014.

On the other hand, the dummy parameter estimate for Tanzania, D2, is not significant at 5% level of significance with a probability of 0.1993.

The R-Squared value and Probability of F-Statistic:

Dependent Variable: TM
 Method: Panel Least Squares
 Date: 10/17/17 Time: 14:46
 Sample: 2005 2014
 Periods included: 10
 Cross-sections included: 3
 Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677
*R-squared	0.890453	Mean dependent var	258272.5	
Adjusted R-squared	0.861875	S.D. dependent var	117739.0	
*F-statistic	31.15915	Durbin-Watson stat	1.927010	
*Prob (F-statistic)	0.000000			

The R-squared value of 0.890 in the regression results Table 11 suggest that services liberalization in financial, telecommunication, transport and insurance services explains about 89% of the changes in total trade in sugar, wheat flour, and cement for EAC countries.

This result agrees with the findings from previous studies such as Deardorff (2001), Blyde and Sinyavskaya (2007), Onyango (2009) and Bagumhe (2012) that suggest that services trade plays a significant role in commodities trade.

The probability of the F-statistic of 0.0000 in the regression results shows that the Least Squares Dummy Variable (LSDV) model was perfectly specified for the study. This result is very good for the study as it confirms that indeed the best model out of the three available options was chosen.

Examining the relationship between financial services liberalization and total trade in manufactured goods for EAC members:

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:46

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
*FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677

The first objective of this study is to examine the relationship between financial services liberalization and total trade in manufactured goods for EAC members.

The coefficient for financial services in the EAC was significant at 5% level of significance with a P-value (probability) of 0.0233, a t-statistic value of 2.431095, and coefficient of -0.592327.

This result therefore causes us to reject the null hypothesis that financial Services liberalization has no significant effect on total trade in manufactured goods for EAC members. This was due to the P-value of 0.0233 which is significant at 5% level of significance.

The co-efficient value of -0.592327 in the regression results suggests that a 1 billion US dollar increase in total financial services trade leads to a 0.592 billion US dollar decrease/ loss in total trade in sugar, wheat flour and cement for the EAC.

This result could be attributed to exchange and currency rate volatility of the US Dollar in the EAC region. The US Dollar is the preferred currency for international trade, which makes local traders vulnerable to the exchange rate market volatilities and exposes them to high exchange rate costs which negatively impact on the quantity of imports and exports (Tralac, 2016).

Additionally, high interest rates charged on loans and excessive bureaucracy that result in complicated lengthy procedures often lead to high transaction costs for local traders.

Examining the relationship between telecommunication services liberalization and total trade in manufactured goods for EAC members:

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:46

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
FS	-0.592327	0.243646	-2.431095	0.0233
*TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677

The second objective of this study is to examine the relationship between telecommunication services liberalization and total trade in manufactured goods for EAC members.

The coefficient for telecommunication services in the EAC was not significant at 5% level of significance with a P-value (probability) of 0.6076, a t-statistic value of -0.520674, and coefficient of -0.090021.

The regression results lead us to fail to reject the null hypothesis that telecommunication services liberalization has no significant effect on total trade in manufactured goods for EAC members.

This was due to the P-value of 0.6076 which is not significant at 5% level of significance.

Recent developments in the communications sector, particularly in mobile telephony and internet, in the region have significantly opened up bigger markets for both producers and traders (EAC, 2015). However, findings for telecommunication services could imply a low level of penetration of telecommunication services in the EAC.

Examining the relationship between transport services liberalization and total trade in manufactured goods for EAC members:

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:46

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
*TP	0.271401	0.028764	9.435500	0.0000
INS	-0.684984	0.357273	-1.917259	0.0677

The third objective of this study is to examine the relationship between transport services liberalization and total trade in manufactured goods for EAC members.

The coefficient for transport services is positive and significant at 5% level of significance with P-value of 0.0000, t-statistic value of 9.435500, and coefficient of 0.271401.

The regression results lead us to reject the null hypothesis that transport services liberalization has no significant effect on total trade in manufactured goods for EAC members. This is due to the P-value of 0.0000 which is significant at 5% level of significance.

The coefficient value in the regression results table shows that a one billion US dollar increase in total trade in transport services leads to an increase of 0.271 billion US dollars in total trade in sugar, wheat flour and cement in the EAC.

The positive and significant result for transport services could be attributed to the efforts by the EAC to invest in its infrastructure especially in the last few years. The region has embarked on revamping and improving its roads and railway systems.

