DETERMINANTS OF SERVICE EXPORTS IN KENYA

BY

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DECLARATION

The research project is my original work and has not been submitted for the award of a degree in any university or any academic institution.

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ABBREVIATION

BPO	Business Process Outsourcing
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
EPC	Export Promotion Council
FDI	Foreign Direct Investment
GATS	General Agreement in Trade in Services
GDP	Gross Domestic Product
H-O	Heckscher and Ohlin
ICT	Information Communication Technology
IFRS	International Financial Reporting Standards
IT	Information Technology
KBS	Kenya Bureau Statistics
OLS	Ordinary Least Square
PTA	Preferential Trade Area
SGR	Standard Gauge Railway
US	United States
WTO	World Trade Organization
WTTC	World Travel and Tourism Council

ABSTRACT

Kenya produces variety of services which contribute significantly to the economy. However, it has not been able to increase its share of global trade in services. The country service exports still face a lot of challenges and is restricted to English speaking countries. Furthermore, Kenyan service firms do not have any objective prior to entering the foreign market. This study was therefore, conducted in order to identify the factors that affect service exports in Kenya and thereafter recommend policies that will help all the stakeholders in service exports. Time series secondary data from 1970 to 2015 was used and an OLS estimation technique was employed after diagnostic tests. The results showed that merchandized goods, real exchange rate were positively related to export of services and were very significant. All the other variables were insignificant. Value of service GDP, trade liberalization and trade openness were negatively related to the export of services. That is contrary to the expectation from the findings in the empirical literature. It means that while Kenya expands its service sector production, there are no specific policies with regards to trade in services. The government could still be excercising trade restrictions and controls. It is therefore, important for the government to adopt better policies with regards to exchange rate and value of merchandized goods exports. The government should come up with coherent policies through the Export Promotion Council in oder to promote export of services. Finally it should liberalize its services trade and remove trade barriers that are associated with export services.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

A recent study by (Velde, Tyson & Khanna, 2015) on 'Kenya as a Service Hub' showed that service exports in Kenya were three times higher in 2012 than in 2005. Services grew from $ 1.9 billion to $4.9 billion within that period while exports of merchandised goods only doubled.[1] The research further indicated that the share of service in exports in Kenya was 41% in 2006 and shot up to 44% in 2012. This illustrates the importance of service as a component of total exports in Kenya.

On greater spheres, the world has increasingly recognized the value of commercial services. Consequently, trade in services has been growing at an average of 7.9% annually since 1980 (World Trade Organization [WTO], 2010). The growth of exports around the globe is faster in services than in goods.[2] Unlike merchandised exports which has had net deficits, service exports in Kenya has had overall net surplus.

Previous studies indicate that Kenya has great potentials for exporting services. Kenya's revolution in information communication technology (ICT) has impacted greatly on the domestic and international markets. Kenyan service firms have made international standards that put them in a position to provide service exports of high value; however, services are only restricted to English speaking countries due to barriers in communication (Dihel, Fernandes, Gicho, Kashagaki & Strychacz, 2011). It is imperative therefore, for researchers to find out the main factors that determines the exports of services in Kenya. This will help Kenya to expand her

[1] Exports of merchandised goods doubled from $ 5.3 billion to 11.0 billion from 2005 to 2012.
[2] Services grew by 66% on average between 2005 and 2012

service economy more and increase her trade in services hence realizing tremendous economic growth. Kenya exports its services mostly to East African Community.[3]

Trade in services is classified according to WTO, the General Agreement in Trade in Services (GATS). These categories include business services, communication services, construction and related services, distributional services, education services, environmental services, financial services, health and social services, travel related services, recreational, culture and sporting services, transport services and others. The World Bank on the other hand, places trade in services into four broad groups namely; travel services, transport, communication and finally finance and insurance.

Information and communication technology (ICT) sector has become extremely important for any economy. This is as a result of increased innovation and growth in the ICT (Valle and Yobesia, 2009). Ushahidi software, the online map has been used in the world in varied applications such as tracking violence in Gaza, monitoring elections in India and coordinating US gulf coast oil spill among other uses. Safaricom and its mobile innovation M-pesa is applied in many countries to transfer money across mobile subscribers and transact other business services such as paying bills. Although Kenya has great potentials to export services, most exporters of services do not have prior objectives when entering the foreign market (Dihel et al., 2011). Hence this study will be helpful to Kenyan service firms intending to explore the foreign market, as it will come up with factors that guide or determines trade of services in Kenya.

[3] More than half of Kenya's service exporters have clients in Tanzania, Uganda and Rwanda.

1.2 Significance of Service Sector in an Economy

Services refer to economic output of intangible commodities that are produced for a consumer and sometimes provide goods but are never involved in production. Services sector[4] accounts for the highest output in the economy. They have a great impact on economic growth as well as on a broad range of sectors and overall economic efficiency. According to (WTO, 2010), services represent more than two thirds of world gross domestic product (GDP) and the share of services value-added in GDP rise with countries income levels.[5]

Francoise and Reinert, (1996) while studying the 'Role of Services in Trade' found that level of shares of service employment increase with development levels and increases indirect labor within manufacturing sector. They also found that embodied service components of exports are related to development levels. Importance of services is associated with the private sector intermediate demand for services. The higher the value –added commercial services, the higher the rise in per capita levels.

In Kenya service sectors play a huge rule in labor productivity. A study by Velde et al., (2015) found that labor productivity to services sector triples that of agriculture and about twice that of an industry, though, service sectors are heterogeneous. The same study found that an increase in service exports attract more short term capital which increases real effective exchange rate and pools in resources such as skills which promote the competitiveness of manufacturing and agriculture.

[4] Financial, insurance, construction and engineering, information and communication technology, government services, health, education, tourism and travel related services

[5] Service sector accounts for 77% in the US and 47% I low income countries

1.2.1 Kenya's Services per Sector

This section discusses some of the selected services sectors in Kenya.

a) Travel related services and tourism

Tourism is one of the leading sources of export revenue in Kenya. With regards to tourism, tour companies are important engines of tourism sector. Direct tourism and other related travel services accounted for 16.6% of the visitor exports in 2014 while contributing 4.1% of the total Kenyan GDP in the same year and is expected to rise by 5.1% yearly from 2015 to 2025 (World Travel and Tourism Council, 2015). The council also reported that tourism contributed 9.2% of total employment in 2014 and is projected to rise by 2.9% every year.

b) Financial services

Kenya has diversified its financial sectors ranging from commercial banks to microfinance banks to money remittances providers.[6] The sector has also remained largely liberal and efficient due to the adoption of the International Financial Reporting Standards (IFRS). Following the Preferential Trade Area (PTA) agreement and now expanding into Common Market for Eastern and Southern Africa (COMESA) region, Kenya commercial banks have built regional and international networks which strengthen regional trade in the financial services (Ikiara, Muriira & Nyagena, 1999).

c) Insurance service

Kenya has seen growth in insurance firms[7] as an industry over the last decade. These firms offer general life and asset management insurance among others.

