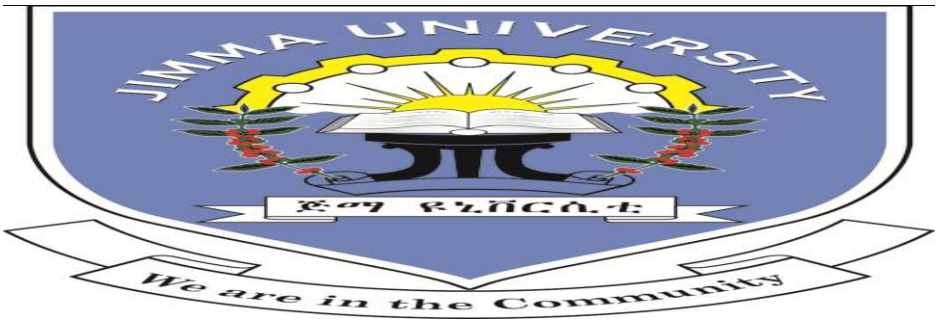
DETERMINANTS OF EXPORT GROWTH IN EAST AFRICAN COUNTRIES: A PANEL DATA ANALYSIS

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE AWARD OF THE DEGREE OF MASTER OF ECONOMIC POLICY ANALYSIS

BY

GEBEYAW KASSIE ABESHA



JIMMA UNIVERSITY

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MAY 2017

JIMMA, ETHIOPIA

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DECLARATION

I hereby declare that this thesis entitled "Determinants of export performance in east African countries: Panel Data analysis", has been carried out by me under the guidance and supervision of Asst. Prof. Mudihn MuhammedHussen and Mr. Endeg Tekalign (M.Sc.).

The thesis is original and has not been submitted for the award of degree of diploma in any university or institution.

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CERTIFICATE

This is to certify that the thesis entities "Determinants of export growth in East African countries: panel data analysis", submitted to Jimma University for the award of the Degree of Master of Science in economic policy analysis and is a record of valuable research work carried out by Mr. Gebeyaw Kassie, under our guidance and supervision.

Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree of diploma.

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LIST OF ACRONYMS

CC- Control of Corruption

CLRM – Classical Liner Regression Model

EA – East Africa

EAC – East African community

FAO – Food and Agriculture Organization

FDI – Foreign Direct Investment

G7- Group Seven Countries

GDP – Growth Domestic Product

GE - government effectiveness

IID- Independent and Identically Distributed

IIGG – Ibrahim Index of Good Governance

IMF – International Monastery Founds

IPS - Im, Pesara and Shin

LLC- Levin, Lin and Chu

NTT- New Trade Theory

OLS – Ordinary Least Square

PS - political stability and absence of violence

REER - Real Exchange Rate

RL - Rule of Law

RQ - Regulatory Quality

UNCTAD – United Nation conference on trade and development

WTO – World Trade Organization

Abstract

The paper examines the effect of demand and supply side factors on the export performance of East Africa countries. Mainly, the study focuses on analyzing the relative importance of the two major factors in determining East African countries' export performance. The study employed balanced Panel data set using random effect estimation techniques in order to address the question. The data covers a period of 15 years (2000 to 2015) for nine East African countries. The random effect model estimation result indicates that the supply side factors such as GDP of exporting countries, and trade openness affect positively and significantly the export performance of East African countries. While foreign direct investment and average institutional development found to be insignificant for the export development of the region. The study also indicates that all demand side factor such as membership to world trade organization dummy (WTO) and real exchange rate except average income of major importing countries have significant contribution to the export performance of East African countries. Generally, the result indicates that both the supply and demand side factors equally important in determining the export performance of East African countries. Based on this among others things, East African counties should eliminate or at least minimize import and export duties, devaluate their currency, membership to WTO, creating conducive environment for GDP growth so as to improve their export performance.

Keywords: Demand Side Factors, Export Performance, Random Effect Estimation Technique, Supply Side Factors,

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The Economic development of any country is determined by many macroeconomic variables, of which export is considered as one of the very important factors that drive a country's economic growth.Itsupports the contention that development requires economic growth particularly in developing countries so as to alleviate poverty, and for greater access to world markets.More over exports facilitate better offin resource allocation, efficient management style, economies of scale, and efficiency (Awokuse, 2003).

Export performance is one of the main determinants of economic growth and hence development of any country. Emphasis on exports helps concentrate investment in the more efficient sectors of the economy, thus raising productivity. Efficiency is aided further by production for international markets since this permits greater economies of scale and forces firms to hold down their costs in order to remain competitive in international markets. In addition, profitable export industries stimulate additional investment, encourage an increased flow of new technology and managerial skills, and stimulate increased consumption. Further, exports enable imports of essential raw materials and capital goods, thus increasing investment in the economy and thereby resulting in higher output (Rana and Dowling, 1999).

Greater diversification of exportable commodities including manufacturing products is essential. This is because manufacturing exports remain one of the most powerful engines for economic growth.Thus manufacturing has been confirmed the main vehicle for technological and human development. Today, the sector represents the hub of technical progress, both in developed and developing countries (Albaledjo, 2003).

According to new statistics from the World Trade Organization (2013) Globally commercial service export have been increase from $4397billion to $4644billion; However, Africa has experienced the opposite trend – dropping more than 4 percent from 2012-2013 to

$79.55bn.Thus Africa is the only region in the world to experience a negative growth in commercial services exports.

According to Adebusuy (2004) cited in Aman(2016)about 80 to 90 percent of the total export of many African countries are primary commodities which characterized by long term decline in prices, variability of export volume, deterioration in terms of trade and the instability of commodity markets. This makes poor export earnings and stagnant economic growth and difficulty of poverty reduction in Africa. For instance, for most East African countries coffee, cute flowers, tobacco, fish, vegetables and tea are the leading exporting item, and the export mix is remain the same for 2011 and 2012 in these countries (EPA, 2010).

Sub-Saharan African countries are marginalized from the world economy mainly because of its structural problem. Furthermore, these countries have been faced with the difficulties of diversification in production and export of manufactured goods. Accordinglyone of the main problems for the stagnant of or the in regression of the East African economy is the international economic and political environment that these countries are unable to compute in the international market mainly due to lack of qualitative and diversified marketable commodity (Kendie, 2012).

East African countries relay on the export of agricultural raw material or unprocessed commodities. This leads to a continuous fluctuation of prices in the world market,and this is in line with the Prebisch-Singer hypothesis (PSH), which state that primary goods exports face declining terms of trade due to their low value added to manufacture goods and the constant fluctuations in world prices (Prebisch, R., 1950). The primary agricultural commodities exports are seasonal and fluctuate over time partially depends on imported inputs and equipment like fertilizers, pesticides, machineries (Aman, 2016).This study mainly focused on factors affecting the performance of export based on experience derived from East African countries.

1.2. Statement of the Problem

Most developing countries have witnessed major changes in trade policies since the 1990s: making more trade friendly economies by reducing trade barriers. The export data show that the growth of exports least developing countries is one percent lower compared to that ofdeveloped countries for the 1960 to 2009 (Corden, 2014).However, the growth ofexport for Sub Saharan African countries with the exception of South Africa and Mauritius is stagnant. For instance, the share of export value added to GDP for Sub Saharan Africa countries accounts only 13% which

is the lowest in the world, even below the average of low income countries of the world (Amakom, 2012).

East African countries'foreign trade is characterized by persistent trade deficit, domination of primary goods in the export basket and domination of industrial goods in the import basket. According to African development bank report (2011) the real export growth of East African countries is the lowest even below the average of Africa. It declines from 24.9 in 2000 to -1.2 in 2009.

This unsatisfactory performance irrespective of the countries' effort to increase its respective foreign exchange earnings by employing concrete policy measures and incentive programs call for careful investigation of factors constraining export growth and performance. The study of and Ahmad (2006) found that sustainable and high growth of GDP, stable real exchange rate policy, industrialization helps to improve the export performance of developing countries. Paulino (2010) shows that trade liberalization, relative price change and world income growth have positive and significant impact on export performance, while export duties have small impact on improvement of export.Brhanue(2005) found that GDP, real exchange rate and term of trade have positive and significant impact on export.

Sultan (2014)found that real exchange rate and world income have positive and significant effect on the export. Likewise, Mahana (2014) indicatedthat economic size of the partner's countries' GDP, per capital income, regional integration dummy and exchange rates significantly affect export performance. However, the study indicated that the GDP of home country and the cost of trading (distance) decrease trade growth. On the contrary, Karamuriro (2015) found that GDP of home country have positive and significant impact on export performance. In the other study Aman (2016) found that real exchange rate, GDP and institutional qualities have negative impact on export performance.

While it is paramount that the previous studies on determinants of export have made tremendous contribution towards the growth of the sector, still there is no clear consensus among the researchers. Such divergence posed a challenge for cross country analysis. The major points of analysis that put clear research gap are: a) Majority of studies were done for country specific cases using time series analysis where it is difficult to make inference for cross country analysis. b) Of the major determinants of export, there is a blurred thought and a clear weight was not

vividly shown whether export is leaning towards demand or supply side and c) the methodology taken into account and variables incorporated in the econometric model for further analysis based on the expected the results is also another area of disparity among these researchers.

Thus, this paper tries to address and fill the gap by taking into account the above noted issues where this study investigates both the demand and supply side determinants of export for nine East African countries using the data from 2000-2015 using the panel data analysis.

1.3. Objective of the Study

1.3.1. General Object

The overall objective of this study is to find out the determinant factors of export performance in East African countries.

1.3.2. Specific Objective

- To see the trend of export growth in East African countries
- To examine factors affecting export performance in East African countries
- To indicate policy intervention areas for the growth of the export sector in the region.

1.4. Research Hypothesis

The study hypothesis that GDP growth, the net flow of foreign direct investment (NFDI), the average income of main export destination of countries, quality of institutional development (AIQI), membership of WTO, effective exchange rate(ER), and trade openness of a country will have positive and significant relationship with export performance. This means the improvement of these factors lead to better export performance. The signs of the coefficients of these variables should be positive. On the other hand, the sign of the coefficients of landlocked dummy are expected to be negative and significant. This means these factors will lead to weak export performance for the region.

1.5. TheScope and Delimitation of the Study

The study is limited to investigate the impact of GDP growth rate, the net flow of foreign direct investment (NFDI), realeffectiveexchange rate, the average income of main export destination of country i at time t. The data for these variables are secondary data sets collected from World Bank (WB) and UNCTAB.

Institutionaldevelopment proxyby governance (good governance), regulatoryquality (RQ), voice and accountability (VA), rule of law(RL), political stability and absence of violence (PS), the control of corruption(cc). Of which all institutional measure the average index is used. The data for these institutional development indicators is collected from World Governance indicator "Ibrahim Index of good governance (IGG)".WTO dummy variable equal 1 if a given country is member to world trade organization, 0 otherwise on the export of goods and services.

Other determinant factors like domestic market structure, research and development, and regional cooperation are not captured in this study mainly lack of data and appropriate proxy variable to capture the impact of these variables on export performance in the region.

For a period of fifteen years (200 to 2015) annualpanel data of nine east African Countriesis used. The selection (sampling) of countries is based on the availability of data.

1.6. Significance of the Study

The study is important because it gives highlight to other study in the same area. It is important to show the recent activities determining export performance, essentially in East African countries.It also shows some directions for policy makers to come up with appropriate policy to develop the sector so as to expand the performance of export in the region.

1.7 Limitations of the Study

This study examines only specific determinants of export performance due to time and resource limitations. The other challenge is the incompatibility of data from different sources, e.g. from World Bank IMF some variables are not consistence.

1.8 Organization of the Paper

The rest of the paper is organized as follows; the next chapter, Chapter two consists of review of literature, which includes both empirical and theoretical studies. Chapter three considers the methodological and conceptual frame work of the study. A chapter four presents discusses of the empirical analysis (econometric analysis) of the estimated model and finally in Chapter five presents conclusion remarks and recommendations, and at the end reference and appendix is attach.

CHAPTER TWO

REVIEW OF RELATED LITERATURES

For the effective design and implementation of export improvement policies, a systematic and careful identification of factors constraining export growth and diversification is important. This chapter is organized as three main parts; the first part deals with theoretical literatures about definition and brief review on different theories of international trade (from Mercantilism up to recent: mercantilism, Classical, Neoclassical, Recent issues including Prebisch Singer thesis about terms of trade) on the export performance and its determinant factors as well as the applicability of international trade theory to developing countries. The second part discusses Export Structure, composition and Performance of Developing Countries. The third part contains review of empirical literature on different countries experience.

2.1. Theoretical Literature Review

2.1.1. The Theory of International Trade

The theory of international trade is necessary to explaining the cause, the pattern, the composition and volume of external trade. According to Cobb (2010) a theory that consists of cause, stricture and volume is called theory of international trade. International trade theory is arising back to the mercantilist era. Mercantilists are the philosophy of economics in the middle of 7^{th} century to the 18^{th} maintained that the most important way for a nation to be rich and powerful was to export more than it import. The difference is filled by an inflow of precious metals such as gold and silver. Mercantilists' belief that the prosperity and power of a nation is determined by the amount of precious metals it accumulates. Thus they advocate that government should stimulate export and restrict imports. Mercantilists argue that the regulation and planning of economic activity are efficient means fostering the goal of a nation. They believe that since all nations couldn't have an export surplus simultaneously, the existence of precious metals is fixed any time, thus a country could gain at the expense of the other country. However, the classical and are neo-classical trade theories are the prominent once (Sunanda Sen, 2010).

