Long-run effect of Export volatility on GDP
Case of Ethiopia

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List of Acronyms

ADF: Augmented Dickey-Fuller
ADLI: Agricultural Development Led Industrialization
BOP: Balance of Payment
CA: Current Account
CSA: Central Statistics Authority
DF: Dickey-Fuller
EG: Engel Granger
EPRDF: Ethiopia Peoples Revolution Democratic Front
GDP: Gross Domestic Product
LDCs: Less Developed Countries
MoFED: Ministry of Finance and Economic Development
NBE: National Bank of Ethiopia
OLS: Ordinary Least Squares
UNCTAD: United Nations Conference on Trade and Development
WB: World Bank
Abstract

This master study has investigated the long-run effect of export volatility on GDP growth in Ethiopia. To address this research topic the paper has used extended Cobb-Douglas production growth model. The study have been used five variables inputs i.e., export of good and service, stock of capital, GDP and export volatility index and labor. The coverage of the time series data was from the year 1981 to 2011. According to the paper empirical finding result, the long run effect of export volatility seems to have negatively statistical effect on output growth on Ethiopia. As remedial the study suggests that the country should have to diversify its export commodities where it has comparative advantage. In addition, the country should also increase its trading partner countries.

**Key terms:** Export volatility; Economic growth; Ethiopia.
Chapter one

1.1 Introduction
Ethiopia can be counted among the least developed countries and its economy is based on the primary agriculture products. Agriculture plays a central role in the economic growth of the country for a century. For witness that it has account for more than 45 percent of GDP, 80 percent of export and 80 percent of employment. Due to this multiple contribution, Ethiopia government has set agricultural development led industrialization as long-term development strategy (ETPA, 2007).

Coffee, oilseed, chat, hidden and skin and flower is the major Ethiopia export commodity. Ethiopia has been depending on export those very few primary products to world market for century. Even if the country cannot going to export diversified product, volume and values of those product time to time has been increase. For instance the country export was growing at an average rate of seven percent from the year 1981 to 2011 while the average growth of the export the proportion to domestic product (GDP) was growing 10 percent in the same period. In addition of that the average export tax from the state revenue was 9 percent from 1981 to 2011 (WDI, 2010 own calculation).

Although the coffee export has taken the biggest share compare with to others commodities. However, the share of the country supplies to world market is very few compare with the world top coffee exporter countries, such as Colombia, Brazil and Vietnam. Coffee export reached high export and the country share of trade to world market was 199, 446 metric and 0.01 ton respectively in the year 2009 (WTO, 2007).

According to Alemayehu the main reason of the Ethiopia export constraint come from in the supply side. The country entrepreneurs depend on export very few primary products for a century. On the others hand the demand aspect also has impact on the country export volume because of depending with very few trade partner (Alemayehu, 2006).

1.2 Statement of the problem
Many least developing counties imported the industrially commodity that helps for their development while, they depend on very few primary product export. Most of them have the deficit on current account due to excess of their import payment over earnings from export. The income elasticity of demand for primary product is relatively lower than other industrial commodity goods. The famous economist such as Todar and other economists agreed that the export potential of most of the least developing
countries has been relatively weak compared with export performance of the developed countries (Todar, 2009).

In the year 2010 Ethiopia import bill was 8.7 billion while export bill was 1.7 billion, there is very great imbalance between export revenue and import expenses in country. (IMF, 2010). The country for a last many decade depended this three product: coffee, oilseed, chat which have less demand in the world market and unstable price in the international market (Alemayehu, 1999), while the country depend more on importing intermediate capital goods.

Regarding to weather Export volatility has significant impact on output growth or not, there is a several empirical research has done by many economists. The result of the scholars was mixed. For instance, “Keven and MacBean (1966) and Voivodas (1972) based on their empirical study they found there is no link between export volatility and domestic product growth. Brempong (1998) and Voivodas (1974) and Lim (1973) they have found negative relationship between export volatility and economic growth. Mullor (1988), Yotopouse and Negent (1970) they argued that export instability is benefit for the domestic product growth``.

Still, the area of the study debated among the economist researcher, there is still no consensus whether or not the export volatility has an impact on the long run economic growth. Accordingly, the objective of my study is to test the validity of the problem, that is, to test whether long run effect of export volatility has a significant impact or not on the Ethiopian GDP. Amin (2001) found negative relationship between export volatility and economic growth in case of Ethiopia. This study differs from the previous study in the two ways; firstly in its up-to-datedness of the data over the previous ten-year data, secondly on its methodology and the variables use.

1.3 Key question
The key problem of the study is to investigate whether export volatility has significant negative effect or not on Ethiopia GDP.

1.4 Objective of the study
The key problem of the study is to investigate whether export volatility has significant negative effect or not on Ethiopia GDP
In order to solve the key question the study has to investigate the following task:
➢ To review the various export promotion policies of the country undertaken in previous and its effect on the export
➢ To investigate the major problem of the country export demand and supply side.

1.5 Data and Methodology
There is different methodology and variables choice to address the above mentioned the key research question. However my study has been decided flow the famous economist researcher Fosu methodology’s (1992). According to Fosu research of the study in the title `` effect of export instability on economics growth in Africa``, he had been used extended Cobb-Douglas production model by using the export variable as input variable companied with labor and capital (L; K). The export variable is here divided into stable and instability. Export instability index measuring in the different ways. However, my study shall prefer five year moving average export volatility index. The extend Cob-Douglas production model preferable by others research for solving their key research question related export volatility and output growth. For instance Dawe (1996), Ram (1987) Sinha (1999) were used to solve their key research question related to relationship between export instability and economic growth. My study has been used the 30 years time series data (1981 -2011) that consist of gross national income, export of goods and services, the working, and the stock of the capital. The main the source of the data are World Bank (WB), national bank of Ethiopia (NBE), Ethiopia customer and authority (ECA), central statistics of Ethiopia (CSA) and the ministry economic development and finance cooperative (MEDoF) and World Bank database

1.6 Organization of the chapter
The study is organized in the five chapters. In the first chapter will present the background of the study and statement of problem. Second chapter present the different regimes the country export promotion strategy and policy, the third chapter present the theoretical and empirical analysis of the export earning instability and economic growth, the four chapters will present the methodology and econometrical analysis of the study and in last chapter will present the general conclusions of the study.
Chapter two

2.1 Review of Ethiopia foreign trade policy and its effect on export performance

2.2 Foreign trade policy environments
Agriculture plays a central role in the economic growth of the country for a century. The following statically figure are witnessing the above premise, it has account for more than 45 percent of GDP, 80 percent of export and 80 percent of employment. Ethiopia government design agriculture development led to industrialization policy for the development plan due to by considering the role of agriculture multiple contributions. Over all the Ethiopia foreign trade policy has three general objective; (1) “developing and ensuring broad international market for the country agriculture product particular”. 2, “generating sufficient foreign exchange which is essential for importing capital goods, intermediate input and other goods and services that are necessary for growth and development economy” and (3), “improving the efficiency and international competitiveness of domestic producer though participation in the international market” (ETPS,2007).

