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DETERMINANTS OF ETHIOPIA'S MANUFACTURING EXPORTS

By

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A THESIS SUBMITTED TO SCHOOL OF POST GRADUATE STUDIES (INSTITUTE OF AGRICULTURE AND DEVELOPMENT STUDIES) ST. MARY'S UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF MASTER OF ART IN DEVELOPMENT ECONOMICS

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DECLARATION

I, the undersigned, declare that this research is my original work, prepared under the guidance of Sisay Debebe (Ph.D.). The sources of the materials used in this thesis duly acknowledged. The Researcher further confirms that the thesis has not been submitted either in part or in full to any other learning institution to earn any degree.

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ENDORSEMENT

This Thesis has been suggested to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Sisay Debebe (PhD) 

Advisor Signature

St. Mary's University, Addis Ababa June, 2020

APPROVAL OF BOARD EXMINERS

As members of the board of examining of the final MSc thesis open defense, we certify that we have read and evaluated the Thesis prepared by Dereje Kefelegn under the title " Determinants of Ethiopia's Manufacturing Exports: An analysis by Gravity Model" we recommend that this thesis be accepted as satisfying the thesis requirement for the Degree of Master of Art in Development Economics

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ACRONYMS

CES	Constant Elasticity of Substitution
COMESA	Common Market for Eastern and Southern Africa
CPI	Consumer Price Index
DPM	Dynamic Panel Model
ERCA	Ethiopian Revenue and Customs Authority
FDI	Foreign Direct Investment
GDPPC	Gross Domestic Product Per Capita
GMM	Generalized Method of Moments
HO	Heckscher-Ohlin
LDC	Least Developed Country
MoFED	Ministry of Finance and Economic Development
MoT	Ministry of Trade
NBE	National Bank of Ethiopia
PPML	Poisson Pseudo Maximum Likelihood
REER	Real effective exchange rate
RTA	Regional Trade Agreement
TOT	Term of Trade
UNCTAD	United Nations Conference for Trade and Development
VAR	Vector Auto Regression

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ABSTRACT

Exports play an important role in an economy by influencing the level of economic growth, employment and the balance of payments. The aims of this paper is to analyze the determinants of Ethiopia's manufacturing exports to its ten exporting countries using panel data for the period of 10 years (2009-2018) and analyzed using dynamic gravity model. The estimation results showed that the dynamic gravity model fits the data well, indicating strong evidence that Ethiopia's manufacturing exports are autoregressive. Besides, the results indicated that Ethiopia's manufacturing exports pattern followed the basic gravity model. Which means Ethiopia's manufacturing export is directly proportional to economic masses peroxide by importing countries GDP. Whereas Ethiopia's manufacturing export is inversely related to transportation costs of trading partner of Ethiopia. The result also asserted the positive relationship between exports and importing countries GDP per capita, indicating that the higher the income of consumer increases the purchasing power of more goods and hence export volume of exporting country (Ethiopia in this case) increases to this country. The Based on the finding promoting exports to rich economies, which are located in a close distance, improvement of infrastructures which reduces transportation costs and devaluating currency are the vital steps to boost Ethiopia's manufacturing export performance.

Key words: *Manufacturing Export, Dynamic Gravity Model and Ethiopia*

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Countries export is one of the most important factors for economic development. It's considered as one of the main accelerators for fast economic growth. It stimulate growth in a number of ways including production and demand linkages, economies of scale due to larger international markets, increased efficiency, adoption of superior technologies embodied in foreign-produced capital goods, learning effects and improvement of human resources, increased productivity through specialization and creation of employment (Fosu, 1990).

Export trade plays a vital role for economic growth, employment and balance of payments. Export market may also spur innovation and facilitate technological advancement and knowledge spillovers into the domestic economy, leading to efficiency gains in production and management practices. Moreover, export generates foreign exchange which can be used to import capital goods and intermediate inputs that are vital to the domestic production of a country. Therefore, an expansion of exports will have positive effects on the rest of the economy. The importance of export sector to the economic growth and development of East Asian economies during the 1970s and 1980s is a good example (Henry and Wilfred, 2015).

Alelign (2014) describes that export performance of Ethiopia has reached remarkable level in the year 2010 which is two billion. When we compered the export performance of 2009 (1,5 billion) with 2010 (2billion) there is an increase by 38 % in 2010 which is nearly three times export performance registered than the average annual growth level of the prior decade (200-2009) (Kiros 2012). However, Export sector of Ethiopia is dominated by few primary commodities which include coffee, oilseeds, gold, pulses, live animals, chat, flower and hides and skins. Ethiopia's export sector is currently too small to contribute to structural transformation. In East Asia, booming (manufacturing) exports helped shift economic activity into higher-productivity manufacturing and sustain high rates of economic growth for decades. The Ethiopian manufacturing sector accounts for only 4 percent of GDP (World Bank, 2016).

Recently the industry sector is the highest growing sector, driven by a construction boom and expansion in mining sub-sectors. The industrial sector growth rate was 18.5 percent in 2013/14. But manufacturing, which forms part of industry and is dominated by the food, beverages, leather, textiles, and apparel industries, contributed a meager 4.4 percent to GDP in 2014 and

on average grew only by 11 percent during the same period. The manufacturing export sector is relatively small in terms of production and employment, constituting 10 percent of total export merchandise. Given that the manufacturing sector has grown at the same pace as the economy, its contribution to GDP has remained static. (World Bank, 2016)

The Industrial Park strategy in Ethiopia hinges on attracting FDI in the export-led and labor-intensive manufacturing sector. The Government is emulating the path of the East Asian countries that have successfully managed to use industrial parks as a platform to catalyze investments FDI and domestic in creating jobs, generating exports, and foreign exchange. Focusing on the manufacturing sector, Ethiopia is prioritizing FDI in specific sectors: textile and apparel, leather and leather products, agro-processing, and pharmaceuticals and chemicals. The imperative is to build on the country's agricultural foundations by moving toward new tradable activities in manufacturing that absorb large numbers of young and semi-skilled workers.55 Ethiopia's potential in the light manufacturing sector is significant, but faces binding constraints related to access to land, infrastructure, trade logistics, and customs regulations as well as skills gap. (World Bank, 2016)

The successor to the GTP, the second growth and transformation plan (GTP II) which is currently under preparation is envisioned to focus on the industrial sector and particularly on increasing the contribution of the manufacturing sub sector which is targeted to reach at 18% of GDP from the current level of 4.4% in 2015. Though the industrial sector is witnessing growth in all arenas, its contribution to GDP and capacity to generate foreign exchange as well as employment creation has fallen short of the expected target. In order to realize the vision of reaching a middle-income country status by 2025, the industrial sector also needs to compensate for the past short falls as well as achieve new targets that will be set in GTP II which will definitely be higher than its predecessor. (UNDP, 2017)

Looking at investment inflow, Turkey is the largest source of FDI (accumulated), followed by China and Saudi Arabia. FDI in leather manufacturing and textile production indicate areas where Ethiopia seems to have a comparative advantage. To this end, it seems, Ethiopia is successful in leveraging its access to the European and U.S. markets through the Everything But Arms and Africa Growth and Opportunities Act, respectively, which provide preferential trade access to Ethiopian goods in these markets. (World Bank, 2016)

Hence, identifying and investigating the factors that significantly affect manufacturing export performance, Ethiopia should facilitate the design of policies to improve the performance and ultimately overall economic growth.

1.2. Statement of Problem

Exports play an important role in an economy by influencing the level of economic growth, employment and the balance of payments. The average contribution of export to GDP of Ethiopia for the last six years is about 12%. Moreover, the foreign currency which is gained from export is highly needed for import of raw materials, semi-finished goods, capital goods, fuel and consumer goods which are vital for growth of Ethiopian economy. For instance the total value of major exports and imports for the fiscal year 2017/2018 is Birr 2,839.8 millions of USD and 15,253.40 millions of USD respectively. This means proceeds which are gained from major exports used to finance 18.62% of its import in the fiscal year 2017/2018 (NBE 2018/19).

Even though export has a contribution to the overall economy, the performance of the export sector has been less satisfactory. Country's exports are highly concentrated in few primary products including coffee, oilseeds, gold, chat, pulses and flowers which jointly generated around 77% of the total export proceeds in the year 2014/15. Moreover, Coffee, Oilseed and Gold alone contributed more than half of the total earnings in the last five consecutive years.

The world forum global competitiveness report of 2015/2016 showed that Ethiopia ranks 109th out of 140 countries in the world which indicates that Ethiopia is behind most of its peers in Sub-Saharan African countries such as Rwanda (58th), Zambia (96th) and Kenya (99th), but slight ahead of Tanzania (125th) and Uganda (115th). In addition to this, Ethiopia dropped in rank from 125 to 159 in the Doing Business Indicators between 2013 and 2016.

Moreover, Ethiopian exports measured in percent of GDP falls short of reaching the heights seen in Korea, China, or Vietnam during their development periods (World Bank, 2016).

The performance of the export sector is affected by drawbacks in accessing niche markets due to entry barriers, lack of appropriate information, and limited financing capacity of exporters. (UNDP, 2017)

The share of manufactured exports in total exports remained less than 13 percent while total exports decreased from 12.7 to 7.7 percent of GDP during 2001 and 2016/17. (Oqubay, 2018)

Ethiopian export is still highly dependent on non-manufacturing exports. Manufacturing exports share declined from that of 20.5% in 1981 to 8% in 2008. Export revenue according to MoFED data were highly dependent on few commodities, where Coffee, Chat, Oil Seeds, Hide Skin and Flower accounted for 78% in average.

Most of studies focus on determinants of export in Ethiopia generally, but also we get few studies focus on manufacturing export particularly. We state here some of the studies focused on both manufacturing export and export generally. Mulualem (2006) on his study of determinants of manufacturing performance in Ethiopia used Ordinary Least Squares (OLS) estimation method using annual data from 1970 – 2004. The results from the model reveal that Ethiopian manufacturing exports are positively & significantly influenced by investment to GDP ratio, total factor productivity and foreign income while real effective exchange rate was found to have insignificant influence on exports.

Edwards &Alves (2005) in their analysis of determinants of manufacturing export supply in South Africa used a panel data set of 28 manufacturing sectors using import substitution model. The researchers used dynamic fixed effects (DFE) & Generalized Method of Moments (GMM). The results from the export demand equation estimated to check whether the small country assumption holds for South Africa shows that South Africa is a price taker. The results from the equation estimated on export supply determinants reveal that South African total manufacturing export volume is positively & significantly influenced by relative prices (i.e. real effective exchange rate),real foreign income, skilled to unskilled labor ratio and import penetration and rail capacity. On the other hand output deviation from the trend was found to have a negative significant impact, supporting the vent for surplus hypothesis for South Africa. Unit labor costs and output trend were found to have insignificant influence on manufacturing export performance.

