EFFECTS OF REGIONAL TRADE AGREEMENT (EAC) ON KENYA'S EXPORTS: THE CASE OF AGRIFOOD PRODUCTS

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DECLARATION

This is my original work and has never been presented to any university or academic institution for an award of a degree or diploma.

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APPROVAL

This research paper has been submitted with our approval as university supervisors.

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DEDICATION

To my immediate family members.

ACKNOWLEDGEMENT

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ABSTRACT

The classical economists gave some serious thought to the benefits of trade, although economics of Regional Integration was still a future idea for them. Modern economic analysis has laid considerable emphasis not only on the complex problems of international trade, but also on maximization of trade benefits through regional integration resulting from regional trade agreements. However, the literature on this subject has produced very mixed results as far as benefits to member states are concerned. Winners and losers appear to be in equal strength. This study focuses on Kenya's exports of agrifood products in the event of EAC-RTA using a gravity model, the results show that the formation of the EAC-RTA has enhanced increased Kenya's exports to the region and especially for agrifood products. The study also points to chances for higher such trade following modernization of Mombasa and Lamu ports in the near future.

LIST OF ABBREVIATIONS/ACRONYMS

AFTA	Asian Free Trade Area
CES	Constant Elasticity of Substitution
COMESA	Common Market of East and South Africa
CU	Custom Union
EAC	East Africa Community
EFTA	European Free Trade Association
GDP	Gross Domestic Product
GLD	Generalized Linear Model
GM	Gravity Model
H-O	Heckscher-Ohlin
IFS	International Financial Statistics
OLS	Ordinary Least Squares
PTA	Preferential Trade Area
RTA	Regional Trade Agreements
SACU	South Africa Custom Union
SADC	South African Development Community
USD	United States Dollar
WAEMU	West Africa Economic and Monetary Union
WDI	World Development Indicators
WPT	World Penn Tables
MERCOSUR	CommonSouthernMarket
SAPTA	South Asian Preferential Trade Agreement

UEMOA	West African Economic and Monetary Union
CEMAC	Central African Economic and Monetary Community
APEC	Asian-Pacific Economic Cooperation
ANZCER	Australia – New Zealand Closer Economic Relations
CUSTA	Canada-United States Free Trade Agreement
ECOWAS	Economic Community of Western African States

CHAPTER ONE

INTRODUCTION

1.1 Background

Regional integration is considered a major policy tool that countries can use to ensure industrialization, economic growth and attain better social welfare for its citizens. This belief has led to a rapid spread of Regional Trade Agreements in the world trading system in recent years. Indeed, according to World Trade Organization (WTO), there are over 350 RTAs in force, some fully operational while others are under ongoing negotiations and over 200 notifications from RTAs have been received by World Trade Organization (WTO, 2013).

Since 1990s, many countries in Africa have made significant efforts in opening up their economies to external competition through trade liberalization.Regional Trade Agreements is used to achieve this objective. The continent is now home of 30 Regional Trade Agreements (RTAs) (WTO, 2013).Trade arrangements are envisioned to nurture trade and investment relation amongst member countries by elimination of tariffs and other obstructions to intra-regional trade flows. The success of these arrangements in fostering inter-regional trade has been diverse with Southern African Development Community (SADC), Economic Community of West African States (ECOWAS), Common Market for Eastern and Southern Africa (COMESA), Cross Boarder initiative and UEMOA being more successful.

Economic integration in the form of RTAs liberalizes trade by altering the prices from the member states as tariffs are phased out relative to imports from the rest of the world leading to change the demand patterns resulting to adjustments in trade flows and output flows. Welfare effect of RTAs will depend on its effect on trade, that is, whether it will create trade or divert trade between the member states (Viner, 1950). Therefore, membership to an RTA can have both negative and positive effects on the economy, and it is the net impact that will determine the overall effect. However, it is inconclusive welfare effects of RTAs, (Jayasinghe and Sarker, 2007) to both the member countries and the world at large. Bhagwati (1998) and Panagaria (2000), show that there exist two sets of views on RTAs. One thesis is that regional trade agreements have welfare reducing effects and acting as "stumbling blocks" to

multilateral free trade, whereas another view supports RTAs as welfare improving to its members and the world at large and act as a "building block" to multilateral free trade (Summer, 1991 and Either, 1998).

The result of RTAs on trade determines the extent to which broader political and social objectives are achieved. It is difficult to identify an agreement that has fostered wider political objectives without achieving economic integration. It is clear that the political context and broad economic environment in which integration takes place are crucial for determining the trade impact.

The simplest measure of integration is a trend in the share of imports from regional partners in the total imports in the region. Successful agreements might be expected to increase trade between partners relative to those countries' trade with the rest of the world. But three important caveats need to be understood.

First, successful regional integration is typically accompanied by reductions in tariffs for all partners. Hence, regional trade shares may not rise even though the volume of regional trade is increasing. Secondly, regional trade agreements that provide for the removal or reduction in trade costs other than those associated with formal trade policies (such as imports customs procedures), may stimulate trade from all sources. Lastly, many agreements cover nontrade issues such as investment, services, and labor, and these can have important consequences for growth and incomes.

Trade performance in several regional trade agreements shows that the increase in intra-regional trade shares of agreements signed in the 1990s has been substantial. The share of intra-NAFTA (North American Free Trade Agreement) trade rose from less than 35% in the late 1980's to almost 50% in 1999. Over the same period, the importance of trade between MERCOSUR members doubled from 10% to 20%. Most of the agreements signed in1990's, intra-regional trade shares were growing strongly before the agreements were signed (NAFTA, MERCOSUR, SAPTA, and SADC). There may have been some anticipation effect in the year or two before signing, but this does not explain trade increases in shares commencing five or more years previous, as in the case of MERCOSUR. In many cases this increase in regional trade reflects the impact of unilateral, multilateral, as well as regional trade liberalization and the fact that agreements often follow growing trade relationships.

In Africa, the picture is mixed. The extent of regional integration among Common Market for Eastern and Southern Africa (COMESA) members has been quite stagnant in the past two decades. Contrary, the share of intra-area trade has increased significantly for Economic Community of West African States (ECOWAS) since the early 1980s and SADC since the late 1980s. In the East Asia, a region that has experienced economic progress over the past 20 years, there has been little increase in intra-regional trade shares.

Given these disparate results, it is necessary to go beyond simple trade shares to identify the economic impact of regional trade agreements. Because the decline in the share of extra-regional trade in total trade will be of less importance if the total value of trade is increasing.

When assessing the effectiveness of RTA, it is important to note that the allocative gains of economic integration depend on whether the products being produced by members of RTA are in direct competition with, or complementary, to each other. For there to be efficiency gains in an RTA, there must be a considerable overlap in the range of commodities that the members are producing.

Despite the poor performance of some regional integration schemes in Africa, efforts have been made to revive the East African Community (EAC) in order to promote trade between the member countries. To facilitate this, the area formed a custom union in 2005 as an entry point to the RTA. Subsequently, trade performance in East African Community grew from $1.81 billion in 2004 to $3.54 billion by the end of 2009, an increase of 96% (EAC, 2007). This growth has been attributed to, among other factors, the establishment of a customs union. However, intra –EAC trade remains low and currently stands at 13% of the total trade volume. This compares poorly with other regional trade arrangements such as European Union and the North American Free Trade Arrangement (NAFTA), where inter-regional trade accounts for 60% and 46% of the total trade portfolios respectively, (World Bank, 2012). Agricultural commodities and manufactured products form the bulk of intra-EAC trade; food, live animals, beverages, tobacco edible oils and inedible crude materials dominate its trade. Kenya's exports to the region, however, are more diversified and include chemicals, fuels and lubricants, machinery and transportation equipments.

Before passing on the issue of agrifood products, a brief historical mention of the EAC is in order.

1.2 History of the East African community (EAC)

Kenya, Uganda and Tanzania have enjoyed a long period of economic integration. The cooperation between Kenya, Uganda and Tanzania dates back to 1900s and multiple regional arrangements such as customs union between Kenya and Uganda in 1917 (Tanzania joined later in 1917) formed the basis of the establishment of the EAC in 1967. However, owing to social, economic and ideological conflicts, the trading union was dissolved in 1997.Kenya being the biggest and most prosperous nation in the EAC was set to reap a disproportionate share of benefits from the regional integration. Tanzania and Uganda had relatively small economies and feared that the Kenyan equivalent would outcompete their manufacturing and agricultural sectors. During the 1967-77, the member states' economies were predominantly agriculture-based which made the potential gains from regional trade integration somewhat uncertain.

In 1984, member states signed a mediation agreement for the division of assets and liabilities, the seed for future cooperation, thus, was sewn. Eventually, it resulted in the signing of the Tripartite Commission of East African co-operation in 1993. In 1997, Tanzania, Kenya and Uganda resolved to re-establish the EAC, so as to reap the economic development objectives and promote trade within their region. This finally led to the re-establishment of EAC in 2001 and inclusion of Rwanda and Burundi as member states. Under the EAC treaty as implemented officially in 2011, the first entry point into the community was the establishment of a custom union, followed by common market, afterward a monetary union and eventually a political federation of the East African States. Rwanda and Burundi were officially admitted into EAC in July 2007. EAC integration and timelines can be summarized in the chart below:

Summary of the EAC Integration Schemes and Timelines

CUSTOMS UNION (2005-2010)	COMMON MARKET (JULY 2010)	MONETARY UNION (2005-2010)	POLITICAL FEDERATION (2005-2010)
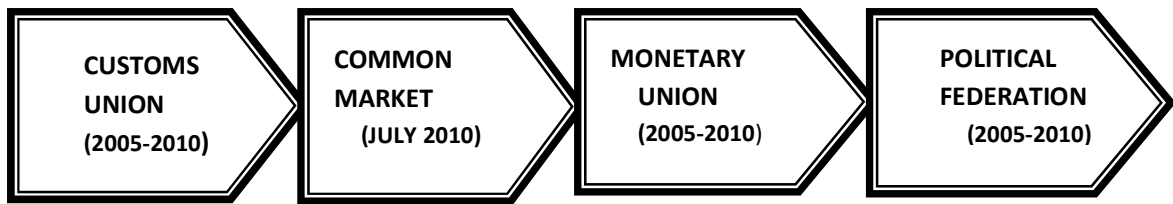
Source: Mugisa et al.,(2009)

1.3 Objectives of the East African Community

The challenges facing the East African Community were instrumental in creating demand for the new EAC. Ndungu (2000) elaborates on the challenges which include needs for increased output growth, industrialization, reduction in unemployment, increment in export trade, decrease in external and domestic indebtedness to sustainable levels, raising of social and human capital development and reduction of poverty.

The EAC Treaty (Article 5.1) emphasizes that the broad goal of EAC is to broaden and intensify cooperation among partner states in political, social and cultural fields, research and technology, security and legal affairs for the mutual benefits. The vision is to create wealth in the region and enhance competitiveness through increased production, trade and investment. Increasing industrialization is deemed to address the challenges faced by East African Countries, partly because of pressure from economic globalization and relatively successful regional integration schemes such as the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA).