2.2.1 Imperial regimes
The imperial government international trade plan was divided three parts. First development plan was from year 1960 to 1964, seconds one was 1965 to 1969 and the last one was 1970 to 1974. In the first five plans (1960 to 1964) the imperial government has gave more priority for constriction infrastructure that would have been a positive impact on the country export growth. Because of previous regimes the country infrastructure so poor, imperial government gave more priority working on construction infrastructure.

The second five year (1963-67) was extending from the first five year plan. In the second five year plan there have been major objectives, one of the plans was decrease the volume share of agricultural product export and increase the industrial product. This structural transformation will have impact on improve the country export earnings and as well as increase the volume. Beside its main objective, the imperial government wanted to increase the share of manufacture production export. To achieve this pane the imperial government has been made incentive like profit tax, export licensing simplification and tax holy day and developed chambers of commerce. The imperil
government continue working on second five year plans and further decline the percentage more agriculture product share of export in last five years plan (1969-74).

The plans resolute showed the succeed result that is, the expected result have reaches from 86 percent of share to 75 percent in 1973.

2.2.2 The military regime in Ethiopia
After down fall of the imperil government and the military government come to power in 19974. Like imperil government the military government also has been introducing different strategy policy that would have a positive impact contribution of improve Ethiopia export performance. The military government ten year plan was run from the year 1974 to 94, the main objective of the military government was transfer the country economy system “oriented export to diversify the existed export structure toward of the manufactured product”. To achieve the ten years plan objective, the military governments have used favorable tax, tariff reduction, and foreign exchange rate measure improving export in term of quantity were the military government tools for promotion of export. In addition to this the military government allows to involve different institution such as chamber of commerce for encourages the export of manufactured product and promote export trade (the military government trade strategy, 1978)

2.2.3 The EPDRF Regime in Ethiopia
The country for the seventeen years has been ruled by command economic system. However, The EPDRF transitional government to come up power its change the country economic system from command economy to free market principle by implement difference policy. The first home work of the EPDRF transitional government was changing these systems to sector to privation.

EPDRF government the major policy measurements for promote export sectors.

- Devaluation of Ethiopia currency from the 2.07 US dollar to 5.0 US dollar which the objective to promote the volume of export.
- transfer the country economy system from state owned to market based economy
- Change the administration process, such as customs duty service facilities, the tax holy day. For instance the maximum tariff rate on import has gone down from 230 percent to 40 percent.
In year 1998 the export promotion agency was establish for the purpose to promotion the country export and facility of export

To reduce a lot of stage of export and import licensing system were simplified and transparent.

2.4 The country major product

2.4.1 Coffee
Even though the country export of coffee compare with others world leading coffee country such as Colombia, Brazil and Vietnam is low. The country has a capacity to produce per year around 300,000 tons. From the country land coffee production covers around 400,000 hectares. However, only less than 4 percent of estimated 12.5 million hector of highly suitable land is covered by coffee production. (EIG, 2007)

Time to time the quality and quantity of the coffee production has showing dramatically improvement. For instance in the year 2006/07 have reached the highest 180,000 tons. The empirical research which is working in this sector suggested for more impartment the country coffee export though by area expansion, productive improvement and though further processing (IBDE, 2007).

2.4.2 Pulses and oilseeds
Pluses and oilseed is the second export commodity in Ethiopia. In the year 2006/07 the country have gain 188 million USD from this product. However, still the production and export are very few compare with the country capacity production. The country has the best weather condition that helps for production such product. Since oilseed production in the country is usually undertaken without the use of pesticide and fertilizers, the product can be sold with organic labeling at paramecium. (EIG; 2007)

2.4.3 Livestock and livestock product
From the Africa continents Ethiopia has the largest livestock population. It is estimate that there are about 35 million heads of cattle, 11 million sheep, 10 million goats and 1 million camels. ``Empirical research showed that country has capacity to export 10 to 18 million pieces of hides and skin per year from abundant resource of livestock``. In the year 2007 in the country was around 19 tanneries company. Those company primaries targets are to change direct livestock product to semi processed product for export availability.
Table 2.1 Average annual growth rate of major export, (%)

<table>
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<tr>
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<tbody>
<tr>
<td>coffee</td>
<td>2.51</td>
<td>7.01</td>
<td>10.18</td>
<td>6.59</td>
</tr>
<tr>
<td>Oilseed and pluses</td>
<td>9.1</td>
<td>5.6</td>
<td>14.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Hides and skin</td>
<td>13.1</td>
<td>2.4</td>
<td>221.0</td>
<td>59.4</td>
</tr>
<tr>
<td>Chat *</td>
<td>0.8</td>
<td>69.8</td>
<td>122.3</td>
<td>59.1</td>
</tr>
<tr>
<td>Total of export</td>
<td>8.2</td>
<td>4.7</td>
<td>22.5</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Source: Owen calculation and various annul abstract NBE, (% annual growth rate of major export. Chat * is the traditional stimulate vegetable that grow in Ethiopia.