A. The Classical Theory of International Trade

The classical Economist, Adam Smith in 1776 advocate free trade as the best policy for the nation of the world. Smith argued that with free trade, each nation could specialized in the production of those commodities in which it could produce more efficiently than the other nation (absolute advantage), and import those commodities in which it produce less efficiently (absolute disadvantage). In other words, absolute advantage exists when one country is good at producing one item while another country is good at producing another item. Smith indicates that a nation need not gain at the expense of the other nations rather all nations gain simultaneously. This is because the international specialization of factors of production leads to an increase in world output which could be shared by the trading nations (Zhang, 2008).

Although the idea of Smith about absolute advantage is critical for the early development of classical theory of international, it is generally agreed that a British economist Ricardo as the founder of the classical theory of international trade in the 18thcentury. Ricardo is the first proposed the doctrine of comparative advantage which is one of the famous and unchallenged laws in economics. In this theory Ricardo demonstrates that international trade is takes place not only from the difference in absolute advantage but also difference from comparative advantage. According to this theory mutually beneficial trade is still takes place even if a nation had an absolute disadvantage in the production of both commodities with respect to the other nation. The less efficient nation should specialized in the production and export of goods that its absolute disadvantage is less, and import those commodities in which its absolute disadvantage is greater. On the other hand, the more efficient nation should produce those commodities at which its absolute advantage is greater (H. Myint, 1998).

In the Ricardo theory the critical variable used to explaining international trade based on comparative cost advantage is technological difference. The theory holds that a difference in comparative cost is a necessary condition for international trade; however, this difference shows the difference in mode of production. Accordingly technological difference among countries determines international division and specialization of labor, and hence difference in consumption and trade patterns (Ricardo D.1817).

The classical theory of international trade assumes that the existence of two country, two commodities, labor as the only factor of production and internationally immobile. The factor and the product market prices are perfectly competitive. There are no trade barriers and transport

costs. According to this theory the difference in climate and environment leads to difference in comparative advantage. Thus mutually advantageous trade is takes place. The classical theory easily couched in terms of comparative costs. Specifically, the theory now states that a country will tend to export the commodity whose comparative cost is lower in autarky and import the product whose comparative cost is higher in pre-trade isolation (Krugman and Obstfeld , 2006).

B. The Neo-Classical Theory of International Trade

The Neo-classical theory replaces the traditional comparative cost based theory by modifying some assumptions of the classical theory. This theory assumes two factors of production, two commodities, and two countries. The Neo-classical theory introduces capital as the second factor of production, and allowed for international difference of the pattern of demand; in addition, introduction of a second factor of production turns out to its important as it explains the relationship between factor allocation, income distribution and facilitation of international trade (Ruffin. R, 2003).

Hecksher, Ohlin and Samualson (H-O-S) developed the Neo-classical (modern) theory of international trade which states that countries specialized in the production of certain commodities in which they have comparative advantage on the bases of relative difference of factor endowments and factor prices. They assume similar or equal technology and tastes. This theory postulates that each nation export the goods intensive in its relatively abundant and cheaper factor, and import the goods intensive in its relatively expensive and scarce factor of production. Thus relative difference in factor endowment and prices is the cause for international trade. According Appleyard and field (2010) the most important implication of the Heckshere-Ohlin and Samualson model is that a local market for factor services into a global market. This means derived demand for inputs create more opportunities to sell factor services externally or by the exchange of commodities which leads to elastic and approximately equal on the international market.

According to the H-O-S theory of trade a country should specialize in the production and export of products that uses more intensively the factor of production with which the country is well endowed. Therefore, countries like East African countries which endowed with cheap labor expected to produce labor intensive commodities. On the other hand, import capital intensive products mainly machineries which will be used for the construction of processing

manufacturing industries that will expected to add value to agricultural production, and hence improve the excess of agricultural export. Capital endowed (capital-rich) countries like UK should specialized and export different capital intensive products (Zhanga, 2008).

2.1.2. The Applicability of International Trade Theory to Developing Countries

The classical trade theory is less applicable for developing countries than developed countries. The critics start with the intention of showing that the nineteenth-century pattern of international trade, whereby the under- developed countries export raw materials and import manufactured goods, has been unfavorable to the economic development of these countries. This model is less relevant in SSA countries than in developed countries, for instance, even though agriculture is the primary sector employing large labor and the primary source of export commodity, these countries are not the principal exporters of agriculture, and instead they are net importers of food and agricultural products. This is partially, due to limited access to raw material, limited capital and technology. To take comparative advantage in the world market, SSA countries should use their unique climate condition and focused on the production and processing of those commodities that are not produced in the West in large volume so as to improve export and to get economies of scale, self-sufficient (NahangaVerter, 2015).

Since 1990s developing countries have become more egger in their calls for international cooperation and for fundamental changes in the international trading system. They present their grievance through United Nations conference on trade and development (UNCTAD) and World Trade Organization (WTO). The main concern of their question is the current international trade theories (systems) are no applicable to their competitiveness in the global market because of the following reasons; (1) many developing countries specialize in the production of primary products, including agricultural goods, metals, and minerals. These product producers are exploited by buyers in the developed world due to the highly competitive and volatile nature of these commodities' market conditions. (2) Least developing countries have limited resources to spend on research and development that give rise to technological innovation. In other words, the people of many developing countries face shortage of capital for the full utilization of their potential. The governments' of these countries more concentrate on maintaining of military superiority, instead of investing in infrastructure, education and research and development. (3) When developing countries try to move into industry and manufacturing, the role of export

markets in the developed countries become vital, especially on the early stage of industrialization on labor intensive industries like textiles. However, there is a strong protection and limited market from developed countries for these products. (4) The voting rights of the different international organizations depend on the size of the countries' economies, least developing countries (E. Reyes, 2012).

2.2. Export Performance and Its Determinant in Developing Countries

2.2.1. Export Performance

According to UNCTAD (2009) as Sudip and Monica (2011)cited during the recent decades due to global economic and financial crisis, many developing countries faced a steady decline of their exports revenue. This is more intensified mainly due to higher dependence on international trade which leads to higher-exposure of those economies to the rest of the world that eventually led to many unsecured and unexpected impacts on the economic growth and health of the domestic economy. Some developing countries such as China, India, South Africa and others could undertake trade related policies to speed up the recovery process –diversification of their exports basket has been one of the key trade policy components that they adopt to stabilize the exports sector growth, and henceGDP growth(Das, 2011).

The trade performance of Africa indicated that the continent's share in world merchandise trade in volume in has declined steadily since 1980 to 1990s, from 6 % to 2%. However, in 2003 it shows some recovery from 2 percent to 3 percent due to recovery of price for some key export commodities. On the other hand, Morrissey (2005) arguesthat, this doesnot mean that trade is unimportant for Africa: compared to other developing country regions, Sub-SaharanAfrica (SSA) tends to have high export/GDP and import/GDP ratios. In simple terms, exports are very essential to African countries even if African exports share in the world trade is low (Andrew and Annalisa, 2008).

The average share of intra-regional trade in Eastern Africa was nine percent from the total trade of the region conduct in 2008-2009. Of the three regional groups, the EAC countries dominated intra-regional trade with a share of 71.82 %, followed by the Horn of Africa which accounts about 27.74% in the same year. The island countries had a lower share accounts 0.44%. This illustrating shows their limited trade link with the mainland countries. Kenya is the regional trade hub (accounts the higher share) which contributes 33% of intra-regional trades, this higher

performance attributed due to its larger private sector. Following to Kenya, Uganda accounts 21% and Tanzania accounts 11% as the second and the third largest regional trade hub respectively. It is worth noting that official statistics often underestimate intra-regional trade as a substantial portion of cross-border trade is regarded as illegal (DBA, 2011).

Table 1: Summary of Comparative Intra-Regional Trade Flows for East African Countries; 2003-2009

Region	Entra – REC		Outside REC- Africa		Others – World	
	Import	Export	Import	Export	Import	Export
COMESA	4.6	4.5	9.0	11.8	86.4	83.7
EAC	12.5	6.2	22.2	13.3	65.3	79.5
ECOWAS	7.2	7.6	10.5	11.1	82.3	81.3
SADC	8.0	8.0	10.4	10.1	81.6	81.9

Source: Developmental Bank of Africa (DBA, 2011)

Comparative data presented in the Table below shows that among the CES Tripartite RECs, the EAC Partner States traded more among themselves and with other African countries over the decade 2000-2009, followed by SADC and COMESA. The EAC also performed better than ECOWAS in this year, while SADC's performance was comparable with that of ECOWAS. COMESA lagged behind the other three RECs in both intra-regional and intra-African trade despite its FTA. Its trade orientation is geared more towards the rest of the worlds (OREA/OREB, 2011).

Significant trade barriers still persist which hinders the growth of trade among these countries. Among others the following are the main ones; lack of harmonized trade policy instruments in Eastern Africa limits inter-RECs trade, tedious trade logistics along transport corridors and time-wasting border procedures result in excessive delays and high transit costs, Efficient customs operations are hampered by excessive documentary requirements, insufficient use of automated systems, and lack of cooperation among customs and other government agencies. Lake of integrating financial system in the region, for instance, lack of common market and border conflict. All these results Eastern African countries have the lowest trade logistic perception in the world in 2010 (ADB, 2011).

Moreover, Lack of complementarities and similar comparative advantage hinders progress of intra-regional trade. The countries in the region have similar resources and their economies are largely based on similar activities. Thus, they do not complement each other sufficiently well and as a result compete in same markets. This situation impacts on the ability of the countries to trade internally within the region and across other regions. The challenge is for the countries to identify complementary areas of activities based on their comparative advantage and diversify them accordingly (OREA, 2011).

2.2.2. Determinants of Export Performance in Developing Countries

Dealing with the determinant of export performance is important to get an order of magnitude of various factors affecting trade performance as apriority to take a systematic look at policy options. According to Shaomingzou (1998) Trade and trade related factors of export performance in developing countries are classified in to two broad categories: as internal and external factors.

Internal factors are justified by the resource base theory. This theory conceives country as a unique bundle of tangible and intangible resources "resources" (assets, capabilities, managerial ability, skill labor, knowledge, information, and processing that are controlled by a country with in itself that are enable it to compute and implement policies and strategies aiming at improving its efficiency and effectiveness. According to this theory the principal determinants of a countries export performance and strategy are the internal national resource (Shaomingzou and Simonastan, et.al (1998). The external factor associates with the industrial organization theory. This theory argues that external factors determine the export potential of a country (Scherer and Ross, 1990). This means the external environments imposes a pressure on to which a country must adapt so as to compute and improve its export potential.

On the other hand, in the existence literatures there are two contrasting views (taught) on what have been the constraint factors in developing countries export performance. One school of thought the structuralism argues that supply side constraint is the main factor with in the developing countries as the major hindrance factor for the improvement of export performance. On the other hand "trade pessimists" associate the export setback to the difficult conditions in the export market mainly the protectionist reaction from the developing countries.

On the side of trade pessimists Henson et al. (2001) argue that sanitary and phytosanitory (SPS) majors taken by developed countries are the main constraint that shapes the ability of developing countries to exploit their export opportunities, primarily agricultural and food products in infant market places. On the other hand Wilson (1994) argues that on which side is correct is depends on the relationship between exports and domestic market production on one side and the price elasticity of supply on the other side. Thus, the structuralism thought will be true if price elasticity of export supply is low and when there exist a negative relationship between export market price and domestic market production.

The thoughts of 'trade pessimist' may work on these countries, it is because in these countries their exportable commodities' price determined by the developed countries markets (East African countries are price takers in their exportable commodities) and characterized by highly fluctuation of price in accordance with the wish of developed countries

Others argue that policy failure as the major constraint on effective export diversification in least developing countries. Thus, the success of export performance depends on sound policy implementation at the right place and at the right time to use opportunities and reducing constrains (Yuan, 1992). In addition World Bank (2003) indicates policy distortion, high transaction costs, and exposed to high risks which hinder competitiveness are the primary problems on effective export performance in Africa.

According to UNCTAD (2008b) and DICTAB (2005) factors affecting export growth divided in to two as the supply side and demand side determinant factors. Accordingly to the following are some of the main supply and demand side determinants of export performance in development countries**.**

A. The Supply Side Determinants of Export Performance

Supply side factors get increasing attention as a constraint on improving the trade performance of developing countries. This is why LDCS are often unable to take up opportunities under preferences trading regimes, like the generalized system of preference (GSP). Supply capacity consists of internal transport costs and factors affecting cost of production, like, domestic market structure and institutional setups, as well as the macroeconomic environment. Evidence from the

Asian economies show the largest supply capacity in 1980s and thus the best performance is record in Taiwan, province of china and Korea (UNCTAD 2002).

1. **Domestic transport infrastructure**; the export capacity of a country critically depend on the availability of physical infrastructure including roads, ports, energy supply capacity and telecommunications. DICTAB (2005) analysis the impact of infrastructural development on export performance by using internal transport infrastructure as proxy for the whole infrastructure development over the period 1988-1991, and Its significance appears to be more recognized among the better exporters.

The findings show that internal transport infrastructure play a significant role at the early stage of export development. Many SSA countries are characterized by poor infrastructure development and that is why they are found lower export performance in all periods. Venables (2001) analyzing and indicate that level of trade flows in African countries is low primarily because of poor infrastructure. In addition, World Bank (2000) states that poor infrastructural service; policy distortion, high transaction costs, and exposed to high risks which hinder competitiveness are the primary problems on effective export performance in Africa.