Sisay (2010) in his study analyses factors affecting export supply of Ethiopia, during the period 1981 – 2004, have been made using co integration analysis. Data trend reveals that Ethiopian export performance was highly volatile during the period, on average merchandise exports have been growing at 7% per annum, while manufacturing exports were growing at 4% per annum. The trend also reveals that Ethiopia‘s export sector is mainly dominated by few primary commodities, where manufacturing exports account for less than 15% of merchandise exports on average.

Yishak (2009) analyze determinants of export performance of Ethiopia. A gravity model is employed with panel data using 30Ethiopia‘s trading partners for the period 1995–2007. The model is estimated with the Generalized Two Stages Least Squares (G2SLS) method. Endogeneity of FDI and GDP to exports, heteroskedasticity and serial correlation for AR (1) are controlled. The results show that good institutional quality and internal transport infrastructure appear to be major determinants, whereas the real exchange rate and FDI have no statistically significant effect on Ethiopia's export performance. Likewise, the growth of domestic national income affects Ethiopian exports positively.

Another study was done by Belayneh and Wondaferahu (2013) to investigate the determinant of export performance in Ethiopia by using VAR model analysis and time series data from 1970/71-2010/11. The test results show that the impact of GDP of trading partner on export performance is insignificant. The movement in real effective exchange rate has also appears to have a positive relationship with export performance.

In addition to this a lot of changes are occurred in the overall the economy in the recent years that prompting need for further research to identify plausible determinants of manufacturing export so that information is provided to the concerned authorities hence leading to the formulation of corrective policies to address the problem.

Having the above information, even though there is a remarkable increase in the manufacturing export sector it is not as intended and data shows that the manufacturing export growth rate of Ethiopia is low as compared to African countries with similar features of economic structure and other features. So in considering those gaps, this paper tried to identify the key determinants of manufacturing export performance in Ethiopia from 2009-2018 though using gravity model to come up with recent and reliable information that informs for responsible bodies and for deciding correct decision in policy making.

1.3. Research Objectives

The overall objective of this study is to investigate the determinants of manufacturing exports growth of Ethiopia.

The study has the following specific objectives:

- To assess the status and performance of Ethiopia's manufacturing export, and
- To analyze and identify the determinants of Ethiopia's manufacturing export.

1.4. Significance of the research

The results of this study might be beneficial to the Ethiopian government in identifying which factors have positive and negative impacts on Ethiopia's manufacturing exports. Therefore, the government can take appropriate actions to achieve their desire exporting goals through those factors. The study result may also be useful in the Ethiopian government's plan of action for its future manufacturing export activities. In other words, as they see potential changes in those determinants of manufacturing exports in the future, they can better adjust their exporting strategies or plans consequently. Manufacturing Export firms are the second group that can benefit from this paper. Exporting firm can enhance their exporting plans by anticipating or following changes in those determinants. Finally researches who want to conduct their research paper related with this paper topic may use this paper as a reference.

1.5. Scope and limitations of the study

Eight independent variables will take into consideration about the determinant of manufacturing exports of Ethiopia to ten trading partner countries. This include Lag of Ethiopia's Manufacturing Export, Ethiopia's GDP, Ethiopia's FDI, distance from Ethiopia to importing countries, importing country's GDP, importing country's GDP per capita, real bilateral exchange rate, and a dummy variable having common border. The research conducted based on the newest available ten years data (from 2009 to 2018) in order to provide the most relevant and updated results.

The area, manufacturing export performance determinants, being vast and crucial for growth and development, many determinant measures could be used for determining manufacturing export performance. However, shortage of time was one of the limitations in conducting this research paper. Lack of getting data regarding manufacturing export performance in Ethiopia.

1.6. Organization of the Study

The paper is organized as follows: The next chapter provides literature reviews including theoretical and empirical evidences on determinants of manufacturing export of Ethiopia. Chapter three provides research methodology which is research design, data types, sources method of collection, estimation process and econometric issues. Chapter four provides result and discussion include overview of Ethiopian export, diagnostic test and econometric model result and finally chapter five provide summary, conclusion and recommendation based on the estimation results.

CHAPTER TWO
2. LITERATURE REVIEW

2.1. Theoretical Literature

2.1.1. Definition of Basic Concepts

Gross Domestic Product (GDP): is defined as the market value of the goods and services produced by a country. One way to calculate a nation's GDP is to sum all expenditures in the country. The gross domestic product (GDP) is one the primary indicators used to gauge the health of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period. (Kumar, 1998).

Real exchange rate: is important element in determining export growth, diversification and international competitiveness of goods produced in a country (UNCTAD, 2005). It is a key variable that requires close government supervision in any programme to expand and diversify exports (Biggs, 2007) since its management can influence export performance over a large number of different product groups (Mouna and Reza, 2001).

Foreign Direct Investment (FDI): is the role of FDI in export promotion depends crucially on the motive for such investment: If the motive behind FDI is to capture the domestic market (tariff-jumping type of investment), it may not contribute to export growth. On the other hand, if the motive is to tap export markets by taking advantage of a country's comparative advantage, then FDI may contribute to export growth. Thus, whether FDI contributes to export growth or not depends on the nature of the policy regime (Sharma, 2000).

2.1.2. Comparative Advantage and Gains from trade

In trade theory comparative advantage is one of the most fundamental theories. If a country has a lower opportunity cost of producing the goods than other country a country has comparative advantage. That means a nation’s export is encouraged if the nation has distinct advantages in production, such as cheap labor cost, high technology, etc. in comparison with other countries.

2.1.3. Hecksher-Ohlin Theory

This theory described that countries difference in factor endowments is one of the reason why a country might have comparative advantage to trade. The theory takes technologies are the same across countries and the pattern of trade is solely determined by differences in the two factor endowments i.e. capital and labor. The theory predicts that countries will export those goods that make intensive use of locally abundant factor. That means, under free trade, the

capital abundant country is expected to produce relatively more capital intensive goods than the other country and vice versa.

2.1.4. The new Trade Theories

The new trade theories are based on assumptions like monopolistic competition and increase returns to scale. Economies of scale are a potential source of comparative advantage for one country. The cost of production, on average, will be lower if a country produces more of one good. Similarly differentiation of goods leads to differences in tests and preferences; hence, trade can be occurred between two countries (having the same resource endowments) because of economies of scale and product differentiation. Distance between trading countries (transport cost), technological changes, per capita incomes and product outsourcing are among the new explanations that determine the pattern of trade (Bjornskov, 2005).

2.2. Gravity Model

In international trade Gravity model has been used for decades. Its origin goes back to 1687 to the law of universal gravitation in physics which was developed by Isaac Newton. And the equation was first applied in the field in international trade in 1962 by Tinbergen.

2.2.1. Origins of gravity model

Origins of Gravity model goes back to the law of attraction (the Law of Universal Gravitation), in physics which was developed by Isaac Newton in 1687, which explains that the gravitational force between two masses in relation to the distance that lies between these two masses (Newton, 1687), that is

$$F_{ij} = G\frac{M_i M_j}{D_{ij}}$$

Where F_{ij} is the attractive force between i and j, M_i and M_j are the masses of i and j, D_{ij} the distance lies between i and j and G is a gravitational constant.

Newton's Universal Law of Gravitation describes that any two objects exert a gravitational force of attraction on each other and the gravitational force is directly proportional to the product of two masses (M_i and M_j) and inversely proportional to the square of the distance (D_{ij}).

The gravity model in international economics applies the law of universal gravity in economic context. Assuming that X_{ij} represents trade volume between country i and j and Yi and Yj economic masses of country i and j, trade flows can be put mathematically as

$$X_{ij} = A\frac{Y_i Y_j}{D_{ij}}$$

Often, Xij represented by the export volume from country i to country j, Y_i and Y_j represented by GDP of country i and j respectively and D_{ij} represented by geographical distance between country i and j (Head, 2003).

Tinbergen, Jan (1962). is the first person who applied gravity equation in international trade flows. He put in roughly the same notation with the law of universal gravitation:

$$X_{ij} = A\frac{Y_i^{\alpha} Y_j^{\beta}}{D_{ij}^{\theta}}$$

Where F_{ij} becomes X_{ij}, the flow of trade between i and j, Mi and Mj become Yi and Yj which shows respective economic sizes of the countries and Dij the distance between countries i and j, which works as a proxy for cost of trading.

Tinbergen, (1962) justified that export of country i to country j is directly proportional to economic size which is proxied by GDP of both country i and j represented by Y_i and Y_j and inversely proportional to geographical distance between country i and j.

2.2.2. Theoretical foundations of gravity model

Early researchers used gravity model for explaining trade flows and has found good empirical results with high R-squared and significant coefficients. However, the gravity model was lacked theoretical foundation in terms of trade theory until the end of 1970s. This led to many studies to work on this area.

Anderson (1979) was the first to develop a sound theoretical foundation for gravity explaining bilateral trade flows. He analyzes his model based on constant elasticity of substitution (CES) preferences and goods that are differentiated by place of origin, also called the Armington assumption. According to Armstrong assumption, two goods of the same kind but originating from different countries are imperfect substitutes in demand. This is assumption this feasible in the context of gravity modeling since the place of production is vital with respect to the trade costs implied (Sarah,2012).

Following Anderson (1979), Bergstrand (1989), Deardoff(1995) elucidate the CES preference structure and added monopolistic competition or a Heckscher-Ohlin (HO) structure to explain specialization.

Helpman and Krugman (1985) formulates theoretical explanation of gravity model by assuming increasing return to scale and a state of monopolistic competition between firms. The model especial used to elucidate intra-industry trade which is the trade of the same product class.

2.3. Empirical Literature

Different researches have been conducted by different people to analyze the determinants of manufacturing exports and to analyze their impact on export performance. Of the many empirical studies this particular study focus on the studies which used the gravity framework to analyze the determinants of manufacturing exports and to analyze their impact on export performance. Because the study area has very vast literature that cannot all be reviewed in this particular study, we will concentrate on the case of developing countries.

From the study of Sisay (2010) on Export Performance and Determinants in Ethiopia, he recommends that the trend of exports during the study period reveals that Ethiopia has been mainly exporting primary products for which demand is price and income inelastic. It also depicts that real exports were highly volatile during the study period. Two important lessons can be taken from this, First Ethiopia must increase its manufacturing exports and hence diversify its export base both to reduce export earnings volatility and also increase its export revenue. Second, due to its low manufacturing export base, the country is importing more manufactured products. Thus increasing manufacturing exports is important not only for the export sector but also for the domestic sector.

By employing Gravity model analysis, Marquez (2007) sough to understand the determinants of international trade in African countries. The study considered two African countries, South Africa and Ghana. Results show that Technological innovation, Geographical and social factors play a vital role on trade relationships in South Africa. However, exports of Ghana are higher when they are addressed to countries with higher level of economic freedom (high-income European countries), whereas South Africa exports more to countries with low level of economic freedom (other African countries). Moreover, the study asserts that the effect of Trade barriers (Tariffs) varies across countries. The effect of tariffs on international trade is found out that a negative and significant effect in South Africa, whereas the effect of the structure of tariffs in importers country is not significant for the case of Ghana.