Figure 1, Annual growth of the major export, (%), USD

From the year 1974/75 to 1990/91 was the military regimes. As we showed the above graph and table from the period 1980/81 to 1990/91 the growth rate of coffee was 2.51 percent. It was so less percentage growth compares with the ten year annual average growth rate EPDRF regimes 10.18 percent in average year 2000/01 to 2010/11. When come to the country second export product oilseed and hides and skin the country have showed improvement in the EPDRF regimes. During in the military regime a ten year average growth those product was 13.1 percent compare with the ten year average growth of EPDR regimes 221 percent in the year 1980/81 to 1990/91 and 2000/01 to 2010/11 respectively.
The others the two the country product export (Oilseed and pluses and “chat”) also have showed the change in the EPDRF regimes. Oilseed and plus growth up from average ten year parentage growth 69.8 to 122.3 in military regimes and the EPDRF regimes respectively. Beside this also the “chat” export also showed a growth average growth in EPDRF regimes

2.5 Commodities share of export
The Ethiopia export depends on very few primary products. The contribution of the non agricultural product export almost zero. In the following table the paper has try show the share of major primary product to export and its average growth during the study periods.

Table 2.2 Commodities structure of export (% of total share export)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>54.80</td>
<td>60.53</td>
<td>55.06</td>
</tr>
<tr>
<td>Oilseed</td>
<td>9.5</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Hides &amp; skin</td>
<td>10.93</td>
<td>10.8</td>
<td>11.76</td>
</tr>
<tr>
<td>Chat</td>
<td>2.3</td>
<td>2.5</td>
<td>9.26</td>
</tr>
<tr>
<td>pluses</td>
<td>8.26</td>
<td>6.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Others</td>
<td>13.8</td>
<td>15.76</td>
<td>15.73</td>
</tr>
</tbody>
</table>

Source: compete based on the NBE data various abstract
Ethiopia has depend on export very few primary product, as we can seen the above chart and table the major export are coffee, oilseed, hides and skin, ```chat``` and pluses. Coffee still has taken the dominance of the country export than others commodities. The volume of coffee share export time to time showed increase. For instance during in the military regimes government period thought the ten year (1980/81 to 1990/91) average share of coffee was 54.80 percent. The share of export of coffee continues increase during the EPDRF regimes, from the year 2000/01 to 2010/1 its share on average growth 60.53 percent.

The hides and skin is taken the second share of the country export. Thought the ten year from 1980/81 to 1990/91 share of hides and skin export was on average 10.93 percent. It has been showed a little bit decrease its product share export in EPDRF regimes. From the year 2000/01 to 2010/11 on the average the share of hides and skin product was 10.83 percent. Thought the ten year (1980/81 to 1990/91) the share of average export oilseed, chat and plus were 3.1 percent, 2.5 % and 8.26 percent respectively. While, those product shares of export during EPDRF regimes were almost the same as the previous regimes.

The following figure 2, trend of export and GDP (in USD value)

Source: WB database
Figure 3. The trend export import growth rate (% GDP)

The following figure 3 the veridical line represent the USD value of Ethiopia export and import and the horizontal line represent year

**USD**

![Graph showing export and import growth rate](image)

**Source:** WB database

As we shown from the graph 2, the growth rate of export trend over the growth rate of domestic product. The country receipt from export revenue was very essential to cover the import bill. The trend of export growth from the year 1981 to 1984 almost the same after that it has showed increase from the year 1985 to 1992. It has been counties increase until 2004. However, from the year 1980/81 to 2004 showed growth, it was not growth compare with the year 2004 to 2010; during this period the growth of the export showed dramatically increase. Due to the country export showed dramatically increase after the year 2004 the country domestic product also showed growth fast.

The graph 3, show the trend of export growth and import. During the past thirty years from the year 1980/81-2010/11 proceeds from export covered more 9.0 percent of import bill. From the graph shown the import growth over export due to the country depend on very few primary product exports and import many industrially product. However, export volume time to time showed improvement. Still, there has a trade deficit between the export revenue and import. More over the time series trend of the export annual growth was more than the GDP growth rate.
Chapter three

3.1 LITERATURE REVIEW

3.2 Introduction
In this chapter the paper will present the different international trade theories thought like Mercantilist, Adam Smith, Early Classical School of philosopher David Ricardo, H-O model of International trade theory and Neoclassical Trade Theory. Secondly, it presents the theoretical framework about the long run effect of export volatility and output growth. Finally, it deals about the empirical evidence.

3.3 International Trade Theories

3.3.1 Mercantilism,
One of the events has occurred at end of the seventeenth century is that Mercantilism ancient trade thought existing in the world. ```commercial revolution``` argument trade was one of typical explanation of mercantilism trade thought. According to mercantilist, the concept of the commercial revelation means the way of transformation, that transform the market characteristic from local economic to national economic, from feudalism to capitalism and from small scale trade to large scale trade. The philosophers of mercantilism they strongly suggest that if a country will gain from the international trade by, will promote the export performance and limited import. This would have a positive gain for country gain thought trade. An accumulation precious metal (i. e gold) was the main central idea of the mercantilism thought (Ajami, 2006)

According to Mercantilism’s trade theory thought if a country want enjoin a positive trade balance or increase wealth and will its export over import. This positive trade balance will increase the money supply which will reduce unemployment. ```Adam Smith's views of trade as positive sum game in which all trade partners can benefit. However, in the case of mercantilist trade theory view trade as zero sum game in which trade surplus of one country is offset by a trade deficit of another country```. (Heckscher, 1987)

The argument of mercantilism theories of international trade i.e. ```commercial revolution``` commuted some basic fallacies. First, the philosopher of mercantilism they have believed that a nation gain of trade only measured by accumulation wealth, i. e gold. This would have not have effect on increase production and consumption. Second is, all classical and neo-classical economic school they believed that the gain of trade by
efficiency and specialization. However, in case of mercantilism thought they did not rather, they were emphasizes a nation power will come by rise the volume of export and limited restriction import. Third, “they have focused on the overall goal of system that means maximize wealth from sale export. This is the big failure theory trade since all nations cannot maximize export”. (Ajami, 2006)

3.3.2 Adam Smith,
The Scottish earlier father of economic Adam Smith in his “wealth of nation book” state that absolute advantage of the free international trade. Smith, international trade theory thought completely differs from the mercantilism thought of international trade. According to him international trade is based on absolute advance a country only produce a goods their most efficient product while Importing goods from abroad where they can be produced more efficiently is better as it allows the importing country to focus on production of other goods that can itself be produced efficiently. In addition to absolute advance the cause trade smith have suggested the technology difference as the reason of trade between the importer and exporter (Ajami, 2006),