The new EAC reaches beyond the earlier attempt at regional integration by aiming at even closer integration, first by establishing a custom union, which is expected to facilitate higher trade and investment flows between member states and through increased competition to improve the efficiency and competitiveness of the export sectors in the individual countries. The East Africa Custom Union (EACU) commenced operations in 2005 following the signing of the protocol establishing it in

2004. In order to address former trade imbalances that resulted in the collapse of the old EAC, countries resolved to apply the principle of asymmetry in the elimination of internal tariff, whereas the goods from Uganda and Tanzania were to enter Kenya duty –free, whereas the two countries were to impose a tariff at reducing rate on selected imports from Kenya for five years. The protocol establishing the East African Common Market was signed in 2009 and came into force on July 1, 2010. The establishment of the customs union and the common market has continued to pave the way to free movement of goods and services and labour within the region. This has led to significant growth in intra-regional trade within the region as shown in the table 1.1 below.

In most cases, the analysis of RTAs concentrates on whether increases in intra-regional trade following the signing of an RTA are associated with falling imports from the rest of the world relative to the scenario when the RTA was not signed. It is equally important to ask how regional trade agreements can be used as part of a broad approach to openness and especially whether they can provide a springboard to global markets for local exporters.

1.4. Intra-EAC Trade Performance

East African Community is a vibrant community which has exhibited a lot of intra – EAC trade within itself. According to the Regional Economic Outlook (2012), East African Community is one of the fastest growing economic communities in the world. It grew faster in the last decade except for ASEAN, which grew at 6.1 %.The EACgrew at 5.8% per year between2001-2009, and over the last decade, each EAC country more than doubled its own GDP. The region also recorded significantly high population growth; has it grew from approximately 110million people in 2002, to 138 million people in 2010.Despite the noted growth in the EAC community in the last decade, growth was unevenly distributed. Tanzania, Uganda and Rwanda grew at an average of over 7% per year between 2002 and 2010, compared to Kenya and Burundi which grew at 3% and 4% respectively. Kenya is the largest economy with a GDP of approximately US$ 32 billion in 2010.

EAC partner states now export more within the EAC region that to any other region. According to World Bank (2012), total goods and services exports from EAC partner

states more than tripled in the last decade from US$ 6 billion in 2002 to US$19.5 billion in 2010. The share of total EAC exports traded within the region increased from US$1.8billion in 2008, to US$ 2.2 billion in 2010; this surpassed Europe as one of the region's main trading block.

The trend in EAC exports is reflected in the compounded annual growth rates, where intra-EAC exports exceed those of the EAC exports to the rest of the world. Kenya, Tanzania and Uganda (the founders of the EAC) are the main sources of such intra-regional export growth.

Table 1.1 below shows total intra-EAC trade, between Partner States within the EAC region. From the above figures, it is evident that intra-EAC regional trade performance is growing compared to extra-regional EAC trade. Except for Burundi and Rwanda, all the other Partner States are showing improvement. The intra- EAC trade has been growing in volume and value, but most of the partner states still have more potential for growth provided there is an expansion of the manufacturing sector through adoption of value added policies.

1.4.1 Total Intra-EAC Trade, 2005-2010 (US$ million)

Table 1.1 Total Intra-EAC Trade, 2005-2010 (US$ million)

TOTAL EAC TRADE						
COUNTRY/YEAR	2005	2006	2007	2008	2009	2010
Uganda	696.2	583.2	805.9	948.0	945.7	1,005.1
Tanzania	289.4	292.1	279.7	520.3	574.3	735.2
Kenya	1,035.9	819.9	1,144.1	1,395.4	1,331.9	1,534.0
Rwanda	134.0	176.4	247.1	440.4	456.6	……
Burundi	63.1	66.4	84.8	90.7	….	….

Source; EAC Facts and Figures, 2013

EAC goods exports are mainly simple manufactured goods, which include but not limited to food products- beverages, and tobacco, cement and oil products, with limited variation in the basket of top traded goods within the region remaining broadly the same. Kenyan exports to the EAC have consisted mostly of manufactured goods, chemicals and machinery. The value of the top three products exports from Kenya to Tanzania and Uganda doubled during the period 2000-2010, from US$ 9.7 million to US$17.5 million and US$ 3.1 million to US$7.3 million respectively. These consisted of oil products, plastics, construction materials and soaps.

1.4.2 Kenya's Trade with the EAC

Trade between the EAC members has grown over the past decade. The table below shows Kenya's trade with the East Africa Community between the year 2000 and 2011.

Table 1.2: Kenya's trade with the EAC region (Million USD)

Partner	Flow	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Uganda	Export	307.5	382.2	405.5	403.3	468.1	564.9	385.7	498.5	611.2	596.6	657.6	855.2
	Import	6.6	8.7	8.6	13.6	12.8	18.5	13.9	88.8	75.5	57.1	116.4	116.2
Tanzania	Export	141.1	172.0	184.1	191.8	226.3	264.1	253.6	331.5	422.4	388.2	419.2	470
	Import	11.9	7.4	10.4	18.0	25.4	41.0	62.6	99.2	105.0	100.8	133.1	176.4
Rwanda	Export	-	44.8	54.8	79.2	78.2	96.3	66.1	86.2	129.4	123.0	133.0	152.6
	Import	-	0.0	0.1	0.1	0.2	1.5	2.9	1.3	0.4	3.1	5.4	4.8
Burundi	Export	-	23.5	22.8	36.2	27.5	34.0	35.4	29.4	30.3	59.3	68.9	66.5
	Import	-	0.9	0.0	0.0	0.4	0.4	1.2	2.2	1.5	1.2	1.8	5.3

The table above shows significant regional trade flows. Kenya's exports to the EAC region are increasing significantly. Although Kenya's export performance to the EAC region has improved over the last decade, its imports also have grown much faster. Kenya's service sector has experienced recent growth and there is room for further expansion. Kenya's falling EAC exports have been linked to economic factors. Business Daily newspaper dated 24th August, 2013, highlights that Kenya's companies have extended their search for exports beyond East Africa seeking to avoid trade disputes and general economic slowdown that have been taking toll on their operations in the regional market. Kenya's exports to the EAC member states shrank by 1.8 percent to Sh. 134.9 billion in 2012 from Sh.137.2billion in 2011. (Economic survey, 2013).One of the reasons being attributed to this decline in Kenya's trade with the EAC is the slow- down in the region's economic growth. Nevertheless, Kenya is at an excellent position to benefit from regional integration. Since agrifood products are the focus of attention, an analysis of agriculture is relevant here.

1.5 Treatment of Agriculture in the EAC Common Protocol (Article 105-110)

Article 105-110 of the Treaty establishing the EAC chapter 18 outlines the key area of cooperation of Agriculture and Food Security. The most prominent objective of agricultural cooperation in EAC is the realization of food security and coherent agricultural production. The following policies were adopted in order to rationalize agricultural production with a view to promoting complementarities and specialization, as well as sustainability of national agricultural programs such as, common agricultural policy, food sufficiency within the community, increase in the production of crops, livestock, fisheries and forest products for domestic consumption, exports within and outside the community.

Agricultural products from developing countries rarely penetrate the international market in the developed countries due to protectionist strategies such as subsidization of local production in developed countries, high standard requirements and tariffs among others, notwithstanding the fact that the majority of the players in the agricultural sector are small and medium scale farmers These factors have quickened the move by developing countries to form their own regional agreements to improve trade amongst themselves and to give them a better bargaining position in terms of trade in the world market. Given their comparative advantage in agricultural

production, expanding trade in processed agri-foods amongst themselves would be an ideal starting point.

More intra-EAC trade in agriculture would contribute to food security within the region. Food security of each member of the EAC relies mainly on their domestic food production; it also relies on trade flow between the countries of the community. Statistics indicates that a significant part of the EAC population is currently suffering from poverty and food insecurity EAC (2010). According to FAO, 37% of the populations in the EAC countries (about 52 million persons) are under-nourished during 2010-2012 periods. This is an increase of 9 million persons compared to what was during 2004-2006 period. Undernourishment is due to a wide set of factors, in particular, the level of income, but empirical studies (FAO, 2010) show that an intra-regional trade in agricultural and food products can help solve local or national food shortages by importing products from surplus neighboring countries and making them available in the deficit areas. In addition, such flow can help reduce imports from other countries outside the region and hence reduce the vulnerability of external shocks to the member countries.

Intra-regional Agricultural commodity flows in the EAC Region
Major Food commodities traded in the EAC
Maize
It is the main cereal consumed in the region. It constitutes the central pillar of the regional food security.Although the region produces the vast majority of maize consumed by the population, there is a structural deficit since the region imports maize yearly.Smallholder farmers in Tanzania produce maize. Regular debt market in Kenya provides the centre of gravity of the East African market, drawing in surplus maize from Kenya's central highlands, eastern Uganda and Northern Tanzania. Smaller quantities are also imported from Uganda to Rwanda and from Eastern Tanzania areas to Burundi.

Sugar
The region imports much of the sugar consumed by the population despite the fact the EAC produces sugarcane. Kenya is the main producer in the community followed by Uganda and Tanzania.

In recent years, there has been an acute shortage in sugar that is believed to be caused by unscrupulous traders in the region hoarding in the commodity so as to create an artificial shortage to take advantage of more profit from the high prices.

In Kenya for instance, high prices of sugar compounded the crisis, as traders from across the region smuggle the sugar to cash in on the lucrative market. The price more than doubled during the last quarter of 2011, as the rest of the region also faced sugar shortages.

Rice

Rice comes second in the EAC region after maize and is used as both food and cash crop. Rice is produced in all the five countries with varying proportions.

The main challenge that countries in the region are facing in rice productions is low productivity. Tanzania's rice productivity, for instance, is lower than most neighboring countries and one of the lowest in the world. Thus, Tanzania and other EAC countries hardly meet their own rice demand and, therefore, import a significant amount of rice mostly from South –East Asia.

Dairy products

FAO data indicate that, EAC countries produced around six billion liters of fresh cow milk in 2007 roughly equal to one quarter of the total for all Africa. Market oriented dairying is a major economic activity in East Africa noted for extensive smallholder farmer involvement. In diverse settings throughout the region, dairy has been shown to provide small farmers a customary cash income that may be better than many other types of on and off-farm enterprise.

Other benefits of dairy productions include growth linkages to input service producers, milk traders, and dairy processors; the ability to supply nutrition and affordable food to the local population; and opportunities for long term expansion into growing domestic and regional export markets.

1.6 Statement of the problem

One of the main fundamental objectives of the EAC is to enhance trade and hence, economic growth and development among partner states. Kenya is one of the EAC members whose main export destination is the EAC region. Kenya's exports compared with EAC member states have seem to have been growing at a sluggish rate in the past five years; though the volumes remain high.With the realization of the Customs Union in 2005, it is expected that Kenya would take over regional trade by expanding its exports to the EAC market, given its comparative advantage particularly in the manufacturing sector. This, however, has not been the case.

Kenya's contribution to the total EAC exports declined from 78.3% in 2005 to 57.2 % in 2010, although its total intra –EAC trade increased from 7.5 % in 2005 to 16.7% in 2010 on the back of increased imports. Comparatively, Tanzania and Uganda's contribution to total intra-EAC trade improved stridently from 6.6% and 4.2 % in 2005 to 20.67% and 19.2 % respectively in 2010, taking up the share that Kenya lost.

Further, the composition of exports is skewed to low value commodities with manufactured products stagnant at about 10% of the export share since 1980, despite Kenya having a relatively better industrial base conferred by an earlier import substitution policy. Agricultural production in the country is rural-based which suffers high incidence of poverty and unemployment. However, despite this, the sector still suffers limited value addition and low processing. Therefore if the country has to realize middle income status by the year 2030, then increased processing and export of agri-foods should be enhanced. This raises a concern on Kenya's export trend to the EAC and hence necessitates the need to look into the effect of the RTA-EAC on Kenya's exports of agri-foods to the region.