In the same approach, Eita (2008) investigated the factors that determine export flows between Namibia and its trading partners. The study covers nine years (from1998 to 2006) and 38 main

trading partners. The study indicates that export of Namibia was positively and significantly affected by GDP of Namibia and its trading partners and the study also asserts that Namibia export more to countries which share common border and members of EU and SADC. While Namibia's Export was negatively and significantly affected by distance between its trading partners and importer's GDP per capita.

Eve et al. (2007) also used gravity model to study Determinants of China's textile exports. The study used panel data between china and its top 10 trading partners on textile. Their results provide: Firstly, robust support for the gravity model. The estimated coefficients for the GDP of China, GDP of importers of China's textile and GDP per capita of importer countries variables are positively and statistically significant, showing that positive GDP growth rate in China and higher national income of importers tend to trade more in textile products but the estimated coefficient of GDP per capita of china has a biased result due to the multicollinearity with China's GDP. Secondly, as far as real exchange rate is concerned, the empirical findings of the present study suggest that textile exports decrease whenever there is appreciation of real exchange rate of chins against foreign currency.

From the findings of Thangamani (2016) from his study on The Determinants of Export Performance: The Case of Sri Lanka the variable weighted average of per-capita income of the export destination countries could be considered as much important factor. However, this study suggests further analyses incorporating more variables such as the real exchange rate and inflation which are excluded.

By using Gravity model framework, Night (2010) studied determinants of Kenyan Exports. The study employed Gravity model, using a panel data covering 39 countries for the period 1964 to 2008. In this study, Night (2010) modeled Kenya exports as a function of importers GDP and population, the distance between Kenya and its trading partner countries. Dummy variables were also incorporated in the Kenya's export model to capture the effects of being a member of Common Market for Eastern and Sothern Africa (COMESA) and European Union (EU) and having Embassy/Consulate of Kenya in importing country (EMBCON). The results showed that an increase in Importer's GDP and importer's population caused an increase in Kenyan exports. Membership of COMESA, EU and having embassy or consulate in importer's country were also found to positively and significantly promote Kenya's exports. On the other hand, distances were found to have a negative impact on Kenya's exports.

In his study Nguyen (2013) investigate and analyze the determinants of Vietnam's exports to its forty major trading partners over the period of seventeen years, from 1995 to 2011. Using basic gravity model he found out that Vietnam's export and importing countries' GDP has a positive effect on export of Vietnam. While transportation costs and Vietnam's FDI were found to have a significant negative relationship with Vietnam's export. Furthermore, his study asserted the negative relationship between exports and real bilateral exchange rate. Free trade agreement and GDP of Importing country were found to have no statistical impact on export of Vietnam.

(ELSHEHAWY, SHEN, & AHMED, 2014) Investigates the factors that affects the bilateral export flows of Egypt to its 42 main trading partners. The study covers 14 years (from 2000 to 2013) and gravity model has been used to estimate Egypt's exports. Egypt's exports were assumed to depend on its GDP, importer's GDP, importer's population, regional trade agreement (RTA), transportation costs (Distance variable) and dummy variable the border between Egypt and its trading partner. Growth in domestic national income (GDP of Egypt), importer's GDP, importer's population, regional trade agreement (RTA) and border between Egypt and its trading partner were found to positively and significantly determine Egypt's exports. Whereas transportation costs (Distance variable) are found to have negative but insignificant effect on exports of Egypt.

Within the framework of the gravity model, Henry and Wilfred (2015) examined determinants of Uganda's Export performance. The study covers from period 1980 to 2012. In this study, they modeled export of Uganda as a function of GDP of Uganda and its major trading partners, GDP per capita income of importing countries, GDP per capita income differences, real exchange rate, distance and dummy variables like Language, Border, COMESA and EAC. The study point out that Uganda's GDP, importer's GDP, Importer's GDP per capita, per capita difference between Uganda and its trading partners, real exchange rate, official common language, and common border of Uganda and its trading partner had a positive and statistically significant effect on Export of Uganda. While, Uganda's export was negatively and significantly affected by Uganda's GDP per capita and distance between Uganda and its trading partners.

Puruweti (2016) analyzes Zimbabwe's export competitiveness by applying Poisson Pseudo Maximum Likelihood (PPML) Gravity model. The purpose of the study is to analyze the impact of real effective exchange rate (REER), terms of trade (TOT), labor productivity, quality of infrastructure and state of innovation and technology on value of exports for

Zimbabwe for the period from 2005 to 2015. The study incorporates GDP, per capita GDP, distance and two dummy variables namely regional trading arrangement and common official language. The findings of this study asserts that REER, GDP, per capita GDP, regional trading arrangement, infrastructure and innovation and technology have a positive significance in boosting Zimbabwe's export competitiveness whereas labor productivity, cost to trade, common official language, TOT and distance has a negative effect.

(TEKALIGNE, 2009)Attempt to address the determinants of Ethiopia's export performance by using Gravity model with generalized two stages least square (G2SLS) method. The study covers from 1995 to 2007 with panel data using 30 trading partners of Ethiopia. The study categorized determinants of export performance of Ethiopia in to two major factors which are internal supply and external market conditions. The study uses Ethiopia's GDP, domestic transport infrastructure, real exchange rate, FDI and institutional quality as internal supply condition and importing countries GDP, foreign trade policy index of importing countries and weighted distance between Ethiopia and her trading partners. The estimation result indicates that, regarding the major supply side variables, all the variables except real exchange rate and FDI are found to be statistically significant or positive effect on export of Ethiopia. Real exchange and FDI had no significant effect on Export of Ethiopia. Regarding with external factor condition, the estimated result found out that importing countries GDP and foreign trade policy index of importing countries had significantly positive effect on Ethiopian's export while weighted distance between Ethiopia and her trading partner had significantly negative effect on Ethiopian export.

Alelign (2014) analyses Ethiopia's Export performance with major trading partners using random effects gravity model. He had used secondary data from different sources and covers periods from 1995 to 2010 for 14 importing countries. He had used nine independent variables to analyze their effect in export of Ethiopia. The variables are Gross domestic product (GDP) of Ethiopia, Gross domestic product (GDP) of trading partners of Ethiopia, per capita GDP of Ethiopia, per capita GDP of Ethiopia's trading partners, weighted distance between Ethiopia and her trading partner, Real exchange rate, population of Ethiopia, Population of trading partners of Ethiopia and internal infrastructure (proxies by percentage of paved road in the total road network of country). However, due to collinearity problem, the two important variables that are GDP of Ethiopia and its trading partners are rejected. The result of the study showed that four of the total variables (Eight) that are population of Ethiopia and its trading partners and per capita of Ethiopia and its trading partners are positive and statistically significant on

export of Ethiopia. While two of the total variables that are weighted distance between Ethiopia and her trading partner and real exchange rate are negative and statistically significant on export of Ethiopia. Although the results found out that the internal infrastructure (proxies by percentage of paved road in the total road network of country) has a positive effect on export of Ethiopia as expected in the study, it is statistically insignificant.

(ZERAY & GACHEN, 2014) Examined determinants of bilateral trade between Ethiopia and its major trading partners' using gravity model based on a panel data for the period of ten years from 2000 to 2009. The study is used to predict the basic total trade and export potential for Ethiopia. The result of the study regarding with the export potential for Ethiopia pointed out that GDP of Ethiopia and GDP of importing countries have positive and statistical significant effect on export of Ethiopia. In contrast, weighted distance between Ethiopia and its trading partners and dummy variable border (countries sharing common border) had negative and statistical impact on export of Ethiopia. Moreover, the study found out that real exchange rate, percentage of paved road of importing countries and FDI had no significant effect on export of Ethiopia.

Review the Rate of Exchange: A strong local currency hurts the entire export sector including the manufactured export sector. However any decision in this area needs to take into consideration Ethiopia's past experiences with devaluation when exports had not increased significantly and to consider its likely impact on major construction projects that are currently underway which involve very substantial imports. The way out is to review the rate once the bulk of the procurement processes of these projects are over. The overall strategy for growth of exports from the FDI enterprise segment should be: • Attracting more investments and physical capital formation; • Improving customs, transport and logistics facilitation; • Support improvement of human capital availability; • Integrating manufacturing plans with raw material cultivation/supply plans. (UNDP, 2017)

2.4. Conceptual Framework

In this study the dependent variable is manufacturing export of Ethiopia while the independent variables are Ethiopia's GDP, Ethiopia's FDI, Real Exchange rate, Importing countries' GDP, Importing countries' GDP per capita and weighted average distance b/n exporting and importing countries.

Manufacturing export is measured in terms of the production capacity of the exporting country, the quality and quantity of the products, and competitive and affordable price of the products for the buyers. Ethiopia's GDP is measured by consumption, government spending, investment and net export. Therefore, once country's GDP is coming to grow, it has the capacity to invest on new industries and to increase the production capacity of the existing industries. Ethiopia's FDI is measured in political stability, peace and security of the country, accessibility of cheap labor, and presence of good diplomat. The country which has the above stated factors can attract FDI. Real exchange rate, it has also a factor of setting of price of exported goods. Importing countries' GDP have a factor on imported goods. Because higher income countries have a capacity to import plenty of goods for their country and nations than lower income countries. Importing countries' GDP per capita has also a factor on imported goods. Because, higher income nations have a capacity and need to import different types of goods than lower income nations. Weighted average distance between exporting and importing countries have an impact on the price of trading goods. The countries could set higher price on far away importing countries than near countries.

CHAPTER THREE

3. RESEARCH METHODOLOGY

This sections explains the research methodology which includes the research design, data types, sources and methods of collection.

3.1. Research Design

The study used longitudinal research design since it fits the secondary data that will be collected from various sources over the last years.

3.2. Data types, source and method of collection

To find the determinants of manufacturing export, panel data have been used. The annual data covers ten trading partner countries for the period from 2009 to 2018 with one dependent variable and six independent variables, and dummy variables. All variables expressed in natural logarithm except the dummy variable. The major data sources are Ministry of Trade (MoT), Ethiopian Revenue and Customs Authority (ERCA), National Bank of Ethiopia (NBE), World Bank (WB), International Monetary Fund (IMF), and UNCTAD data center.