3.3.3 David Ricardo,
Book entitled “Principle of Political Economy and Taxation in 1819” presents the law of comparative advantage of international trade theory developer’s by one of early classical economist David Ricardo. He was suggests that the mechanism of a two country gain mutual benefit from international trade though absolute disadvantage. If a one country is less efficient than other nations in the production of both commodities even if there is still a basis for mutually beneficial trade. Assumption of David Ricardo was only the factor of production is labor and a country gain through trade by comparative advantage’. (Meier, 1998)

3.3.4 H-O theory for international trade,
David Ricardo, in his comparative advantage of trade theory, did not give the answer as to how pattern of foreign trade can be determined. This was the failures the David Ricardo comparative advantage trade theory. The answer was provided by two Neoclassical Swedish economists, Heckscher (1919) and Ohlin (1933). They focused on “factor endowments” variability as the source of international trade (Harvat, 1999)

The following are the crucial assumptions of HO theory:

- “There are only two factors of production i.e. labor and capital.
• There are only two countries and two different factors of endowment (the one is capital endowment rich country and the other is labor endowment rich country).
• Labor and capital are perfectly mobile.
• The production of two commodities have different factor intensities but at a common factor price.
• There is a perfect competition between the goods and the factor market.
• There is no transaction cost.
• Labor and capital are perfectly mobile between firms within the same country.

Based on this crucial assumption, H-O theorem is formulated in the following ways:“Production of the commodity, that uses the relatively abundant factor more intensively, enjoys comparative cost advantage and thus each country will export the commodity for which production is used relatively abundant factor more intensively ” (Haruat, 1999).

3.4 Theoretical summary of long effect of export volatility on output Growth
According to Macbean definition (1966) ``export instability is short term fluctuation in export earning corrected for trend. Some form of trend correction is needed to avoid interpreting a constant year to year increase or decrease as indicating instability``

There are two extremely different points of views that are used to investigate whether or not long-run effects of export volatility has an impact on GDP or economic growth.

3.4.1 A negative relationship between export volatility and economic growth
The first group of economic researchers argued that export instability has a negative impact on the GDP. According to their theoretical and empirical argument, export volatility affects a country economic growth by reducing investment, which plays a big role in forwarding the country’s economy. However, it has been affected by a volatility of the export earnings. An increase in export volatility has direct link results in a decrease in the country's foreign currency reserve. The decrease in foreign exchange reserve would have negative impact on that country's import of capital goods and services, which is vital for production process. A decrease in import of capital goods means a decline in country's capital formation. This will have a reduction effect on the investment of that country. The decline in investment will bring about a decrease in the national income of the country. In this channel the export volatility affects the GDP growth (Mcbean, 1966).
The second ways that export volatility is affect the GDP growth is by reducing the government’s revenue. When a country generating the export earnings increase, it would have result on the increase the government revenue due to the major part earning revenue goes to government. So the government’s revenue is declined due to the volatility of export earning, thus adversely affecting the implementation of development plan and government expenditure. In fact, volatility in public expenditures reduces the confidence that entrepreneur investment has in the government’s ability to provide the necessary complementary public facilities. Moreover, cause of the entrepreneur earning income from export time to time fluctuation due to export volatility and will affect their decision of consumption and willingness to investment. Overall these direct and indirect channels will have effect on a country GDP Growth (Dachaba, 1975).

3.4.2 A positive relationship between export volatility and output growth.
The second group of economic researchers argued that the long-run effect of export volatility may promote output growth. This argument is called “risk adverse individual theory”. An increase in export earnings volatility of a country will increase uncertainty about the future income of the entrepreneurs. When entrepreneur or investor will not get certainty about future due to of export volatility instead going export their items they will decrease it's and increase their saving. The saving amount will have impact on increase availability demand increase.

In general, those economic researchers believe in the positive impact that the long-run effect of export volatility has on GDP growth. They have also contended that greater uncertainty about the future income is fostered by higher export instability and that may actually stimulate growth by increasing savings, and hence investment through the precautionary demand motive (Fosu, 1992).

3.5 Empirical Literature
Regarding of the nature and the extent of the impact of the export volatility on economic growth a number of the empirical studies have been conducted by senior research economists. Researchers differed from each other in their methodological approaches, coverage periods and selection of country samples.

3.5.1 James Love (1989)’s finding indicated a mixed the result.
James Love, a senior research economist, conducted studies on topic entitled “Export instability and recurrent and development expenditure” in 1989.
He had been choosing fifteen developing countries for his study. Out of his choose fifteen sampling countries, the following countries have showed a negative relationship between export instability and economic growth; Brazil, Chile, Costa Rica, Dominican Republic, El Salvador, Mexico, Portugal, Peru, and Sri Lanka. In the rest others countries i.e. Argentina, Botswana, Ghana, Colombia, Kenya and Uruguay, studies showed that there is a weak relationship between export instability and economic growth.

James Love has arranged his country samples into three groups based on statistical significance at level of 5%, 1% and 10% and his expected sign/relationship (negative or positive). First group of countries, Brazil, Chile, Costa Rica, El Salvador, Mexico, Portugal and Sri Lanka, both the government revenue that generated from export and capital expenditure have showed statistically significant to the export instability. From in this finding he was concluded that export volatility has a negative impact on economic growth in those countries.

According to him, due to export volatility an entrepreneur or firm the production process will not certain amount of output and plan.

The second group of his sampling countries, Colombia, Dominican Republic and Peru, export instability and government recurrent were positively related. In the third group countries like Botswana, Ghana and Kenya, none of them exhibited a statistically significant relationship of export instability and government capital expenditures.

LDCs are to anticipate fluctuation in export earnings and plan for such fluctuation; hence instability in export earning has no appreciable effect on economic growth.

3.5.2 Dipendra Sinha (1999)’s studies for nine Asian countries
In 1999 the Asian economists Sinha have conducted a research in the area of the study export instability and economic growth in nine Asian countries by using time series data. One of the main drawbacks of the two former economist research James Love peter they did not cheeked their time series data during their investigation between export volatility. But Sinha study differs at least three ways from previous work James Love and Peter Wilson. First, he has cheeked stationary and co-integrates test his time serious data. Secondly, his study covered a long period of time than any other of his previous studies. Thirdly, he has took export variable of goods and services.
The following sample countries are considered by his study, India (1950-1994), Japan (1955-1996), South Korea (1953-1997), Malaysia (1955-1997), Myanmar (1950-1997), Pakistan (1960-1997), Philippine (1948-1997), Sri lank (1950-1997) and Thailand (1957-1997). The result was mixed among the countries for India, the results are mixed. The study finds have showed negative relationship between export instability and economic growth in Japan, Malaysia, Philippines and Sri Lanka. For Korea, Myanmar, Pakistan and Thailand, a positive relationship between the two variables is found.