1.7 Research Questions

The study proposes to provide answers to the following questions

i)What is the impact of regional trade agreement RTA-EAC on Kenya's exports?

ii)What is the effect of RTA-EAC on Kenya's exports of selected processed agricultural food products to the region?

iii)What are the policy implications of findings from i and ii?

1.8 Objective of the study

The broad objective of the study is to assess the impact of EAC- Regional Trade Agreement on Kenya's trade

Specific objectives

i) To find out the effect of Regional Trade Agreement RTA-EAC on Kenya's exports

ii) To estimate the impact of RTA-EAC on Kenya's exports of processed agrifood products to the region

iii) To draw policy implications from the findings

1.9 Significance of the Study

Agriculture employs a high percentage of the labor force, whilst food consumption accounts for a better share of household income. One of the major challenges of the EAC countries is to improve food security of their population, which implies, inter alia, to increase the availability of food products and also the nutritional balance of food supply. Increasing the production can help resolve food deficits only if agricultural and food products can be transferred from surplus areas to areas with deficits; relatively quickly and at a reasonable cost. Otherwise, either the price for the consumers may become excessively high or the price paid to the producer excessively low. More important, transaction costs may become so high to the extent that locally produced products cannot compete with imported products.

Large portion of Kenya's exports to the EAC region consists of agricultural exports. Thus, the knowledge of the effect of Regional Trade Agreements-EAC on trade in agrifood products is critical in designing policies and strategies that will help improve trade and hence maximize the returns to the players.

In Kenya, 80% of the population depends in agriculture. With up to half of the country's population living below the poverty line, policies and strategies that will streamline the agricultural sector and trade are desirable. This study desires to fill the gap as on the effect of EAC trade agreements on Kenya's agricultural food commodities exports to EAC region. Little studies in Kenya have disaggregated the impact of regional trade agreements on trade in agricultural food products especially

in the newly resurrected East African Community. This void motivates this study that aims at investigating the impact of RTA (EAC) on the major agricultural food products (processed) that are considered important in the region's food security.

1.10 Scope and organization of the study

The study is structured in the following style: Chapter one discusses the background of the study, problem statement, the research questions and objectives, significance of the study, the scope and organization of the study. Chapter two reviews literature and chapter three presents the methodology. The study will use data for the period between 2000 and 2012 for three EAC states.

1.11 Limitation of the study

East African community consists of five countries, Kenya, Tanzania, Uganda, Rwanda and Burundi. The first three countries are regarded as the founders of the East African Community. Thus, study focuses on Kenya's exports of a few agricultural products that include; maize flour, wheat flour, dairy products and meat due to scarcity of data.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter outlines the reviewed literature. Sections 2.2 and 2.3 present theoretical literature and empirical literature respectively. The empirical evidence presented in this study focuses on the diverse studies that have been done and are chronologically organized, in the world in general, in sub-Saharan Africa and finally in East Africa. Since the study employs gravity model, much of the research reviewed lean towards the GDP, distance, population, in addition to trade creation and trade diversion. The overview of literature is presented in section 2.4

2.2 Theoretical literature review

Regionalism boosts trade by allowing the economy to specialize and benefit from comparative advantage. This study seeks to study the impact of EAC-RTA on Kenya's exports by evaluating whether the agreement has fostered trade specifically in agricultural food products

Theory of Regional Integration

According to Ngeno et al., 2003, the theory of regional integration draws heavily from the standard theory of trade which states that free trade is superior to all other trade regimes. From this basic principle, it is assumed that integration among two or more countries will improve the welfare of the member countries provided the arrangement leads to trade creation, minimal trade diversion, and or trade creation that exceeds trade diversion. The term integration covers a wide variety of schemes that can be classified into five levels based on the degree of integration.

These are;

Preferential Trade Area (PTA): In this form of regional integration tariffs on trade among members countries are lessened relative to those on trade with non member countries

Free Trade Area (FTA): This is where member countries remove tariffs and quotas on trade between members in goods originating within the FTA, but retains control over their own restrictions on trade with non-members. The tariffs and other

restrictions pertaining to external trade will differ from one country to another. For this reason, FTA normally applies rules of origin to implement the preferential trade arrangement.

Customs Union: Members not only abolish restrictions on internal trade like in an FTA but they also oblige impose a Common External Tariff (CET) on trade with non member countries. Rules of origin are no longer required, which is a major advantage because of implementation of rules of origin is very costly administratively.

Common market: A customs union which, in addition to its usual characteristics, has free movement of factors of production.Common restrictions apply to movements of factors with non-member countries.

Economic union; This goes further than a common market in that, major economic policies, for example,fiscal,monetary, and industrial policies are coordinated and a monetary union may be introduced.

The increasing number of RTAs among countries characterized by overlapping memberships, a tendency known as the "spaghetti bowl" has raised much concern on the outcome of the stalled multilateral process given the growing regionalism. Empirical questions on whether RTAs encourage growth and investment, aid technology transfer, shift comparative advantage towards high activities, induce political stability or divert trade in inefficient channels and undermine the multilateral trading system have been raised Yeats (1997). Theories of trade try to explain the source and possible scenarios that underpin this proliferation.

2.2.1 Mercantilist Theory of Trade

Mercantilism theory of trade was developed by Mun (1664). The theory was based on an economic philosophy that advocated for countries to export more than they imported in order to become more rich and powerful. The wealth of a nation was viewed as the amount of precious metals, mainly, gold, that a country was able to accumulate through exports. When a country imported, it was viewed as giving away gold and regarded as less beneficial. The more the goods a country exported to foreigners the more it was assumed to amass (gold) that could be used to build greater

armies and navies and thus expand its global influence. Moreover, encouraging exports and restricting imports, governments would stimulate national output and employment Samuelson (1964). Mercantilism, therefore, did not give room for regional trade agreements. The theory fails to explain the nature and the type of trade that is observed on the EAC region i.e., intra-industry trade since it pays no attention to the trade commodity composition, or the trade partner composition, but rather concentrates wholly on exportation to accumulate wealth.

2.2.2 The Classical Theories of Trade

The collapse and inefficiency of mercantilism as a theory explaining trade led to the rise of the classical theories of scale; the theory of absolute advantage by Adam Smith on 1776, and the theory of comparative advantage by David Ricardo in 1817. The classical theories of trade emphasized the fact that the wealth of a nation reflected the nation's productive capacity, which in turn explained the flow of goods across nations. The assumption was that resources such as land, labor and capital were less mobile across the international boundaries, while the final products were more mobile. Smith (1996) argued that trade for the sake of accumulating gold as claimed by the mercantilist was foolish and only reduced the wealth of a nation as a whole. In the process of avoiding imports at all costs, a country wasted its resources producing goods it did not have an advantage in their production.

Ricardo (1817) stated that the most important basis of trade between countries was the comparative advantage rather than the absolute advantage. Ricardo illustrated how two trading countries could gain from trade even if one of the country had an absolute advantage in production of both commodities. According to comparative advantage theory, what matters is the opportunity cost or the marginal cost of producing a commodity across the trading partners, rather than the absolute cost. Same as in the case of absolute advantage, the differences in comparative advantage over commodities are due to differences in natural and acquired resource endowment across countries. This makes it hard for the classical theories of trade to explain the kind of trade under the study. Krugman and Obstfeld (1991) faulted the Ricardian model of trade by highlighting that it did not recognize the role of economies of scale as a factor causing trade, hence the model failed to explain large flows of trade between nations with similar economic structure. Furthermore, although the Ricardian

model explains the source of comparative advantage which motivates countries to trade; it supposes that labour is the only factor of production which is not true. It assumes perfect competition and yet imperfection exists, and many countries are small and are price takers. Furthermore, the assumption that transport costs do not exist is unrealistic.

2.2.3 The Neoclassical Theories of Trade

The attempt to give better explanations of international trade and its effect on income distribution within a country has led to creation of neoclassical models of trade (Samuelson, 1948). This was initiated by Heckscher (1991) and Ohlin (1933) which led to the Heckscher Ohlin (H-O) theory of trade that gave an account of trade based on factor endowments of nations and factor intensity of commodities.

The other related neoclassical theories of trade developed from the H-O theorem include the Stolper Samuelson theory of trade by Stolper and Samuelson (1941), the factor-price equalization theory of trade by Samuelson (1948) and the Rybczynski theorem developed by Rybcynski (1995). All of these as extension of the H-O theory explain trade on the basis of factor endowments and factor intensity which also failed to explain the exchange in differentiated products or products with similar factor intensity between countries with relatively similar factor endowments as in the case of agricultural trade within the East African community. Lancaster (1980) stated that the volume of trade within the same industry was on large scale and was an undeniable fact of trade between modern industrial economies and was not a prediction of traditional trade theories (both classical and neoclassical theories). While Helpman and Krugman (1985) stated that trade patterns seemed to include substantial two –way trade in goods of similar factor intensity, they added that the intra- industry trade seemed both pointless and hard to explain from the point of view of conventional trade analysis.

2.2.4 Viner's Model of Trade creation and Trade diversion Effects

Tradecreation and trade diversion effect of a custom union was first brought into attention by Viner (1950). Viner pointed that regional trade agreements could be beneficial or harmful to the participating countries depending on whether these trade arrangements generate both trade creation and trade diversion. Accordingly "trade

diversion refers to switch in trade from less expensive (more efficient foreign producer) to less efficient producers within the trading block while trade creation is switch in trade from more expensive to less expensive producers in the trade arrangement."

To demonstrate this fact, Viner assumed a classic case of three trading countries that is A,B and C which compete to supply similar goods to country A. Assume further that the price of goods in country C is relatively less i.e.,. $P_C < P_B$. Under equal external tariff of state A towards the good imported from B and C, the price of goods from the states after they cross the border to country A are ; $P_C(1+\gamma)$ and $P_B(1+\gamma)$ respectively, that is maintaining a competitive advantage of country C.

Assume a custom Union between country A and country B. There will be elimination of barriers specifically tariff barriers between them. Therefore, goods from country B become less expensive than those from country C i.e. $P_B < P_C(1+\gamma)$. Therefore country A will choose to trade with country B rather than with country C. Since country A now trades with a more expensive producer leaving an efficient producer (country C), this is a case of trade diversion.

Similarly when a custom union is created between country A and C, due to termination of barriers between them, then price of goods from country C becomes even less expensive and hence country A chooses to trade with C; since $P_C < P_B(1+\gamma)$ .This is a case of trade creation since country A is trading with a more efficient producer of the commodity in question.

Trade creation and trade diversion concept can be analyzed diagrammatically as follows;Assume two countries, home country A and a potential trade partner country B. Assume further that country A is small and takes prices as fixed, imports goods from country B as well as produces them before forming of a regional trade agreement. Let D_A be the demand curve for home country A while S_A be the supply curve. The world market price is fixed at $P_B = \$1.00$ in country B, while a tariff of

50% is imposed on goods so that the domestic price of imported goods becomes $P_A = \$1.50$. For these prices, the domestic supply is at $Q = 160$ whereas the quantity consumed is $Q = 200$, therefore imports from country B equals $200 - 160 = 40$ units. With regional integration between A and B , the 50% tariff is removed and P_A becomes $1.00 whereas the quantity consumed increases to $Q = 250$ .On the other hand, domestic production and supply fall to $Q = 100$ units. This is known as trade creation effect of forming a regional trade agreement.