[6] There are 44 commercial banks, 14 money remittances, 86 forex bureaus, 3 credit bureaus, 12 microfinances, 30 microfinance institutions (Non-deposit taking), 5 mobile money operators and 53 insurers (CBK SASRA 2014).
[7] There were 38 insurance companies, 2 re-insurances, 3 risk management, 163 loss assets, 25 loss adjustors, 19 insurance surveyors, 1 claims settling agency and 491 registered insurance companies since 1999. (Republic of Kenya, 1999a).

d) Transport services

Kenya has developed infrastructure relative to her counterparts in the region. The North Corridor and Standard Gauge Railway are prime examples of this. The main forms of transport are road, rail, maritime, air and pipeline transport. Transport service sector has improved over the years due to these efforts. It grew by 8.7% in 2015 compared to 7.8% in 2014 (Kenya Bureau of Statistics, 2015).

e) Communication services

This sector includes postal services and telecommunications. It is very momentous as engine of production in the manufacturing sectors as well as offering other services. As a result of increased development in ICT and availability of internet, Kenya has become an IT powerhouse as a regional leader With internet alone contributed to 3% of GDP in 2012 (Serletis, 2014).

1.3 GATS Mode of Supply of Exports

The WTO, General Agreement on Trade in Services (GATS) became operational on January 1, 1995. As outlined in GATS, international trade in services can take place in four different modes of supply as discussed briefly below:

i. Mode 1: Cross- border

Services only cross the border through internet or telecommunications.

ii. Mode 2: Consumption abroad

Here, consumers of services consume them while abroad. It is frequently used by accountants, non-banking, financial or legal services firms.[8]

iii. Mode 3: Commercial presence

Firms offer their services through branches or subsidiaries in another country.

[8] It is the least mode of supply used by Kenyan service firms according to (Nora et al., 2011)

Mode 4: Movement of natural persons

This takes place when individual move temporary into another territory in the context of service supply (WTO, 2010). This occurs when engineers and architects go abroad to supervise work at Kenyan embassies or other missions.

1.4 Kenya Strategy for Service Exports

The government through the Export Promotion Council (EPC) has come up with strategic plans to enhance service exports. The export council identifies targeted market research where Kenya's export services will be enhanced. It provides researchers and traders with the necessary information which regards to service exports. It also plans to strengthen use of e-trade services through developing virtual information centers and development of website for exporters. It also offers commercial advocacy and plays a big role in order to reduce trade barriers by working with Kenya Missions abroad and other agencies in order to improve entry to overseas markets for Kenya service providers (EPC, 2012).

1.4.1 Service Exports Trends in Kenya

Kenya is a member of the East African Community (EAC)[9] and since 1980s, service exports from these regions have increased about tenfold (Mbithi & Chekwoti, 2014). This is because of the progressive common market launched by EAC in 2010, in order to remove barriers to movement of services, harmonize standards to ensure acceptability of services trade in the region.

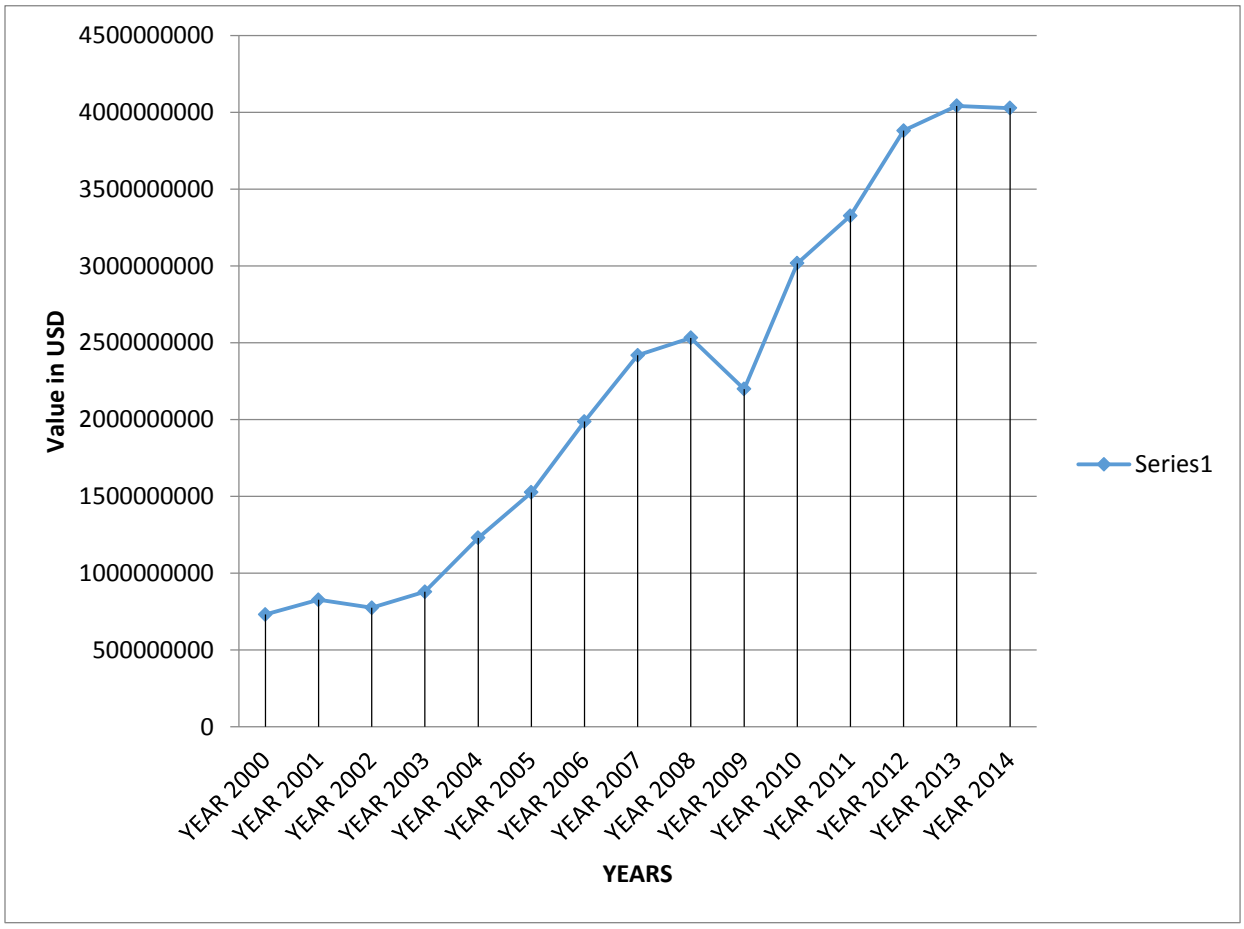
Serletis (2014) found that service sector in Kenya have expanded by 5% annually since the global recession in 2008 and that it is growing faster than agriculture and manufacturing sectors.