3.5.3 Gyimah-Brempong Kwabena (University of Chicago)
In the title `the impact of export instability on economic growth in 34 sub Saharan African countries` research have done by Gyimah Brempong. His data cover from the year 1960 to 1986 in.

Gyimah research differed from others pervious study on export volatility and economic growth first his sample of countries were highly open and most of them are highly dependent on export of very few primary agricultural products. However, those countries imported capital goods. The result of those counties depends on very few product and import high capital goods they have a foreign currency in sample countries. Secondly, all Sub-Saharan countries have the similar economic structures: that is a low per capita income, highly dependent on export of agricultural products, and infant industries.

Gyimah-Brempong used the following variables: real growth rate of GNPs, growth rate of capital, growth rate of the labor force and index of export instability. Therefore, sample countries are different in the size of the economy. In Brempong work the capital variable represent the ratio of investment. Before he was regressed his data by the Ordinary Least Squares (OLS) econometric model analysis, he was set the hypothesis all variables result sign is positive. The empirical result of Gyimah showed just like his set hypothesis all coefficients independent variables were positive signs. The export variable had positive sign and significant at alpha 0.1 and this indicated that economic growth in Sub-Saharan Africa is strongly and positively influenced by the export growth.

In addition to that, both population growth and capital stock have positive coefficients which are significantly different from zero at $\alpha$ 0.05 level of significance. Finally, the main objective of his study result the coefficient of the export instability on the
economic growth is negatively and significantly different from zero at 0.1 level of significance.

3.5.4. Augustin Kwasi Fosu
In 1992, Augustin Fosu had conduct the economic research on that research topic titled "effect of export instability on economic growth in Africa ". Even though others economics research had been worked on issue his studied a topic conducted by other economics researchers, he established some reasons why continues working on this area. One thing is his study had sample sizes and periods that differed from previous studies. Fosu had set two same hypotheses: i) Export instability (EI) reduces productive efficiency by creating uncertainty in the supply of foreign exchange required for capital input in a timely fashion; ii) Export instability discourages capital formation and thus it discourages output.

The following main variables considered in study; labor, capital and export that have that a positive influence on output growth. Among thirty-five African countries thirty were selected from sub-Saharan countries. His data coverage was from the 1970 to 1986. For each country, growth of output, labor force and export are measured as main annual percentage growth rates of GDP. Capital growth is represented by average annual gross fixed capital formation as a percentage of GDP.

His econometric regression results were generally similar to those for African LDC as a whole. The export variables showed positive and highly significant coefficients. The main focus of his study shows that export instability is negatively related though it is not statistically significant.

"using transistor index approach" two economists Knudsen and Parners has been done research on export volatility and economic growth in 1975., they have taken average data from the twenty eight developing countries. The empirical result showed there is negative relationship between marginal propensity to consume out of permanent income and export instability. similarly, others two economist; Yotopoulos and Nugent in the year 1976 found the export volatility would result boot saving from sampling thirty eight sampling counties. However, Moran (1983) and Mullor-Sebastian (1988) did not find conclusive evidence that export instability has significant effect on economic growth. They found that result is very sensitive to the period under consideration and the level of development of the countries.
Chapter four

4.1 ECONOMETRICS ANALYSIS

4.2 Introduction
This chapter will answer the basic key the research questions. The study has followed three basic steps. First, it tests with stationary variables, and then it performs co-integration test if variables are non-stationary in their levels and stationary in the first difference. Thirdly, OLS is used to regression the model and estimate the relationship between the long-run effects of export volatility.

To address the key research question there is different possible way of methodology and data analysis. However this study has been decided follows the famous economist researcher Augustin methodology’s (1992). He had been used extend Cobb-Douglas production model by inserting the export variable as the thirds input with labor and capital (L; K). There are many ways of measuring the export instability variable. Due to of the Ethiopia export volume and values fluctuation in the different the country regimes the study will use the five years central moving average index to investigate the export earning instability. This methodology has been very famous medicine to solve the research problem related to relationship between export instability and economic for instance Dawe (1996), Ram (1987), Sinha (1999) were used to solve their key research question related to relationship between export instability and economic growth. This study has been used the 30 years time series data (1981 -2011) that consist of gross national income, export of goods and services, the working labor input, and the stock of the capital. This study is use the Cobb-Daggles production model

4.3 The data and Methodology

4.3.1. Data
The following variables time series data (1981-2011) were collected;

- gross domestic product (GDP)
- Export of good and service (X)
- Stock of capital (K)
- Population growth (working force 15-64) (L)
Table 4.1 Summary statistics of the data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnXT</td>
<td>20.5642</td>
<td>20.2898</td>
<td>19.7448</td>
<td>21.8336</td>
</tr>
<tr>
<td>lnGDP</td>
<td>22.7912</td>
<td>22.7156</td>
<td>22.3029</td>
<td>23.7002</td>
</tr>
<tr>
<td>lnWP</td>
<td>17.2153</td>
<td>17.2182</td>
<td>16.7646</td>
<td>17.6719</td>
</tr>
<tr>
<td>lnXI</td>
<td>18.8195</td>
<td>18.6447</td>
<td>15.7938</td>
<td>22.1634</td>
</tr>
<tr>
<td>lnK</td>
<td>21.2441</td>
<td>21.2166</td>
<td>20.4476</td>
<td>22.2666</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Std. Dev</th>
<th>C.V.</th>
<th>Skewness</th>
<th>Ex. kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnXT</td>
<td>0.630256</td>
<td>0.0306482</td>
<td>0.621013</td>
<td>-1.10560</td>
</tr>
<tr>
<td>lnGDP</td>
<td>0.406935</td>
<td>0.0178549</td>
<td>0.869617</td>
<td>-0.399233</td>
</tr>
<tr>
<td>lnWP</td>
<td>0.270659</td>
<td>0.0157221</td>
<td>0.00390419</td>
<td>-1.14661</td>
</tr>
<tr>
<td>lnXI</td>
<td>1.55240</td>
<td>0.0824887</td>
<td>0.369444</td>
<td>0.0381992</td>
</tr>
<tr>
<td>lnK</td>
<td>0.497289</td>
<td>0.0234084</td>
<td>0.645346</td>
<td>-0.449743</td>
</tr>
</tbody>
</table>

Figure 4.1 trends of the export volatility and GDP (in the USD value)

Vertical line represents the GDP and Export instability index in USD value and the horizontal line represent the year.