An intermodal transport infrastructure is being developed on the Central Corridor on the Dar-es - Salaam and Tanga–Bukoba route through the United Republic of Tanzania to provide an alternative to the Northern Corridor through Mombasa Port as the main port for Uganda, Rwanda and Congo. In addition the standard gauge railway work is already underway in Kenya with the Mombasa-Nairobi route already completed and commissioned (EAC, 2016). An efficient transport system and service facilitates international trade by reducing transport costs and unnecessary delays.

Examining the relationship between insurance services liberalization and total trade in manufactured goods for EAC members:

Dependent Variable: TM

Method: Panel Least Squares

Date: 10/17/17 Time: 14:46

Sample: 2005 2014

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-143604.8	63340.33	-2.267194	0.0331
D2	93580.53	70802.41	1.321714	0.1993
D3	224321.9	59831.80	3.749209	0.0010
FS	-0.592327	0.243646	-2.431095	0.0233
TCI	-0.090021	0.172893	-0.520674	0.6076
TP	0.271401	0.028764	9.435500	0.0000
*INS	-0.684984	0.357273	-1.917259	0.0677

The fourth and last objective of this study is to examine the relationship between Insurance services liberalization and total trade in manufactured goods for the EAC members.

The regression results show the coefficient for Insurance services, -0.684984, is negative and not significant at 5% level of significance with P-value of 0.0677, and t-statistic value of -1.917259..

The results also cause us to not reject the null hypothesis that insurance services liberalization has no significant effect on total trade in manufactured goods for EAC members. This was supported by the P- Value of 0.0677 which is not significant at 5% level of significance.

These findings for insurance services could signal to the fact that two of the manufactured goods used in the study are agro-based and also still produced on a much smaller scale in the EAC compared to the more developed economies which often reduces the magnitude of risk and the ensuing need for insurance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction:

This final chapter presents the summary of results, conclusions, policy implications, recommendations, and possible areas for further research.

5.2 Summary of study findings

This paper shows that services liberalization is an important determinant of trade in manufactured goods (specifically sugar, cement and wheat flour) in the EAC region. Empirical evidence from this and other previous studies support the argument that services liberalization plays a significant role in commodities trade. The study contributes to the literature by extending the discussion to include trade in manufactured goods (specifically sugar, wheat flour and cement) and by examining the implications of our findings specifically for the EAC countries.

Overall, the R-squared value of 0.890 in the regression results indicate that services liberalization explains about 89% of changes in total trade of manufactured goods for the three EAC members. This result agrees with findings from previous studies such as Deardorff (2001), Blyde and Sinyavskaya (2007), Onyango (2009) and Bagumhe (2012) that suggest that services trade plays a significant role in commodities trade performance.

The regression results for transport services reveal a t-statistic value of 9.435500, coefficient of 0.271401 and P-value of 0.0000 which is highly significant at 5% level of significance indicating a positive and highly significant relationship between transport services liberalization and total trade in manufactured goods in the EAC. This means that a one billion US dollar increase in total

trade in transport services leads to a 0.271 billion US dollars increase in total trade in sugar, wheat flour and cement in the EAC.

Regression results for financial services also reveal a t-statistic value of 2.431095, coefficient of -0.592327 and P-value of 0.0233 which is significant at 5% level of significance indicating a significant but negative relationship between financial services liberalization and total trade in manufacture goods. This means that a 1 billion US dollar increase in total financial services trade leads to a 0.592 billion US dollars loss in total trade in sugar, wheat flour and cement for the EAC.

However, a P-value of 0.6076 for telecommunication services is not significant at 5% level of significance and indicates that there is no significant relationship between telecommunication services liberalization and total trade in manufactured goods for EAC members.

Similarly, a P-Value of 0.0677 which is not statistically significant at 5% level of significance indicates that insurance services liberalization has no significant effect on total trade in manufactured goods for EAC members.

5.3 Conclusions

Although services trade plays a lesser role in the overall economies of the EAC region than in more advanced economies, it still contributes to a substantial portion of all economic activity. Empirical evidence from this and other previous studies support the argument that services liberalization can be beneficial to international trade in commodities.

This study has specifically shown that transport and financial services liberalization can significantly impact EAC trade in manufactured goods-specifically sugar, wheat flour and

cement. EAC countries should therefore embrace services liberalization as a potential means of improving the region's commodities trade performance.

5.4 Recommendations

Liberalization of services in an economy is not in itself a sufficient factor for increasing efficiency, competitiveness or improving trade performance as other factors might motivate these changes in the EAC economy. Generally, services liberalization has been shown to be more beneficial for economies with better economic governance, policies, infrastructure, energy, and human capital (Blyde and Sinyavskaya, 2007). The reason for this is that foreign firms and service suppliers wishing to establish a commercial presence or move to another country are also likely to consider the environment in which they must operate.