[9] Other members of EAC are Tanzania, Uganda, Rwanda and Burundi

This is as result of Kenya diversifying her services with adequate suppliers. Kenya exports of services were valued at $ 4.9 billion in 2012 expanding by 154% from the year 2005. The country exported ICT and financial services worth $ 468 million and $217 million respectively in 2012, making it second to South Africa in the export of these services.

Figure 1: Line graph showing trends in Kenya's commercial services from the year 2000-2014

This clearly shows that Kenya has increased its services trade for the last one and half decades



Source: World Bank 2015

1.5 Statement of the Problem

Despite the expansion of services sector, Kenya has not been able to increase its share of global services trade in the last fifteen years (WTO, 2010). Not many studies have been done on this to find out the reasons why. However, a survey carried out in 1994 found out that some of the factors that hinder exports of services in Kenya include: high ports tariffs, border insecurity, bureaucracy, convertibility of local currencies, technological constraints, government controls and political interference, discriminatory legislation and weak regional integration.

After more than a decade this has not improved yet. A study by Dihel et al., (2011) found that exports of services in Kenya still face a lot of challenges and are restricted by barriers in communication. Due to lack of awareness about the importance of services trade in developing countries, there has been lack of consistency in formulating relevant services trade policy; thus this prevents potential investors in investing in this sector (Mkapo, 2013). In the long run, it hinders service trade despite the absence of restrictions to market access. Clearly, there seems to be a challenge in exporting services from Kenya.

So, this study picks up from there and try to find out the factors affecting services exports in Kenya. This will aide in formulating suitable policies that can enhance trade in services and boost the Kenyan enconomy. The research questions for this study are:

i. What are the determinants of service exports in Kenya?

ii. What policies can be recommended so as to improve service exports in Kenya?

1.6 General Objective

To establish the factors affecting service exports in Kenya

1.7 Specific Objectives of this Study

The specific objectives are to:

1. Identify the determinants of service exports in Kenya
2. Offer policy recommendations based on the study findings

1.8 Significance of the Study

The study will contribute to the existing literature by use of new variable which will be secondary school enrollment; it will be used as proxy to measure human capital that is an important determinant in services trade. Similar previous studies have been done in East Africa but this study will be focused on Kenya only and hence new contribution to the existing literature. The findings of this study will help investors of service firms in Kenya to invest appropriately and it will also help the policy makers on how to improve and support Kenyan firms providing service exports. Finally, it will act as a tool for further research as it will be important for future study to use bilateral service trade data of Kenya and see if the variables used in this study still affect exports of services in the same proportion.

1.9 Organization of the Study

Following this chapter the next chapter will be on literature review. It will tackle theoretical literature review related to service exports and empirical literature on previous researches done on service exports. Chapter three will be on research methods and procedures. It will explain theoretical and empirical models, data sources and measurement of variables used. Chapter four will present empirical results and finally chapter five will outline summary, conclusions and policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section includes theoretical literature review which explains some of the theories of trade with special attention to the theories of trade relevant to the service exports. It then looks at the empirical literature review which evaluates some of the previous studies on determinants of service exports. Ultimately it gives a general overview of the literature review and the way forward for this study.

2.2 Theoretical Literature Review

There are many theories that explain trade between countries. These theories can be classified into the traditional, modern and new theories of trade.

2.2.1 Old theories of trade

These were theories that were envisaged by the founding founders of economics, Adam Smith and David Ricardo and others. They can be discussed under the classical theories of trade.

a) Classical Theories of Trade

It is important to comprehend the concepts of absolute advantage and comparative advantage advanced by Adam Smith and David Ricardo respectively. They are the core principles behind the classical theories of trade. Absolute advantage is the capability of a state to produce more of a given good using lesser resources than the competitive state. In other words, a country should specialize in the production of less costly goods and then trade with another if it wants to have the other goods which are cheaply produced by another country.

Ricardo supported the belief that if one country has an absolute advantage over another in the first line of production and the other country has an absolute advantage over the first one in the second line of production then both countries could gain from trade (Sodersten & Reed, 1994). Henceforth, the concept of comparative advantage became to be known. It is whereby a state produces a good (service) at a lower opportunity cost than another state. As long as the opportunity cost differs, one country has comparative advantage over the other and the two will benefit from trade.

Ricardo further, regarded the concept of comparative advantage has having more weight and being sufficient10 in terms of ensuring mutual gains from trade, because it led to specialization in a specific commodity having a comparative advantage in terms of labor hours used to produce one unit of output (Sen, 2010).

Free Trade and Protection

The principle of comparative shows that for the entire world, free trade leads to higher level of output and income than if they were no trade at all, though, it is important to protect infant industries (Ma & Lu, 2011). Free trade increases productivity as a result of within-industry reallocations rather than cross-industry reallocations (Ciuriak, Lapham, Wolfe, Collins, Curtis, 2011). Even though free trade is encouraged, protection is also necessary but it must be exercised with caution because evidence shows that highly protected economies are attracted to industries that do not have comparative advantage of a nation hence redundant in growth (Gould, Ruffin & Woodbridge,1993).

[10] However, the theory has been contradicted by practicalities. For instance, it has been shown that US exports are less capital intensive than imports and that after 2nd World War, growth in international trade was not leading in any way to the distribution changes Ricardian theory had earlier anticipated.

2.2.2 Modern theories of trade

i) Heckscher and Ohlin (H-O) theory of trade

This theory hesitates on that fact that differences between resources in two countries is what makes them trade in goods and services. It explains that comparative advantage is determined by the interaction between resources that countries are endowed with and the production technology. The state exports goods and services requiring the intensive use of surplus resources and imports goods that require use of thin resources (Purlys, 2007).

ii) Raymond Vernon trade of export dependence

Vernon (1966) says that changes in international trade models are explained by time needed for product cycle. It is based on the availability for the production of a particular product depending on its life cycle. During the life cycle, production normally occurs in areas where they have best conditions suitable for it. Product cycle happens in three phases[11] namely introduction of a new into the market, maturity phase and saturation phase where developed nations begin to exports products from less developed nations.

iii) Staffan Linder and the theory of overlapping demand

Linder in 1961 came up with theory of overlapping demand in which arrays of goods are demanded at per capita levels between countries. This theory is of the view that the higher the needs and GDP level of countries, the more will be trade between them.