3.3. Methods of Analysis

3.3.1. Descriptive Analysis

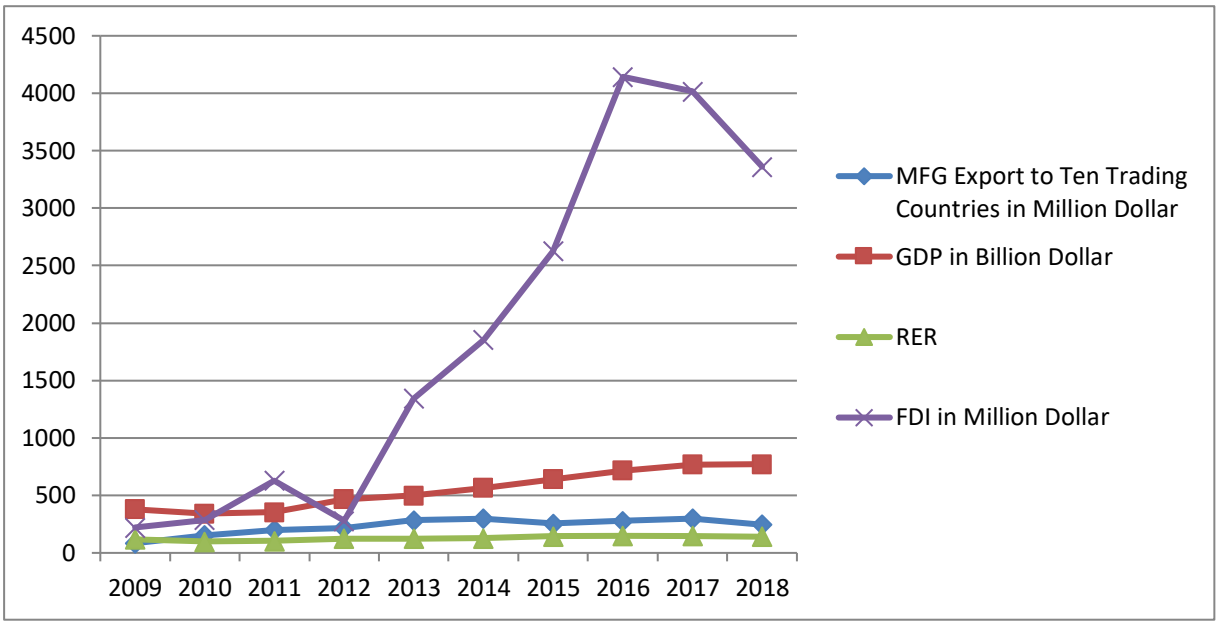

Figure 3.1.Descriptive analysis of Ethiopia's MFG export to ten trading countries, GDP, FDI, and RER

3.3.2. Econometrics model specification

Nguyen's model (2013) is the most relevant foundation for developing this paper's model. Two more variables may add, which are previous year manufacturing export of Ethiopia (Lagged Manufacturing Export of Ethiopia) and sharing common border. The variable distance was modified from Nguyen's study. Lagged Manufacturing Export of Ethiopia is one of the variables added in the model. Gebreyesus and Bahre (2015) argued that the current trade flows are likely to be strongly related to the previous ones and hence lagged trade should be added on the right hand side of the gravity model. Eichengreen and Irwin (1996) also argued that both theory and evidence suggest that history plays a role in shaping the direction of international trade and the standard gravity model formation which neglect the role of historical factors (like

lagged or previous year export), suffers from omitted-variables bias. Hence from such perspective Lagged Export of Ethiopia added in the present study.

The second variable which adds into the model is sharing common border. Nguyen's model (2013) considered whether the studied trading partners have free trading agreements with Ethiopia or not as a dummy variable, whereas in the present study sharing common border will take as dummy variable. This variable incorporates in the model to capture the effect of sharing a common geographical frontier on Ethiopia's exports. Instead of using geographical distance between Addis Ababa (Ethiopia's capital city) and the biggest economic center of each trading partner like Nguyen's study, the present study uses weighted distance between Ethiopia and its 10trading partners.

After adding and modifying the above mentioned variables, the model of the present study is developed as shown below:

$$\mathbf{lnEXP_{ijt} = \beta_0 + \beta_1 LaglnEXP_{ijt} + \beta_2 lnGDP_{it} + \beta_3 lnGDP_{jt} + \beta_4 lnFDI_{it} + \beta_5 lnREXCH_{ijt} + \beta_6 lnGDPPC_{jt} + \beta_7 lnWDIS_{ijt} + \beta_8 Boarder_{ij} + \varepsilon_{it}, \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)}$$

where **$lnEXP_{ijt}$** is logarithm of Ethiopia total Manufacturing Exports to country j at the year t; **$LaglnEXP_{ijt}$** islogarithm of Lagged Ethiopia total Manufacturing Exports to country j at the year t; **$lnGDP_{it}$** is logarithm of Ethiopia's GDP at the year t; **$lnGDP_{jt}$** is logarithm of importing countries GDP at time t; **$lnFDI_{it}$** is logarithm of Ethiopia's FDI at the year t; **$lnREXCH_{ijt}$** is logarithm of real bilateral exchange rate between Ethiopia and importing country at year t; **$lnGDPPC_{jt}$** is logarithm of importing countries per capita income at the year t; **$lnWDIS_{ijt}$** is logarithm of weighted distance between Ethiopia and its trading partners; **$Boarder_{ij}$** is dummy variable for common border between Ethiopia and its trading partners; **ε_{it}** is the error term, and **β_0 to β_8** are parameters to be estimated.

3.3.3. Definition of variables, Measurement and hypothesis

Value of Manufacturing Export (EXP_{ijt}): The annual values (in USD) of Ethiopia's manufacturing exports to each of ten trading partners are used as dependent variables of the model.

Economic Size (GDP_{it} and GDP_{jt}): The gross domestic products of both countries (Ethiopia and its trading partner countries) are assumed to measure the respective economic size of the countries. Standard gravity model predicts that economic size has a positive impact on trade

(Head, 2003). Since export of the country are the difference between domestic supply and domestic demand, growth in domestic income affect exports of the country. When income of exporting countries increases the capacity of exporting countries to produce more output is also increases and hence there exists surplus for exports. In the meantime, growth of importing countries income boosts the affordability of their economies for imports. Therefore, both of the two GDP are source of enlarging Ethiopia's manufacturing exports, implies that both of the two variables are expected to have positive contribution for the expansion of the manufacturing exports.

Distance (DST_{ij}): in their studies Ram and Prasad (2007) explains inclusion of distance in gravity model due to the reason that distance serves as a proxy for transportation costs, transaction costs, times elapsed during shipments and cultural distances. Distance between exporting and importing countries is the basic variable of the gravity model. Countries located far from exporting countries are expected to trade less as compared to those located closer to exporting countries, implying that the variable distance is expected to have negative effect on country's exports.Because of time invariant nature, the distance variable causes problem when time dimension is entered in the analysis (i.e. panel data). To overcome this kinds of problem and to make distance a varying variable over time, weighted distance is used in the present study. The formula developed by Karagoz and Saray (2008) is used to calculate weighted distance between Ethiopia and its trading partner.

Income Differential ($GDPPC_{jt}$): Per capita income of a country is one of the measurements used to measure country's level of economic development. Theoretically, when country develops, consumers will demand more exotic foreign varieties that are considered superior goods (Rahman, 2009). The process of development may also be directed by innovation of new products, which leads to more exports (Gebreyesus, 2011). There are various results regarding the relationship between country's export and importing countries GDP per capita. Variety in the empirical results is caused due to differences in export products, which are consequently influenced differently by GDP per capita of their importing partners (Yishak, 2009). Some studies found that importing country's GDP per capita and export of exporting country has a positive and significant relationship (Herman, 2011) and Alelign (2014). Whereas other studies found negative or insignificant impact (Eita, 2008).

Foreign Direct Investment (FDI_{it}): FDI may well represent a measure of production development in the manufacturing export sector. In the manufacturing export-processing zone,

FDI has played a key role in industrial diversification, employment creation, export development and growth, and it helped country's economy emerge from agricultural dependence and backwardness to modern, dynamic and technological advanced economy with higher per capital income and greater equity (Ancharaz, 2003). However, there has never been a single conclusion about the effect of FDI on manufacturing export from previous studies since different results found. Some studies conclude that FDI has positive impact on exports (Goldbergetal. 2014)while other found negative or insignificant impact (Jeon (1992) and Sharma (2000)).

Real Bilateral Exchange Rate (REXCHijt): Real exchange rate reflects the underlying relative movement of prices at home and foreign country (UNCTAD, 2005). It is defined as the product of the nominal exchange rate, expressed as the number of foreign currency units per home currency unit, and the relative price level, expressed as the ratio of the price level in the home country to the price level in the foreign country (Ellis, 2002). Exchange rate is an essential determinant of county's trade. There are numerous empirical studies being conducted to explain how country's manufacturing export affected by exchange rate. However, there is no single conclusion on its effect since some studies show negative impact of currency appreciation on country's manufacturing export (Aljebrin, 2012), (Nguyen, 2013), and Negussie and Desalegn (2014) while others show no impact (Alam, 2010) and (Yishak, 2009).

The effect of exchange rate on country's manufacturing exports depends on the price elasticity of manufacturing export supply because the real exchange rate should incorporate the effect of price on manufacturing exports. That means, the higher the price elasticity, the more competition face manufacturing exports of a particular country in the world market. In general, primary products have lower price elasticity than industry products, which causes export of primary products responds imperfectly to changes in exchange rate (Roshan, 2007).This implies that export of LDCs responds imperfectly to the change in the real exchange rate since main exports of LDCs are primary products. Consequently, the effect of exchange rate changes on LDCs export is ambiguous.

Dummy Variable (Sharing Common Border): trading partners having common border between them are expected to trade more than other countries which has no common border. Obviously, transportation cost of trade is significantly reduced if exporting country is closed to its trading partners and then this led them to trade more. This variable takes the value one if

partners have common border and zero otherwise. Table 3.1 provides measurements on these variables in details.