Price

S_A

$1.50

$P_A = P_B\left(1 + 50\%\right)$

a   b   c   d

P_A

$1.00

D_A

100   160   200   250   Quantity
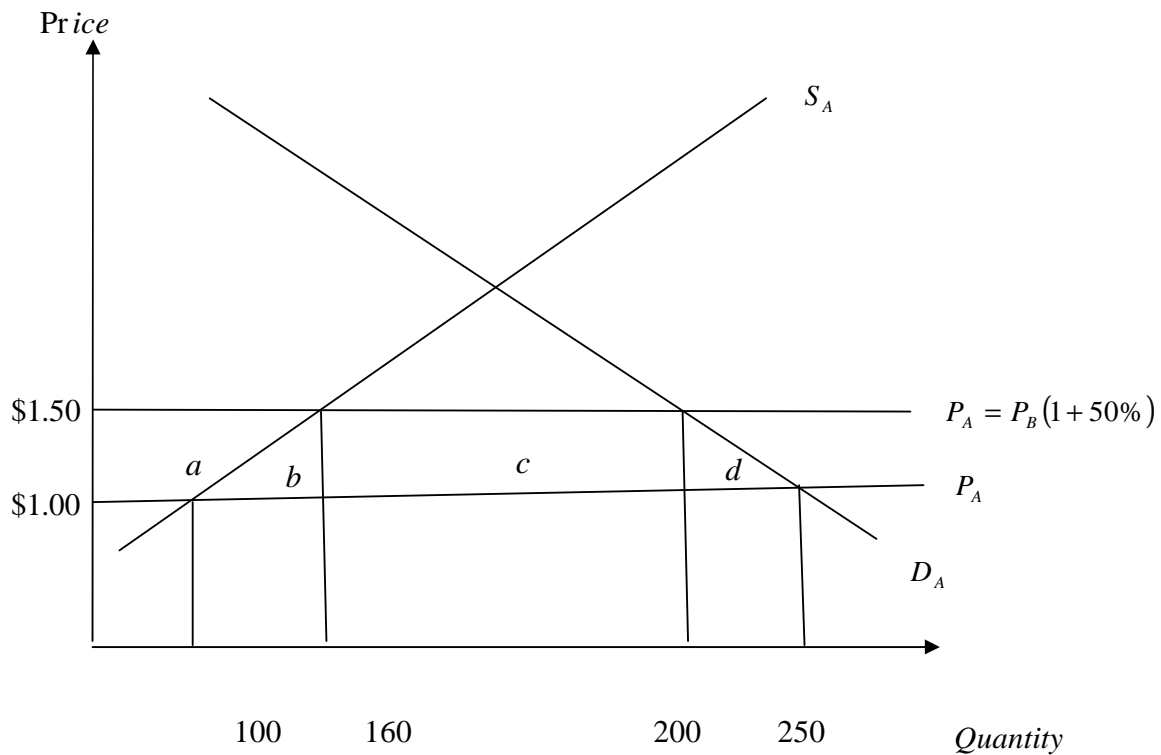
Source: Adapted from Alpleyard, et al. (2006); de Melo, et al. (1992); Gunning (2001) and Miller, et al. (2005)

From the figure, removal of tariffs owing to the formation of an RTA between country A and B, will increase trade by 110 units i.e., (250-200) and (160-100) whereas inefficient domestic production reduced by 60 units. The is new consumer surplus gain of from which is a producer surplus loss and was an area representing government revenue from the 50% tariff, this gives a net welfare effect by the area $b + d$.

Trade diversion on the other hand, can be illustrated as follows;

According to Marksen et al., (1995), trade diversion arises when less costly imports from outside the regional integration are replaced with high cost imports from regional integration members. Assuming there are two countries, A which is the home country and country B representing the rest of the world, RoW. Before regional integration the production cost in the country representing the rest of the world is and the domestic price of the home country is reflecting a 50% tariff, and A is only buying from RoW because of the low price relative to A's of (that is 1.20 +50% of 1.20).Owing to the formation of a regional trade agreement between country A and B, 50% tariff is removed between the two trading partners. However, the tariff still applies to goods imported from RoW. Therefore, imports from B are at the cost of lower than even if RoW's cost of production is still efficient. The figure below illustrates this.
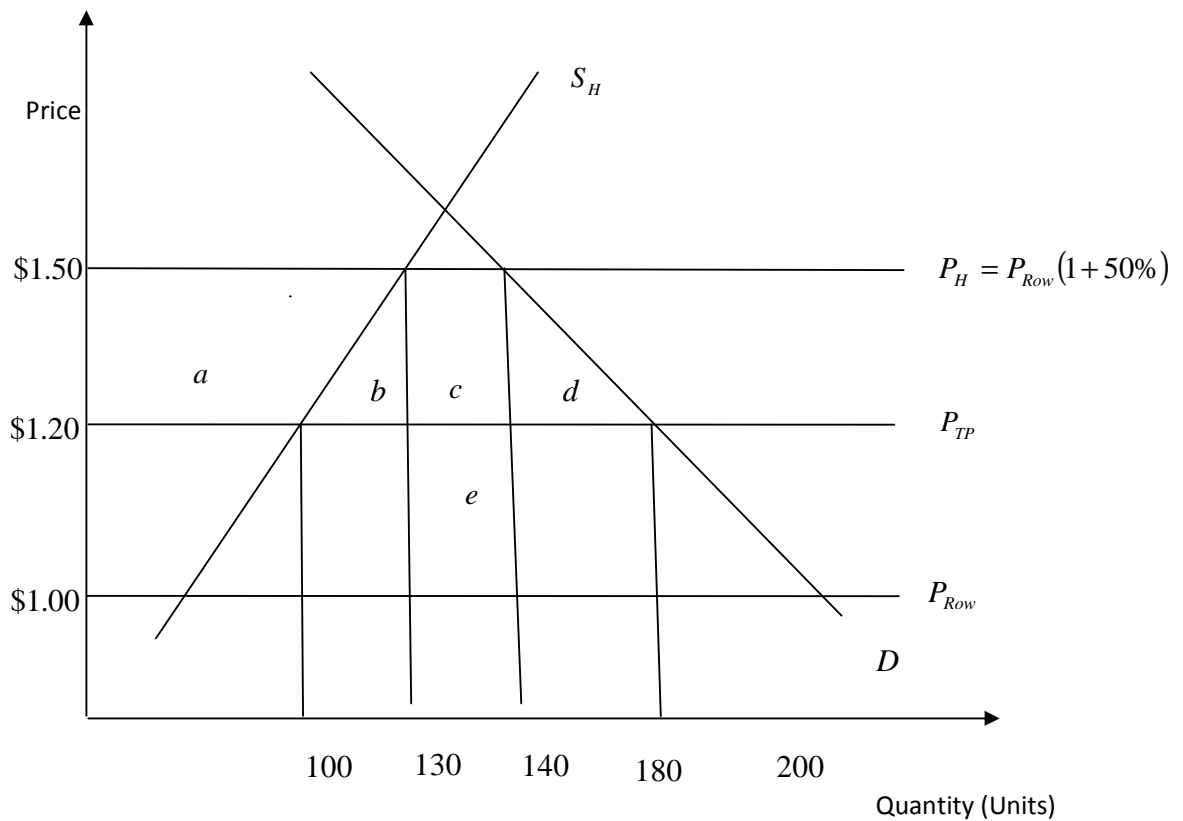
With regional integration, there is a loss of government revenue given by the area, a loss in producer surplus given by area and consumer surplus gain of. The resulting net welfare gain is represented by the area. This net effect will be positive only if is greater than, but, this cannot be assured.

Given the ambiguity of effects from regional integration, there are factors that influence the likelihood of having a net trade creation or trade diversion (Appleyardet al, 2006; Sodersten (1977). Regional integration is likely to be beneficial if members are competitive and complementary; there are large cost differentials in the goods they produce; if there are high initial tariffs between partner states and low tariffs to the outside world; the more elastic the demand and supply curves, the bigger the producers and consumers responses; and bigger the number of trading partners or traded goods after integration. Taking into account these factors and the EAC, the net effect is ambiguous; EAC economies cannot be classified as either competitive or complimentary (MClntyre, 2005), tariff rate was only high for Kenya while CET augmented Ugandan tariffs. However, the number of member countries moved from three to five in 2007. In addition, to trade creation and trade diversion effects of regional integration, there exist dynamic effects which include competitive market, reduced monopoly, economies of scale, specialization, increased investment and increased incomes from factor mobility. However, this study focuses on analyzing the static effects of EAC.

This study hinges on the two major theoretical backgrounds; the Ricardian model of comparative advantage and the Viner (1950) model of trade creation and diversion effects. Kenya trades with the EAC countries simply because of its technological advantage over the other countries. This allows Kenya to export those commodities that she can produce at a lower cost compared to other EAC member countries. Agrifood processed products are some of these goods. The trade diversion and creation effects, on the other hand, pivot on Viner (1950) theory, namely, has RTA-EAC created trade for Kenya's exports to the EAC region or has it diverted trade and specifically focusing on the agrifood processed products?

2.3   Empirical literature review

The main driving force behind Regional integration is economic growth and development, poverty eradication and improved welfare of the population, and of course notwithstanding the political influence. Regional integration has been found to promote trade as countries open up gradually to the world and reduce or eliminate both tariffs and non-tariff barriers. On the other hand, increased trading between a country and the rest of the world has a positive outcome on economic growth and

development. Smith (1776) and Thirlwall (2000) noted that countries with the fastest growth in international trade had also experienced fastest growth in their Gross Domestic Product.

According to Romer (1990), Krugman (1990) and Warner (2003), integration fosters growth through different channels including increasing innovation, technological spillovers and elimination of replication in research and development (R&D). It has also been proved empirically that integration leads to a larger market access, more stock of technology and knowledge, and therefore, contributes to innovation and economic growth. Such expanded markets and increased productivity lead to increasing returns in the sectors that require a lot of R&D Sachs and Warner (1995).Literature widely concurs that the level of international trade in an economy is likely to be one of the sources of its growth. Many arguments have been put across for the trade –led growth hypothesis. It is believed therefore, that increase in exports generate increase in GDP, since both foreign and domestic demands are components of the GDP as defined in the national income accounting (Gurgul and Lach 2010). Additionally exports may also have a significant impact on GDP growth indirectly. Exports do lead to increased investment that in turn leads to improved labour productivity. Furthermore, due to high competition in the international market, exports are likely to enhance efficiency in the domestic economy, thus raising the GDP. On the other hand, economies that are less endowed with natural resources and technology highly depend on importation of these necessary factors of production for GDP growth.

However, modern theories of trade show that economic growth, on the other hand, is a precondition for growth in international trade. Increase in output leads to rise in exports if such increase is coupled with a rise in productivity and decline in unit costs. It becomes easier to sell domestic goods abroad. Hence, the connection between economic growth and international trade may be closer and more than one way effect.