[11] 1. Introduction of a new product- the product is most produced in developed regions where technology and innovation are readily available.
2. maturity phase- initial challenges have been eliminated and production increases in volume and the price of a product starts to decline
3. Saturation phase- developed countries begin to lose their comparative advantages and standardize its mass products by exporting from less developed region with lower cost decrease in producing a good.

iv) Samuelson- Jones – specific factors and income distribution model

This theory is based on three factors: capital, labor and territory. It is based on the fact that products or services are produced with a territory using a human labor while manufactured goods are made using capital and labor. Territory and capital are immobile while labor is mobile. The country total production of goods and services is equal to another if it trades with it and if it does not, the total production of goods and services equal to the consumption in that country only.

2.2.3 New Trade Theory

This theory states that changes in trade are based on the fact that products or services are imperfect and there exist intermediary markets. Countries trade because they take advantage of specialization which then permits them to reap large-scale productions (Krugman, 2009). The theory proposes that comparative advantage is not only based on differences in natural resources or geography but also economies of scale and networks between key industries.

2.2.4 New-New Trade Theory

These theories draw their facts from empirical findings that revealed differences among firms within the same industry. These firms seem to have unique features.[12] These theories agree unanimously that firms rarely participate in the international market and if they do, then they are different from those ones that do not enter . Those that gain entry into the foreign market are larger, more productive , have capital and skilled- labour intensive and finally grow faster in output (Ciuriak et al.,2011).

[12] These firms have fixed cost, overhead cost is constant, cost of exporting certain units in the labor market is fixed and FDI of labor in foreign market is also fixed.

2.2.5 Theories of Trade with Respect to Service Exports

a) Comparative advantage

Comparative advantage can be due to differences in technologies or factor supplies. In the absence of developed theories to explain trade in services, then comparative advantage theory can apply to trade in services too. Heckscher-Ohlin (H-O) theorem says that a country will export more service that makes use of intensive factors of production it is endowed with in plenty. Countries which export more of a service are the ones which have tertiary level of education attained, qualified workers, have developed information technology (IT) and communication services (Nasir, 2012).

Although, most theories of trade can be used to explain export of services, trade in services is different from trade in goods because services are just flows and not storable. Therefore, their trade more often requires the proximity of a supplier and consumer. Francois and Hockman (2009) came up with the concept of proximity burden because of the need to have suppliers and consumers in trade of services

b) Outsourcing: Theoretical Model

A firm can outsource some of its service to outside firms which were earlier part of the production (Nasir, 2012). Theoretically, let us assume that profit maximizing firm in country j is grouped into services and products. Therefore, we will have this equation:

$C = S + P$ ……..... (i)

Where C is the total of producing one unit of a product, S is the service cost and P is the product cost. Service can be further divided into tradable and non-tradable.

$C = St + Snt + P$ …….. (ii)

Where St is the cost of tradable services and Snt is the cost of non-tradable service. A firm can decide to outsource part of tradable service to another country say Z if the cost of imported service Smt, transaction cost[14] inclusive, are below the cost of domestic service. Outsourcing makes the cost of tradable services of a firm to be less than the local production.

St > Smt +Sdt …….. (iii)

C= St +Snt +P >Smt +Sdt +Snt +P ……. (iv)

This theoretical model explains why developed countries import services from developing countries like Kenya. However, developed countries keep the core task and outsource peripheral task to developing countries so long as the countries have minimum level of skills.

FDI, Technology and Trade

There are several theories with regards to FDI and technology and the great role they play in exports of goods and services. Innovation leads to new technology that leads to new products and services that can be exported to the rest of the world. The new-new trade theory becomes important when firms want to choose the market through FDI. The theory argues that firms compare transport cost to certain market and if it outdoes fixed cost of having a link with foreign market, firms will resolve to international markets through FDI.

2.3 Empirical Literature Review

Kandilov & Grennes (2010) in a study to find out the determinants of service exports from Eastern and Central Europe using gravity model; found that geographical distance varied across different service categories. It had significant impact on construction service but distance was negligible in insurance service. They also found that the quality of legal institutions was

[14] This cost includes delivery, coordination, legal and travel services cost

consisted with the expected results and had large positive on most of the service categories that they analyzed.

Kaur (2011) used gravity model to analyze the determinants of service exports of US with its Asian partners. He used panel data and found that GDP had significant impact on the export of services. Increases with GDP will increase the export of services. He also found that openness of trade had significant positive impact on the export of services. Countries tend to trade in services with those ones that have liberalized their trade. Corruption was also found to have a significant impact on the export of services. As corruption in the important country increased, the exporter increases the services exported.

Goswami, Mattoo and Saez (2011) found that the determinants of trade in services in developing countries are human capital, natural resources, infrastructure such as telecommunication service, policies[15] that affect trade, investment and labor mobility especially in the provision of services. They also found that regional integration and trade promotion services play a great role in influencing the exports of services.

Covaci and Moldovan (2015) used a gravity model to find out the determinants of aggregate service exports and seven service categories in Lithuania and found that GDP of exporting country, common language spoken exert a positive effect on trade in services. They also found that time zone differences, membership to European Union (EU) and human capital varied across categories of services while remoteness of the destination country was insignificant for most services except transport, other business services and information technology.

[15] Those policies range from cross-border trade e.g. transport financial services and healthcare

Wolfmayr, Christen and Pfaffermayr (2013) used a firm level to analyze patterns, determinants and dynamics of Austrian service exports and found that trade barriers and market sizes[16] were important determinants of service exports in Austria. More so, liberalization of product market regulation yields a reinforced service exports in existing trade relationships and broaden the exporter capacity. Finally, they found that economic policy especially policies aimed at improving productivity levels increase the number of service exports.

A study carried out by the bank of India (2012) on export-import of services, found that market size and exchange rate significant impact on the exports of service in India. Mallick (2012) in studying the role of exchange rate on goods and services exports, using gravity model found that aggregate products affected service of exports positively while distance affected it negatively as with the expectations of the gravity model. He also found that product of income per capita, free trade, common language, and common currency facilitate exports of services more than goods exports.