2. Institutions; Sound and effective institutional development matters more on the export growth of developing countries. Better institutions are expected to guarantee (create) a conductive environment for competitions, protection of property rights and efficient administration and regulation. According to DICTAB (2005) institutions matter more on a higher level of export performance once the macroeconomic stability has been achieved then the institutional from work comes to be an important element of export growth. Thus the export performance of countries depends on the institutional quality.

3. The Macro economic conditions;the real exchange rate which is the ratio of domestic currency to foreign currency has significant effect on the export performance of developing countries. Devaluation or depreciation of exchange rate encourages export performance. For instance, a one percent real devaluation (depreciation) could increase export by 6-up to 10%, on average. On the other hand over valuation exchange rate deteriorated export growth (DICTAB 2004). This is in line with the Marshal-Lerner condition and Mundel-Fleming model states as a decrease in real effective exchange rate or appreciation of domestic currency will make

exportable items costly, as a result, the demand for exports in external market (world market) is likely to fall and this in turn will reduce foreign exchange earnings.

The Washington consensus about exchange rate states that any exchange rate fluctuate from its long run equilibrium exchange rate (deviate from its long run value) is not advisable for both developed and developing countries. On the contrary, Wondmu and Potts (2016) argue that under devaluation is desirable and serves as a second-best policy to decrease the disproportional additional transaction costs incurred on exportable commodities in these counties due to weak institution and imperfect markets.

Macroeconomic policy conditions explain the poor export performance of African countries. Over evaluate exchange rates and imposing constraints on imports makes exports very unprofitable Collier and Gunning (1999). According to them overvalues and different constraints on import make intra African trade poor performance. Thus healthier macro-economic conditions are also needed, for instance, lower inflation, lower foreign debt, and law budget deficit.

Macroeconomic stability plays a significant role for export performance. High levels of unproductive government expenditure create an adverse impact on export growth. Identifying the channels, by which such adverse effects are felt, such as whether it is through distortionary taxation or its impact on the prices of non-tradable or a combination of the two, will give an important input for policy makers. Thus governments' expenditure on the construction and the supply of quality infrastructural facilities, as well as developing competitive domestic infrastructure leads to achieve higher export diversification and grow in developing countries (Wondmu and Potts 2016).

4. Foreign direct investment (FDI); Literatures indicate that FDI and export performance have positive and significant relationship. The experience of many countries indicates that FDI strongly contribute to the transformation and diversification of exports. For instance, FDI into china and Singapore helped to increase the technological contents of exportable commodities through supporting the development of export supply capacity and the development of knowledge based industries (UNCTAD, 2004). Thus to promote export government can adopt FDI-lead development strategy aiming at capturing the benefits of export growth and foreign direct investment inflows.

Some argue that the role of FDI to export growth in developing countries depends critically on the motive of foreign investors. If the motive of foreign investors is to capture developing countries' domestic markets, FDI may not contribute to the promotion of export. On the other hand, if the motive behind foreign investors is to encourage export markets by using the countries comparative advantage, FDI may contribute to export growth (Djankov and Hoekman (2010) FDI have a number of benefits including job creation, investment of foreign capital, know-how and managerial skills and hence export promotion specially, for developing countries. Furthermore, foreign direct investment and local investment can encourage the local resource based manufacturing (coffee and tea production in EAC), low technology products like textiles and footwear, high technological manufacturing (chemicals, ICT, and steel products), and service including tourism where there is expected to be a higher potential for growth of export and diversification (Malunda, 2012).

5. Human capital; as indicated from the experience of developed countries human capital plays a significant role in the determination of export performance. Wagner (2001) and Wakelin (1998) indicate that the development of human capital indicators like share of skill labor, expenditure on training have positive and significant impact on export performance. Likewise Ramstetter(1999) find that countries which have an abundance of unskilled labor (e.g most developing countries), and skilled labor is scarce and expensive factor, which is in line with the Heckeser-Ohlin theory. Thus the amount of exports is negatively affected if these countries produce skilled labor intensive exportable commodities. The opposite argument is true for Indus the same argument vice versa holds for industrialized countries such as Germany and the French, with relative large endowment of skilled labor. However, Neo-technology theory predicts that human capital has a positive impact on exports because skills are positively related to the technological capabilities of the producers of exportable commodities. Moreover, highly educated people have certain abilities, such as speaking foreign languages that make it easier to establish and maintain contacts with foreign customers. The latter might be especially relevant for developing countries. Therefore, there seems to be some kind of trade-off between cost disadvantages and skill advantages of human capital (Michiel Dijk, 2002).

Production capacity

The GDP growth level of the country is the main determinants of the countries' export expansion. This is because surplus of output can be exhausted in the international markets. In a closed economy surplus of production may lead to a decrease in price, which intern create pessimism on producers, but in an open economy such surplus creates foreign exchange through the improvement in export (Majeed and Ahmad, 2006). On the other hand, output growth leads toProduct diversification which again leads to export growth. For instance, before one or two exportable commodities dominate the export mix of most African countries, but now there are some improvements in export growths due to the introduction of differentiated products and new industries. This new products and new industries come up with new trade opportunities. Thus economic growth is needed for the export growth of Africa. Added to this, the growth of real output capacity of an economy is an indication for future supply capacity. Thus, an increase in output will enhance export earnings (Belayneh Kassa and Wondaferahu Mulugeta, 2013).

B. Demand Side Determinants of Export Performance

1. Foreign market access

Foreign market access is the main determinant of export performance. It is directly related tothe characteristics of the trading partner countries, such as the size of their market and transport facilities, and inversely related to the countries' own internal transport costs. It also depends positively on the size of the export basket and the number of differentiated items and their prices, which in turn are affected by market entry conditions. Trans-border costs, which also include tariff and non-tariff barriers, have the expected negative impact on foreign market access.

The performance of foreign market access in Africa over the period of 1988-1995 grew by almost 160 per cent for sub-Saharan countries and 130 per cent for Middle Eastern and North African countries. The highest growth rates are for East African countries, which are also the best performers in terms of overall foreign market access growth. However, this general tendency was reversed in the final period up to 2003, reflecting the difficult recovery from the financial crisis of the late 1990s and the early 2000s (UNCTAD, 2008b).

For the improvements of export performance in developing countries, actions to improve market access in agricultural and non- agricultural commodities alone is not enough, rather it should accompanied by measures like disciplining and removing of non-tariff barriers, and evolving

discretionally measures, especially, those related to technical regulations and standards sanitary and phytosanitary measures, anti-competitive market system and environmental conditions to help developing countries gain actual market entry. A key priority that would be emphasis to ensure these standards and measures are developed transparently with the participation of developing countries, and applied in a non-discriminatory manner. At the same time, innovative measures, complemented by Capacity-building support, are required in order to upgrade substantially developing countries' technical levels and capacity, particularly in standard setting, in accordance with relevant international standards and scientific criteria, as well as helping developing countries to meet legitimate health and safety requirements (UNCTAD, 2008b).

2. **Commodity price and Market structure**; commodity production and its price have a significant impact on the export growth performance and sustainable livelihoods of the poor in many commodity- based developing countries. Over the past decade, commodity export dependence and export concentration have not decreased significantly, indicating the importance of actions in this area in improving export performance of these countries (UNCTAD, 2005b).

2.3. Empirical Literature Review

This section covers the empirical literatures on determinants of export in developing countries, east Africa and country specific studies. In doing so the methodology used, the result obtained and their policy implication is summarized consistently.

Tariq and Ahmed (2006) undertook a study on the determinant of export performance in 75 developing countries, by using panel data set from 1970 – 2004. The fixed effect (country specific intercept) model suggested that real effective exchange rate affects export positively and significantly. The findings of the authors also showed that positive and insignificant impact of FDI on export growth in developing countries which is contrary to many of the findings stating that foreign direct investment has a positive and significant effect on export performance. A similar finding was obtained by Sharma (2001) where labor force, official development assistance, communication facilities, savings and industrialization affect export positively and significantly in developing countries.

Fugazza (2004) investigated the major determinants of export growth in 48 developing countries using gravity model through econometric analysis of bilateral trade flows. Accordingly, supply

side determinant factors are the most important constraint of export growth especially in African countries. He further emphasized the need to reduce trade barriers.

Empirical evidences indicate that quality institution developments have strong positive impact on export performance. For instance, Stephen R. and Anthony J. Vanables (2012) by investigating the determinants of Sub-Saharan African countries' export performance. The result shows that poor institutional quality development contributes poor export performance.

On the West – East (Austria-Thailand) study of Patterson et.al (2008) on the determinant of exchange relationships by using empirical econometric model. The result indicates that each trading partner countries trust, commitment, cultural sensitivity, reputation and competence are found to be the main determinant of East- West trade growth.

Maeed and Ahmad (2006) analyzed the determinants of export performance in 75 developing countries by using fixed effect models. The result shows that increasing and maintaining high saving, and sustainable and high growth of GDP, developing net communication facilities, stable exchange rate policy, industrialization helps to improve the export performance of the developing countries.

Paulino (2010) investigated the determents of export performance primarily trade liberalization for a sample of 22 developing countries by using dynamic panel data model based on fixed effects and generalized method of moments (GMM) estimators. The result shows that trade liberalization, relative price change and world income growth have positive and significant impact on export performance, while export duties have small impact on improvement of export.

Francois and Manchin (2006) examine the influence of institutional infrastructural development and geographical context on export performance. They used panel data set from 1998 to 2002. Their findings indicate that infrastructural and institutional developments have a significant impact not only on export performance, but also the probability of export. They further conclude that in least developing countries there is abroad three dimensional relationship between high government interference in the economy and domestic transport and communication infrastructure on one hand, and export performance in the other hand.

Kingu and Singhu (2015) and Babatunde (2009) conducted similar study on the impact of trade liberalization on export performance on Sub-Saharan African countries. They used panel data set from 1980 to 2005. The result shows that real effective exchange rate affects export performance significantly while trade liberalization affect export indirectly through the increased access of imported raw materials.

Aman (2016) investigated the determinants of export for seven east African countries by applying the fixed and random effect econometric models. Specifically, the author scrutinized the factors working behind the economy as whole; the economic sectors hubs of namely agriculture, manufacturing and service were explored. Accordingly, the result of the study divulged that growth rate in GDP and average institutional quality has negative influence on export performances while FDI, openness and human capital have positive impacts. Further, the export of agricultural raw materials is not influenced by both demand and supply in East African countries. Average income major export destination countries and human capital has positive impact on the service and manufacturing sector export performances, while GDP posed negative influences. The researcher focused on the policy options of maintaining high and sustainable FDI to mitigate the challenge of trade restrictions, human capital enhancement and WTO membership evaluation should get due attention to boost export of the region.

Mahana (2014) explored the determinants of export performances and its comparative advantages by applying gravity model. Consequently, economic size of the partner's countries' GDP, per capital income, regional integration dummy and exchange rates affects positively the export performance of the country while GDP and the cost of trading (distance) influnces trade growth negatively.

Karamuriro (2015) examined the export performance of Uganda using augmented gravity model. The result showed that GDP of importers, Ugandan's GDP, official common language, real exchange rate and contiguity had a positive and significant effect on the export performance of the country. The study further indicated that the formation of regional organization (cooperation) like AGWO, and EAC has a significant positive effect on Ugandan's export growth. However, per capital income, and the distance from its trading partner have a negative and significant impact of Ugandan's export improvement.

Another country specific study by Were et.al (2002) examined the export performance of Kenya by disaggregation total exports through empirical models. They found that real exchange, foreign direct investment and price of exportable commodity are the main determinants of export performance in Kenya.

Kingu and Singhu (2015) investigated the main determinants of export performance in Tanzania on selective commodities using panel data set from 1970 – 2012. The empirical evidence suggested that real effective exchange rate and production volume have significant effect on export.

Menji (2010) and Agasha (2006) found that FDI have insignificant effect on export performance. For instance, the work of Sahar (2015) support this argument, they investigate the impact of FDI on export performance in the Mediterranean countries using gravity technique. The dynamic panel data analysis indicates a clear-cut significant relationship between export and FDI. A country case study analysis on the determinant of Zanzibar's export performance by Drama and Hervel (2014) found that foreign direct investment has a positive and significant relationship with export performance.

Wondaferahu (2013) investigated the determinants of Ethiopia's export performance using a VAR model analysis. According to the result of the study there is positive and significant effects of effective of real exchange rate, real GDP of home country, trade openness, infrastructure development and private credit to GDP ratio on export performance. Further, improvement in domestic infrastructural facilities, GDP growth, facilitation of credit access, maintaining appropriate and stable exchange rate, and reducing trade restrictions enhances the export performance of Ethiopia.