Table 3.1: Summary of Definitions

Symbols	Descriptions	Measurements
EXP_{ijt}	Ethiopia's total manufacturing exports to country j	Total value of Ethiopia's manufacturing exported goods and services to country j at time t, which is measured in millions of USD.
GDP_{it}	Ethiopia's Gross Domestic Product	Total value of final goods and services being produced within Ethiopia for a specific period of time (a year), which is measured in millions of USD.
GDP_{jt}	Importing country's Gross Domestic Product	Total market value of final goods and services being produced in country j at the year t, which is measured in millions of USD.
FDI_{it}	Ethiopia's Foreign Direct Investment	Total market value of investment from foreign companies and countries that Ethiopia receives for a certain period of time (a year), which is measured in millions of USD.
$REXCH_{ijt}$	Real Bilateral Exchange rate	It is measured by multiplying the nominal bilateral exchange rate between Ethiopia Birr and the foreign currency j with a ratio of foreign currency's CPI divided by Ethiopia's CPI at time t.
$GDPPC_{jt}$	Importing country's real GDP per capita	It is measured by dividing importing country's GDP for its midyear population at a time t, which is measured in USD.
$WDIS_{ijt}$	Weighted average distance between Ethiopia and its top ten trading partner countries	It is measured by multiplying the geographical distance between Ethiopia and its trading partners with Ethiopia's GDP and dividing the results by the overall sum of Ethiopia's GDPs (the sum covers the period from 2009 to 2018 in this study)

Boarder$_{ij}$	Common Boarders between Ethiopia and its top ten trading partners	It is a dummy variable which is equal to 1 if importing country shared common border with Ethiopia and 0 otherwise

3.4. Estimation Process

The general framework of an autoregressive model with lag of independent variable Yit-1 and additional repressors Xit could be specified as (Roodman, 2006)

$$\mathbf{Y_{it} = \alpha Y_{i,t-1} + X'_{it}\beta + \varepsilon_{it}} \text{.....} \mathbf{(2)}$$

$$\varepsilon_{it} = \mu_i + \nu_{it}$$

The empirical model (equation 1) can be characterized as dynamic due to the presence of the lagged dependent variable (log of Ethiopia's export) as an explanatory variable. The lagged dependent variable on the right-hand side of the model is correlated with the fixed effects in the error term, which gives rise to "dynamic panel bias" (Nickell, 1981). Hence, the OLS estimation should be biased and inconsistence. Eliminating the fixed effect could be a solution for accuracy estimation of dynamic models. For instance, the within OLS (fixed effect) estimator eliminates fixed effects by taking the first differences of (equation 2).

$$\Delta\mathbf{Y_{it} = \alpha \Delta Y_{i,t-1} + \Delta X'_{it}\beta + \Delta \nu_{it}} \text{.....} \mathbf{(3)}$$

Though the fixed effects are swept out, the lagged dependent variable is still potentially endogenous, as the $Y_{i,t-1}$term in $\Delta Y_{i,t-1}= Y_{i,t-1}-Y_{i,t-2}$is correlated with the ν_{it-1} in$\Delta\nu_{it}= \nu_{it} - \nu_{it-1}$ (Roodman, 2006). So some determinants of export might be endogenous to export and could introduce two-way causality. Hence, the within estimator is also biased. Thus, neither the OLS estimator nor the within estimator are appropriate for estimating dynamic regression models.

In order to address the aforementioned issues, Arelano and Bond (1991) proposed a two steps procedure based on differencing and instrumenting. The first step consists of differencing the

dynamic equation so as to remove the individual effects (μ_i). As shown above (Roodman, 2006) write the first step of the procedure as:

$$\Delta Y_{it} = \alpha \Delta Y_{i,t-1} + \Delta X'_{it}\beta + \Delta\varepsilon_{it} \quad \text{.....(4)}$$

Hence $\varepsilon_{it} = \mu_i + v_{it}$ the first difference swept out the individual effects (μ_i) as shown below:

$$Y_{it} - Y_{i,t-1} = \alpha(Y_{i,t-1} - Y_{i,t-}) + \beta\,(X'_{it} - X'_{it-1}) + (\mu_i - \mu_i) + (v_{it} - v_{it-1}) \quad \text{.....(5)}$$

$$Y_{it} - Y_{i,t-1} = \alpha(Y_{i,t-1} - Y_{i,t-}) + \beta\,(X'_{it} - X'_{it-1}) + (v_{it} - v_{it-1}) \quad \text{.....(6)}$$

The second step concerns about instrumental variables (IV) estimation of the first difference (FD) model. The dependent variable is instrumented by its lagged values of at least two periods (or more). According to Drukker (2008), these couple of steps does lead to consistent parameter estimates (Gebreyesus, 2011).

Arellano and Bond (1991) derived a consistent generalized method of moments (GMM) estimator for the parameters of linear dynamic panel data models (Stata, 2013). However, the Arellano and Bond estimator can perform poorly because past levels convey little information about the future changes, so that making lagged levels weak instruments (Roodman, 2006). To overcome this problem, Arellano and Bover (1995), Blundel and Bond (1998) proposed a system estimator (system GMM)) that uses moment conditions in which lagged differences are used as instruments for the level equation in addition to the moment conditions of lagged levels as instruments for the differenced equation (Stata, 2012). In system GMM, one can include time invariant repressors, which would disappear in Difference GMM (Roodman, 2006).

Considering the above justifications, our estimated gravity equation can be written in the level and first differenced (FD) as follows:

$$\begin{aligned} \ln EXP_{ijt} = {} & \beta_0 + \beta_1 Lag\ln EXP_{ijt} + \beta_2 \ln GDP_{it} + \beta_3 \ln GDP_{jt} + \beta_4 \ln FDI_{it} + \\ & \beta_5 \ln REXCH_{ijt} + \beta_6 \ln GDPPC_{jt} + \beta_7 \ln WDIS_{ijt} + \beta_8 Boarder_{ij} + \varepsilon_{it}, \quad \text{.....(7)} \end{aligned}$$

$$\begin{aligned} \Delta\ln EXP_{ijt} = {} & \beta_0 + \beta_1 \Delta Lag\ln EXP_{ijt} + \beta_2 \Delta\ln GDP_{it} + \beta_3 \Delta\ln GDP_{jt} + \beta_4 \Delta\ln FDI_{it} + \\ & \beta_5 \Delta\ln REXCH_{ijt} + \beta_6 \Delta\ln GDPPC_{jt} + \beta_7 \Delta\ln WDIS_{ijt} + \beta_8 \Delta Boarder_{ij} + \Delta\varepsilon_{it}, \quad \text{.....(8)} \end{aligned}$$

Since the system GMM method brings large number of instruments due to the small number of countries in the sample, we have employed the least possible number of instruments by using the rule of thumb to keep the number of instruments less than or equal to the number of groups (Miliva,2007).

3.5. Econometric Tests

3.5.1. Over identifying Restrictions

Like all GMM estimators, system GMM estimator can produce consistent estimates only if the moment conditions used are valid (Stata, 2012). The moment conditions implied by dynamic panel model (DPM) often employ several instruments to estimate a small number of parameters (Gebreyesus, 2011). Hence, the joint validity of these overidentifying restrictions needs to be tested. The Sargan test is widely used so as to examine the overall validity of the instruments. However, Bowsher (2002) found out that the Sargan test has very low power due to the number of moment conditions tested being too large relative to N. Arellano and Bond (1991) show that the one-step Sargan test overrejects in the presence of heteroskedasticity whereas the two-step has a tendency for this test to under reject in the presence of heteroskedasticity. We also find an alternative test that matches our model. According to Roodman (2006), the Hansen (1982) J test of over identifying restrictions can be taken as one possible solution for overidentifying restriction test when robust standard errors are specified.

3.5.2. Serial Correlation

The moment conditions used in our model are valid only if there is no serial correlation in the error term. For the reason that the first difference of independently and identically distributed idiosyncratic errors will be serially correlated, rejecting the null hypothesis of no serial correlation in the first differenced errors at order one (AR 1) does not imply that the model is miss specified (Stata, 2012).

3.5.3. Endogeneity

In literature we have found out that Endogeneity can be caused due to two-way causation and/or unobserved common factors. For instance, Rahman (2009) in his paper indicated that there exists theoretical and empirical support that trade also affect income (GDP in our case). That means causality can run in both direction of the model. In addition to this, since our model is dynamic due to the presence of the lagged dependent variable (log of Ethiopia's manufacturing export) as an explanatory variable. The lagged dependent variable on the right-hand side of the model is correlated with the fixed effects in the error term. Therefore some determinants might be endogenous to dependent variable. To overcome the endogeneity problem, the lagged levels and first differences of the endogenous variables are used as instruments in GMM setting.

3.5.4. Heteroskedasticity

The default GMM estimator provides homoscedastic standard errors while estimating Dynamic model. Breusch-Pagan test for hetroscadasticity is used also to test the existence of hetroscedasticity.

CHAPTER FOUR
4. RESULT AND DISCUSSIONS

4.1. Overview of Ethiopia's Export

4.1.1. Sectorial Achievement/Performance of Export Targets

The Agricultural sector export data, shown on the table below, indicate that the annual target achievement rate was not consistent; it showed growth in some years and decline in the others. The period 2009/10-2012/13 (except for 2010/11 which showed some improvement) was marked with a decline in annual target achievement rate. In contrast, the period between 2013/14-2015/16 showed some improvement in annual target achievement. Considering the whole period, the average annual target achievement rate was 72.68%. Export performance of the manufacturing sector exceeded the set target in the year 2012/13. In the rest of the periods, the target achievement rate was not good. It was only in two budget years (2010/11 and 2013/14) that it was possible to attain half of the targets. The performance of the remaining five individual budget years was below 50%. In general, the manufacturing sector had a 43.85% target achievement rate on average during the period between 2009/10-2016/17. The mining sector export performance exceeded expectations during the first two years (2009/10 and 2010/11) of the period. However, the following three consecutive years (2011/12-2013/14) were witnessed for a decline in target achievement rate. The data, on the table below, shows an average of 81.42% target achievement rate during the past eight years in the sector. (Ministry of Trade, 2018)

Source: Ministry of trade (2018)

Table 4.1. Overall Export Performance of Different Sectors (2009/10-2015/16) Revenue in '000 Dollars Performance achievement

Budget	Agricultural Sector				Manufacturing Sector				Mining Sector				Other product			
years	Target	Performance	Target Attainment %	Annual Growth %	Target	Performance	Target Attainment %	Annual Growth %	Target	Performance	Target Attainment %	Annual Growth %	Target	Performance	Target Attainment %	Annual Growth %
2009/10	2,338,234	1,562,647	66.8		349,120	122,691.6	35.1		172,716	291,148.90	168.57		67,773	23,055	34.0	
2010/11	2,452,921	1,944,388	79.3	24.4	410,688	258,211.6	62.9	110.5	330,139	495,782.90	150.17	70.30	44,411	53,826	121.2	133.5
2011/12	3,067,550	2,202,177	71.8	13.3	658,153	306,376.5	46.6	18.7	820,851	627,487.80	76.44	26.60	13,316	16,650	125.0	-69.1
2012/13	3,386,707	2,142,222	63.3	-2.7	247,371	325,610.8	131.6	6.3	845,469	596,403.90	70.54	-5.00	6,375	16,970	266.3	2.0
2013/14	3,291,635	2,393,246	72.7	11.7	1,099,351	365,618.1	51.5	12.3	1,042,274	475,781.50	45.65	-20.20	38,304	25,354	66.2	49.4
2014/15	2,882,702	2,231,997	77.4	-6.7	1,507,867	389,090.5	25.8	6.4	646,782	362,996.20	56.12	-23.70		11,892		-53.1
2015/16	2,753,966	2,154,920	78.25	3.45	869,900	344,478.4	40.0	11.47	600,000	310,539.98	51.76	-14.45		46,720		
2016/17	3,034,212	2,181,005	71.88	1.21	916,847	412,938.8	45.04	19.87	718,620	230,795.70	32.12	-25.68	80,600	82,587	103.5	76.77
Average	2,900,991	2,101,575	72.68	4.88	1,619,993	315,626.91	43.85	18.93	647,106	423,867.10	81.42	-3.26	41,796	34,632	119	19.99