Karam and Zaki (2013) in studying determinants of trade in services at MENA[17] region used an adopted version of the gravity model by taking into account the unilateral variables of the variables that are normally found to influence bilateral trade, since they were interested more in each country's trade. They found that GDP, regional integration and trade liberalization had positive impact on export of services. Other variables such as language, latitude, bilateral distance had no impact at all on export of services. Bilateral distance affects trade in goods adversely but not trade in services because some services can be exported electronically.

[16] Large & productive firms exhibit greater probability of exporting a service

[17] MENA refers to Middle East and North Africa region. They include the following countries: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, West Bank, Gaza and Yemen. Ethiopia and Sudan are sometimes included.

Mkapo (2013) in studying service trade and non-oil exports in Nigeria normality test, co-integration test and dynamic approach model and found that FDI, domestic service GDP, government expenditure on services such as transport, communication and education had positive impact on exportable services. Sudersan & Karmali (2011) used static and dynamic model and multiple-linear regression to analyze determinants of India's service exports and they found that trade in goods and value of service GDP sector significantly impacted on India's export of services.

Majeed, Ahmad and Khawaja (2006) wanted to find out the internal and external determinants of exports in developing countries as export growth is determined by external factors such as FDI and real exchange as well as internal factors such as GDP growth rate, communication facilities, savings, industrializations, labor force and official development assistance. They found that FDI, GDP growth rate, exchange rate, expansion in communication facilities, labor force, increased savings and industrialization had significant impact on the exports of goods and services.

2.4 Overview of Literature Review

The theoretical literature showed that trade theories such as comparative advantage, new trade theories among others can be applied in the study of service exports. From the empirical literature review, it showed that for the few papers that have been written on determinants of service exports, most studies used gravity model, however, the model has its own limitations especially in determining export of services. This is clearer from a study done by Karam and Zaki (2013) where they used adopted version of the gravity model to analyze panel data for MENA region in export of services. Having used unilateral variables for the variables used in gravity model, they found that common language, latitude and distance had no influence at all in

export of services and they gave their reason that not all services require movement from one location to another. Some can easily be transacted electronically.

Majeed et al., (2006) used multiple linear regression model to analyze internal and external determinants of service exports and the findings were in line with those of gravity models and more accurate. This study will therefore not use gravity model in the analysis, partly because the data for the bilateral trade of Kenya's service exports is currently not available and secondly the study is more interested in finding out both the internal and external determinants of service exports in Kenya hence gravity may not be useful. It will therefore employ other models and used some of the variables used in determining exports of service and to what extend do they hold for Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY AND PROCEDURES

3.1 Introduction

This section presents methods and procedures that will be followed to analyze the determinants of service exports in Kenya. It comprises of the theoretical framework, empirical model, definitions of variables and expectations, estimation techniques and data sources.

3.2 Theoretical Framework

There are several export demand functions that have been used in the past to analyze exports of goods and services. Siregar and Rajan (2002) in studying '*The impact of exchange rate volatility on Indonesia's trade performance*'; used this export demand function:

$X_t = f(Y_t^{foreign}, P_t, V_t)$ ……..... (vi)

in which case X_t is the quantity of exports, $Y_t^{foreign}$ is the world GDP, P_t is the terms of trade and V_t stands for exchange rate volatility.

Hondroyiannis, Swammy, Tavlas and Ulan (2005) in analyzing exchange rate volatility on exports estimated the following export demand function:

$X= f(Y, R_p, O_{p,} V)$ ……... (vii)

where X was the quantity of exports Y is the real GDP of trading partner, R_P is the relative price, O_p is the earnings on exports and V is a measure of exchange rate volatility.

Kasman and Kasman (2005) analyzed exchange rate volatility in Turkey and its impact on exports volume; using this export demand function:

$X= f(Y, P, V)$ ……..... (viii)

where X represents the volume of exports, Y is the real foreign income, P stands for relative prices and V is the measure of exchange rate volatility. In the above studies exchange rate affected exports adversely.

With respect to export of services, Sudersan and Karmali (2011) in analyzing determinants of service exports in India used this export demand function:

TS = f (TG, VSS) ……..... (ix)

Where TS is trade in total services, TG is the trade in goods and VSS is the value of service GDP. It was found that VSS affected trade in services in the long run.

Mkapo (2013) used the following export demand function to analyze trade in services and non-oil export in Nigeria:

TES= f (GEC, ACGSF, SGDP, ROAD, ACU, FDI, EPC) …….. (x)

Where TES represents total exportable services, GEC is expenditures of government on services, ACGSF is the volume of agricultural credit, SGDP is the value of service GDP, ACU is the average capacity utilization in megawatts, FDI is the foreign direct investment in trading services and EPC is the dummy variable denoting liberalizing. FDI, SGDP, ACU, EPC and Road network affected exportable services positively.

3.3 Empirical Model

From the empirical literature review and borrowing from the export demand functions used by Sudersan and Karmali (2011) and Mkapo (2013), the export demand function for this study can be modified as follows:

ComSer = f (MerExp, SerGDP, FDI, RER, TOT, SSE, TLIB TOP) …… (xi)

Where **ComSer** is the aggregate commercial services exported by Kenya

MerExp represents Kenya's merchandised GDP

SerGDP represents Kenya's service GDP

FDI is the Foreign Direct Investment

RER is the real exchange rate

TOT is the terms of Trade

SSE is the secondary school enrolment. Human capital enhances production of service. This variable is used because human capital can be measured in terms of skills and knowledge. It has been hypothesized that developed countries seem to import services from semi-skilled labor which are generally found in developing countries, because they are cheap. **TLIB** is trade liberalization. It will be used as dummy variable where 1970 to 1994 will take the value zero and from 1995 to 2015 it will take the value one. The year 1995 onwards is used because this is when Kenyan markets became fully liberalized. **TOP** is the trade openness. The above theoretical services export function modified from Sudersan and Karmali (2011) and Mkapo (2013) export demand functions; will be used as empirical model to find out the determinants of service exports in Kenya as follows:

$$\mathbf{ComSer = \beta_0 + \beta_1 MerExp_t + \beta_2 SerGDP_t + \beta_3 FDI_t + \beta_4 RER_t + \beta_5 TOT_t + \beta_6 SSE_t + \beta_7 TLIB_t + TOP + \varepsilon_t} \quad \text{.....(xii)}$$

All the variables are the way they are stated above except ε_t which stands for the error term.