Table 2: Empirical Relationship between Export and Its Determinant: Summary Results

Study	Sample Size/ Year of study	Study approach	Estimation Method	Explanatory variable effects
Tariq and Ahmed	2006	75 developing countries	Fixed effect (country intercept)	RER(+), FDI(+), LF(+), ODA(+),S(+), Ind(+) and CF(+)
Vanablees	2012	Sub-Saharan Africa	-	IQ(+)
Maeed and Ahmed	2006	75 developing countries	-	S(+), GDPg(+),CF(+),SERP(+), Ind(+)
Paulino	2012	22 developing countries	Dynamic Panel Data model(GMM)	TL(+), RPC(+) and WI(+)
Francois and Manchin	1980-2002	Less developing countries	Panel data approach	InfD(+), InsD(+)
Kingu and Singu	1980-2005	Sub-Saharan Africa	Panel data approach	REER(+),TL(+)
Aman	2016	7 East African Countries	Random and Fixed Effect econometric model	GDPg(-),IQ(-),FDI(+),TO(+),HC(+)
Karamuriro	2015	Country Specific (Uganda)	Augmented gravity model	GDPI(+), UGDP(+), OCL(+), RER(+), C(+), EAC(+), PCI(-) and DTP(-)
Were et.al	2002	Country Specific (Kenya)	Disaggregation total export	RER(+), FDI(+) and PEC(+)
Drama and Hervel	2014	Country specific (Zanzibar)	Gravity model	FDI(+)
Wondaferahu	2013	Country specific (Ethiopia)	VAR	RER(+),RGDHc(+),TO(+),II(+),PC(+)

Where: *CF=Communication facilitator, C=Contiguity, DTP= Distance from trading partners, EAC=East African Community organization, FDI=foreign direct investment, GDPg=GDP growth, GDPI=GDP of importers, HC=Human capital, II= improvement in domestic infrastructural facilities to GDP ratio, Ind=Industrialization, InfD=Infrastuctural development, InsD=Institutional development, LF=labor force, IQ=institutional Quality, OCL=Official Common Language, ODA=official development assistance, PC= private credit to GDP ratio, PCI=Per capita income, PEC=price of exportable commodities, S=saving, TL=trade liberalization, TO= trade openness, RER=real effective exchange rate, RGDHc=real GDP of home country, UGDP=Uganda GDP, WI=World income.*

CHAPTER THREE

METHODOLOGY AND MODEL SPECIFICATION

3.1. Data Source and Types

The study usedthe panel research design techniques. Thus this study used full panel data approach for the period 2005- 2015 to estimate the determinants of export performance for nine East African Countries namely: Burundi, Ethiopia, Sudan, Kenya, Uganda, Tanzania, Zambia, Djibouti and Rwanda. The selection is based on its relevance and the number of variables available in the data set. The data set is collected from World Bank (2016), World Economic outlook (IMF, 2016) and Ibrahim index of African governance. Panel data approach was chosen because it has many advantages over the other conventional methods such as cross sectional and time series data. Panel data approach is essential to;

(1) Provide the researcher a large number of data points thus increasing the degrees of freedom and reducing the problems of co linearity among explanatory variables. This improves the efficiency of econometric estimates.

2.gives the researcher the means of resolving the magnitude of econometric problems that often arises in empirical studies, namely the often heard assertion that the real reason one finds (or does not find) certain effects is the presence of omitted (unobserved) variables that are correlated with explanatory variables. That is to say panel data allows controlling for omitted (unobserved) variables.

3.Better able to study the dynamics of adjustment. Unlike cross-sections, panel surveys yield data on changes for individuals or households or individual country analysis (Badi H.Baltagi, 2005).

4. Controlling for individual heterogeneity. Panel data suggests that individuals, firms, States or countries are heterogeneous. Time-series and cross-section studies can't control for the heterogeneity runs the risk of obtaining biased results

The panel data that is used in this study are export of goods and services valued in US Dollar, real income of measure importers countries for East African countries export GDP of 15 major trading partners which accounts about 82 percent of the region's export destination valued in

USD, real GDP of individual home country valued in USD, and openness (calculated using the sum of export and import of goods and services as a ratio of GDP) are collected from WB (2016). Data for real effective exchange rate will collect from World Economic outlook (2016). Data for average institutional development indicator is collected from Ibrahim Index of good Governance (2016).

3.2. Method of Data Presentation and Analysis

To investigate the determinants of export performance for eight East Africa Countries, this study used both descriptive statistics, and empirical econometrics analysis by using stata software for data presentation and analysis. Fixed and random effect model after testing the validity of assumption of the model by using Housman test is used (verbeek, 2004).

3.2.1 Fixed Effects and Random Effects Models

In panel data analysis the most commonly estimated models are the fixed (FE) effects and random effects (RE) models. The crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the repressors in the model or not.

Fixed Effects explore the relationship between predictor and outcome variables within an entity (country, person, company, etc.). Fixed effect models control for, or partial out, the effects of time invariant variables with time-invariant effects. When there is many variables that rise over time, and when one is interested in analyzing the impact of variables over time FE effect models are essential to capture the effect of these variables (L.K**.** Maziya A. Tijani and M.B. Masuku, 2005). Fixed effects model used to support inference about the groups of measurement. Accordingly the fixed effect model equation becomes as;

$$Y_{it} = \gamma_i X_{it} + \alpha_i + U_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where, α_i is the unknown intercept for each entity (i = 1, 2…….n) or n- entities in this research i denotes individual countries.

The dependent variable Y_{it} denotes like export in this study i cross section entity and t denotes time. X_{it} Refers to explanatory variables; γ_i refers to the coefficient of independent variables included in the model, and U_{it} is the error term.

We use fixed effects models when there is exists unexpected variation or special events that affect the outcome variable by using time dummies to control for time effects. Thus the equation for the fixed effects model becomes:

$$Y_{it} = \theta_1 X_{1,it} \ldots . + \theta_k X_{k,it} + \delta_2 F_2 + \delta_3 F_3 \ldots \delta_n F_n + U_{it} \quad \ldots\ldots\ldots\ldots\ldots (2)$$

Where; Y_{it} is as usual depend variable, where as i and t references cross section entities and time; $X_{k,it}$ denotes the potential explanatory variables; θ_k represents the coefficients of the independent variables; F_n are binaries (dummies) for n-entities, hence requires n-1 entities included in the model; δ_2= the coefficients of these entities.

By adding the dummy for each entity (specific country) FE model also used by LSDV to estimating the pure effect of each independent variable (by controlling for the unobserved heterogeneity) through each dummy is absorbing the effects particular to each country. Therefore the fixed effect model is formulated as;

$$Y_{it} = \theta_1 X_{1,it} \ldots + \theta_k X_{k,it} + \delta_2 F_2 + \delta_3 F_3 + \cdots \delta_n F_n + \alpha_2 T_2 \ldots . \alpha_t T_t + U_{it} \quad \ldots\ldots (3)$$

Where all the variables are refers as defined in equation (2) above; the only variable included here is T_n is time dummy (binary variable) thus we have t-1 time periods where as α_t is the coefficient for the binary time repressors. We use random effect model when we assume variation across entities to be random and uncorrelated with explanatory variables included in the model. In other words if we find reasons that influence difference across entities affect the dependant variable. The equation of random effect model is given by;

$$Y_{it} = \gamma_i X_{it} + \alpha_i + U_{it} + \in_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where; Y_{it} is the dependent variable as usual; X_{it} represent the potential explanatory variables; γ_i the corresponding coefficients of independent variables.$\alpha_i$represents the group specific constant term; $U_{it}$is the error term which unobserved or due to specification problem individual entity specific is the error or idiosyncratic error or varies over time and entities while$\in_{it}$is the usual error component which is assumed to be independent and identically distributed over individuals country and time, with mean zero and variance (verbeek,, 2004; Woodrage and Madala 2005).Unlike fixed effects model random effects model allows to infer something about the population from which we can drew from the sample.

To decide between fixed effect and random effects model for this study we haveseen after running a Hausman test where the null hypothesis is that the preferred model is RE versus the

alternative the FE (M.Masuku, 2015). It basically tests whether the idiosyncratic error (U_{it}) is correlated with the repressors. The null hypothesis says there is no correlation against the alternative (there is correlation).

3.3. Model Specification

There are two complementary models that dominate the empirical literature regarding the determinant of export: the model of imperfect substitutes and the model of perfect substitutes. The model of perfect substitution assumes that imported goods are perfect substitution of domestic goods. On the other hand, the model of imperfect substitutes assumes that neither imports nor exports are perfect substitutes for domestic goods. Hence, the general forms of export demand and supply equation are commonly based on the imperfect substitute's model of international trade presented inGoldstein and Khan (1985).

Thus to investigate the determinants of East African countries' export performance the study builds on the works of Goldstein and Khan (1985) by adjusting for some of the variables. The reason behind the choice of this model is stems from the fact that Goldstein and Khan (1985) demonstrated that the appropriate exports and imports behavioral model depends mainly on the types of goods traded, i.e. identical homogeneous primary commodities or highly differentiated manufactured goods, the way of the end use of the traded goods (final consumption or an input in production), the institutional framework under which the good is traded, this means whether recourse are allocated by relative prices or mainly though the administrative controls, on the purpose of modeling (hypothesis testing and forecasting), and even the ability of data.

Imperfect substitute's model assumes that neither imports nor exports are perfect substitutes for domestic goods was adopted in this study because the imperfect substitute's model is the standard approach in the literature for specifying and estimating foreign trade equations for both developed and developing countries. The framework is separated into two: export demand and export supply.

Under this approach, the export demand equation is specified as a function of the relative price of exports and the rest of the world's real income. However, the paper uses the real effective exchange rate instead of the relative price of export because the exchange rate directly affects the prices of exportable goods. Furthermore, the price of exportable commodities in most East African countries are determined by the rest of the world, in other words, these countries are

price takers for their export commodities. So the effect of export price doesn't have real effect on the export performance of these counties. Thus the demand side determinant of export is formulated log –linear model as follows:

$lnXD_{it} = \alpha_o + \alpha_1 lnMEDC_{it} + \alpha_2 lnREER_{it} + \in_{it}$ …… (1)

Where, t = index of time

i = index of individual countries

, XD_{it} = real export demand

$AIMEDC_{it}$ = average income of major export destination countries

$REER_{it}$ = denotes real effective exchange rate and $\in_{it}$ is the disturbance term

Equation (1), indicates that the increase in foreign demand and arise in cost and price Competitiveness or the depreciation of real exchange rate leads to an increase in export (ECB, 2007). This equation indicates that in accordance with conventional demand theory, as the consumer is postulated to maximize utility subject to a budget constraint. Thus this demand functions for exports indicate represents the quantity demanded as a function of the level of income in the importing countries, the importing good's own price and the price of domestic substitutes (Goldstein &Khan, 1985). However, there is recently broadly recognized that this traditional determinants alone can't be entirely explain export behavior (see, example the work of ECB (2012), Martina Basarac Sertic al et (2015), Forster and di Mauro (2008), Bayoumi, Harmsen and Turunen (2011). This result reinforces the need to search for other factors that may influence export performance. Thus stressing the need to take a broader consideration on the determinants of export performance, the paper also introduce a one more demand side determining which takes into account membership of WTO as one explanatory variable as it is used by Aman (2016) . Thus the demand side determinants become:

$lnXD_{it} = \alpha_o + \alpha_1 lnAIMEDC_{it} + \alpha_2 lnRER_{it} + \alpha_3 WTOM_{it} + \in_{it}$ …… (2)

Where, $WTOM_{it}$ denotes membership in World Trade Organization as $WTOM_{it}$ = 1 if country i is member to World Trade Organization and 0 otherwise.

From the demand equation there is an important issue that should be consider about the export of goods and services is small countries hypothesis. It states as if a country is truly a price taker (countries like East African countries), then the price of goods and services will be exogenous

variables. This is the most common economic phenomenon, particularly in East African countries whose primary export commodities' price determined by the importer(Salvator, 2003).

The supply side determinant of export is specified as a function of exporting capacity of countries in question and Trade openness as specified byTassos Haniotis al et (1988) , Goldstien and Khan (1985) and L.K. Maziya1 al et (2016) which is given in log-linear form as:

$$lnXS_{it} = \theta_o + \theta_1 lnGDP_{it} + \theta_2 lnAIQI_{it} + \theta_3 lnTOP_{it} + \theta_4 FDI_{it} + \in_{it} \quad \ldots\ldots(3)$$

Where; XS_{it} = export supply of country i at time t in log for

GDP_{it} = GDP growth of the country i at time t in log form

TOP_{it} = Trade Openness as share of GDP for country i at time t $(Export_{it}+import_{it})/GDP_{it}$ FDI_{it} = foreign direct investment net inflow of country i in time t.

$AIQI_{it}$= Average institutional Quality Indicator. As reported in "Ibrahim index of Governance" (IGI), there are six measures namely: government effectiveness (GE), regulatory quality (RQ), voice and accountability (VA), rule of law (RL), political stability and absence of violence (PS), and control of corruption (CC). However, in this study we use average of all indictors. The data were obtained from Ibrahim Index of good governance. This indicator is standardized on a scale 100 percent as 100(best).

Thus to estimate the determinants of East African countries' export performance, the study uses a log linear form of export determination model is employed incorporating the main determining factor from both supply and demand side factors. The model is thus similar to the one used by Wondaferahu and Belay (2013) in determining factors affecting the export performance of Ethiopia, and Vuckovic Blanka and Skrabic Peric (2015). In contrast, however, in this model we adjust for some of the variables and including some important additional determining variables likeaverage institutional development and membership to World Trade Organization identified as the most important determining of export by Aman (2016), domestic production which is identified as very important determinants of export by Ahmed and Majeed, (2006) and institutional development indicators (AIQI) identified as one of the main supply side determining factor of export by Aman (2016). Therefore, the following final log linear model is developed as follows:

$lnX_{it} = \beta_o + \beta_1 ln\mathrm{FDI_{it}} + \beta_2\mathrm{lnRER_{it}} + \beta_3\mathrm{lnGDP_{it}} + \beta_4\mathrm{lnMEDC_{it}} + \beta_5\mathrm{lnTOP_{it}} + \beta_6\mathrm{lnAIQI_{it}} + \beta_7\mathrm{WTOM_{it}} + \epsilon_t$ .. . ……………………………………… (4)

3.4. Estimation Techniques

The Random effectestimation technique is used in this study. This is based on the Hausman test of fixed and random effect model selected, and hence estimation result based on random effect model is appropriate. This technique is chosen because of the nature of the dependent variables.The random effect estimation technique gives efficient estimators.