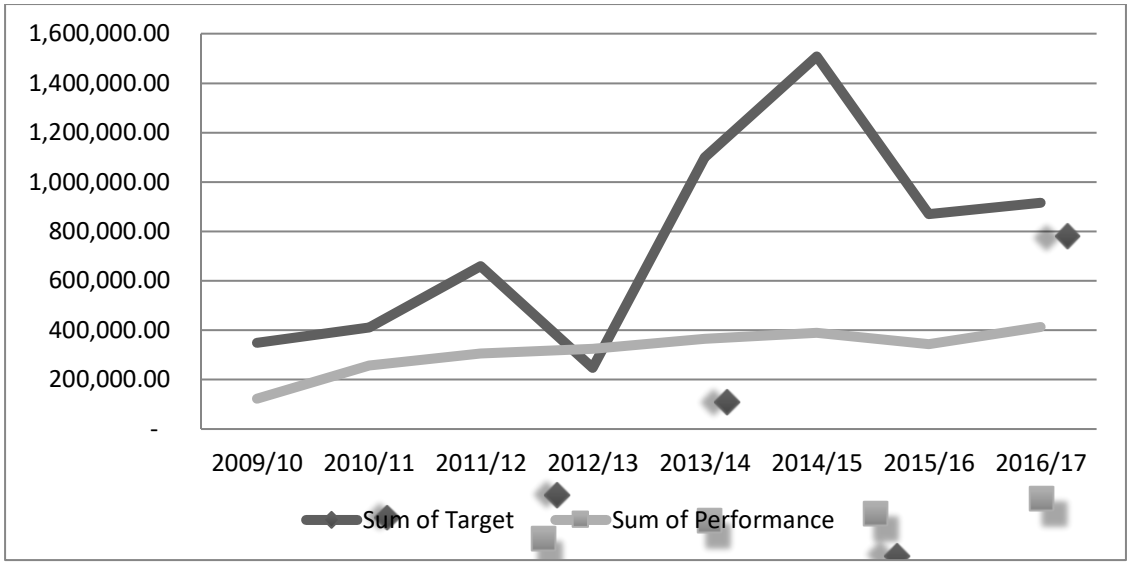

Figure 4.1: Trends of manufacturing sector

Source: Ministry of Trade

4.1.2. Revenue Performance of Each Export Trade in '000 USD

Between the period 2008/09 - 2016/17,only two export products registered a revenue growth of over 50%, 11 products registered a growth rate of 10- 50%, 12 products registered less or equal to a 10% growth rate and five other products declined in growth rate with less than 0% growth rate. Regarding variety, 23 main products were exported during the 2008/09 budget year, 25 in 2009/10, and 28 products in the remaining seven budget years each.

Table 4.2- Overall Export Target performance/achievement list By Product and Revenue (2008/09-2015/16 budget year) Revenue in '000' USD

No	Export Item	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Total
1	Coffee	375,838.4	528161	841155	832909	746416	714300.1	780230	722425.5	882473.8	6423908.9
2	Oilseed	354,720.0	357681	313284	470639	440939.8	642746.6	504242	472582.2	345289.8	3902123.4
3	Gold	99,430.4	277786	461672	602425	578826.3	456227.8	338167	290677.9	208833	3314045.3
4	Khat	139,229.8	209504	238363	240538	271507.2	297362.8	272436	262454.4	272979.7	2204375
5	Pulses	90,724.5	129933	141377	159727	233346.3	251022.1	220291	232468.6	306338.5	1765228
6	Flower	130,692.0	170061	176642	196966	186658.8	199745.9	203087	225317.1	218521.4	1707691.2
7	Livestock (#)	52678.2	90714	147919	207078	166372.5	186678.3	148508	147798.1	67642.1	1215388.3
8	Leather & leather products	75,733.3	56512	104354	111151	121949.4	130387	131513	115283	114000.7	960883.4
9	Textile	14,433.9	23210	62219	84648	97865.6	110951.3	97953	77842.4	89007	658130.2
10	Meat & meat products	26,583.8	33951	63548	79094	74342.1	75147.4	93268	96410.2	98484.2	640828.7
11	Other products	38785.8	23055.4	53826	16650	19091.4	35186.5	53627	68284.7	77622.1	386129
12	Fruits & vegetable	11912.1	32045	32865	44722	43636.7	44159.4	45499	49892	53512.2	358243.4
13	Spice	11159.8	18568	34727	33180	27737.1	26157.2	28783	22353.5	17448.5	220114.1
14	Natural gum & raisin	9674.9	12682	12771	11756	11241.2	12151.3	11475	8350.5	11815.4	101917.3
15	Tantalum	7187.4	11768	27846	16630	5132.1	4513.7	10146	7213.9	6279.7	96716.8
16	Other mining products	525.5	1596	6264	8433	12445.4	15040.0	14683	12678.2	15683	87348.1
17	Flour & food stuffs	121.2		10301	6745	7581	9417.8	12729	14530.7	15094.6	76520.2
18	Electric									73160.6	73160.6
19	Processed oil seed		879	4729	3767	3773.3	22830.2	5387	4695.2	6136.2	52196.9
20	Beverage	1213.1	1740	2251	4574	5319.9	3474.8	4026	5475.1	4749.1	32823
21	Processed spice			2021	2759	2361.7	2224.1	3503	4632.3	7402.6	24903.7
22	Cotton	4899.9	10490	181	317	8339	643.6	12	0.5		24883
23	Wax	1572.1	1600	1785	2155	2670.5	2720.6	4756	2442	2694.6	22395.9
24	Eucalyptus		1927	3809	3249	3506.1	2274.8	2086	1219.7	1770.7	19842.3
25	Processed fruits			299	3045	2893.9	2346.6	2730	3561.8	3312.9	18189.2
26	Hair oil		1997	3106	3719	2742.1	1975.3	1508	912	494.5	16453.9
27	Natural honey	531.9	1889	1669	3254	2897	2476.7	2301	2004.7	1401.7	18425
28	Tea	944.2	882	1294	1097	405.8	1679.3	1577	3597.9	3212.9	14690.1
29	Veterinary medicine	1329.4	775	1631	1138	921.5	560.8	858	1060.6	1467	9741.3
30	Empty capsule	239.8	137	299	326	292.9	358.8	602	493.3	497.6	3246.4
	Total	1450161	1999543	2752207	3152691	3081211.6	3254760.7	2995983.	2856658	2907326.1	24450542.3

Source: Ministry of Trade

4.1.3. Export Destination

Destination Continents of 2016/2017 Ethiopian Export The data indicates that the major export destination continents are Asia, Europe, Africa and America. From our total export income of 2016/17 Asia took 38.75%, Europe 28.71% and Africa 21.45%. This shows that 88.91% of our export revenue during the indicated period of time came from these three continents. Beside this, the data presented in the table shows that our products reach almost in all places in the world.

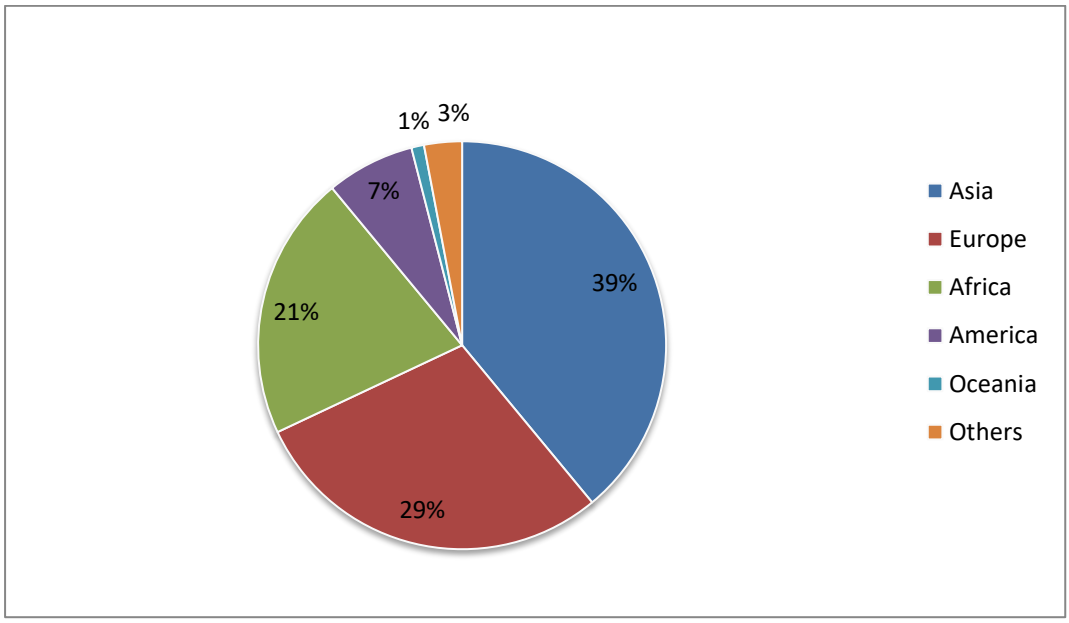

Figure4.2. Major Destination continents for our major export products in 2016/17

Source: Ministry of trade

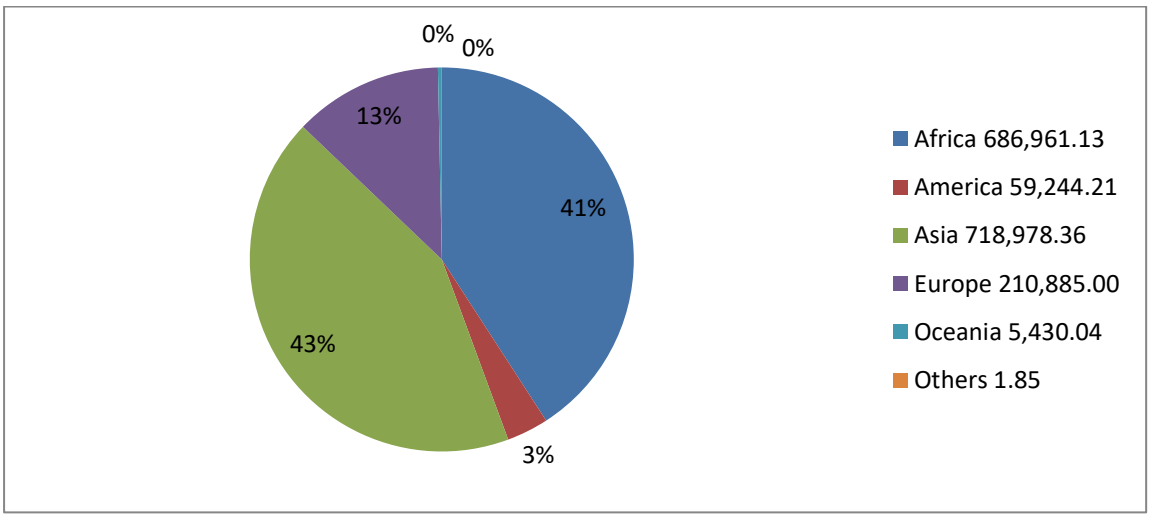

Figure 4.3. Total volume of major destination continents for our major export products in 2016/17