3.4 Definition of Variables and Expectations

Table 3.1: Showing Definitions of Variables and Expectations

Variable	Description	Expectation
Commercial service exports	This is the aggregate commercial services exported in dollars.	It is the dependent variable
Exports of Merchandised goods	It is the value of export goods in US dollars	It is expected to be positive
Value services GDP	This is the value of service GDP in percentage	It is expected to be positive
FDI	It is measured as a percentage of GDP	It is expected to be positive
Real Exchange Rate	It is the lending interest rate adjusted for inflation as measured by GDP deflator	Expected to be negative/ positive
Terms of Trade	It is the ratio of service exports to service imports	It is expected to be positive
Secondary school enrollment	It will be used as a measure of human capital	It is expected to be positive
Trade liberalization	It will be treated as dummy variable. A period from 1970 to 1994 will take a value of 0 and from 1995 to 2015 will take a value of 1	It is expected to be positive/negative
Trade Openness	It is the trade openness in Kenya	It is expected to be positive

3.5 Estimation Procedures

The study will use ordinary least squares method to estimate the linear regression model stated above. Since the study is using secondary time series data, thorough analysis of each variable will be carried out through the preliminary tests below in order to avoid spurious regression that will lead to inaccurate empirical findings. The analysis will be carried out using stata software.

3.6 Pre-estimation Tests

3.6.1 Multicollinearity

If it is present, it make the coefficients to become indeterminate and standard errors become infinite. Variance infactor test will be used to test for collinearlity. If multicollinearity is present, the variables which are affected will be dropped or retained depending on the level of multincollinaerity.

3.6.2 Normality Test

In order to have credible results, normality test should be done just in case there are residuals that are not normally distributed which may thereafter result to invalid inference from t-test and F-test statistics. The study will make use of Shapiro-Wilk test to test for normality. W, V, Z and P values will be coimputated. P- value is used to make an inference. If p- value calculated is greater than the critical value, then the variable will be normal. However, if the p- value calculated is smaller than the critical value, then the variable is not normal.

3.6.3 Testing for unit root

Miguel (2006) found that data like FDI and exchange rates tend to exhibit a deterministic or stochastic time trend and therefore are non-stationary. We use therefore use unit root test in order to classify a series into stationary or non-stationary (Sjo, 2008). This is important because if you regress a non-stationary series against another one will lead to spurious results that suggest that a relationship exists when in fact it does not (Engle & Granger, 1987). The Augmented Dicker Fuller (ADF) test will be used to test the unit root. The hypothesis will be set as following:

H_0: non-stationary series

H_A: stationary series

Reject the null hypothesis and consider data to be stationary if the ADF test statistic is more than Mckinnon's critical values, otherwise do not. The null hypothesis is accepted i.e. when there is non-stationary series. Therefore, do differencing until all the non-stationary variables are transformed and become stationary of certain orders such as I (0) or I (1).

3.7 Data sources

The study will use annual secondary time series data from 1970 to 2015 where aggregate commercial services will be dependent variables. The data for the dependent and independent variables will be acquired from World Bank development indicators, data.worldbank.org/indicators/, the globaleconomy.com and KNBS

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSION OF RESULTS

4.1 Introduction

This chapter will look at the analysis of the data using stata software and will present the empirical results at the end. It will begin by looking at the measures of central tendency and dispersion. It will then look at the pre-estimation tests before using ordinary least square method to regress the data. Finally it will discuss the empirical findings.

4.2 Descriptive Statistics

Table 4.1: Summary Statistics

stats	ComSer	MerExp	SerGDP	FDI	RER
mean	1.25e+09	2.17e+09	49.45401	.6173913	6.668913
median	7.66e+08	1.36e+09	50.46256	.46	6.23
max	4.04e+09	6.13e+09	54.96807	2.53	21.1
min	2.03e+08	3.05e+08	40.06217	0	-8.01
variance	1.34e+18	3.15e+18	12.47124	.3025842	56.61989
sd	1.16e+09	1.78e+09	3.531464	.5500765	7.524619
kurtosis	3.471398	2.994367	2.661566	5.929544	2.408617

Stat	TOT	SSE	TLIB	TOP
mean	88.97022	39.9013	.4565217	57.99565
median	88.115	39.36	0	55.815
max	114.02	68.72	1	74.75
min	70.15	16.64	0	47.68
variance	100.3822	207.2132	.2536232	45.30094
Sd	10.01909	14.3949	.5036102	6.730598
Kurtosis	2.847515	2.498395	1.030476	2.911909

Where ComSer= Commercial service exports, MerExp= Merchandized goods exports, SerGDP= the value of service GDP, FDI= Foreign Direct Investment, RER= Real exchange rate, TOT=Terms of trade, SSE= Secondary school enrolment, TLIB= Trade liberalization and TOP= Trade openness. The total number of observation considered in this study was 46.

From the above summary statistics, the mean of the commercial service exports is 1.25e+08 US dollars and the median was 7.66e+08 US dollars. The maximum and the minimum were 4.04e+09 and 2.03e+09 US dollors respectively. While commercial service exports deviated by 1.16e+09 from its mean. The mean for the value of merchandized goods in the study period in US dollars was 2.17e+09, the median was 1.36e+09, the maximum was 6.13e+09 and the minimum was 3.05e+08 and finally the value of goods exports varied by 1.78e+09 from the mean.

The mean of Foreign Direct Investment was 0.61% of the GDP while the median was 0.46%. of the GDP. The maximum FDI Kenya has ever received during the study period was 2.53% of the gross domestic product while it had a deviation of 0.55% in the same period. Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP inflator. Its mean was

6.6% and the highest interest rate in the study period has been 21.1% while the lowest was -8.01%. It had a variance of 56.61%.

Terms of trade was calculated as the percentage ratio of the export unit value indexes to the import unit indexes measured relative to the base 2000. It had a mean of 88%, a median of 88.15%. The highest it has ever been in the study period was 114.02% and the lowest has been 70.15%. It deviated from its mean by 10.01%.

The secondary school enrollment is the total enrollment in secondary school education, regardless of age, expressed as percentage of population of official secondary school age. It had a mean of 39.90% and median of 39.36% meaning it was not widely dispersed. The highest enrollmet was 68.72% and the lowest was 16.64%. There is no much that can be said of trade liberalization because it was used as a dummy variable taking a value of either 0 or 1. The mean for trade openness was 58%, the median, maximum and minimum were 55.82%, 74.75% and 47.68% respectively. Where the mean and the median are close, it means that the data is not affected by outliers.

Since it is a time series data, kurtosis was used in order to measure the flatness of the distribution. If it is 3 then it is normal, and if it is >3 it is peaked (leptokutotic) and if it is <3 that it is flat (flatykurtotic). From the above table, all of the variables were flatykurtotic except commercial service exports and FDI which were peaked.