3.4.1. Panel Unit Root Test

After choosing between random and fixed models the next step in the panel data analysis is to conduct panel unit root tests and determine the order of Integration.Panel unit root testing arises from the time series nature of the data and its unit root. The major difference between time series testing of unit roots and panel unit root tests is that we have to consider asymptotic behavior of the time-series dimension (T) and the cross-sectional dimension of individual observation (N). Using Statistical software we can implements a variety of tests for unit roots or stationary in panel datasets. Fisher-type (Choi 2001) tests have set the null hypothesis as all the panels contain a unit root. The Hadri (2000) Lagrange multiplier (LM) test has as the null hypothesis that all the panels are (trend) stationary. Options allow us to include fixed effects and time trends in the model of the data-generating process in these testing models. On the other hand this study will follow the approach ofLevin, Lin and Chu test (2002).In this approach we develop the null hypothesis for each time series rather than applying the test on the average of the variables. In addition this approach is appropriate for small size of cross country and time series dimensions. AccordinglyLevin, Lin and Chu test assumes cross-sectional independence of the variables. The null hypothesis is that each individual time series contains a unit root against the alternative that each time series is stationary (**H_o:** each time series contains a unit rootand **H_1** : eachtime series isstationary).The maintained hypothesis is that;

$$\Delta y_{it} = \rho y_{i,t-1} + \sum_{L=1}^{\rho_i} \theta_{iL} \Delta y_{it-L} + \alpha_{ni} d_{nt} + \epsilon_{it} \quad n = 1, 2, 3 \quad \ldots\ldots\ldots\ldots.. \quad (1)$$

Where d_{nt} represents the vector of deterministic variables and α_{ni} indicates the corresponding vector of coefficients for model n = 1, 2, 3. Specifically, d_{1t} = {empty set} d_{2t} = {1} and $d_{2t} = \{1, t\}$. ρ_i Indicates the lag order which is unknown, thus the test follows the following

three procedures (steps):Step one; Perform separate augmented Dickey–Fuller (ADF) regressions for each cross-section as:

$$\Delta y_{it} = \rho_i y_{i,t-1} + \sum_{L=1}^{\rho_i} \theta_{iL} \Delta y_{it-L} + \alpha_{ni} d_{nt} + \epsilon_{it} \qquad n = 1, 2, 3 \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Now ρ_i is allowed to vary across individuals. For a given time series dimension (T) choose a maximum lag order ρ_i and then use the t-statistic of θ_{iL} to determine if a smaller lag order is preferred. (These *t*-statistics are distributed N (0, 1) under the null hypothesis($\theta_{iL} = 0$), both when $\rho_i = 0$ and when $\rho_i < 0$). After determining the value of the lag orderρ_i the step (step two) is to perform two auxiliary regressions to get orthogonallyresiduals:

To get residuals ($\tilde{\epsilon}_{it}$) regress Δy_{it} on Δy_{it-L} (L = 1, 2...ρ_i) and d_{nt}

Again to get residuals $\tilde{v}_{it-1}$regress y_{it-L} on Δy_{it-L} (L = 1, 2……ρ_i) and d_{nt}

The third Step is standardizing these residuals to control for different variances across entities (i) as:$\tilde{\tilde{\epsilon}}_{it} = \tilde{\epsilon}_{it} / \tilde{\sigma}_{\epsilon i}$ …….. (3)

$\tilde{\tilde{v}}_{it-1} = \tilde{v}_{it-1} / \tilde{\sigma}_{\epsilon i}$…… (4)

Where $\tilde{\sigma}_{\epsilon t}$is standard error from each ADF regression, for i = 1, 2….. N.

The final steps run the pooled OLS regression as:

$$\tilde{\sigma}_{yi}^2 = \frac{1}{y-T} \sum_{t=2}^{T} \Delta y_{it}^2 + 2 \sum_{L=1}^{K} WKL \left[\frac{1}{y-T} \sum_{t=2+L}^{T} \Delta y_{it} \, \Delta y_{i,t-l} \right] \ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

Where; K is a truncation lag which depends on the data. Kmust be obtained in a manner that ensures the consistency of $\tilde{\sigma}_{yi}^2$. WKL is given by 1- (L/K+1), for each cross-section i, the ratio of the long-run standard deviation to the innovationstandard deviation is estimatedas; $\tilde{s}_i = \tilde{\sigma}_{yi} / \tilde{\sigma}_{\epsilon i}$. Then the average standard deviation is given by $S_N = \frac{1}{N} \sum_{i=1}^{N} s_i$….. (6)

The final step isto compute the panel test statistics. Run the pooled OLS regression as follows:

$\tilde{\epsilon}_{it} = \rho_i \tilde{\tilde{v}}_{it-1} + \tilde{\tilde{\epsilon}}_{it}$ …….. (7)

Recall; the null hypothesis (H_o), $\rho_i = 0$, Notice that the standard deviation for t-statistics has to be adjusted, and given in table format in original wok of Levine (2002). The necessary condition for this test is$\sqrt{N_T} / T \to 0$, where $N_T$indicates the cross-sectional dimensionNis an arbitrary monotonically increasing function of T, while the sufficient are conditions are $N_T / T \to 0$ and $N_T / T \to K$.

3.4.2. Diagnosing Tests

To determine the soundness of the model for examining the factors affecting export performance of East African countries, the study performstesting assumptions of classical linear regression model. These diagnostic tests that will be conducted includes: Test for normalityassumption, test for Multicollinearity, test for autocorrelation, testing for heteroscedasticity (to test whether the disturbances have the same variance), testing for serial correlation (to test whether the residuals are correlated across entities); and test for the overall goodness of the (weather the explanatory variables included in the model well explain dependent or not).

3.5. Description, Rationale of Including and Expected Sign of Independent Variables

Real effective Exchange rate: Real effective Exchange rate is measured as the weighted of inflation adjusted exchange rate of a given country. Decrease in the relative domestic price due to exchange rate depreciation makes export cheaper and in international markets. This results an increase demand for export. This is in line with the Marshal-Lerner condition and Mundel-Fleming model which states as appreciation of domestic currency or a decrease of real effective exchange rate results export expensive, thus the demand for export to the international market decrease, this intern leads to reduce foreign exchange earnings. Thus in this case, the expected sign of real effective exchange rate will be positive. This expected sign is consistence with the findings of Kingu and Singu(2005) using the panel data approach for developing countriesas well as the findings of Tariq and Ahmed (2006) using panel data approach for 75 developing countries.

On the contrary, the reverse may occur when the real effective exchange rate devaluation leads to an increase in cost of exports through decreasing the countries international competitiveness. Thus the expected sign of real Effective Exchange Rate on export is ambiguous; rather it is depend on the exchange rate regimes that the countries adopted (Wondaferahu, 2013).

Foreign Direct investment (FDI); this refers to direct investment equity flows in the reporting economy. FDI is the sum of equity capital, reinvestment of earnings, and other capital inflows. In other words, foreign direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an

enterprise that is resident in another economy. In the empirical literature there are two conflicting views about the contribution of FDI to export growth of developing countries. One line of argument is in line with the argument of Hoekman and Djankov (1997) which stated that the role of FDI in export improvement in developing countries depends on the motives of investment. If the motive is to capture domestic market, it will not contribute for improve of export. On the other hand if the motive is to enhance export markets by using the countries' comparative advantage, in this case foreign direct investment will contribute for export growth.

On the contrary, the argumentof Oyejide and Ademola (2007) states that foreign direct investment (FDI) plays a significant role in promoting economic development in low income countries by serving as a mechanism through which technology andmanagerial know-how are transferred to such countriesand to facilitate exporting activities generated by the FDIflows. From this study we expect in the second line of argument that FDI growth will motivate the export performance East African countries.

Trade openness (TOP): is the sum of imports and exports of a country in a given period of time use in this analysis as a ratio of GDP. This is to know the percentage share of it from the national output and how much it contributes for economic performance. It indicates access to and from external market (international market) has the most important effect on export performance.. Researchers strongly support that as the economy becomes more open to the external world results better achievements of foreign exchange earnings from export. This implies that countries should integrate in the world market through diversifying their trading partner. Thus this variable is consistence with the findings of Wondaferahu (2013) that used a var model analysis to investigate the export performance of Ethiopia, and found positive and significant impact of openness for the export growthof Ethiopia. Thus the expected sign of this variable is positive.

Average income of major export destinationcountries (**AIMDC):** the foremost important determinants of countries' export have been significant, but it was found to be insignificant for Indonesia's export in all the three categories. The coefficient of world demand was highly elastic for China, more than 1, but less than 1 for the other countries in the group(Wondafeahu Mulugeta, 2013). We stated in the model speciation part when income of trading partner increase demand for more of differentiated (imported) goods and services increase. Consequently, export improves. Therefore, AIMDC will affectexport positively. This expectation is is also consistence

with the findings of Aman (2016) which demonstrates that improvement in the real income of importing countries leads to improve the export potential of exporting countries, since their people are interested in the consumption of differentiated products.

Production capacity (GDP): in many empirical literatures (e.g. Whuondahu, 2013) GDP found to be the foremost important determinantof export. On many countries specific cases it is found that production affect export positively and significantly all countries exports in all categories with elasticity nearly above 1 in all cases. Higher productions mean higher diversification for export and hence improve export. The findings of Maeed and Ahmed(2006), Aman (2016) and Wondaferahu (2013) indicates that the production capacity of countries highly influence the export growth of countries.Therefore the expected sign of this variable will be positive on export. In this study we use GDP at constant price for each country or real GDP of home country.

Average Institutional development indicators (AIDI): There are many measures of institutional developments, but in this study the average of the six main indicators,namely; government effectiveness (GE), regulatory quality (RQ), voice and accountability (VA), rule of law (RL), political stability and absence of violence (PS), and control of corruption (CC)are used. Regions with good institutional setup have better export growth. this is also supported by the findings of Tariq and Ahmed (2006) that they demonstrate that from 75 developing countries of which countries which has better institution has better export performance compared to poor institutional quality.On the other hand, Eyayu (2014)on determinants of Agricultural export in Sub-Saharan Africa by using Panel Study found that countries which have better export performance indicated by relatively better export performance. Thus the expected sign of AIDI will have positive.

Landlocked dummy (LDLK): in studding the determinant of export performance, it is important to considering whether the countries have outlet (M.Rahman, 2006). Many East Africa countries are characterized by fewer ports and oversea out lets. Accordingly land locked countries expected to have poor export performance compared to costal interior countries due to their geographical location. This study use dummy variable gets one if landlocked zero if not to see the country – by country specific difference performance of export. Therefore, LDLK will affect export negatively

Membership to WTO (WTOM):this dummy variable is measured as given on if he country is member to world trade organization and zero if the country is not member. Being membership to WOT expected to have many opportunities for export improvement by allowing easy access to the international market. Aman (2016) used for comparing difference of export performance among country, found it as one of the main determining factor. Furthermore, members of the WTO agree to avoid trade barriers and restrictions among themselves. The experience of East African Community member countries also which all are members of WTO have better export performance than other counties in the region. Therefore, we expect that being member of WTO can have various benefits and encourage export performance of the regions, and hence it will have positive effect on export.

CHAPTER FOUR

RESULT AND DESCUSION

4.0. Introduction

This chapter deals with the regression and some important tests results of determinants of export performance in East African Countries by using the annual balanced panel data collected from 2000 to 2015. In the dataset all the variables are observed for each cross section and each time period. The dataset has two segments, a time series segment running from 2000 to 2015 and a cross section segment consisting of nine Eastern African Countries namely Kenya, Tanzania, Uganda, Ethiopia, Burundi, Sudan, Djibouti, Rwanda and Zambia. Therefore this chapter deals with the analysis of the results and discussions. The analysis includes: descriptive statistics of the variables in the model, Hausman test to determine whether fixed or random effect model is appropriate; Diagnostic Tests/ tests for the assumptions of Classical Linear Regression Model (CLRM) like Multicollinearity, Heteroscedasticity, Normality and Autocorrelation are conducted. Finally discussion of the results and comparisons with the existing empirical literature is done.

4.1. Descriptive Statists of the variables

Before going to the empirical results of the model it is important to discuss the characteristics and the distributional patterns of the variables included in the model. This helps to have the overall look at the variables being studied. Accordingly there are many measures of analysis, for instance, Hetal (2006), proposed three main techniques of analysis namely; 1) Summary Statistics; which contains information about the variables used in the model. The description of the variables includes mean, median, standard deviation, skewness, kurtosis, minimum and maximum values. The table 4.1 below shows the descriptive statistic values of the variables which consist of both the dependent and independent variables for 144 observations. The study uses export measured in natural logarithmic form as the dependent variable and seven in dependent variables.

The minimum and maximum values of each variable indicate that the minimum and maximum values from each country used in this study respectively. Mean indicates; Mean value the average value of all sampled countries in each variable; whereas skewers and kurtosis measures the normality of the variables used in the study. Skewness measures normality from the standard normal distribution reference points; whereas kurtosis measures peachiness of the data.