Growth in agricultural and agricultural trade has attracted greatest attention, especially in developing countries, due to its potential to reduce poverty levels. The significant paradigm shifts towards structural transformation in agricultural sectors since the 1980s due to the argument that agriculture is an "engine of growth" for those

countries in their early stages of development. This is because agriculture accounts for a high proportion of the economic activities in less developed countries and also plays an important role in the rest of the non-agricultural sectors of the economy (Byerlee, Diao and Jackson 2005). In this paradigm, growth in agriculture and agricultural trade has significant implications for the welfare of the citizens, especially the welfare of the rural livelihoods, since the sector is dominated by small and medium scale family farmers (Byerlee et al., 2005; Valunzuela, Ivanic and Ludena 2005).

In EAC, countries come together with the ultimate goal of increasing the level of interactions, transactions and attaining higher rates of economic growth and development. The flow and volume of trade in goods and services describe how "open" an economic integration is. At the same time, as mentioned earlier, agricultural products from the developing countries rarely penetrate the international market in the developed countries due to protectionist strategies such as subsidization of local production in developed countries, high standard requirements and tariffs among others, notwithstanding the fact that the majority of the players in the agricultural sector in developing countries are small and medium scale farmers.

These factors among others have quickened the move by developing countries to form their own regional agreements to improve trade among themselves and to give them a better bargaining position and terms of trade in the world market.

Pass (2000) used gravity approach to analyze trade between Estonia and its main trading partners. He included variables such as exports and imports as dependent variables in the gravity equation and GDP, distance between the capitals and several dummies for various regions /groups or trading partners. The study revealed that the independent variables explain more than 70% of the variation in the dependent variables in both the gravity equations. The GDP and the distance coefficient were positive and negative respectively. In his study, the coefficient signs of some dummies did not respond to the expectations, but all were found to be significant. Estonia tends to trade heavily with those countries with high GDP, geographical closeness and belonging to the same trade area.

Anderson and Wincoop (2003) conducted a comparative static analysis on the effects of trade barriers on trade flows between United States, Canada and other countries

using general equilibrium gravity model. They argued that the estimation of gravity models that have been used to infer trade flow effects of institutions lacked theoretical foundation, and hence prone to problems of omitted variables and unfounded comparative analysis. They therefore, developed a consistent and efficient method of estimating theoretical gravity equation by incorporating multilateral resistance measures. Their findings showed that the border reduced trade between United States and Canada by 44%, while it reduces trade among other industrialized countries by 29%. Their approach can be easily applied to determine the effects of many other institutions on bilateral trade flows.

Yang and Gupta (2005) analyzed the performance of RTAs in Africa. Using time series data for the period between 1970 and 2003, they showed that the impact of RTAs on intra African trade seemed to have been small or insignificant. As a share of the global trade, intra-African trade declined much in the 1970s before it improved in the 1980s and the first half of the 1990s. Since the mid-1990s,intra-RTA trade in major RTAs (SADC,COMESA,ECOWAS,WAEMU, and CEMAC) has grown erratically relative to their trade in the rest of the world, often showing no evident trend over time, except WAEMU, whose intra-regional trade has increased in recent years due to improved performance of their Custom Union (CU). For many RTAs, intra-bloc trade as a share of their total external trade remains below intra-African trade as a share of total African external trade.

However, the researchers found that econometric evidence of the effectiveness of RTAs in promoting intra-African trade was ambiguous with some RTAs showing positive effects, some negative and others no effect at all.The study however,did not isolate the RTAs effect from other factors and the effect of intra-regional trade. Such isolation requires the use of gravity model technique.

Vollrath (1998) assessed agricultural trade in six RTA's, including AFTA, APEC, ANZCER, CUSTA, MERCOSUR and EU, using data for 1953-1959 and 1959-1970. The study showed that both APEC and AFTA had neither positive nor negative effect on agricultural trade flows. On the other hand, ANZCER, CUSTA and MERCOSUR were found to be more trade creating than diverting, welfare improving and helped in opening up the member –countries to the world agricultural economy. EU was found

to be more agricultural trade diverting than creating, hence welfare reducing. However, Vallrath's work fell short of describing the estimation technique employed in the study to arrive at the econometric results discussed.

In his study, Grant and Lambert (2005) adopted the augmented gravity framework to analyze the effect of regionalism in the volume of agricultural trade. Using a sample data of nine agricultural goods in eight RTAs across the world involving 87 countries, they estimated pooled, cross-section time series regressions on the augmented gravity equation for the period between 1985 and 2002. A total of 11 regressions was run, 9 for each agricultural product, 1 for all agricultural products and 1 for all non-agricultural products. Out of the 8 RTAs, three were in the sub-Saharan Africa (SACU, SADC and COMESA) and referred to as "Africa" in the study. They found that in" Africa", four out of 9 commodities experience trade diversion from non-member sources. However, the effects were found to be small and in all cases trade diversion did not outweigh trade creation. On the other hand, NAFTA and EU showed significant trade creation effects in eight and 6 individual agricultural products respectively.

Kalaba and Tsedu (2008) assessed the intra-SADC performance by focusing on intra-SADC export share, done by contrasting intra-SADC share with other regional blocs and intra-country share. Results showed that despite impressive growth in total exports in 2000-2006, intra-SADC trade remains low. Comparison of SADC with other regional blocs indicates that intra-regional trade offers a necessary impetus for deeper integration and regional progress. The study explained that some of the potential causes of this result comprise exports of raw materials and intermediate goods, failure to meet tariff reduction requirements, rising commodity prices, existence of other forms of constrains relating to weak manufacturing capacity, poor physical infrastructure and irresponsive supply side bottlenecks. The study, however, did not describe the estimation technique used to get at the econometric results and conclusion drawn.

Ejone (2012) examined the postulation that trade liberalization (regional integration) policies of the LDCs normally undermine their presumed impact. His study employed extended gravity model to analyze the impact of regional integration on a food item.

The model included 168 countries and was estimated with panel data for the period 1988-1996. The results showed that regional trade integration enhanced exports, usually at the cost of exports and welfare of non-members. These exports were more reflective on food exports growth.

A study was done by Jayasinghe and Sarker (2007) on the effect of regional trade agreements on trade in agrifood products. The analyzed NAFTA's (North American Free Trade Agreement) trade creating and trade diversion effects on trade of six selected agrifood products (red meat, grains, vegetables, fruits, sugar and oilseed) from the period 1985-2000. They used gravity model using pooled cross-sectional time series regression and generalized least squares method. Their study revealed that share of intraregional trade is increasing within NAFTA and it has misplaced trade with the rest of the world,as well as served to boost trade considerably among its members other than with the rest of the world. Countries engaging in NAFTA have moved towards a lower scale of relative openness in agrifood trade with the rest of the world.

Makochekanwa (2012) in his study analyzed the impact of RTA on intra-trade in three selected agri-food products, that is, maize, rice and wheat in three regional economic communities mainly COMESA, EAC and SADC for the periods 2005 and 2010.The study employed two methodologies, statistical analysis and gravity trade model. The results revealed that changes in intra-regional trade shares shows that Namibia, Rwanda, Tanzania and Zimbabwe are the four countries whose intra-regional trade across the three products increased for the period reviewed. Burundi, Malawi and Sudan on the other hand, are countries whose intra-regional trade in at least two of the three products declined. The results from the gravity model show that all the traditional variables, that is, GDP for exporter and importer countries as well as distance have expected theoretical signs. Coefficients on all variables, that is, COMESA, EAC and SADC regional dummies, show that overall, the estimated coefficient for all regional dummies in all other RECs and commodities is positive and statistically significant; this indicates that intra-regional trade in those regions and for such commodities is above the predicted level of standard gravity model.Since the re-establishment of the EAC, there have been a few studies, using various empirical

models that have considered the effects of the agreement including Kirkpatrick and Wantabe (2005), McIntyre (2005) and Busse and Shams (2003).

Kirkpatrick and Wantabe (2005) use a gravity model to analyze the pattern of trade between the three East African countries between 1970 and 2001. The main focus of Kirkpatrick and Wantabe is to examine if regional cooperation has coincided with an increase in the volume of trade. They divide their analysis into three different time periods that coincide with the periods of regional cooperation.Gravity model results indicate that the regional trade agreement (RTA) had a positive effect on the intensity of regional trade flows in the 1970s, whereas, during the 1980s, the constant level of intra-regional trade reflected the lack of regional integration. Their results are sufficiently robust to support the conclusion that regional trade cooperation can support the expansion of trade between the three economies. Regional cooperation in East Africa has had a positive effect on trade flows between the three countries with no evidence of trade diversion.

Busse and Shams (2003) and McIntyre (2005) both use ex ante approaches in the analysis of welfare effects. Busse and Shams (2003) use a partial equilibrium model. Their results show that total trade would increase by roughly US $13 million. Trade creation amounts to US $4.5 million and trade diversion to US $8.7 million. The biggest trade effects are seen in Tanzania due to its relatively high intra-EAC tariff rates. For all the three countries, trade diversion exceeds trade creation implying that imports are now from high-cost producers, decreasing net welfare. Kenya is found to profit the most from preferential trade liberalization; however this result is to be expected due to the high export share of Kenyan exports within the EAC. Uganda and Tanzania would gain less from the EAC-CET, but their trade balances would not deteriorate significantly. On average, the trade creation figure is quite small and so this would suggest that the total growth in trade accruing to the EAC will be minimal.

McIntyre (2005) analyzes the potential trade impact of the EAC customs union and the extent to which the common external tariff (CET) will liberalize their trade regimes. McIntyre uses a static partial equilibrium model using a simulation known as SMART27. McIntyre finds that trade creation is the dominant effect of the EAC.

2.4 Overview of the literature

The literature reviewed shows that that there are several theories that try to explain the trend, pattern and volume of trade between any two trading countries. Depending on the nature of the commodities of trade and the economic and industrial status of the trading countries, international trade can be explained by the classical, neoclassical or modern theories of trade.

Empirical studies have been done with regard to overall understanding of trade agreements and their impact on economic growth and management. Nevertheless, no significant theory is in place at the moment that can cast light on the impact of RTAs on some specific agricultural products that are traded among member countries following treaties and agreements. Mine is just but a humble attempt towards giving some insight into the issue.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methods and techniques that are used in data collection and analysis. The literature reviewed has extensively used gravity model in the analysis of agricultural trade flows. This study therefore, will follow using extended gravity model with dummy variables to capture the effect of the formation of EAC on trade in agrifood products. The chapter is organized as follows; the research design, the theoretical framework, the empirical model, the model specification, estimation technique, definition and measurement of variables, data sources and analysis. Before the discussion of results Hausman diagnostic test will be conducted;

3.2 Research design

The study utilizes non-experimental panel design. Kenya, Uganda, Tanzania, Rwanda and Burundi are considered on annual observation for the period between 2000 and 2012, for all the equations that will be estimated in the study.

3.3 Theoretical framework

The gravity model is used in regional relations to analyze and evaluate the impacts of trade agreements and alliances as well as in the assessment of overall effectiveness of trade treaties. The application of the model in analyzing international trade flows was done by Tinbergen (1962) and Poyhonen (1963).Since then its use has evolved within the economic discipline playing an important role in terms of assessing the effects of geographical spatiality and the impact of distance on the strength of economic relations. However, the model has been used explain the gravitational forces of human interactions in the explanation of migration and other social flows in the later years of the twentieth century (Eita, 2007). From the start the theoretical foundations of economic application of gravity models in trade and economic interchange has been criticized for its lack of basis and foundation from trade theory even though it exhibited high statistical explanatory power (Matyas et al., 2000). Critics say the model lacks ingredients that feature prominently in other trade theories such as the difference in technology of the Ricardian model and the differences in factor

endowments in the Hecksher-Ohlin model which are the basis of trade (UNCTAD, 2012).