4.3 Pre-estimation Tests

4.3.1 Multicollinearity

It will arise if two or more variables are highly related. A correlation of about 0.8 and above shows collinearity between two variables. Vector Integrating Factor and Tolerance (I/VIF) tests are used to test for collinearity. If multicollinearity is present, the affected variables will be dropped or left depending on the level of collinearity. When using the VIF, an a conclusion is made based on its value. If the VIF value is greater than 10 or 1/VIF is less than 0.1 then there is multicollinearity. Alternatively, if the VIF is less than 10 than multicollinearity does not exist.

Table 4.2: VIF and Tolerance Findings

Variable	***VIF***	***1/VIF***	***Status***
MerExp	*17.45*	*0.057305*	*Multicollinearity present*
SSE	*16.21*	*0.061700*	*Multicollinearity present*
TLIB	*5.91*	*0.169264*	*Multicollinearity absent*
SerGDP	*3.49*	*0.286853*	*Multicollinearity absent*
TOT	*2.08*	*0.480473*	*Multicollinearity absent*
TOP	*1.59*	*0.629010*	*Multicollinearity absent*
RER	*1.54*	*0.651221*	*Multicollinearity absent*
FDI	*1.14*	*0.877972*	*Multicollinearity absent*

The above results in table 4.2 shows that multicollinearity is present in MerExp and SSE since their VIF is greater than 10 and 1/VIF is less than 0.10%. Multicollinearity is absent in the other variables. MerExp and SSE will however be retained in the model since the multicollinearity is not so high.

4.3.2 Normality Test

The study will use the Shapiro-Wilk test to find out the normality of the variables. A variable will be normal if its mean, mode and median are equal. This test gives four categories; a W, V, Z and P values. The p- value is used to make inference of the normality. If the calculated p- value exceeds the critical value then the conclusion is that the value is normal, less it is non-normal if the calculated p-value is smaller than critical value.

Table 4.3: Shapiro- Wilk Normality Test

Variable	Obs	W	V	Z	Prob>z	status
ComSer	46	0.79820	8.890	4.637	0.00000	Non-normal
MerExp	46	0.80765	8.473	4.535	0.00000	Non- normal
SerGDP	46	0.95749	1.872	1.331	0.09157	Normal
FDI	46	0.82569	7.679	4.326	0.00001	Non-normal
RER	46	0.96731	1.440	0.774	0.21941	Normal
TOT	46	0.97016	1.314	0.580	0.28092	Normal
SSE	46	0.94047	2.622	2.046	0.02039	Non-normal
TLIB	46	0.99582	0.184	-3.589	0.99983	Normal
TOP	46	0.92942	3.109	2.407	0.00803	Non-normal

From the results in table 4.3, clearly, the value of service GDP, real exchange rate, terms of trade and trade liberalization were normal at 5% level of significance while the rest of the variables were non-normal at the same level of significance.

4.3.3 Stationarity (Unit Root Test)

An Augmented Dicker Fuller test will be used to test for the unit root. A variable is stationary if the t-calculated is smaller than the t-critical, otherwise it is not.

Table 4.4: Showing Unit Root Test Results

Variable	**Test Statistic**	**1% critical Value**	**5% critical value**	**10% critical value**	**Status**
ComSer	**0.684**	**-3.614**	-2.944	-2.606	Non- stationary
MerExp	**1.126**	**-3.614**	-2.944	-2.606	Non- stationary
SerGDP	**-1.494**	**-3.614**	-2.944	-2.606	Non-stationary
FDI	**-6.528**	**-3.614**	-2.944	-2.606	Stationary
RER	**-3.936**	**-3.614**	-2.944	-2.606	Stationary
TOT	**-2.188**	**-3.614**	-2.944	-2.606	Non- stationary
SSE	**0.090**	**-3.614**	-2.944	-2.606	Non-stationary
TLIB	**-0.892**	**-3.614**	-2.944	-2.606	Non-stationary
TOP	**-3.549**	**-3.614**	-2.944	-2.606	Non-stationary

From table 4.4 all the variables were non- stationary except FDI and RER which were stationary because there test stataistics were less than the critical values. For the variables that are non-stationary a differencing has to be done until they are stationary.

Table 4.5 ADF Test Results for Differenced Variables

Variable	Test Statistic	1% critical value	5% critical value	10% critical value	Nature
dComSer	**-6. 054**	**-3.621**	-2.947	-2.607	**Stationary**
dMerExp	**-6. 726**	**-3.621**	-2.947	-2.607	**Stationary**
dSerGDP	**-6. 388**	**-3.621**	-2.947	-2.607	**Stationary**
dTOT	**-6. 305**	**-3.621**	-2.947	-2.607	**Stationary**
dSSE	**-7. 321**	**-3.621**	-2.947	-2.607	**Stationary**
dTLIB	**-6. 633**	**-3.621**	-2.947	-2.607	**Stationary**
dTOP	**-8.016**	**-3.621**	-2.947	-2.607	**Stationary**

After differencing the non- stationary variables once all of them became stationary.

4.4 Regression Results

Having checked for the violation of Ordinary Least Square (OLS) assumption through the diagnostic tests done above, we now carry out the regression using OLS.

Table 4.6: Showing Regression Results

dComSer	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
dMerExp	.6206736	.1021673	6.08	0.000	.413663	.8276841
dSerGDP	-1.85e+07	2.30e+07	-0.81	0.425	-6.50e+07	2.80e+07
FDI	1.35e+08	8.42e+07	1.60	0.118	-3.60e+07	3.05e+08
RER	1.64e+07	7149551	2.30	0.027	1937209	3.09e+07
dTOT	8487185	6251218	1.36	0.183	-4178986	2.12e+07
dSSE	3712105	1.21e+07	0.31	0.762	-2.09e+07	2.83e+07
dTLIB	-1.95e+08	2.10e+08	-0.93	0.358	-6.20e+08	2.29e+08
dTOP	-1.44e+07	8132897	-1.77	0.085	-3.09e+07	2077775
_cons	6.45e+08	1.09e+09	0.59	0.558	-1.57e+09	2.86e+09

Number of Obs= 46

F(8, 37) = 84. 46

Prob >F = 0.0000

R- Squared = 0.9481

Adjusted R- Squared = 0.93669

Root MSE = 2.9e +08

4.5 Interpretation and Discussions of the Results

An R-Squared of 0.9481 means that 94.81% of the variation in the aggregate commercial services exported is explained by the independent variables. Thus the remaining 5.19% variation in the model is captured by the error term. If all the other variables were zero, the export of services would be 6.45e+08 (**19,227.18**) US dollars. The results indicate that value of merchandized goods, foreign direct investment, real exchange rate, terms of trade, secondary school enrollment were positively related to the export of services. They were also consistent with the theory and empirical findings in the previous studies done. The value of service GDP, trade liberalization and trade openness were were negatively related to the service exports. This contradicts the empirical findings in the previous studies.