Source: Ministry of Trade

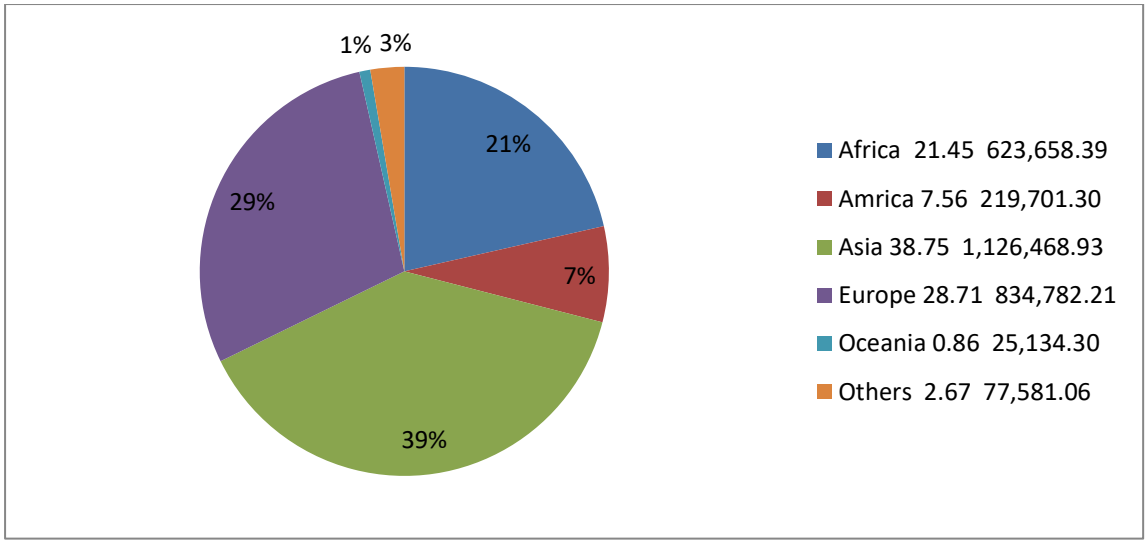

Figure 4.4: Total share of major destination continents for our major export products in 2016/17

Source: Ministry of trade

4.2. Manufacturing export

Before conducting the, it is advisable to analyze the data using descriptive statistics. This helps to identify the presence of any trending behavior in the variables in question over time. These variables are shown as follows:

Figure4.5: Trends of Ethiopia's manufacturing export

Source: Ministry of Trade

As per the report of Ministry of trade and industry 2013-2018 the reason of fluctuation of manufacturing export are due to giving more attention to local market, shortage of raw material like cotton, and leather and degrading of its quality, delaying of production of the companies who took an investment license, reservation of management quality and technical efficiency of manufacturing companies, lack of adopting new technologies and delaying of transforming inter-company linkage to productivity.

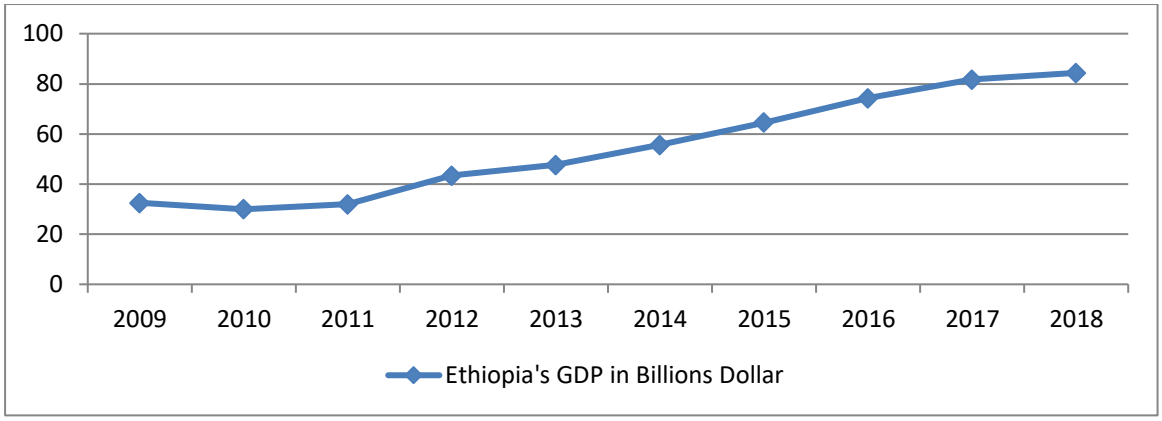

Figure4.6: Trends of Ethiopia's GDP

Source: World Bank

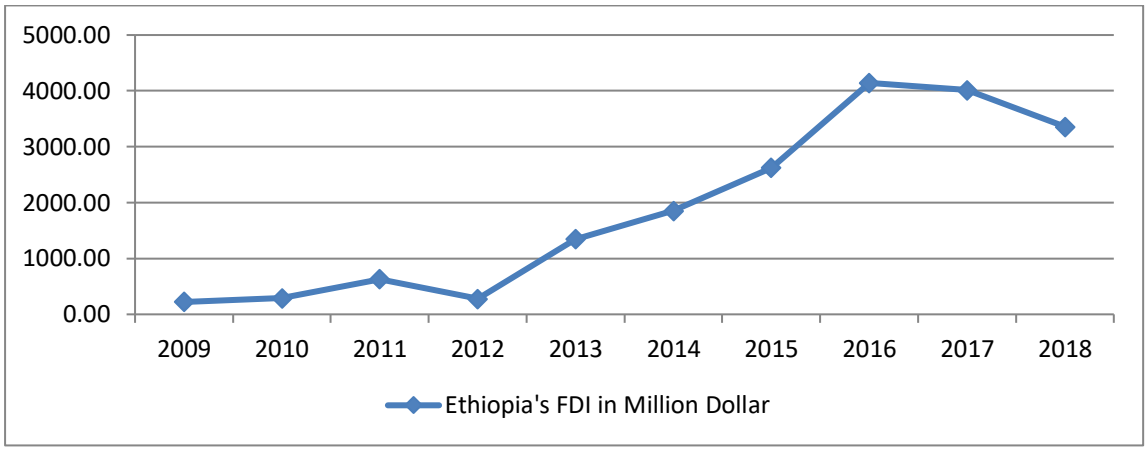

Figure4.7: Trends of Ethiopia's FDI

Source: World Bank

As per NBE report of 2018/19 one of the cause to declining of FDI after 2016 is following Brexit.

4.3. Diagnostic Test results

Diagnostics test are usually undertaken to detect model misspecification and as a guide for model improvement. These tests include over identifying restrictions, serial correlation, endogeneity and heteroskedasticity tests.

Over Identification Test

Two tests which are Hansen (1982) J test and Sargan (1985) test of over identifying restrictions tests the null hypothesis of overall validity of the instruments used. Failure to reject these null hypotheses give support to the choice of the instruments.

Table 4.3 Hansen and Sargan diagnostic test result

Sargan test of Overid.Restrictions	Chi2 (1)=0.35	Pr> Chi2=0.556
Hansen test of Overid.Restrictions	Chi2 (1)=0.27	Pr> Chi2=0.606

Source: Model result

Serial correlation Test

Test the null hypothesis that the error term is first and second order serially correlated. We Failed to reject the null hypothesis of no second-order serial correlation, it implies that the original error term is serially uncorrelated and the moment conditions are correctly specified (that is, the value of AR(2)>0.05). (Appendix B-2)

Endogeneity Test

The GMM model controls for endogeneity by internally transforming the data and by including lagged values of the dependent variable. As the GMM model control for endogeneity and includes lagged values and applies internal transformation process.

When applying the GMM model, researchers need to apply two post estimation tests to determine that an appropriate econometric model is applied. These tests are: (i) the Sargan test; and (ii) the Arellano-Bond test for first-order and second-order correlation. A critical assumption for the validity of GMM estimates requires that instruments are exogenous. In other words, the findings from GMM will not be valid if the instruments are endogenously determined. The Sargan test is used to determine whether the econometric model is valid or not, and whether the instruments are correctly specified or not. In other words, if the null hypothesis is rejected, the researcher needs to reconsider the model or the instruments used in the estimation process. Subsequently, if the Sargan test turns out to be insignificant it implies that the instruments included in the econometric specifications are exogenous. (Appendix B-3) In other words, it means that the lagged variables are not correlated with the error term in Manufacturing export equation. (Ullah, S., Akhtar, P., Zaefarian, G., 2018)

Hetroskedasticity Test

The last test is hetroskedasticity test. As shown from Appendix B-3 of Breusch-pagan/ Cook-Weisberg test for hetroskedasticity, there is no hetroskedasticity problem and we can not reject the null hypothesis at 5% significance level because of the p-value is greater than the significance level of 0.05.

4.4. Econometric Model Result

Table 4.4. Summarizes the empirical results obtained from estimating Equation (1) using the technique of GMM. For the sake of comparison, we estimate the model using one-step and two-step GMM estimator with robust standard errors. The estimation result reveals that there is a slightly difference in the results of the one-step and two-step GMM estimator. However, the basic gravity model works well on both GMM estimations.

The estimation results indicate that the variables in our model are jointly significant. This is evidenced by the F statistics of 175.24 and 118.53 with a p-value of zero at 1% in one-step and two-step GMM respectively (Table 4.1.). The model results showed the dependent variable-Ethiopia's manufacturing export has statistically significant relationships with five independent variables that are Importer's GDP, Importer's GDPPCI, Real Exchange Rate, Common Border and weighted distance between Ethiopia and its trading partners since their p-value is less than 0.05. On the contrary, it has no statistically significant relationship with three variables that are Lag Ethiopia's Export, Ethiopia's GDP and Ethiopia's FDI since their p-value is more than 0.05.

The log of Lag Manufacturing Export of Ethiopia is statistically not significant and positive coefficient. This result showed an increase in the previous year manufacturing export of Ethiopia causes increase of the current year manufacturing export of Ethiopia.

The coefficient for the log of Ethiopia's GDP is negative and the coefficient of Ethiopia's FDI is positive. That means an increase in Ethiopia's GDP by itself not a cause to increase Ethiopia's manufacturing export and an increase in Ethiopia's FDI cause to increase Ethiopia's manufacturing export. However, as mentioned under the table both variables are not statistically significant since their p-value is more than 0.05. The positive sign of FDI suggests that it contributes to the transformation of manufacturing exports. This finding that is an exporter county FDI has a positive effect on exporter countries bilateral trade is consistence with the findings of Figgaza (2004), Nigussie and Desalegn(2014) and Alelign (2014).