Empirical literature has evolved such that this notion fails to hold. The first attempt to give gravity models some theoretical basis was done by Anderson (1979) using the Armington assumption that provides a context in which goods are differentiated by their country of origin. He argues that consumers in a country with a given price will accordingly consume at least some of every good from every country because of the existence of imperfect substitutability among goods. From the setting that all countries trade and that all commodities are traded, then each country will have its national income composed of both home and foreign demand for the exclusive good that they respectively produce at the point of equilibrium. Consequently, larger countries export and import more and the trade flows are thus reduced by the trade costs.

Gravity model borrows from Newton's (1687) "Law of universal Gravitation." The theory postulates that the force of attraction between two separate entities i and j for instance is a positive function of the entities individual masses and inversely related to the square distance between the objects. When analyzing trade, using the same gravity standard, the entities are substituted by a pair of countries while the countries' masses are estimated by their respective gross domestic product (GDP) with distance replaced by the actual distance between their pairs of trading countries.

Gravity model is a macro model by nature since it is designed to capture volume, rather than composition of bilateral trade. The model is used in explaining the driving forces of exports such as what leads country A for instance to export to country B. With its increased popularity in the 1990's, gravity model has been found to work best for similar countries that have substantial intra-industry trade with each other (Helpman, 1999).

Thus in its original algebraic presentation, and analogous to Newton's presentation, the gravity model for bilateral exports can be depicted by;

$$Exports_{ij} = A\frac{\left(GDP_i GDP_j\right)^{b_i}}{dis\tan ce_{ij}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.1)$$

Where;

$Exports_{ij} =$ Exports between country i and j

GDP_i and GDP_j are the countries' respective income

$Dis \tan ce_{ij}$ is the distance between two trading partners

A is a constant

The estimated gravity model taken in log form is usually given as;

$$Exports_{ijt} = A + \beta_1 InGDP_{it} + \beta_2 InGDP_{jt} + \beta_3 In(dis\tan ce_{ij}) + \beta_4 X_{ij} + \varepsilon_{ij}.........................(3.2)$$

3.4 Empirical Model, Model specification and Estimation

The standard gravity equation explained in the theoretical framework in equation (3.1) ignored many other variables that could either have positive or negative effects on trade volume between the trading partners, which results to misspecification bias (Vinaye ,2009). To address this problem, the standard approach is used to specify an augmented gravity model by addition of relevant variables to the traditional model, most of which are inspired by both theory and empirical studies. Most estimates of the gravity model add certain number of dummy variables to the original gravity equation that test for specific effects. With inclusion of dummy variables for trade agreements, gravity model will have broader implications in terms of trade creation and trade diversion. Inclusion of dummy variables should however, be done in a cautious manner since inclusion of too many variables may lead to the problem of dummy trap in the data analysis.

Therefore, estimates gravity equation for the impact of RTA-EAC on Kenya's exports of agrifood commodities;

$$\log Exports_t = \beta_0 + \beta_1 \log GDP_j + \beta_2 \log GDPC_j + \beta_3 \log DGDP_{ij} + \beta_4 \log DIS_{ij}$$
$$+ \beta_5 \log EX_{ij} + \beta_6 D1 + \beta_7 D2 + \beta_5 EAC_{ij} + \beta_6 EAC0_{ij} + \beta_7 border_{ij} + \varepsilon_{jk}...............................(3.3)$$

Where;

$\log GDP =$ Gross domestic product of Uganda and Tanzania

$\log GDPC =$ Gross domestic product per capita of trading partner (Uganda and Tanzania)

$\log DGDP =$ Dissimilarity in Gross domestic product

$\log DIS =$ The distance between capitals cities of the trading partners

$\log ER =$ Exchange rate

$D1 =$ Dummy for common borders between Kenya and Uganda

$D2 =$ Dummy for a landlocked country

$\varepsilon_{jk} =$ Error term

$\beta s =$ Coefficients interpreted as elasticities.

Note; where i is the trading country and j is the trading partner. ε_{ij} is error term and the dummy variables D_1 take the value of one (1) for common border zero (0) otherwise

$\left(Exports_{ijat}\right)$ is the current U.S dollar value of total exports of country i to j in year t in one of the three selected agricultural products .

GDP_{it} and GDP_{jt} are the real gross domestic products of country i and country j in year t in U.S dollars.

$EAC_{ij} = 1$ if j is a member of EAC and 0 otherwise

$EAC0_{ij} = 1$ if i is a net exporter to member j, 0 otherwise (Helps in determining whether RTA is trade creating or trade diverting)

$\left(Exports_{ijat}\right)$ is the current U.S dollar value of total exports of country i to j in year t in one of the three selected agricultural products .

$border_{ij}$ indicates whether the trade partners ,country i and j , share a common border or not.

3.5 Definition and Measurements of Variables
Gross Domestic Product

GDP is measure of a country's economic performance. It is the market value of all final goods and services made inside of a country in a year. Gross Domestic Product, therefore, determines the level of international trade; Filippini (2003) states that just as any other economic activity, trade will increase as the economy grows, that is, the higher the GDP of a country, the incentive to trade with other countries.

Per capita income

Per capita income is the average income calculated for every individual in a geographical area. It is obtained by dividing the aggregate income of a country's population and rounded off to the nearest dollar. Helpman and Krugman (1985)

believe that demand for goods that differ slightly in design and technology increases with an increase in income.

Distance

Proximity of trading partners lowers search and transaction costs and hence enhances bilateral trade. Transportation costs can be proxied the distance between the trading countries. In this study, distance is measured in kilometers between capital cities of the two countries.

Exchange rate

Unsteadiness of exchange rate affects prices and volumes of goods and services in international trade. Exchange rate can either promote exports or discourage imports. The study calculates the cross exchange rate between the trading partners based on a common currency; the United States Dollar. Kenyan currency is the strongest among the EAC currencies; therefore express the Kenya shillings in terms of both Uganda and Tanzania currencies.

Adjacency; Adjacency is represented by a dummy for common borders. Countries with a common border are seemed to trade more than those without.

Regional dummy variables

In interpreting the effect of this dummy, a positive and significant estimated coefficient of the regional dummy in a particular product equation and estimated period implies that the intra-regional trade has been stimulated by the implementation of the EAC customs union. In this case, the estimated coefficient will be indicating the amount of additional trade, beyond the level of their economic and geographical characteristics would allow, that has taken place among EAC countries due to the formation EAC customs union. According to Aitken (1973) and Endoh (1999), the coefficient is interpreted to reflect trade creation effects of EAC customs union.

Table 3.1: Gravity model explanatory Variables with expected signs

Variable	Expected sign	Theoretical intuition
Exporter GDP	+	Measures production capacity, more production means more exports
Importer GDP	+	Measures absorption capacity, higher GDP, means higher import demand
Distance	-	Imposes trade costs, greater distance

		means more costs ,hence less trade
Population	**?**	-Larger population means more diversification and self sufficient(negative sign -Large population allows economies of scale resulting in more exports (positive sign)
Importer/Exporter exchange rate	**?**	Devaluation makes exports cheaper and imports expensive.
Common language	**+**	Common language reduces communication problems, thus boosting trade
Common boarder	**+**	Proximity means reduced transport costs, thus boosting trade
Regional dummy (EAC)	**+**	Countries enter into RTA's with the objective of increasing trade

3.6   Estimation and Econometric Issues

Pane data is a special type of pooled data in which same across sectional unit of surveyed overtime (Gujarati, 2004). Panel data is advantageous in the sense that it considers both path and space. Whereas cross sectional analysis is a snapshot at a point in time and ignores time, time series analysis observes the values of one or more variables over the period of time thus ignores snapshot .The main problem with panel data econometrics is heterogeneity. Other demerits of associated with panel data include extra time needed and extra cost incurred for data collection and analysis. However, use of panel data methodology in this study is justified by the advantages that have been highlighted by Kennedy (2003).Some of these advantages are; (i) It allows control of heterogeneity of cross-sectional units, each cross-sectional unit have some intrinsic and immeasurable characteristics distinguishing (ii) the combination of cross sectional and time elements in panel data generates more variability, and at the same time reduces multi-collinearity problems (iii) Panel data permits better analysis of dynamic adjustments.

Fixed Effects Approach

Fixed effects approach works better in a "long and narrow" panel data, that is, data with long time dimension but a short cross section dimension. It allows for the intercept of each country to vary but restricts the slope parameters to be constant across all countries and time periods.

Fixed effects approach works better in a "long and narrow" panel data, that is, data with long time dimension but a short cross section dimension. It allows for the intercept of each country to vary but restricts the slope parameters to be constant across all countries and time periods. Fixed effects model assumes that errors V_{it} are independent with zero mean and invariable variance for all individuals and in all periods. Hence the intercept captures all the behavioral differences between the individual countries over-time.

Fixed effects approach is used to explore relationships between the predictor and outcome variables within an entity (country, person, company.) In this case each entity has its own characteristics that may or may not influence the predictor variables. Thus, when using fixed effects approach, it is assumed that something in the individual may affect the predictor or outcome variables and thus there is the need to control for this fact. Fixed effect approach removes the effect of time-invariant characteristics from the predictor variables so that predictors' net effect is evaluated.

Another basic assumption made in the fixed effect approach is that those time invariant characteristics are distinctive to the individual and not correlated with other individual characteristics. Each entity is unique and hence the entity's error term and the constant ought not be correlated with others..

Random Effects Approach

According to (Greene 2008), the rationale behind random effects model is that, unlike the fixed effects model the disparity across entities is presumed to be uncorrelated with the predictor or explanatory variables in the model."A crucial distinction between fixed and random effects is whether the unobserved individual effects embodies elements that are correlated with regressors in the model, not whether these

effects are stochastic r not." Random effect approach is also called error component model (ECM).In this model, the cross-section units will have random intercept instead of fixed intercept.

In ECM, the intercept represents the mean value of all the (cross-section) intercepts and the error component represents the random deviation from the individual intercept from its mean value. This is indirectly observable.

Choosing between Fixed or Random Effect

Hausman Test

The decision, on whether to use fixed effects approach or random effects approach for panel data estimation shall be determined by conducting Hausman test. In this test null hypothesis is; there is no noteworthy difference in the estimator of fixed effect model and that of random effect model. If the null hypothesis is rejected then the fixed effect model will be appropriate. Rejecting the null hypothesis shows us that there might be correlation between the error term (W_{it}) and the error term

3.7 Data descriptionand sources

There are two major classifications of food items also called agri-foods. The International Standards Industrial Classification (ISIC) which classifies food products as one of the compositions of aggregates of agriculture. ISIC makes classifications according to economic activities. In this composition, the agriculture classification in this includes three products; Food Products (311), Beverages (313) and Tobacco (314).

United Nations product classification for international trade, defines food item as the sum of SITC Codes (or CTCI codes) of 0, 1, 22 and 4. The statistics is detailed at the 3-digit level or by broad product group. 0 includes food and livestock, 1 constitutes meat and meat preparations, while 22 is the composition of cream and milk products (excluding butter and cheese); and 4 incorporates cereals and cereal preparations. This classification can be accessed from the Handbook of Statistics referring to the Standard International Trade Classification (SITC).