USD ($)

Source: World Bank data source and own calculation
The main source of this time series data collected from,

- World bank database
- National bank of Ethiopia; various annual bulletin
- Ministry of finance and economic development; survey of Ethiopia economic
- Ethiopia custom Authority; annual export
- United nation; year book of international statistics
- International coffee origination

4.3.2 Methodology

To address my key research problem there is different possible way of methodology. However, this study has been decided flow the famous economic researcher Fosu methodology’s that is the extend Cobb-Douglas production model by inserting the export variable as the third input variable with labor and capital \((L; K)\). The export variable in my study divided into two i.e total volume of goods and services and export instability index.

4.3.3 Cobb-Douglas Model

\[
Y = AL^\delta K^{1-\delta} \quad \text{where,} \quad 0 < \delta < 0
\]

L is labor input that is total number of person hours worked in a year

K is capital input that is the monetary worth of all machinery, equipment and building

A is total factor productivity

\(\delta\) is the output elasticity of labor

1-\(\delta\) is the output elasticity of capital

1-\(\delta\) + \(\delta\) = 1, CR scale

4.3.4 Extend of the Cobb-Douglas production model

\[
Y = f (L, K, X)\]

Where, \(Y\) is the aggregate output, \(K, L;\) are conventional labor and capital input

\(X;\) - export of good and service
To expressing the above equation 1 Cobb-Douglas production model in log form the following equation can get,

\[ \ln Y = \beta_1 \ln L + \beta_2 \ln K + \beta_3 \ln TX + \beta_4 \ln XI \] 

Thus by adding the constant term \( \beta_0 \) and \( U_t \) stochastic error term in equation 2, we can get the final extend Cobb-Douglas model:

\[ \ln Y = \beta_0 + \beta_1 \ln L + \beta_2 \ln K + \beta_3 \ln TX + \beta_4 \ln XI + U_t \]

Where, \( \beta \) the coefficient of the variables

\( \ln Y \) is the natural logarithm of GDP.

\( \ln L \) is the natural logarithm of labor force which 15-64 age groups

\( \ln K \) is the natural logarithm of the stock of capital

\( \ln TX \) is natural logarithm of the total export of goods and services

\( \ln XI \) is natural logarithm of an export instability of goods and services

4.4 Instability Index

According to James Love (1986), export earning instability is “defined in terms of deviations from trend and a number of indices have been developed which typically have been sample estimates of the variance of such deviations. In addition, a number of different trends such as linear, exponential and moving average have been employed”.

For calculating export volatility index we can use different index measurement, the most popular measuring are, international monitory fund (INM) index, semi long standard error (SSE) index, normalized standard error index (NSE) index, and five year moving average (FMA) index. The paper prefer to use the five year moving average for calculating export volatility in Ethiopia due to thought the thirty year time series data fluctuation in highly.
The instability indeed used this there is similar to:

\[ I_t = |X_t - X_{5j}| \quad \text{Five year moving average index} \]

Where; \( X_{5j} = \frac{1}{5} \sum_{j=t-4}^{t} x_j \)

\( I_t \) is the export earning instability in year \( t \) and \( X_{5j} \) is the five year based moving average.

### 4.5 Analysis and estimation

First requires thing is to evaluate unit root test for each variable whether the variables are stationary or not. For testing the stationary test there is two famous methodology, i.e. Augment DF test and Peter Walison test. Dickey and Fuller is widely used to testing the stationary (1979; 81). The DF approach to testing the null hypothesis that the series does contain a unit root that is non-stationary against the alternative of stationary is discussed as study based ADF (augment DF test) statistics.

Table 4.2 Thus the augmented dickey and fuller test have three models as flows;

\[
\Delta X_t = r X_{t-1} + \sum \beta_i \Delta X_{t-1} + \varepsilon_t \quad \text{1, without constant}
\]

\[
\Delta X_t = \alpha + r X_{t-1} + \sum \beta_i \Delta X_{t-1} + \varepsilon_t \quad \text{2, with constant}
\]

\[
\Delta X_t = \alpha + \beta_t + r X_{t-1} + \sum \beta_i \Delta X_{t-1} + \varepsilon_t \quad \text{3, with constant and trend}
\]

Where, \( \Delta \) is the difference operation, \( t \) is the time and \( r \) is the number of lag variables and \( \alpha \)'s are the Constance parameter.

As we can shown the above table 4.2 there is three way of calculating the stationery test. The first equation represents ADF stationary test mechanism without constant. Second equation showed how calculating the stationery with constant. The thirds equation is shown how calculating stationary by with constant and trend.

ADF there is three criteria of the test of stationary, first from table 4.1 equation (1), let saying \( H_0 = 0 \) (non-stationary or unit root) versus alternative \( H_1 <1 \) (stationary) using the ADF criteria the t table value less than t-critical value or the significance of the p value is less than 5 % If the \( H_0 \) is not accept means it is conclude that \( X_t \) is I(1) with trend and constant. When test stationary by using the second with constant (\( H_0 = 0 \)
(non-stationary or unit root) versus $H_1 < 1$ (stationary), using the ADF criteria value. If the $H_0$ is not accept means it is conclude that $X_t$ is I(1) with constant. Generally, in the first equation criteria of ADF is $H_0 = 0$ (non-stationary or unit root) versus $H_1 < 1$ (stationary) using the ADF criteria value. If the $H_0$ is not accepting means it is conclude that $X_t$ is I(1) without trend and constant.

### 4.6 Empirical analysis

The resulted of the where the time variable of the data stationary or not given by the below table tested by the Augment Dickey- fuller test (ADF) unit root test.