Holding all other factors constant, a one dollar increase in the value of merchandized goods exported increases the export of services by 0.6206736 dollars and it is significant. This conforms to the theory that merchandized goods exported reinforces the export of services. It is also consistent with the previous study done by Sudersan and Karmali (2011). Holding all other factors constant, a 1% increase in the value of service GDP reduces export of services by 1. 85e+07 (**2,028.77**) US dollars. It is statistically insignificant. This finding is inconsistent with the

existing theory that says that the more a country produces services, the more it is likely to export them. The result of this variable is also not in agreement with the previous studies done by Sudersan and Karmali (2011) and Mkapo (2013). This could perhaps be explained by the fact that although Kenya is expanding its service sector production there are no appropriate policies that aid in the export of these services.

Holding all other factors constant, a 1% increase in the value of foreign direct investment as percentage of GDP increases the export of services by 1. 35e+08 (**4,024.30**) US dollars. This is consistent with the previous researches done by Majeed et al., (2006) and Mkapo (2013). It also agrees with the theory that an increase in FDI flow in a country brings in new skills, technology and innovation that advances growth and export of services. However, it is insignificant.

A 1% increase in exchange rate will increase export of services by 1.64e+07 **(1,798.48**) US dollars holding all other factors constant. This agrees with the research done by Majeed et al., (2006). It was also statistically very significant. This means that the exchange rate of dollar increases while in this case the Kenyan Shillings depreciates. This is consistent with theory that says if a country currency depreciates, its goods or services become attractive to the rest of the world while its imports become relatively more expensive thus favouring domestic production. Holding all other factors constant, a 1% increase in the terms of trade increases export of services by 8,487, 185 US dollars. This is consistent with theory that states that an increase in the terms of trade encourages the trading partners to trade more. However, it is not significant.

Holding all other factors constant, a 1% increase in the secondary school enrollment increases export of services by 3,712,105 US dollars but it is significant. This is in agreement with the existing theory that asserts the more developed the human capital, the more production of

services which leads to the export of services. Countries tend to exports from countries whose services are produced cheaply. This finding is also consistent with the previous studies done by Covaci and Moldovan (2015).

The coefficient to the dummy variable trade liberalization is negative and insignificant. This agrees with the economic theory that says trade restrictions and controls hinder exports of goods and services. For the case of Kenya this was negative partly because the period from 1970 to 1994, the country had not fully liberalized trade in goods and services. Lastly, but not the least, when all other factors are held constant, a 1% increase in trade openness reduces export of services by 1.44e+07 (**1579.15**) US dollars and it is insignificant. This contradicts the research done by Kaur (2011). With regards to Kenya, it means that it still has restrictions to external trade through tarrifs and non-tarrifs.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

5. 1 Introduction

This chapter concludes the research by presenting the findings of the study, conclusions and policy implications. This research was motivated by the fact that Kenya has expanded its service production but is still not able to increase its share of global trade in services. Furthermore, exports of services in Kenya still face a lot of challenges. The study's goal was thus to identify the factors that affect service exports in Kenya. The study period was 1970 to 2015.

5.2 Summary

In this study, it was found out that most variables affected exports of services positively. Only two variables were correlated but the multicollinearity was not very high. On conducting the unit root test for stationarity; it was found out that all the variables were non-stationary except foreign direct investment and real exchange rate. However, after carrying out first differencing, all the variables that were not stationary became stationary. The goodness of fit was satisfactory because it was 94. 81% meaning that only 5.19% was accounted for by the error term.

5.3 Conclusion

The value of merchandized goods was positively related to export of services and consistent with existing empirical evidence. The value of service GDP was negatively related to the export of services and in contradiction to the expectation. This could be explained by the fact Kenya has no good policies with regards to services export. Foreign direct investment, terms of trade and secondary school enrollment were positively related to the export of services and consistent with the findings of the previous studies. Trade liberalization and trade openness were negatively

related to the exports of services. This could mean that Kenya still has trade restrictions in the form of tariffs, non-tarrifs and quotas among others.

5.4 Policy Implications

From the findings above, it can be deduced that only two variables were significant. The value of merchandized goods and real exchange rate were very significant. This has the policy implication that the government should continue to encourage more exports of goods and in the process it will also increase service exports. It should constantly regulate its exchange rate through monetary policy by the Central Bank of Kenya so as to increase exports of services. The value of service GDP was negatively related to the export of services contrary to the expectation. This means that although Kenya is expanding its services sector, it has not come up with coherent policies to promote the export of services. Thus the Kenyan government through the Export Promotion Council should adopt better policies in order to encourage export of services.

Foreign direct investment, terms of trade and secondary school enrollment were also positively related to the export of services. However, these variables were insignificant. That means that Kenya benefits very little from the foreign direct investment and terms of trade that are associated with services. Therefore the government should come up with policies that directs some of the foreign direct investment to be invested in the service sector. The government should also increase its term of trade with regards to services. It should export more of services and import less of it. The government should also investment more in secondary school education and increase its enrollment. By doing so, it will improve its human capital and hence this will translate to more production and export of service

The coefficients of trade liberalization and trade openness were negatively related to the export of services, this confirms to the results of the survey that was carried out in 1994 that highlighted high port tariffs, government controls as some of the factors that hindered export of services. This means that Kenya has not fully liberalized its trade and still has some restrictions. The government should therefore liberalize its trade fully and remove all the trade barriers with respect to trade in services. If some if not all policy recommendations are implemented, it will increase export of services and hence potential investors in service industry will invest more and this will even increase production of services and therefore, improve the Kenyan economy.

5.5 Limitations of the Study

The study relied on the data available from the World Bank, global economy. com and KNBS. There are other variables such as corruption index, rule of law, roadnetworks, internet users that affect export of services; but the data on these variables were missing. If they were available, perhaps they could have improved the model. The variables of the gravity equation model such as distance, time, trade bloc and common language were left out because the study only focused in Kenya since there was no bilateral data available. May be if these variables were used, they would have changed the outcome of the results.

5.6 Areas for further Research

It is important to use some of the variables left out in future research so as to find out how they affect export of services in Kenya. Furthermore, future research should focus on specific service sector and see what are some of the factors that affect their exports. Bilateral service trade data of Kenya and her trading partners should be used in the future through the gravity model and see in what proportion do these variables used in this study vary when bilateral service trade data is used.

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