The study concentrated on agrifood trade for the period covering 2000-2010.The period chosen covers the time when EAC customs union was formed that is 1st

January 2005, and at the same time when Rwanda and Burundi joined the EAC. The yearly statistical trade figures for each country's agrifood exports by destination (up to HS6 digit level) are taken from the United Nations Commodity Trade Statistics Database (UNCOMTRADE)

The study will use secondary data retrieved from publications on EAC countries for the period 2000-2012.Specific data sources will include UNCOMTRADE online database, World development indicators (WDI) and Statistical abstracts.

The data for Kenya's exports to the EAC are from UN COMTRADE database. The data for exchange rate and population are from Penn World Table (PWT). Each country's gross domestic product (GDP) and mileage between the capital centers are from International Financial Statistics (IFS) 2009 CD. Additional data for analysis of trade trends in the region were obtained from International Trade centre and Kenya's ministry of trade, office of external trade in collaboration with Kenya Revenue Authority (KRA), customs department.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

The chapter highlights the statistical description of data and the results from various statistical analysis and tests. The focus is on the results and their interpretations with the aim of meeting the research objectives. Recall that the first objective is to find out the effect of EAC-RTA on Kenya's exports to the regions, to meet this; a separate regression with exports as the dependent variables is run. The second objective addressing the impact on various agrifood products was addressed by running a different regression with dependent variables as the particular agrifoods.

4.2 Impact of EAC-RTA Kenya's aggregate Exports to the region 2000-2010

4.2.1 Descriptive Statistics

The summary statistics from the table below shows that the values are scattered around the mean with low standard errors.

Table 4.1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
logexports	45	5.008709	1.144015	3.12676	6.751335
loggdpi	45	10.11175	.7427982	9.449751	12.16177
loggdpj	45	8.429779	1.080998	6.665244	10.03953
loggdpcapi	45	6.416091	.2294955	6.139884	6.759719
logpopi	45	3.554744	.0836527	3.414443	3.653252
loggdpcapj	45	5.6438	.4820498	4.682266	6.323462
logpopj	45	2.791966	.6765156	1.898262	3.781914
logexchi	45	4.318885	.0714314	4.138361	4.443827
logexchj	45	6.93592	.4709635	5.965367	7.744267
border	45	.4888889	.505525	0	1
eaccu	45	.4222222	.4994947	0	1

Source; Author computations

4.2Diagnostic Tests

Two approaches are used in panel data, the random effect model and the fixed effect model; to decide on which approach to use; Hausman test inorder to determine the best approach.

According to Greene 2008, to decide between fixed and random effects a Hausman test is carried out where the null hypothesis is that preferred model is random effect whereas the alternative is fixed effect. This basically tests whether the unique errors (u_i) are correlated with the repressors

$H_0 = $ Random effects is the preferred model

$H_1 = $ Fixed effects is the preferred model

If the Hausman test is conducted and the value of $prob > chi2 < 0.05$ that is significant, then we use fixed effects. In thisstudy, the Hausman test revealed that

chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)

$=$ 5.31

Prob>chi2 =   0.8695 which is > 0.05 and hence we use the random effects approach.

This also justifies the theory in that in the gravity model, distance is incorporated in order to capture trading costs between two countries. Distance between capital cities of one country to another in kilometers for instance from Nairobi to Kampala remains constant throughout the years.

Recall that in fixed effects approach any time invariant variables will mimic the individual specific constants and hence when the regression is run the coefficient of the time invariant variables will not be estimated. This may hamper the whole gravity model which has distance in it as a proxy for trading cost. Thus justifies the use of random effect approach.

4.3 Discussion of the Results

The results from estimating a random effect model on the impact of the formation of the EAC-RTA on Kenya's exports are presented in table 4.1 below .Coefficients of

the estimated standard gravity model are discussed first then followed by the results from the particular agrifood exports.

Table 4.1: Extended gravity model results for EAC exports for the period 2000-2010

Variable	Coef.	Std. Err.
loggdpi	0.230617 (1.9)*	0.858
loggdpj	1.964705 (3.3) **	0.550
loggdpcapi	1.373335 (4.1)***	0.211
logpopi	-5.432636 (4.5)***	0.229
loggdpcapj	1.878062 (3.3)**	0.565
logpopj	1.457122 (3.4)**	0.669
logexchi	.5343924 (1.8) *	0.696
logexchj	-.4861846 (2.8)*	0.551
logdist	-7.02863 (2.2)*	0.002
border	.8691942 (2.7)*	0.751
eaccu	.2645194 (3.6) **	0.474
constant	61.01397 (16.4)***	3.73

$N = 45$

$R^2 = 0.8395$

Notes: *,**, * **significant at 1%,5%,10% level respectively

; t-statistics in parenthesis

The standard variables of the gravity model are expressed in logarithms; therefore their coefficients are interpreted as elasticities. The estimated coefficient of the exporting country's GDP ($\log gdpi$) indicates that 1% increase in exporter's GDP will induce an increase in trade with the EAC members by 0.23% while a 1% increase in the importers GDP ($\log gdpj$) will lead to 1.96% increase in their imports from Kenya. This also confirms findings from the existing literature that the higher the GDP of the importer country the higher the demands for imports resulting to a higher imports volume .This corresponds to the existing literature that the economic size influences trade positively. Moreover a higher GDP of the exporter country is an indication of high production and potential supply of exports. The intuition behinds GDP relation to trade also explains for GDP per capita results.

The parameter estimate for importer population ($\log popj$) for the model is positive and statistically significant. Larger population size in the importer countries encourage more trade with the partners, with larger population referring to increased consumption hence increase imports. However the parameter estimate for the exporter population ($\log popi$) is negative, that is 1% increase in the exporters population will lead to 5.4 %decrease in its exports. This is explained by the fact increase in population will lead to increased local demand of the goods and hence the country has to meet this demand before exporting the surplus.

The parameter for the exporter exchange rate ($\log exchi$) shows that 1% decrease in its exchange rate will lead to 0.53% increase in its exports. It will mean that the Kenyan exports will become cheaper relative to other countries. EAC countries will import more from Kenya and thus enhance trade. On the contrary 1% decrease in the importers exchange rate ($\log exchj$) will negatively affect the Kenya's exports since it will expensive to buy Kenya's exports, thus the negative coefficient for the importer's exchange rate in the results.

The distance ($\log dist$) variable has a negative and significant coefficient. Kenya's exports decline by 7% when distance between trading countries increases by 1%. This indicates that trade between Kenya and the EAC is still hindered by transport costs. This is compatible with the gravity model theory that distance negatively influences bilateral trade.

To analyze the impact of the EAC-RTA on Kenya's exports which is one of the main thrust of the paper, we look at the coefficient off the *eaccu* dummy .The coefficient is positive and significant. This implies that, the formation of the EAC customs union has increased trade between Kenya and the EAC countries, particularly Kenya's exports. Kenya has exported more to the EAC due to the formation of the EAC. This will be taken to mean trade creation has occurred due to EAC-RTA formation.

To assess the impact of the formation of the EAC –RTA on trade on agri food products another regression is run on particular agri-food exports; Dairy products-yoghurt and butter, Meat, cereals-wheat flour, maize flour and tea. The results are reported in table 4.2 below.

Table 4.2: Gravity regression results for the impact of EAC-RTA on trade on agrifood products.

Variable	Maize flour	Wheat flour	Meat	yoghurt	Butter
loggdpi	**0.95(6.8)***	0.25(1.5)	**0.41(4.7)***	**0.3(2.64)**	2.04(1.69)
loggdpj	**0.22(1.9)**	0.40(1.9)	**0.67(7.7)***	**2.25(2.6)**	**4.31(10.28)**
Logpopi	**-0.11(2.70)***	…………..	**0.61(8.2)***	7.12 (1.51)	4.75(3.56)**
Logpopj	**0.32 (2.3)***	0.80(3.29)***		**2.47 (9.19)**	**0.19(1.9)**
logexchi	**0.18(2.5)**		**0.09(1.3)**	6.72(3.18)**	
logexchj	**………**	-0.50(-4.9)**	**-0.06(-1.5)**	0.84(2.84)**	
logdist	**-0.18(-2.9)**	-0.83(-5.4)**	**0.49(-2.1**	6.47(1.71)**	**-5.71(-5.25)**
Common boarder	**1.1(2.5)**	3.27 (3.42)**	**…………..**	3(4.69)**	2.91(6.41)**
EAC (regional dmmy	**2.2(2.9)***	-18.9(-4.2)**	**3.37(1.9)**	**1.92(5.7)***	2.03(7.34)**

R^2	0.44	0.41	0.49	0.84	0.57
No. of Obs	44	44	44	44	44

Notes: ***,**, * significant at 1%,5%,10% level respectively

; t- statistics in parenthesis

The estimated importer's GDP and exporter's GDP coefficients generally have the expected positive sign in most equations and are significant at 1% level. For instance, a unit percent increase in importer GDP will result in increased maize trade by 0.22%, while the same percentage rise will cause 0.40% increase in trade of wheat. A cross all the tabulated results, the estimated coefficient range from 0.22, 0.41,0.67,2.25 to 4.31 and 0.95,0.25,0.41,0.3 and 2.04 for importer and exporter GDP's respectively.

The results, therefore, show that there is a significantly positive relationship between bilateral trade and incomes of partners. Generally these results are consistent with the findings of other studies such as Makochekanwa et al (2010), Jayasighe and Sarker (2007), Frankel and Wei (1998).

The parameter estimates of both the importer and exporter population are in most cases positive and statistically significant for the products in the study. For maize flour, and meat, larger population size in the importer countries encourage more trade between partners, with larger population for the importing country meaning increased consumption hence increased imports. On the other hand, in the case of maize flour, large population size in the exporting country reduced exports as local demand was given a first priority since it I a staple food.

The effect of importer exchange rate is positive formaize, indicating that exchange rate in the importing countries will stimulate consumers to try and avoid domestic consumptions due to inflation and switch to imports. In this scenario, one percent rise in exchange rate in the importer countries will lead to increasing demand for maize flour exports by 0.18%. Exchange rate of the exporter countries has a negative effect on trade of wheat, 1% increase causing a decline in wheat trade by 0.50%.

The results show that bilateral distance has a negative impact with the magnitude differing across the products and time. As theoretically expected, the parameter estimates of the distance variable are negative and statistically significant. The results indicate the volume of trade in each of the selected commodities diminishes as distance increases. For instance unity increase in distance will reduce trade by a magnitude of 0.18% for maize, 0.49% in the case of meant,0.83% for wheat,6.47% for yoghurt and 5.71 for butter. The estimated coefficient on bilateral trade in agrifood commodities presented in this study confirms the findings of Jayasignhe and Sarker (2007) among others.

The coefficient of common border is positive and statistically significant, at least at five percent level of significance, in case of maize and wheat flour in which they are reported. This according to theoretical expectations which assumes that countries which share the same language and also share a common boarder are more likely to trade with each other than countries which have different language and which do not share a common border.

With regard to the EAC Regional dummy, the dummy has a positive sign on maize flour, meat, yoghurt, butter and negative sign for wheat flour. These coefficients are all significant at 1 percent level except for maize and meat. The positive sign for the regional dummy shows that the formation of the EAC-RTA has enhanced trade especially in agrifood products. Kenya now exports most of the agricultural food products owing to the formation of the EAC customs union and further membership of Burundi and Rwanda to the EAC.