Hypothesis is, $H_0 = \text{is non-stationary or unit root}$

$H_1 = \text{otherwise reject } H_0 \text{ accept } H_1 \text{ stationary}$

**Table 4.3 ADF unit root test for stationary on the variables level without difference**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Without Drift &amp; trend</th>
<th>With drift</th>
<th>With drift &amp; trend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max lag 4</td>
<td>Max lag 4</td>
<td>Max lag 4</td>
</tr>
<tr>
<td>lngdp</td>
<td>0.0014</td>
<td>0.1326</td>
<td>0.0801</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>1.7893</td>
<td>2.34778</td>
<td>0.65455</td>
</tr>
<tr>
<td>P value</td>
<td>0.9828</td>
<td>1.0000</td>
<td>0.9996</td>
</tr>
<tr>
<td>lnKt</td>
<td>0.0024</td>
<td>-0.0154</td>
<td>-0.2466</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>1.5015</td>
<td>-0.2102</td>
<td>-1.8917</td>
</tr>
<tr>
<td>P value</td>
<td>0.9639</td>
<td>0.9268</td>
<td>0.6338</td>
</tr>
<tr>
<td>lnL_t</td>
<td>0.0005</td>
<td>0.0001</td>
<td>-0.0430</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>1.3478</td>
<td>0.5495</td>
<td>-4.3139</td>
</tr>
<tr>
<td>P value</td>
<td>0.9558</td>
<td>0.9884</td>
<td>0.0029</td>
</tr>
<tr>
<td>lnTX_t</td>
<td>0.0030</td>
<td>0.0373</td>
<td>-0.1401</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>2.4710</td>
<td>0.8620</td>
<td>-1.4804</td>
</tr>
<tr>
<td>P value</td>
<td>0.9956</td>
<td>0.9935</td>
<td>0.8140</td>
</tr>
<tr>
<td>lnXI_t</td>
<td>-0.0034</td>
<td>-0.6385</td>
<td>-1.6936</td>
</tr>
<tr>
<td>Critical 5%</td>
<td>-0.2151</td>
<td>-3.8216</td>
<td>-4.2496</td>
</tr>
<tr>
<td>P-value</td>
<td>0.6090</td>
<td>0.0070</td>
<td>0.0036</td>
</tr>
<tr>
<td>Variables</td>
<td>ADF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-----</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Without Drift &amp; trend</td>
<td>With drift</td>
<td>With drift &amp; trend</td>
</tr>
<tr>
<td></td>
<td>Max lag</td>
<td>4</td>
<td>Max lag</td>
</tr>
<tr>
<td>Δ gdp_t</td>
<td>-0.2265</td>
<td>-0.5902</td>
<td>-1.5367</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>-1.0624</td>
<td>-2.0344</td>
<td>-3.6388</td>
</tr>
<tr>
<td>P value</td>
<td>0.02608</td>
<td>0.2721</td>
<td>-3.6388</td>
</tr>
<tr>
<td>ΔlnK_t</td>
<td>-1.1406</td>
<td>-1.2290</td>
<td>-1.2664</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>-6.0943</td>
<td>-6.5619</td>
<td>-6.6867</td>
</tr>
<tr>
<td>P value</td>
<td>0.0002</td>
<td>0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>ΔlnL_t</td>
<td>-0.5954</td>
<td>-0.0178</td>
<td>-0.5964</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>-3.8227</td>
<td>-3.7396</td>
<td>-3.6481</td>
</tr>
<tr>
<td>P value</td>
<td>0.0001</td>
<td>0.0036</td>
<td>0.0259</td>
</tr>
<tr>
<td>ΔlnTXt</td>
<td>-0.5104</td>
<td>-1.0072</td>
<td>1.0833</td>
</tr>
<tr>
<td>Critical t 5%</td>
<td>-1.6286</td>
<td>-5.2196</td>
<td>-5.5347</td>
</tr>
<tr>
<td>P value</td>
<td>0.0976</td>
<td>0.0001</td>
<td>0.0005</td>
</tr>
<tr>
<td>ΔlnTI_t</td>
<td>-1.3597</td>
<td>-1.3601</td>
<td>-1.3801</td>
</tr>
<tr>
<td>Critical 5%</td>
<td>-7.8382</td>
<td>-7.6893</td>
<td>-7.62874</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0001</td>
<td>0.0006</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

### 4.7 Engle and Granger Co-integration test

For testing co-integration test most commonly by economic research have used Engle Granger and Johansen methods. The concept of co-integrated means, if the variable without drift non-stationary and will it’s become stationary at first difference. We can saying called integral order I (1). We can continue doing the difference second, thirds and d difference until the time series data stationary. Generally, “if a non-stationary time series has to be difference d time to make it stationary that time series is called to be integrated order d”.(Gujarat, 2004)

The Engle Granger defined as flow, “A vector of I (1) variable Yt is said to be co-integrated if there is exist at vector βi such that βyt is trend stationary. If there exist T such liner independent vector βi= i, 1,2,...T, then Yt is said to be co-integrated with co-integrated rank T. the matrix β, (β1,......βr) Gujarati sates the following four basic nature of co-integrated, Assume the variables GDPt and TXt and XIt four time series , where TX is total export and XI is volatility of export.
1. "If GDP_t ~ I(0) and TX_t ~ I(1) and then X_t = GDP_t + XT_t = I(1), that is a linear combination the non-stationary and stationary time series is non-stationary
2. If GDP_t ~ I(d), then X_t = \partial + b GDP_t = I(d), this is a linear combination of an I(d) series is also I(d). Therefore, if GDP_t ~ I(0), then X_t = (\partial + b GDP_t) ~ I(0)
3. If GDP_t ~ I(d_1) and TX_t = I(d_2), then X_t = (a GDP_t + b TX_t) ~ I(d_2), where d_1 < d_2
4. If GDP_t ~ I(d) and TX_t ~ I(d), then X_t = (a GDP_t + b TX_t) ~ I(d^*), d^* is general equals to d

Dickey-Fuller test could be performed on the residuals to determine their order of integration. Consider the following auto-regression of the residuals

\[ \Delta \hat{e}_t = \partial \hat{e}_{t-1} + \varepsilon_t \] Dickey fuller residual sum square