Table 3: Summary Statistics for Continuous Variables

Variables	Obser v.	Mean	Maximum	Minimum	Stan. deviation	Skewness	kurtosis
export	144	3.49E+09	1.21E+10	39380857	3.47E+09	0.923895	0.28292
GDP	144	1.88E+10	9.72E+10	5.51E+08	1.99E+10	1.450853	1.81131
FDI	144	5.8E+08	2.31E+09	11440.91	6.55E+08	1.094977	-0.09156
RER	144	602.3527	3240.645	2.0161	743.9822	1.199377	0.635209
MEDC	144	4.85E+12	1.76E+13	1.88E+10	4.82E+12	0.986723	-0.05914
TOPN	144	23.81928	58.19768	4.685804	12.30519	0.550245	-0.18651
Aiqi	144	45.92917	57.7	29	7.7897	0.0281	0.2226
Wto	144	0.77777	1	0	0.4171998	0.0000	0.7555

Source: WB, IIAG and Own Computation, 2017

The mean of the dependent variable in (Export) equals 3.49E+09, which show the average export of goods and services in the natural logarithmic or percentage form for the East Africa countries with standard deviations of3.47E+09. It has the minimumand the maximum value of 39380857and 1.21E+10respectively or this indicates that export performance of the region from 2000 to 2015 ranges from 39380857to 1.21E+10. Export in percentage rate is approximately normally distributed with skewness value of 0.923895a1.88E+10nd kurtosis of0.28292.

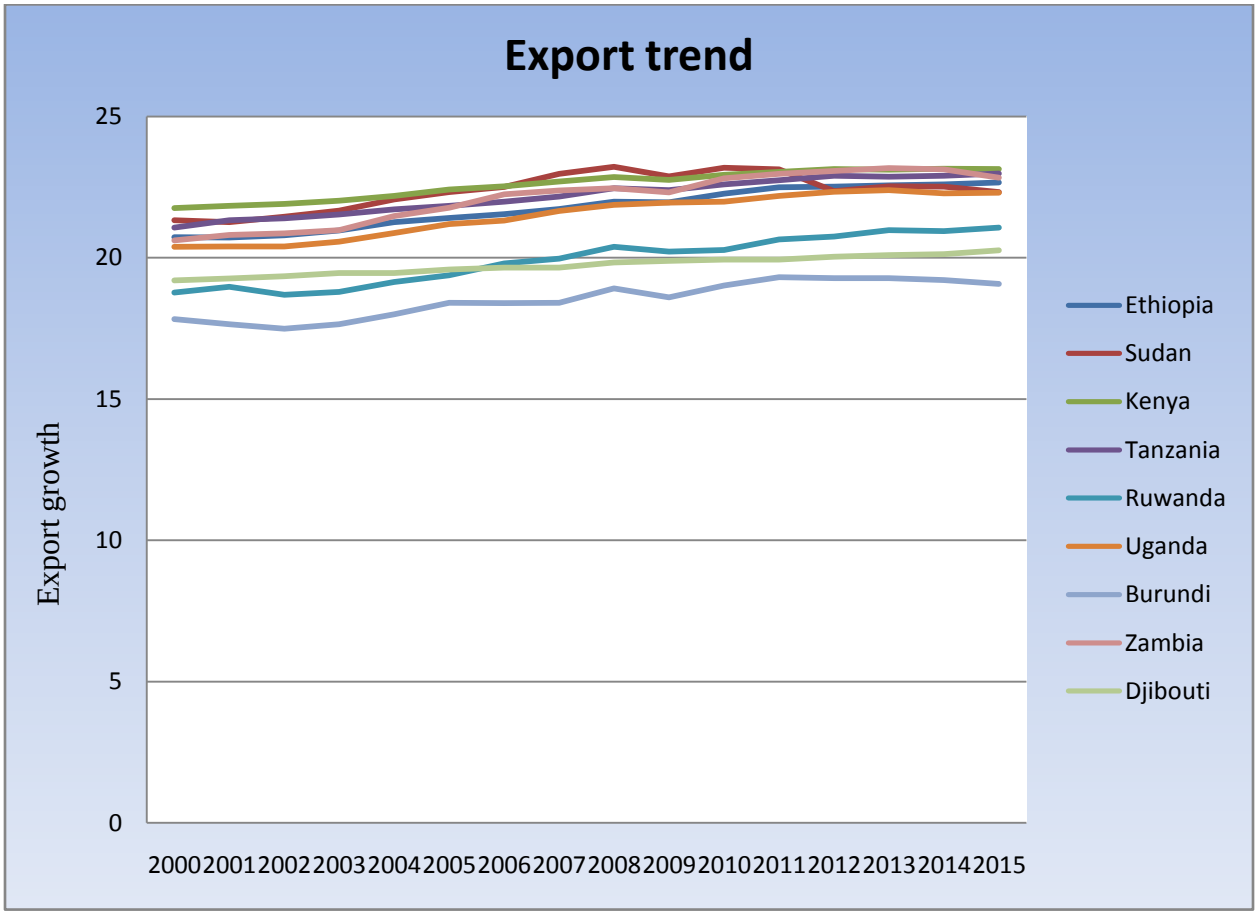
The mean of real of GDP of home country is 1.88E+10with astandard deviation of1.99E+10. The maximum and minimum value of this variable is 9.72E+10and 5.51E+08respectively. This shows that there is positive growth of GDP among the East African countries. The data for this variable is relatively right skewed and meso kurtic with a skewness and kurtosis value of 1.450853and 0.09156 respectively.

Foreign direct investment (FDI) has the mean value of 5.8E+08 and standard deviation of 6.55E+08whichare relatively less fluctuate from the mean. It has a minimum and maximum

value of 11440.91 and 11440.91.The data for this variable is normally distributed with skewersof 1.094977and kurtosis 0.09156.

The figure below shows the trend of exort grwth in East African countries.

As shown bellow Kenya beter performed compared the other East African countries. This is due to its openess to to the external world. Ethiopia, Burundi and Djibuite are the among the lowes performers in the last 15 years. The common thing is their export stasus is imroved throught time.

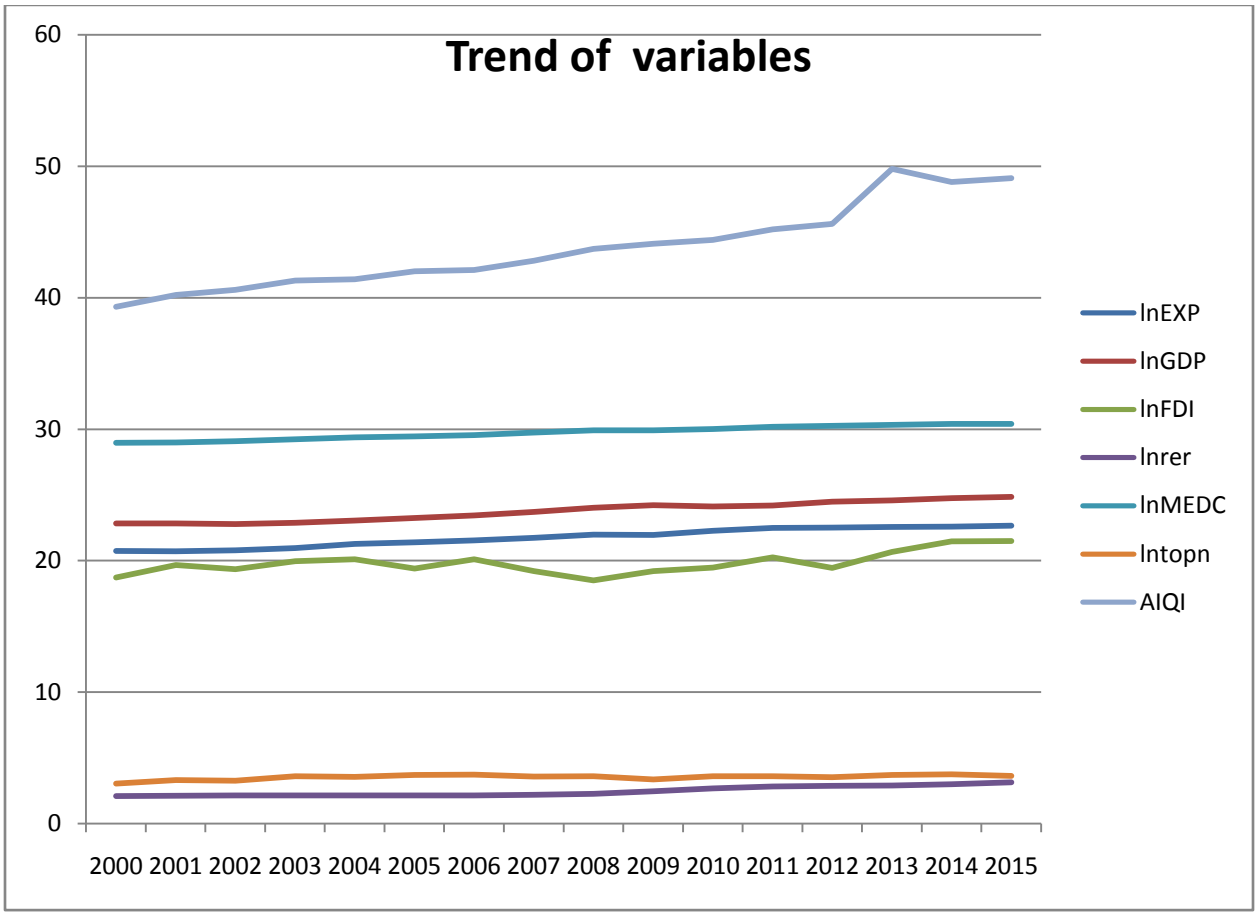


*Source:*WB, IIAG and Own Computation, 2017

As indicated in the figure above export improves slowly from 2000 to 2003. From 2004 to 2010 also show increasing trend, however, itexperiences ups and downs. Finally from 2011 onwards shows better improvementof export performance for East African countries.On specific country cases as shown in the above figure, Kenya, Uganda, Burundi, Zambia and Sudan performs better while the fig for Ethiopia, Djibouti and Rwanda indicates relatively lower export performance.

The following figure indicates that the trend of both dependent independent variables for through time. As it indicated in the fig Export shows relatively better growth trend right from 2005. As indicated from the 2011 to 2013 it showed faster growth and reaches peak but from 2014 onwards slower trend. When we see the other explanatory variables the income of major export destination countries and GDP growth trends show better improvement through time. Trade openness and real effective exchange rate shows relativelysmall growth trends.

Whenwe compared with the export trends of East Countries indicated in fig 1 above, Ethiopia shows relatively lower export performance.



*Source:*WB, IIAG and Own Computation, 2017

The above figure indicates that the growth of GDP and average institutional quality indicator is steady. On the other hand, the growth trend of foreign direct investment shows ups and downs through time. Compared to other East African countries, Ethiopia is less open to external trade and this is indicated by the steady growth of trade openness in the above table.

4.2. Choosing Random Effect versus Fixed Effect Model

The determinants of export performance are specified and the model is formulated based on Economic theory as stated in chapter three. The organized data were estimated based on the panel model, which includes cross sectional and time series dimensions for nine countries of the region over the period2000 to 2015. Fixed effects and random effects models are commonly used models for the panel data. In order to choose fixed or random effect model a formal test so called hausman test was used which was based on the null hypothesis in favor of random effect model estimator or the hypothesis states as: H_o : Random effect model is appropriate and H_A: Random effect model is not appropriate or FE model is appropriate. The decision rule is when the prob>chi2 or the P- value is greater than the given level of significan (usualy 5%), then we fail to reject the null hypothesiss (Ho), thus random effect model is apropriate. On the other hand, if the P- value is less than a given level of significan or 5% we reject the null or the fixed effect model is apropriate (Woodridge, 2006). Table 4.2 below shows the husman tes results of fixed and random effect model.

Table 4: Hausman Test Result

Test for model one: Ho: RE model is appropriate. H1: FE model is appropriate.				
Test Statistics	Chi-squ Statistics (χ^2)	Chi-sqdf	Prob.	Appropriate model
Cross Sectional random	6.35	8	0.3850	Random effect model is appropriate

Source: WB, IIAG and Own Computation, 2017

As shown in the table above the P- value or the probability is 0.3850 which is above 0.05, thus we fail to reject the null hypothesis at 5% level of significant. Therefore, random effect model is appropriate for this analysis.

4.3. Panel Unit Root Test

There are a variety of tests for unit roots or stationary in panel datasets like the Levin–Lin–Chu (2002) and Breitung and Das (2005). This study uses the Levin–Lin–Chu (2002) test to analysis or investigates stationary of the Variables in the time series dimension. The assorted tests make different asymptotic assumptions regarding the number of panels in the dataset and the number of time periods in each panel, thus this test assumes for balanced data sets. Livin-Lin-Chu test (LLT) is based on the following hypothesis;

Ho: Each time series contains a unit root

$H_{A:}$ Each time series is stationary

Where the lag order ρ is allowed to vary across Individuals

The power of the test is probability of rejecting the null when it is false and the null hypothesis is unit root. It also shows the order of integration. The main difference between panel and time series unit root test is that we have to consider asymptotic behavior of the time-series dimension T and the cross-sectional dimension N. If the calculated value is greater than the tabulated (P-value or critical) value at a given level, the given variable is stationary at the given order. The unit root test result of the continuousvariables is presented in the following table.

Table 5: Panel Unit Root Test Results

Ho: panel data has unit root(not stationary) Ha: panel data has not unit root			
Variables	Summary Statistics	P - value	Level of integration
Lnexp	3.3505	0.0002**	I(0)
Ln GDP	2.3829	0.0086**	I(0)
Ln FDI	2.7294	0.0032**	I(0)
Ln rer	3.3119	0.0005**	I(0)
Ln medc	4.1602	0.0000*	I(0)
AIQI	3.7231	0.0001**	I(1)

*Source:*WB, IIAG and Own Computation, 2017

* indicates stationary at 1% level and ** indicates stationary at 5% percent level of significant.