For maize flour and meat, the coefficients are positive but not significant. This means that the formation of EAC-RTA agreement has not impacted much on the Kenya's exports of maize and meat. This could be explained by the fact Tanzania also produces maize in large scale and hence the demand for Kenya's maize flour is not as high as compared to other agrifoods products. It is also likely that these two products are traded informally across the boarders and hence the available data does not fully reflect what is happening in real sense.

CHAPTER FIVE
5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The research paper analyzes the impact of EAC-RTA on Kenya's exports particularly agricultural food products. The motive behind regional integration and trade agreements is to enhance trade between member states. Members of the EAC have the same characteristics and the main economic activity among them is agriculture. It is therefore, expected that the formation of the East African Community agreement will foster trade in agrifoods products.

In an effort to determine the effect of the formation of the EAC-RTA on Kenya's exports of agrifood products using gravity model, the results show that the formation of the EAC-RTA has enhanced increased Kenya's exports to the region and especially agrifood products.

Transport costs proxied by distance also prove to be one of the main hindrances to trade especially within the EAC region. With the construction of the Mombasa port, it expected that trade will be enhanced as transport costs will be cut and hence Kenya is expected to export more to the EAC region.

This study reveals that, in as much as the results show that formation of EAC-RTA has led to increased exports from Kenya to the EAC region, these exports are not necessarily agricultural food products. Exports of agrifood products are still low and therefore there is need to improve government policies addressing exports of agricultural food products.

5.1. RECOMMENDATIONS

Since GDP of the EAC members impacts positively on trade flows, member countries should continue with policies that are geared towards economic growth in order to sustainintra-EAC exports.

An important factor to be considered when assessing the volume of agricultural trade within the region is its high level of informality. Indeed, trade between the EAC countries is carried out through both formal (regulated and recorded in national accounts) and informal (unregulated and unrecorded) channels.

A number of ministerial and high-level officials' meetings have taken place since last year with a view to ameliorating the hindrances that stand in the way of achieving smooth and significant progress in the matter of maximizing trade benefits accruable to member states of the EAC. The more the hindrances are removed, the greater is the prospect for agri-food business to succeed.

In studying such a subject, issues of political economy and culture appear to be relevant to answer the nagging question, namely, why has the progress as regards EAC's objectives been so slow and uncoordinated? A little reflection will make it clear that what caused the British industrialization during 1750-1850 was exactly the opposite to what has been happening with the EAC now, namely, lack of cohesive mentality ; particularly, between Kenya and Tanzania. This can be inferred through the writings of G.D.H Cole (1950).

However, with major infrastructural developments, such as, Lamu port, Kenya stands at a better position to reap external economies with regard to trade benefits in connection with EAC. Inclusion of Rwanda and Burundi has also been an added advantage for Kenya in so far as agrifood trade is concerned.

5.3 Suggestions for Future Research

In the context of the study, however, it is difficult to state whether there is complete export diversion or import diversion as a result of the formation of the EAC-RTA due to narrowness of data. This should comprise a subject for future research. In addition, data inadequacy also prevented the present researcher to analyze beyond 2010. This can also be considered for future study.

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APPENDICES

APPENDIX A: LIST OF COUNTRIES INCLUDED IN THE STUDY

EAC countries

1. Kenya

2. Uganda

3. Tanzania

4. Rwanda

5. Burundi

Agricultural commodities included in the study:

1. Cereals Flours

   ➤ Maize flour

   ➤ Wheat Flour

2. Dairy products

   ➤ Yoghurt

   ➤ Butter

3. Meat

APPENDIX B: TABLE: 1

. summarize butter yourghut wheatflour meat gdpi gdpj gdpcapi popi gdpcapj popj exchi exchj dist

Variable	Obs	Mean	Std. Dev.	Min	Max
butter	44	12952.18	26216.72	10	145302
yourghut	44	87441.89	153134.9	125	709298
wheatflour	44	448788.3	1556490	30	9316756
meat	44	180231	282204.2	354	1123833
gdpi	44	36768.95	50002.55	12705	191333
gdpj	44	7573.433	6575.068	784.6544	22914.6
gdpcapi	44	622.4955	144.6325	464	836.2
popi	44	35.01818	2.884382	30.4	38.6
gdpcapj	44	315.6643	140.0105	108.0145	557.5
popj	44	20.47007	12.74368	6.674286	43.9
exchi	44	75.06364	4.969913	62.7	80.8
exchj	44	1135.797	501.067	389.6962	2308.3
dist	44	727.7003	119.5265	583.764	877.5055

Table: 2

year	Country	countryi	countryj	Butter	yourghut	wheat flour	meat	other cereals	Tea	gdpi	gdpj	gdpcapi	popi	gdpcapj	popj	exch
2000	1	kenya	uganda	2125	47323	9316756	104562	54616	8203	12705	6193	500.9	30.4	268.47	22.6	76.2
2001	1	kenya	uganda	8750	902	4205496	86144	70425	64679	12986	5841	506.28	31.3	273.25	23.3	78.6
2002	1	kenya	uganda	1000	43226	721440	108175	51737	58377	13148	6179	495.57	32.2	287.32	24.1	78.7
2003	1	kenya	uganda	6677	15125	14687	114136	12374	50804	14987	7153	464	33.2	279.1	24.9	76.1
2004	1	kenya	uganda	2024	6812	2510437	140522	2375	274483	16249	8784	493.9	34.2	323.4	25.7	77.3
2005	1	kenya	uganda	28442	104926	120400	142227	40444	6895	191333	10040	560.8	35.1	372.9	26.5	72.4
2006	1	kenya	uganda	14796	130187	174930	120910	30196	4912	22779.2	11011	622.7	36.1	396	27.6	69.4
2007	1	kenya	uganda	10036	378555	131937	121926	49241	30291	27022.3	13548.7	726	37.2	465.9	28.6	62.7
2008	1	kenya	uganda	12215	164501	112460	165419	243594	8657	30467.4	16377.4	829.9	38.3	543.7	29.6	77.7
2009	1	kenya	uganda	49126	135471	1154303	164976	52623	13238	30600.2	16545.8	811.2	38.6	539.6	30.7	75.8
2010	1	kenya	uganda	27475	194195	526053	216478	244155	17402	32181.3	17719.6	836.2	38.6	557.5	31.8	80.8
2000	2	Kenya	Tanzania	17328	5875	24000	217675	5125	538796	12705	10186	500.9	30.4	304.36	32.8	76.2
2001	2	Kenya	Tanzania	3062	29726	2000	292437	36472	474261	12986	10384	506.28	31.3	314.56	33.9	78.6
2002	2	Kenya	Tanzania	29062	4315	36000	374250	486421	248944	13148	10806	495.57	32.2	328.52	34.4	78.7
2003	2	Kenya	Tanzania	3125	19421	1187	358000	110699	406464	14987	11653	464	33.2	330.5	35.3	76.1
2004	2	Kenya	Tanzania	2500	26785	81679	436029	85304	76725	16249	12828	493.9	34.2	353.3	36.3	77.3
2005	2	Kenya	Tanzania	10	247100	10,000	504977	199120	75866	191333	14220.4	560.8	35.1	392.9	37.3	72.4
2006	2	Kenya	Tanzania	4321	315428	29500	506484	45788	40634	22779.2	14331.2	622.7	36.1	381.9	38	69.4
2007	2	Kenya	Tanzania	24902	421148	23000	737480	52420	48167	27022.3	16992.5	726	37.2	443.8	39.4	62.7
2008	2	Kenya	Tanzania	49071	709298	31700	869766	84203	209113	30467.4	20715.3	829.9	38.3	524.8	40.7	77.7
2009	2	Kenya	Tanzania	82835	388753	40315	986620	48986	61460	30600.2	21368.4	811.2	38.6	525.2	41.9	75.8
2010	2	Kenya	Tanzania	145302	293637	116000	1123833	119900	48842	32181.3	22914.6	836.2	38.6	546.7	43.9	80.8
2000	3	Kenya	Rwanda	1100	1200	7312	980	38808	2687	12705	1734.938	500.9	30.4	206.6491	8.395577	76.2
2001	3	Kenya	Rwanda	860	1345	43195	900	13000	511	12986	1674.685	506.28	31.3	191.174	8.760003	78.6

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Year		Country	Country														
2002	3	Kenya	Rwanda	1389	245	32113	917	796	574	13148	1677.447	495.57	32.2	186.6417	8.987523	78.7	
2003	3	Kenya	Rwanda	1250	125	8937	406	25031	40000	14987	1845.979	464	33.2	202.2732	9.126167	76.1	
2004	3	Kenya	Rwanda	1375	259	47608	765	34621	429	16249	2089.189	493.9	34.2	225.7514	9.254379	77.3	
2005	3	Kenya	Rwanda	1388	300	15744	677	30	160	191333	2581.286	560.8	35.1	273.7471	9.429457	72.4	
2006	3	Kenya	Rwanda	724	1808	1371	529	96	50	22779.2	3111.191	622.7	36.1	322.038	9.660946	69.4	
2007	3	Kenya	Rwanda	1218	55737	63705	2876	120		27022.3	3738.147	726	37.2	376.5202	9.928143	62.7	
2008	3	Kenya	Rwanda	3466	30233	67956	5581	6342	11875	30467.4	4711.735	829.9	38.3	460.8973	10.22296	77.7	
2009	3	Kenya	Rwanda	2628	27466	12516	5956	1424	197	30600.2	5252.677	811.2	38.6	498.8455	10.52967	75.8	
2010	3	Kenya	Rwanda	1572	28098	11532	10551	240	1634	32181.3	5624.506	836.2	38.6	519.0224	10.83673	80.8	
2000	4	Kenya	Burundi	738	812	2340	354	10625	9867	12705	870.4861	500.9	30.4	130.4238	6.674286	76.2	
2001	4	Kenya	Burundi	1187	890	2980	457	60765	8796	12986	876.7947	506.28	31.3	128.1981	6.839376	78.6	
2002	4	Kenya	Burundi	1129	990	3005	550	3120	7863	13148	825.3945	495.57	32.2	117.2814	7.037727	78.7	
2003	4	Kenya	Burundi	1125	984	3467	510	23465	7700	14987	784.6544	464	33.2	108.0146	7.26434	76.1	10
2004	4	Kenya	Burundi	2125	1056	4589	574	246320	1056	16249	915.2573	493.9	34.2	121.8593	7.510771	77.3	
2005	4	Kenya	Burundi	1883	1145	5697	659	621900	1145	191333	1117.254	560.8	35.1	143.7835	7.770392	72.4	
2006	4	Kenya	Burundi	1028	1856	5316	600	30000	1268	22779.2	1273.181	622.7	36.1	158.305	8.042579	69.4	
2007	4	Kenya	Burundi	1755	2367	16800	634	15150	1290	27022.3	1356.078	726	37.2	162.8275	8.328312	62.7	
2008	4	Kenya	Burundi	4474	3678	4392	789	15300	1295	30467.4	1611.634	829.9	38.3	186.8717	8.62428	77.7	
2009	4	Kenya	Burundi	8898	3800	30	980	2092	1282	30600.2	1739.782	811.2	38.6	194.8967	8.926687	75.8	
2010	4	Kenya	Burundi	4400	340	1800	894	1200	1205	32181.3	2026.864	836.2	38.6	219.5298	9.232753	80.8	