Where the \( \hat{e}_t \) sequence in a residual from the regression equation,

There is no need to include the intercept term. If the residual the same squares the t-value less than the critical value or the value of p value less than 5% level of significant paper can reject the null hypothesis \( \partial_1 = 0 \), and accept the alternative \( H_1 \). The result of this conclusion is variables are not co-integral. That means there are the long run equilibrium relationships among the variables

**4.8 Co-integral test result analysis**

**Table 4.5: EG co-integral residuals test result**

<table>
<thead>
<tr>
<th>Test statistic residuals</th>
<th>t-value</th>
<th>5% critical value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urhat, ( \hat{e}_t )</td>
<td>-1.1842</td>
<td>-4.6638**</td>
<td>0.0090*</td>
</tr>
</tbody>
</table>

The residual is stationary at 5% & critical value and p value

GDP, the volume of total export, the instability of the export index, capital stock, and the labor force were non-stationary (unit root). However, those variables were stationary at first difference form. Table 4.3 shows that the ADF test conducted on all the variables become non-stationary in levels. However, table 4.4 shows that all variables become stationary at the first difference. Thus it can be concluded from the result that all variables become stationary at 5% level of significance at first difference with the
assumption of without deterministic trend and drift and they are called I(1). To sum up, hypothesis of non-stationary can be rejected and accept the H₁.

The next step is the paper going to test whether have long run equilibrium relationship among variables or not by using the EG co-integrality test mechanism. The study used Engle-Granger (EG) approach to perform the co-integration test and it was found that the stationary model in the first difference residual is stationary using Augmented Dickey Fuller test (ADF) at 5 % critical value level of significance which as shown in table 4.3. The fact that the residual is stationary implies that the variables are co-integrated if there exist a long-run equilibrium relationship among the variables of the model.

4.9 Regression analysis

\[ \ln LRGDP = \beta_0 + \beta_1 \ln L + \beta_2 \ln K + \beta_3 \ln TX + \beta_4 \ln XI + U_t \]

Table 4.6 result of the coefficient

<table>
<thead>
<tr>
<th></th>
<th>lnL</th>
<th>lnK</th>
<th>lnTX</th>
<th>lnXI</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-coefficient</td>
<td>0.7638</td>
<td>0.5122</td>
<td>0.0779</td>
<td>-0.0188</td>
</tr>
<tr>
<td>p-value</td>
<td>0.0853*</td>
<td>0.00001</td>
<td>0.2753</td>
<td>0.0853*</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.999990</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj.R-square</td>
<td>0.999989</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob &gt; F</td>
<td>8.25e-65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and services were insignificant. However, this affected the total output growth by it has positively impact on output growth. Its coefficient value of export is (0.0779).

According to Neoclassical theory, the results of labor and capital of production are expected to have signs of non-negatives. Neoclassical theory argues that these two factors (L and K) have positively impact on output growth due to its crucial benefit contribution of forwarding GDP by creating efficiency. My empirical analysis lies with this theory which states that both factors i.e. labor and capital showed a statistically positive effect on the output growth at 5 % and 1 % level of significance. That means labor and capital stock have significant effect on the long-run output growth in Ethiopia.

Regarding to export led economic growth hypothesis most empirical economic research supports the premise. However, others economic research opposed the hypothesis. Still, there no consensus on among a researcher on the issue. For instance popular economists, Karonis (1984) and Ram (1985) finding had showed export positively impact on output growth. Other economists, Tung and Marshal (1985) did not find much support from the export-led economic growth hypothesis. The above my regression result has showed that the export variable has a positive coefficient (value 0.0779), and from this it can be concluded that export has a positive impact on output growth in case of Ethiopia.

To know whether the export volatility has an impact on the economic growth, there are two extreme views points. The first group of economic researchers suggests that export instability has a negative impact on the economic growth. According to their empirical argument, export volatility affects a country economic growth by reducing investment, which plays a big role in forwarding the country’s economy. An increase in export volatility has direct link results in a decrease in the country’s foreign currency reserve. The decrease in foreign exchange reserve would have impact on that country's import of capital goods and services, which is vital for production process. A decrease in import of capital goods means a decline in country’s capital formation. This will have a reduction effect on the investment of that country. The decline in investment will bring about a decrease in the national income of the country. In this channel the export volatility affects the GDP growth.
The second group of economic researchers argued that export instability has a positive impact on economic growth. This argument is called “risk adverse individual theory”. An increase in export earnings volatility of a country will increase uncertainty about the future income of the entrepreneurs. When entrepreneur or investor will not get certainty about future due to of export volatility instead going export their items they will decrease it’s and increase their saving. The saving amount will have impact on increase availability demand increase.

My study about effect of export instability on output growth or GDP lies with the first group of economic researchers. That means export volatility has a negative effect on output grow thin case of Ethiopia. It is witnessed by the econometric regression result, as we can show table 4.9 export volatility variables has negatively sign coefficient (-0.0188) and statistically significant at 1% level of significance.
Chapter Five

5.1 Summary and Conclusion

A number of empirical studies have been conducted to investigate the nature and effect of export vitality on long-run economic growth. Economics researcher regarding to the relationship between export instability and economic growth they have gotten mixed results. Findings of some senior economic researchers showed that there is positive relationship between export volatility and economic growth. And the second groups of researcher their findings have showed that there is negative relationship between instability and output growth. A few research findings showed that there is no relationship between the export instability and output growth. There is still no consensus whether or not the export instability has an effect on the long-run output growth. The objective of the study this thesis was to test the validity of this problem, that is, to test whether export instability has a significant impact or not on the long-run Ethiopian economic growth.

My time series data have showed during stationary test integral order I (1). In addition the test of stationary was not stationary at level. However its stationary at fist difference form. The estimation results of export instability (lnXI), labor (lnL) and total export of goods and services (lnXT) were statistically at 1 % level, 5 % level and 10 % level of significance, respectively. That means they have significant effect on the long-run economic growth of Ethiopia. The stock of capital (lnK) has the negatively affect the country economic growth.

My analysis shows that the country is negatively and statistically significant by export instability. As a first remedial I suggest that the country should be moving from very few primary products and services to more diversified export commodities and services. In addition, the country should also increase its trading partner countries. As a last remedial the country has to export products in which the country has a comparative advantage instead of export traditional items like coffee which has no positive effect on the country long term growth.
**Further study**

The paper recommend for a further study the following a key research question, does an increase the trading partner will help reduce the export volatility?
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