Based on the results of the above table almost all the variables are stationary of order zero except average institutional development indicator, which is stationary of order one.Income of major export destination countries is stationary of order one at one percent level of significant.

4.4. Testing Assumptions of Classical Linear Regression Model (CLRM)

Once we have identified the fixed and random effect model, the next step is to check whether the estimation techniques or our data fulfills the assumptions of CLRM. One of the assumptions the states that the expected value of the error term is zero, E ($\in_i$) =0. Since the constant term or the intercept is included in the model, thus this assumption is fulfilling (Woodridge, 2009 and Verbeek, 2005). In fact in our model we include the constant term (β_o), the average value of the error term expected to be zero. This is one basic assumption that any model should pass. Accordingly the following assumptions tests were conducted in this study.

4.4.1. Test for Multicollinearity Assumption

Test of multicollinearity is conducted in this study to identify the correlation between explanatory variables and to avoid double effect of independent variable in the model. This problem is usually arises when certain variables are correlated or have strong relationships between the variables. A correlation is a single number that describes the degree of relationship between two variables. Correlations coefficients, which has the value of more than 0.7 is referred to as strong correlations. There is also another test called variance inflation factor for multicollinearity in the model.We can we variance inflation factor (VIF) as the decision rule accept no muliticollinearity if VIF is less than ten (10), or reject no multicolinearity if VIF is greater than 10. Thus by using the formula VIF = $\frac{1}{1-R_j^2}$ in this study VIF= $\frac{1}{1-0.98} = 5$. Thus we can accept no multicolinearity problem in the model.

4.4.2. Test for Hetroscedaciticty Assumptions

The test of hetroskedasticity is conducted in this study to know the weather the variance of the error term is constant or varying. This theoretically assumed that the variance of the error term is assumed to be constant or var ($\in_t$) = δ^2 ,this also known as homoscedasticity assumption. Heteroscedasticity arises as a result of the presence outliers. The inclusion or exclusion of such observations, especially when the sample size is small, can substantially alter the results of regression analysis.The distribution of one or more regressors included in the model is another

source of heteroscedasticity. Even sometimes incorrect data transformation, incorrect functional form (linear or log-linear model) is also the source of heteroscedasticity. There are many ways of testing hetroscedacitsity tests of problem, like the White (1980), Breash Pagan and etc. This study uses the formula for testing hetroskedasticity, given by N R^2(T-1), Where N referece to number of groups or observations, R^2 is the goodness of fit from the regression of the residual square on the independent variables. The hypothesis is like Ho: there is homoscedasticity and the alternative (H_A): there is hetroscedasitcity. Accordingly to the test result the following table summarizes.

Table 6: Hetroscedasticity Test

Ho: homoscedasticity and H_A: hetroscedasticity	
Test statists or calculated value	Tabulated value of $\chi^2_{8,0.95}$
60.04	15. 057

Source; WB, IIAG and Own Computation, 2017

As indicated in the above table we rejectthe null hypothesis, and indicate the presence of hetroscedaciticity problem. To overcome this problem we use the robust standard error regression result instead of the default stata standard error of the model, and hence this problem is eliminated.

4.4.3. Test for Autocorrelation Assumption

The other important diagnostic test which is performed in this study is the autocorrelation test. Autocorrelation is the measure of the linear statistical relationship between two random variables. This assumption of OLS theoretically expressed by the numbers of scholars among others Brooks (2008) and Verbeek (2004) founded. They expressed as; cov($\in_i, \in_j$) = 0, this is another assumption that is made of the CLRM‟s disturbance terms is that the covariance between the error terms over time (or cross-sectionally, for that type of data) is zero. In other words, it is assumed that there is no correlation between the error terms. If the errors are correlated with one another, it would be stated that they are „autocorrelated‟ or that they are serially correlated The most common test of this assumption is by using the Durbin–Watson test, Pasaran CD test and the Breusch-Godfrey test (2008). This study is going to use the Lagram-Multiplier test for serial

correlation by using the command *xtseria*. The hypothesis stated as, Ho: there is no autocorrelation against the alternative (HA): There is autocorrelation.

Wooldridge test for autocorrelation in panel data H0: no first order autocorrelation	
F(1, 8)	Prob>F
5.902	0.0512

*Source:*WB, IIAG and Own Computation, 2017

The null is no serial correlation and the alternative says there is serial correlation. Accordinglyin the table above we fail to reject the null and conclude the data does not have first-order autocorrelation at 5% level of significant. Thus P- value is around 0.05 and this indicates that the errors are not seriously correlated.

4.4.4. Test for normality assumption

This test is concerned with whether the disturbances terms are normally distributed or not is one of the assumptions of CLRM. To fulfill this assumption the data distributional pattern should have a kurtosis value of 3 and follow the normal distribution pattern with mean equals median which also equals its mode. Normality test can be conducted either Graphical plot or numerically through commands. Accordingly it is one of the most commonly applied tests for normality Using Stata. The Graphical method includes drawing a stem-and-leaf plot, scatterplot, box-plot, histogram, probability-probability (P-P) plot, and quantile-quantile (Q-Q) plot. The numerical method concerned with computing the Shapiro-Wilk, Shapiro-Francia, and Skewness/Kurtosis tests.Skewness measures the degree of symmetry while Kurtosis measures the pickiness of the distribution. If the residuals are normally distributed, the histogram should be bell-shaped and the Shapiro-Wilk, Shapiro-Francia statistic would not be significant. The hypothesis is as follows; Ho: there is normality or normally distributed against the alternative (H_A): it is not normally distribute. The decision rule is when the *p*-value is greater than 5% then accept the null hypothesis of normally distribute. According to the Shapiro-Francia test result some of the variables have not normality distribute. Of course it is not much of the concern of panel data model, we can correct by robust standard error techniques. (See appendix 7).

4.5. Discussion on the Regression Results

In this study we analysis both demand and supply side determinants of export. After analyzing the various econometric issues that were presented and discussed in the previous topics, and based on this estimation technique which results in consistenceand unbiased estimator is used. Thus the random effect estimation technique is appropriate to analyze and discuss the determinants of export in East African countries as the estimation technique yields efficient and consistent result.

The regression results have their own implications, and hence the coefficient indicates each variable's level of influence on the dependent variable. The influence or the relationship may be positive or negative. The P- value and Z- statics shows the level of significant of the variables. Based on the actual results in table 4.6 below the supply-side variables GDP and tradeopenness have positive and statically significant coefficients.But foreign direct investment and average institutional development indicator have insignificant contribution to East African countries export performance.

The demand side variables; income of major export destination countries is found to be insignificant. On the other hand, real effective exchange rate has negative coefficient and significant impact on the export performance of the region while WTO membership dummy have positive and significant impact on export variation among countries.

Table 7:Regression Result under Random Effect Estimation Technique

Dependent variable Ln of Export				
Variables	Coefficient	St.error	Z	P-value
Lngdp	0.9948218	0.036376	27.35*	0.000
Lnfdi	0.0082483	0.103558	0.80	0.426
Ln rer	-0.0965292	0.0395962	-2.44**	0.015
Ln medc	-0.0196268	0.0326395	-0.60	0.548
Wto	0.736109	0.2363709	3.14**	0.002
Aiqi	0.003684	0.0078165	0.47	0.637
Lntop	0.8191019	0.572388	14.31*	0.000
Con.	-3.971593	0.6263293	-6.34	0.000

Number of observation =144

R-Square within = 0.9675

Between =0.9816

Over all =0.9785

Wald chi2 (7) = 4172.86

Prob>chi2 = 0.0000

Note: * indicate 1% significant level, **indicate 5% significant and**indicate 10% significant level

Wald chi-square test indicates the overall all goodness of the model, accordingly it indicates that the model is significant and good enough to explain the export performance East African countries.

From the estimation results of table 4.6 above a one percent increases in exporting countries' GDP will leads to about 0.9948% increases in export supply. This variable has the impact of what we expect from economic theory. This is because as production capacity of the economy expands, this leads to improve or increase the supply of exports.The result also consistence with the findings of (Kandiero and Randa; 2004; Taylor 2007) for a given level of access toInternational markets, countries with better production capacity or supply conditions are

expected to export more.Babatunde (2009) also argued that GDP has highly significant positive impact on export volumes.

The result indicates that the coefficient of foreign direct investment is positive, butinsignificant.The result ignores supports the argument that foreign direct investment(FDI) plays a significant role in promoting economic development in low income countries by serving as a mechanism through which technology andmanagerial know-how are transferred to such countriesand to facilitate exporting activities generated by the FDIflows (Oyejide and Ademola,2007). Rather this result is in line with the argument of Hoekman and Djankov (1997) which stated that the role of FDI in export improvement in developing countries depends on the motives of investment. If the motive is to capture domestic market, it will not contribute for improve of export. On the other hand if the motive is to enhance export markets by using the countries' comparative advantage, in this case foreign direct investment will contribute for export growth. This study supports the former argument that foreign investors in East African countries mainly come to capture domestic market (uses tariff-jumping type investment) rather than export motives,see (Hoekman B. a., 1997)

The sign for the coefficient of real effective exchange rate is negative and significant as expected.The result shows that one percent depreciation in real exchange rate leads to 0.0965 % increase to export supply of East African countries or the elasticity of export due to a percentage change of real exchange rate is 0.0965.This supports that depreciating real effective exchange rateenhance the competitiveness of the export of East African countries in the international market.A fall in the relative domestic prices due to exchange rate depreciation makes exports cheaper in the international markets resulting in increased demand for exports, and hence leads better export.This result is in line with economic theory devaluation of currency is one main policy measures for a countries export growth. The result is consistence with the findings of Eyayu (2014) on the export determinant of SSA countries.

Income of major importing countries has negative impact on export growth for East African countries not as expecting, but statistically insignificant. This is because the increases in the incomes of major importing country are not much important factor to change their demand for the product of East African product. This is because the exportable commodities' price or the export prices of East African countries are determined /set/ by the importers, and hence there is no influence from due to their income changes because they can set whatever price they want.

This indicates that East Africa countries is assumed to influence small and face an infinitely elastic demand for their exports, so that changes in foreign demand can influence exports only through changes in real exchange rate.The finding is line with the argument that to improve export countries should devalue their currency so as to make exports cheaper and imports expensive.

The dummy variable for membership in world trade organization has positive and significant effect for export improvement. The result indicates that East African countries which are members of World Trade Organization have 0.736% higher export performance than non-members. This is also consistence with economic theory as countries are more open to external economy or smallinfluences through trade restrictions havegreater capacity of export. Thus effect of membership is consistence with economic theory and what we expect.

The impact of average institutional quality development on export performance is positive as expected, but statistically insignificant. This is because East African countries' institutions are not well developed yet. Even the cost incurred for the development of these institutions is higher than these institutions contribute for export development. Thus according to the result the development of these institutions is at the early stage to contribute for export.

Trade openness is highly significant in explaining export growth. The result indicates that a one percent increase in trade openness East African countries will leads to 0.819% growth of export for these countries. This is because as the countries are become more open to external economy, they will have more trade partner for their exports. Thus improvement of trade in the region will lead to more export for these East African countries.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATION

This chapter presents the conclusions, recommendations and indicates limitation and further research areasbased on the findings of the study. Accordingly this chapter is organized into three sub-sections. The first section deals with the conclusion and the second section presents the recommendations and the last section presents further research areas and limitation based on the findings.

5.1. Concussion

The main issue investigated in this study is to identify the main determinants of export in East African countries. In other words, this paper investigates whether the supply side or the external/demand side factors are significantlydetermining the export performance of East African countries. Thus to analyze this question the study uses a panel data consists of nine countries over the period 2000 to 2015.

The study uses secondary data collected from World Bank and Ibrahim index of African governance (2016). In this study WTO dummy(1 if the country is member and 0 if the country is nonmember to WTO), real effective exchange rate and average income of major export destination countries are the demand side variables in the export model. On the other hand, GDP, foreign direct investment (FDI), average institutional quality indicator (AIQI) and trade openness (top) are the supply side variables in the model.

After discussed the different econometric issues that should be taken in consideration , and hence according to hausman test result the random effect estimation technique is found to be appropriate as the estimation techniques gives consistence and efficient results (coefficients).

According to the empirical result of the estimated model in this study indicates that among the supply side determinants of export;GDP growth and Trade openness found to be statically significant. These variables affect export as expected from economic theory. The more production capacity of the countries leads to the more the export growth. The production capacity determines the export potential utilization and total supply of exports for East African countries. As the result shows, other thing being equal, a 1% rise of trade openness results

0.809% increases in the export volume of East African countries or there is inelastic change in export of goods and serves in due to the change in trade openness. Average institutional development of East African countries is foundto be insignificant contribution for export growth. Real exchange rate affects negatively and significantly at 1% level of significant. This indicates that depreciation of real exchange rate will leads to enhance the export of East African countries. A stable exchange rate policy has to be ensured in order to avoid the exchange-rate risks associated with the assets, import prices and profit considerations of direct investor in East African countries.

From the demand side factors of East African countries' export, WTO dummy variable as member ship of World Trade Organization has positive and significant coefficient for export growth of East African countries. This indicates that of the countries of East Africa which are members of world trade organization have better export performances than the non-members countries. This is in line with our prior expectation and economic theory.