The study therefore recommends addressing infrastructural constraints particularly in transport and telecommunication sectors. It is necessary for the EAC members to speed up the development of alternative routes from the Dar-es-salaam port through the United Republic of Tanzania to Rwanda, Burundi and beyond. Equally important is the completion of the standard gauge railway project in the region. The completion of these infrastructural projects would greatly improve efficiency in transport services sector and open up larger markets and trade opportunities with neighboring regions.

For the telecommunication services, EAC members should regulate the pricing of telecommunications services especially broadband services to make the sector internationally competitive. By ensuring broad-based infrastructure development in rural areas, the partners would reduce the digital divide that has typically been defined along urban-rural lines, not just in

EAC but in all developing countries where regulators have overlooked the importance of enforcing the obligation to provide universal access.

The study also recommends addressing knowledge and skills deficiencies in trade supporting services, specifically financial and insurance services. EAC governments need to actively support the acquisition of the skills and knowledge that form the backbone of the modern services economy. Investments in human capital through education are likely to be of particular importance going through, as are general improvements in the business and investment climates.

It is important to be aware of the political economy dynamics that lie behind more liberal services policies. It should be clearly understood that opening up essential services to foreign or domestic competition could have an adverse effect in terms of price and availability on the poor if not done properly. The study therefore recommends reserving the segments with lower capital investment requirements for domestic operators while opening other segments to foreign competition. This is particularly important for the EAC as we do not yet have strong and effective social safety net policies in place.

5.5 Areas for further research

This paper highlights two areas that are deserving of further research:

1. The study uses datasets for only three of the total six EAC members to infer effects on the EAC countries, due to lack of complete and adequate data for the other three members. This study could be complemented by data from the three other members (Rwanda, Burundi and South Sudan) so as to document the same effects in the complete EAC context.

2. The study examines only one country level variable that might impact upon commodities trade performance. A study on the impact of other country-level variables, such as the quality of infrastructure, energy, and human capital on the performance of commodities trade could yield very useful results for the region.

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APPENDIX

DATA USED IN THE STUDY IN '000 USD

YEAR	COUNTRY	TM	TP	TCI	FS	INS	D1	D2	D3
2005	1	107136.163	1164448	286073	17878	69321	1	0	0
2006	1	143682.946	1664169	412382	23139	79993	1	0	0
2007	1	275821.611	1908475	483414	27455	54759	1	0	0
2008	1	311830.296	2147031	626426	34373	90635	1	0	0
2009	1	267151.507	1927296	564292	37237	104870	1	0	0
2010	1	344869.331	2584725	522134	174679	146651	1	0	0
2011	1	345627.466	2804180	444124	245920	152805	1	0	0
2012	1	398453.807	3413980	480869	317863	200784	1	0	0
2013	1	393778.516	3369680	528053	327339	221273	1	0	0
2014	1	377121.118	3709810	672789	253419	315523	1	0	0
2005	2	46857.481	542446	54355	4546	84050	0	1	0
2006	2	64655.482	762025	58875	8207	63676	0	1	0
2007	2	161659.414	816976	63116	13798	81829	0	1	0
2008	2	137316.561	1063663	65301	3844	87558	0	1	0
2009	2	131619.847	939249	72810	2821	83104	0	1	0
2010	2	243478.923	1180191	59673	10715	98907	0	1	0
2011	2	273888.516	1533815	63520	12000	100200	0	1	0
2012	2	330013.756	1688033	90158	15774	111959	0	1	0
2013	2	400164.837	1949577	92917	33665	90015	0	1	0
2014	2	365005.341	2065599	86318	32215	80105	0	1	0
2005	3	62828.137	361742	81274	14550	55352	0	0	1
2006	3	102541.103	473429	84068	15180	65735	0	0	1
2007	3	164422.737	628405	60767	18930	86376	0	0	1
2008	3	249327.4	927969	85107	24000	99130	0	0	1
2009	3	269049.778	932395	90445	22870	86137	0	0	1
2010	3	271970.052	1101174	106048	28103	69363	0	0	1
2011	3	405687.442	1331008	148634	34249	107501	0	0	1
2012	3	434903.646	1451988	138316	52486	113652	0	0	1
2013	3	344939.63	1425412	233179	36668	91870	0	0	1
2014	3	322372.925	1313187	132841	43775	103639	0	0	1

Notes: D1 is Dummy for Kenya (Base Category)

D2 is Dummy for Tanzania

D3 is Dummy for Uganda

FS Represents Financial Services

TCI Represents Telecommunications, computer, and information services

TP Represents Transport

INS Represents Insurance and pension services