Table 4.4.Emperical Results

Variables	One-Step		Two-Step	
	Coefficient	P-value	Coefficient	P-value
Lag Ethiopia's Manufacturing Export	0.11	0.236	0.096	0.270
Importer's GDP	0.51***	0.001	0.54***	0.000
Importer's Per Capita GDP	0.53***	0.007	0.54***	0.007
Weighted Distance	-0.56**	0.014	-0.59***	0.005
Ethiopia's GDP	-0.15	0.727	-0.17	0.702
Ethiopia's FDI	0.21	0.211	0.23	0.183
Real Exchange Rate	-0.79***	0.002	-0.77***	0.002
Common Border	1.82***	0.001	1.81***	0.001
Constant	-7.95**	0.020	-8.09**	0.018
F(8,9)=	175.24		118.53	
Prob>F =	0.000		0.000	
No. of observations =90				

Note *** and ** represents significance at 1% and 5% levels respectively

Source: Model result

Likewise, economic size (Log of GDP) of importing countries is found to have a positive and significant effect on export of Ethiopia. The result demonstrates that Ethiopia's trade relationship is stronger with larger economies than smaller economies. The one-step and the two-step estimation result showed that, other things remaining unchanged, a 1% increase in importing countries GDP would increase their demand for Ethiopian exports by 0.51% and 0.54% respectively. This result is consistence with the findings of Bac (2010), Yishak (2009) and Negussie and Desalegn (2014) that there is a positive relationship between the exports of a country and GDP of its trading partners. This finding is consistence with the findings of Henry T. and Wilfered N. (2014) and Alelign (2014) that is country's export is positively affected by its trading partners per capita GDP.

The log of importing countries Per capita GDP is also statistically significant at 1% and positive coefficient. This result implies that the consumers' income level of importing countries determines the purchasing power of the consumers in the respective countries. In other words the higher the income of consumer increases the purchasing power of more goods and hence export volume of exporting country (Ethiopia in this case) increases to this country. From the estimated results it is evident that a 1% improvement in importing countries per capita GDP

leads to, other things being equal, an increase of Ethiopia's manufacturing export by 0.53% (one-step system GMM result) and 0.54% (two-step system GMM result). This positive relationship of country's manufacturing export and importing countries GDP per capita is consistence with the findings of Herman, M. (2011) and Alelign (2014).

The coefficient of log of real exchange rate was found to be negative and statistically significant at 1% level in both estimation models, which is consistent with the theoretical expectations. Manufacturing exports decrease whenever there is appreciation of real exchange rate. Both system GMM estimation models (one-step and two-step) indicate that a 1% improvement in real exchange rate will reduce Ethiopian manufacturing exports by 0.79% and 0.77% respectively. This result is consistence with Eve et al. (2007) Alelign (2014) and Negussie and Desalegn (2014).

The effect of geographical distance (Log of Weighted distance between Ethiopia's capital city (Addis Abba) and its trading partner's capital city) was found to be negative and statistically significant at 5% level in both estimation models, which is consistent with the theoretical expectations. These findings strongly support the hypothesis that transportation costs are an important determinant of trade flows between Ethiopia and its trading partner countries. Both system GMM estimation models (one-step and two-step) indicate that a 5% difference in distance will reduce Ethiopian Exports by 0.56% and 0.59% respectively. This result is consistence with Yishak (2009), Alelign (2014) and Negussie and Desalegn (2014).

The coefficients for the log of common border variable is significant at 1% and positive as expected. That means a 1% improvement of having common border with Ethiopia causes, other things being equal, an increase of Ethiopia's manufacturing export by 1.82% (one-step system GMM result) and 1.81% (two-step system GMM result

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary and Conclusions

The result from the system GMM model showed that importer's GDP, importer's GDP per capita and having common border between Ethiopia and its trading partners had a positive and statistically significant effect on Ethiopia's manufacturing exports. And distance between Ethiopia and its trading partners, and Real exchange rate a negative and statistically significant effect on Ethiopia's exports. On the other hand, Lagged Ethiopia's manufacturing export and Ethiopia's FDI had positive relationship and found to be statistically insignificant, but Ethiopia's GDP had negative relationship and found statistically insignificant.

This study has examined the determinants of Ethiopia's manufacturing exports. A system GMM model of Dynamic gravity model was chosen to find out the factors that have impacts on Ethiopian Manufacturing Exports, which is considered as one of the most successful application in explaining bilateral trades. Our model accounted some of the recent developments in gravity model such as extending the gravity equation in to a panel data framework and takes in to consideration the existence of dynamic effects. The dataset was from 2009 to 2018. And estimated results showed that the basic gravity model works well on both one-step and two-step GMM estimations. Moreover, the estimation results shows strong evidence that Ethiopia's exports are autoregressive. By including the lagged endogenous variables as a regressor in a dynamic model, the regression results improved. Consequently, the application of a simple gravity model to Ethiopian manufacturing exports may produce inconsistent and biased coefficients by omitting the lagged regress and as an important explanatory variable.

5.2. Recommendations

The study emphasizes the factors that influence Ethiopia's manufacturing exports. Hence, the factors that have a significant effect (Importer's GDP, Importer's GDP per capita, weighted distance, real exchange rate and common boarder) on Ethiopia's manufacturing export should be promoted. In contrary the government and/or Ethiopian manufacture exporting companies should pay attention for the factors that have positive effect but not significant on Ethiopia's manufacturing export in order to make necessary measurements.

The result imply that government of Ethiopia and Ethiopian manufacture exporting companies should focus on promoting manufacturing exports to rich economies, which are located in a close distance. Since distance is taken as proxy of transportation costs, it is necessary to find ways to reduce transportation costs such as improvement of transport infrastructure and logistics system. In addition to this the empirical result indicates that foreign direct investment (FDI) has a positive effect on Ethiopia's manufacturing exports. Therefore, foreign direct investment (FDI) should be given attention to enhance Ethiopia's manufacturing export performance.

The estimated result of this paper indicates that real exchange rate and common border have a statistically significant effect on Ethiopian manufacturing export performance. In other words the empirical result encourages export strategies by encouraging currency devaluation and manufacturing exports with countries which has common border with Ethiopia. Devaluation of currencies encourage exporters to make the price of exported goods be competitive on foreign market.

Further researches useful to conduct on the basis of solving the limitations on this study. It can expand to study more variables and increase the sample size by increasing either the number of trading partner countries or number of time periods to draw more accurate results. The study can also be modified by conducting the analysis at a more disaggregated, sectoral level.

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APPENDICES

Appendix A: System GMM Estimation Results

Appendix A-1: Step-one System GMM

```
Dynamic panel-data estimation, one-step system GMM
------------------------------------------------------------------------------
Group variable: countrynum                      Number of obs      =        90
Time variable : Year                            Number of groups   =        10
Number of instruments = 10                      Obs per group: min =         9
F(8, 9)       =    175.24                                      avg =      9.00
Prob > F      =     0.000                                      max =         9
------------------------------------------------------------------------------
             |               Robust
    lnEXPijt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    lnEXPijt |
         L1. |   .1055174   .0831527     1.27   0.236     -.082587    .2936218
             |
     lnGDPjt |   .4993388   .1028827     4.85   0.001     .2666019    .7320756
  lnGDPPCIjt |   .5320209   .1541165     3.45   0.007     .1833852    .8806566
   lnWDISijt |  -.5547456   .1831015    -3.03   0.014    -.9689499   -.1405412
     lnGDPit |  -.1464255   .4068261    -0.36   0.727     -1.06673    .7738792
     lnFDIit |   .2122829   .1575141     1.35   0.211    -.1440388    .5686046
    lnRERijt |  -.7856283   .1760197    -4.46   0.002    -1.183813    -.387444
      BORijt |   1.817142   .3769766     4.82   0.001     .9643614    2.669922
       _cons |  -7.945523   2.802318    -2.84   0.020    -14.28481   -1.606239
------------------------------------------------------------------------------
Instruments for first differences equation
  Standard
    D.(lnGDPjt lnGDPPCIjt lnRERijt lnGDPit lnFDIit lnWDISijt BORijt)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.lnEXPijt collapsed
Instruments for levels equation
  Standard
    _cons
    lnGDPjt lnGDPPCIjt lnRERijt lnGDPit lnFDIit lnWDISijt BORijt
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.lnEXPijt collapsed
------------------------------------------------------------------------------
```

Appendix A-2: Step-two System GMM

```
Dynamic panel-data estimation, two-step system GMM
------------------------------------------------------------------------------
Group variable: countrynum                      Number of obs      =        90
Time variable : Year                            Number of groups   =        10
Number of instruments = 10                      Obs per group: min =         9
F(8, 9)        =    118.53                                     avg =      9.00
Prob > F       =     0.000                                     max =         9
------------------------------------------------------------------------------
             |               Corrected
    lnEXPijt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    lnEXPijt |
          L1.|   .0963596   .0820549     1.17   0.270    -.0892615    .2819807
             |
     lnGDPjt |    .508595   .0959117     5.30   0.000     .2916277    .7255623
  lnGDPPCIjt |   .5397513   .1533928     3.52   0.007     .1927527    .8867499
   lnWDISijt |  -.5884101   .1594172    -3.69   0.005     -.949037   -.2277832
     lnGDPit |  -.1712853   .4336186    -0.40   0.702    -1.152199    .8096281
     lnFDIit |   .2315932   .1605441     1.44   0.183    -.1315827    .5947692
    lnRERijt |  -.7729564   .1755036    -4.40   0.002    -1.169973   -.3759397
      BORijt |   1.814696   .3741535     4.85   0.001     .9683022     2.66109
       _cons |  -8.094695   2.804017    -2.89   0.018    -14.43782   -1.751567
------------------------------------------------------------------------------
Instruments for first differences equation
  Standard
    D.(lnGDPjt lnGDPPCIjt lnRERijt lnGDPit lnFDIit lnWDISijt BORijt)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.lnEXPijt collapsed
Instruments for levels equation
  Standard
    _cons
    lnGDPjt lnGDPPCIjt lnRERijt lnGDPit lnFDIit lnWDISijt BORijt
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.lnEXPijt collapsed
------------------------------------------------------------------------------
```

Appendix B: Specification Tests

Appendix B-1: Tests for Serial Correlation

```
------------------------------------------------------------------------------
Arellano-Bond test for AR(1) in first differences: z =  -1.56  Pr > z =  0.118
Arellano-Bond test for AR(2) in first differences: z =   0.18  Pr > z =  0.856
------------------------------------------------------------------------------
```

Appendix B-2: Tests of Overidentifying Restrictions

```
Sargan test of overid. restrictions: chi2(1)    =   0.35  Prob > chi2 =  0.556
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(1)    =   0.27  Prob > chi2 =  0.606
  (Robust, but can be weakened by many instruments.)
```

Appendix B-3: Tests for Heteroskedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of lnEXPijt

         chi2(1)      =     0.21
         Prob > chi2  =   0.6456
```