This empirical finding suggests Income of major export destination countries has insignificant contribution for export improvement in the region.

Generally, the empirical investigation in this study indicates that both the supply and demand factors are equally important in determining the export of East African countries.

5.2. Recommendation

Based on the analysis made and conclusion arrived the following policyimplication are derived. As it was observed from the estimation results, trade openness one of the major contributions to export growth is positive and significant. This implies that East African countries should eliminate or at least minimize import and export duties so as to improve their export performance.

Since real effective exchange rate found to be significantly affecting the export performance of East African countries. Thus governments of these countries should devaluate their currency so as to encourage their export.

The dummy variable for membership to world trade organization indicates a significant impact on the export performance of East African countries. Thus non-member countries should give more emphasis, and become member to improve the country's export performance.

Finally, GDP of home country has a major marble effect; this implies that the governments of East African countries needto createconducive environment for GDP improvement to improve the export performance of East African countries.

Generally, the finding indicates that policy makers of East African countriesshould give almost equal emphasis for demand and supply side determinants of export performance as long asthe efficient potential utilization of East African countries is concerned.

5.3 Areas for Future Studies

This study examines only specific determinants of export performance due to time and resource limitations.ThusFuture research should continue the quest for a better measure of export performance by considering the effect of other factors such as domestic infrastructure development, human capital development, market structure and rain fall. Therefore, future researchers may conduct their study through considering these factors and address these deficits.

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APPENDIXES

Appendix1: List of countries used in the study

Burundi

Djibouti

Ethiopia

Kenya

Rwanda

Sudan

Tanzania

Uganda

Zambia

Appendix 2: Hausman Specification Test

```
. hausman fe re

                 ——— Coefficients ———
                 |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                 |       fe           re         Difference          S.E.
-----------------+------------------------------------------------------------
           lngdp |    1.058927     .9948218       .0641053        .0443543
           lnfdi |     .004746     .0082483      -.0035023        .0015504
           lnrer |   -.1684241    -.0965292      -.0718949        .0611699
            aiqi |    .0103784      .003684       .0066945        .0031855
          lnmedc |   -.0852625    -.0196268      -.0656356        .0454218
          lntopn |    .8268928     .8191019       .0077909           .0218
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =         6.35
                Prob>chi2 =       0.3850
                (V_b-V_B is not positive definite)

.
end of do-file
```

Appendix 3:Random effect regression result

```
.  xtreg lnexp lngdp lnfdi lnrer lnmedc wto aiqi lntop, re

Random-effects GLS regression                   Number of obs      =       144
Group variable: country1                        Number of groups   =         9

R-sq:  within  = 0.9675                         Obs per group: min =        16
       between = 0.9816                                        avg =      16.0
       overall = 0.9785                                        max =        16

                                                Wald chi2(7)       =   4172.86
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

lnexp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
lngdp	.9948218	.036376	27.35	0.000	.9235262	1.066117
lnfdi	.0082483	.0103558	0.80	0.426	-.0120488	.0285454
lnrer	-.0965292	.0395962	-2.44	0.015	-.1741364	-.018922
lnmedc	-.0196268	.0326395	-0.60	0.548	-.0835991	.0443454
wto	.736109	.2363709	3.11	0.002	.2728306	1.199387
aiqi	.003684	.0078165	0.47	0.637	-.011636	.0190039
lntopn	.8191019	.0572388	14.31	0.000	.7069161	.9312878
_cons	-3.971593	.6263293	-6.34	0.000	-5.199175	-2.74401
sigma_u	.21399776					
sigma_e	.12609136					
rho	.74229241	(fraction of variance due to u_i)				

```
.
end of do-file
```

Appendix4:Unit root Test Results

```
. xtunitroot llc lnexp

Levin-Lin-Chu unit-root test for lnexp
──────────────────────────────────────

Ho: Panels contain unit roots              Number of panels  =      9
Ha: Panels are stationary                  Number of periods =     16

AR parameter: Common                       Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 8.00 lags average (chosen by LLC)
──────────────────────────────────────────────────────────────────────────────
                     Statistic      p-value
──────────────────────────────────────────────────────────────────────────────
 Unadjusted t        -4.3784
 Adjusted t*         -3.5305        0.0002
──────────────────────────────────────────────────────────────────────────────


.  xtunitroot llc lngdp

Levin-Lin-Chu unit-root test for lngdp
──────────────────────────────────────

Ho: Panels contain unit roots              Number of panels  =      9
Ha: Panels are stationary                  Number of periods =     16

AR parameter: Common                       Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 8.00 lags average (chosen by LLC)
──────────────────────────────────────────────────────────────────────────────
                     Statistic      p-value
──────────────────────────────────────────────────────────────────────────────
 Unadjusted t        -3.0694
 Adjusted t*         -2.3829        0.0086
```

```
. xtunitroot llc lnfdi

Levin-Lin-Chu unit-root test for lnfdi
```

Ho: Panels contain unit roots — Number of panels = 9
Ha: Panels are stationary — Number of periods = 16

AR parameter: Common — Asymptotics: N/T -> 0
Panel means: Included
Time trend: Not included

ADF regressions: 1 lag
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)

	Statistic	p-value
Unadjusted t	-4.9428	
Adjusted t*	-2.7294	0.0032

```
. xtunitroot llc lnrer, trend

Levin-Lin-Chu unit-root test for lnrer
```

Ho: Panels contain unit roots — Number of panels = 9
Ha: Panels are stationary — Number of periods = 16

AR parameter: Common — Asymptotics: N/T -> 0
Panel means: Included
Time trend: Included

ADF regressions: 1 lag
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)

	Statistic	p-value
Unadjusted t	-6.4884	
Adjusted t*	-1.0774	0.1407

```
. xtunitroot llc lnmedc

Levin-Lin-Chu unit-root test for lnmedc
---------------------------------------

Ho: Panels contain unit roots               Number of panels  =      9
Ha: Panels are stationary                   Number of periods =     16

AR parameter: Common                        Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 8.00 lags average (chosen by LLC)
------------------------------------------------------------------------------
                     Statistic      p-value
------------------------------------------------------------------------------
 Unadjusted t        -4.6251
 Adjusted t*         -4.1602        0.0000
------------------------------------------------------------------------------


. xtunitroot llc aiqi, trend demean

Levin-Lin-Chu unit-root test for aiqi
-------------------------------------

Ho: Panels contain unit roots               Number of panels  =      9
Ha: Panels are stationary                   Number of periods =     16

AR parameter: Common                        Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Included                      Cross-sectional means removed

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 8.00 lags average (chosen by LLC)
------------------------------------------------------------------------------
                     Statistic      p-value
------------------------------------------------------------------------------
 Unadjusted t        -5.9476
 Adjusted t*         -1.7119        0.0435
------------------------------------------------------------------------------
```

Appendix 5: Test results of hetroscedaciticity

```
. reg e2 lngdp lnfdi lnrer lntop lnmedc wto aiqi
```

Source	SS	df	MS	Number of obs =	144
				F(7, 136) =	28020.80
Model	589114.692	7	84159.2417	Prob > F =	0.0000
Residual	408.470044	136	3.00345621	R-squared =	0.9993
				Adj R-squared =	0.9993
Total	589523.162	143	4122.53959	Root MSE =	1.733

e2	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lngdp	42.90093	.2577931	166.42	0.000	42.39113	43.41073
lnfdi	-.6455299	.1147366	-5.63	0.000	-.8724286	-.4186312
lnrer	-4.143947	.1366426	-30.33	0.000	-4.414166	-3.873728
lntopn	34.63636	.4562981	75.91	0.000	33.73401	35.53872
lnmedc	-.5683986	.0984907	-5.77	0.000	-.76317	-.3736273
wto	32.87338	.6486523	50.68	0.000	31.59063	34.15613
aiqi	.1003125	.0498326	2.01	0.046	.0017656	.1988595
_cons	-618.9367	5.472955	-113.09	0.000	-629.7598	-608.1136

Ho: homoscedasticity H_A: hetroscedasticity

Calculated value or test statistics is = NR^2 (T-1) = 9(0.99)*14 = 60.0

Tabulated value of $\chi^2_{8,\ 0.95}$ = 15.507, thus from this we reject the null we can understand that there is hetrocedaciticty.

Appendix 6: Multicolinearity test result

```
. corr lngdp lnfdi lnrer lnmedc lntopn  wto aiqi
(obs=144)
```

	lngdp	lnfdi	lnrer	lnmedc	lntopn	wto	aiqi
lngdp	1.0000						
lnfdi	0.7434	1.0000					
lnrer	-0.3641	-0.3709	1.0000				
lnmedc	0.1860	0.2354	-0.1225	1.0000			
lntopn	0.1536	0.4996	-0.3000	-0.1888	1.0000		
wto	-0.4344	-0.3346	0.6667	-0.3696	-0.0791	1.0000	
aiqi	0.1456	0.1089	0.6362	-0.3036	0.2294	0.6129	1.0000

Appendix 7: Normality test result

```
. sfrancia lnexp lngdp

                Shapiro-Francia W' test for normal data

    Variable |     Obs       W'          V'        z       Prob>z
-------------+--------------------------------------------------
       lnexp |     144    0.93833      7.601     4.105    0.00002
       lngdp |     144    0.95135      5.997     3.625    0.00014

.  sfrancia lnexp lngdp lnfdi lnrer lnmedc lntopn  wto aiqi

                Shapiro-Francia W' test for normal data

    Variable |     Obs       W'          V'        z       Prob>z
-------------+--------------------------------------------------
       lnexp |     144    0.93833      7.601     4.105    0.00002
       lngdp |     144    0.95135      5.997     3.625    0.00014
       lnfdi |     144    0.83483     20.359     6.099    0.00001
       lnrer |     144    0.89199     13.314     5.240    0.00001
      lnmedc |     144    0.89604     12.814     5.162    0.00001
      lntopn |     144    0.96266      4.602     3.090    0.00100
         wto |     144    1.00000      0.000   -56.391    1.00000
        aiqi |     144    0.93294      8.266     4.275    0.00001
```

Appendix 8: Results of country specific and time effect regression results

```
. xi: regress lnexp lngdp lnfdi lnrer lnmedc lntopn wto aiqi i.country i.year
i.country         _Icountry_1-9       (_Icountry_1 for coun~y==Burundi omitted)
i.year            _Iyear_2000-2015    (naturally coded; _Iyear_2000 omitted)
note: _Icountry_6 omitted because of collinearity
```

Source	SS	df	MS		
Model	324.509493	29	11.1899825	Number of obs =	144
Residual	1.79717601	114	.015764702	F(29, 114) =	709.81
				Prob > F =	0.0000
Total	326.306669	143	2.28186482	R-squared =	0.9945
				Adj R-squared =	0.9931
				Root MSE =	.12556

lnexp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lngdp	1.046591	.0869446	12.04	0.000	.874355	1.218828
lnfdi	.0101656	.0119603	0.85	0.397	-.0135277	.0338588
lnrer	-.1296472	.0875884	-1.48	0.142	-.3031592	.0438648
lnmedc	-.0984624	.0607962	-1.62	0.108	-.2188992	.0219744
lntopn	.7470646	.0714523	10.46	0.000	.6055183	.888611
wto	.6191371	.5934504	1.04	0.299	-.5564835	1.794758
aiqi	.0206977	.0091688	2.26	0.026	.0025345	.038861
_Icountry_2	-.1531775	.2210783	-0.69	0.490	-.5911318	.2847768
_Icountry_3	-.637449	.1799851	-3.54	0.001	-.9939982	-.2808998
_Icountry_4	-.9021955	.5244693	-1.72	0.088	-1.941165	.1367741
_Icountry_5	-.0440044	.1201016	-0.37	0.715	-.2819247	.193916
_Icountry_6	0	(omitted)				
_Icountry_7	-.0893437	.2493537	-0.36	0.721	-.5833114	.404624
_Icountry_8	-.6203526	.2546391	-2.44	0.016	-1.124791	-.1159144
_Icountry_9	-.4488141	.5026118	-0.89	0.374	-1.444484	.546856
_Iyear_2001	-.0022167	.061083	-0.04	0.971	-.1232217	.1187884
_Iyear_2002	-.0145618	.0612492	-0.24	0.813	-.135896	.1067724
_Iyear_2003	-.022304	.0640407	-0.35	0.728	-.1491683	.1045602
_Iyear_2004	.054884	.0695619	0.79	0.432	-.0829176	.1926855
_Iyear_2005	.053107	.0768919	0.69	0.491	-.0992152	.2054292
_Iyear_2006	.0261051	.0862987	0.30	0.763	-.1448519	.1970621
_Iyear_2007	-.0300559	.1006195	-0.30	0.766	-.2293823	.1692706
_Iyear_2008	.0476231	.114185	0.42	0.677	-.1785765	.2738227
_Iyear_2009	.0078365	.1163441	0.07	0.946	-.2226403	.2383133
_Iyear_2010	.0286178	.1275719	0.22	0.823	-.2241011	.2813367
_Iyear_2011	.0724921	.1389179	0.52	0.603	-.2027032	.3476874
_Iyear_2012	.0590509	.1456028	0.41	0.686	-.2293871	.347489
_Iyear_2013	.0084225	.1562079	0.05	0.957	-.3010243	.3178692
_Iyear_2014	-.0832827	.1633478	-0.51	0.611	-.4068734	.2403079
_Iyear_2015	-.105656	.166572	-0.63	0.527	-.4356338	.2243218
_cons	-2.963056	2.305795	-1.29	0.201	-7.530817	1.604706

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